COMPARING HOW EFFECTIVE GENERATIVE AI CAN HELP WITH ON PAGE SEARCH ENGINE OPTIMIZATION AS COMPARED TO HUMAN CONTENT WRITERS

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ABSTRACT

COMPARING HOW EFFECTIVE GENERATIVE AI CAN HELP WITH ON PAGE SEARCH ENGINE OPTIMIZATION AS COMPARED TO HUMAN CONTENT WRITERS

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Master of Digital Media, 2024

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In today's fast-paced digital world, with 5.18 billion internet users worldwide, amounting to 64.6 percent of the global population, businesses recognize the importance of establishing a strong online presence (Petrosyan, 2023). This has led to an increased reliance on search engine optimization (SEO) to reach their target audience.(Stefanov & Atanasova, 2023). However, SEO can be a time-consuming and challenging process, especially for small businesses with limited resources. (Gabbert, 2021). This research aims to compare how Effective Generative AI can help with On Page Search Engine Optimization as compared to Human Content Writers. Ultimately, this minimal viable product aims to dissect and analyze the capabilities of Generative AI when applied to SEO tasks, providing valuable insights into whether Generative AI can surpass human content writers in enhancing website performance and search engine rankings.

Key words: Generative AI, Artificial Intelligence, Search Engine Optimization, AI-driven SEO, Organic Traffic, Keyword Research, Speed of Content Creation, Business, On-Page Optimization, Future of SEO

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INTRODUCTION

Search engines act as the gatekeepers to the massive amount of information available on the internet in the fast-paced digital environment of today (Davis, 2006). High rankings on search engine results pages (SERPs) are crucial for businesses and content producers to draw organic traffic and acquire a competitive edge. Over time, as noted by (Pepper, T. August 12, 2022), the art and science of search engine optimization (SEO) have changed tremendously, with experts now using a variety of tactics to increase website visibility and successfully engage their target audience. A new frontier in content production has just opened as a result of the convergence of Generative Artificial Intelligence (AI) and SEO; this frontier is characterized by AI-generated content that supplements and strengthens human creativity.

Generative AI, a subset of artificial intelligence, empowers machines to produce creative content like text, graphics, and even music using patterns discovered from massive databases (Feuerriegel, Hartmann , Janiesch & Zschech, 2023). This technique makes use of the potential of deep learning models and natural language processing to produce content that resembles human authors in terms of style and tone. Thanks to innovative research and improvements in the field of machine learning, generative AI has made great strides during the past ten years.

A paradigm shift in content production and optimization has resulted from the combination of Generative AI with SEO. AI-generated content has emerged as a potent ally for SEO experts and content writers, enabling them to quickly develop high-quality content that engages readers (Nobile, 2023).

This research aims to compare how effective Generative AI can help with on page search engine optimization as compared to Human Content Writers. Ultimately, this minimal viable product aims to dissect and analyze the capabilities of Generative AI when applied to SEO tasks,

providing valuable insights into whether Generative AI can surpass human content writers in enhancing website performance and search engine rankings.

Objectives

Throughout the process of my research, I will conduct a comparative analysis of the effectiveness of Generative AI in enhancing On-Page Search Engine Optimization (SEO) as opposed to traditional Human Content Writers. I will first delve into the efficiency and scalability of Generative AI compared to Human Content Writers. I will assess the ability of Generative AI and Human Content Writers to ascertain who provides content quickly and consistently, making it suitable for businesses requiring large volumes of content within tight timelines. I will also analyze the cost-effectiveness of using Generative AI versus employing Human Content Writers. I will explore the financial implications of adopting Generative AI, whether Generative AI can reduce labor costs and operational expenses, which can be particularly advantageous for resource-constrained businesses. The research will also investigate the quality and creativity of content produced by both Generative AI and Human Content Writers. Ultimately, I aim to provide a comprehensive comparative analysis of Generative AI and Human Content Writers in the realm of On-Page SEO.

Description

My research paper will focus on comparing and contrasting content provided by Generative AI and Human Content Writers and its overall effect on the online presence of businesses. The first phase of my research paper will involve a literature review of the existing literature on Search Engine Optimization and Generative AI. For the second phase, I aim to design and develop two websites of the same industry hosted live. One website will have all content produced by Generative AI and the other website will have all content produced by

Human Content Writers. Both Generative AI and Human Content writers will provide content for the website with at least 3 main pages and two blog posts pertaining to the chosen industry and provide Meta Tags and descriptions for each of the pages and blogs. Content for both websites will each have a paradata in the form of a blog to record how the content was produced. The third phase of my research will be to analyze which content produced by Generative AI and Human Content Writers had the best quality. I aim to achieve this by getting opinions between course mates, industry people and using an online plagiarism checker. I also aim to use google analytics provided by each website to analyze which website ranked well in google search engine. I will also make recommendations on which content creation method was much more efficient and cost effective.

Contribution

By addressing these key objectives, I seek to contribute valuable insights into the decision-making process for businesses, marketers, and content creators grappling with the evolving landscape of digital marketing. My research will provide a thorough study to determine whether Generative AI can be much more efficient , cost-effective and provide unique quality and creativity that human writers bring. Ultimately, my research will equip decision-makers with a well-rounded perspective, enabling them to make informed choices to bolster their online presence and engage their target audiences more effectively.

LITERATURE REVIEW

Search Engine Optimization Research

In the digital age, the success of online businesses heavily relies on their ability to attract organic traffic from search engines. Search Engine Optimization (SEO), the practice of optimizing websites to rank higher on search engine result pages, plays a pivotal role in this endeavor (Matt, 2017). With the constantly changing algorithms and technological advancements staying updated with the latest SEO research is essential for marketers and businesses alike. SEO involves optimizing various elements on the website to make it more attractive to search engines like Google, Bing, or Yahoo. The goal of SEO is to rank higher in organic search results, which can lead to increased web traffic, brand exposure, and potential customers. SEO is a fundamental aspect of digital marketing, and its significance cannot be overstated (Sial , Khuhro, Kumar, & Oad, 2023). When people search for information, products, or services online, they tend to click on one of the top results that appear on the search engine (Davis, 2006). Websites that rank higher are more likely to receive clicks and visits, providing a competitive edge over others in the same niche (Davis, 2006). By neglecting SEO, businesses risk losing valuable opportunities to connect with their target audience. Today, SEO remains an essential aspect of digital marketing, shaping the online presence and success of businesses across various industries.

History Of Search Engine Optimization (SEO)

The history of Search Engine Optimization can be traced back to 1991 when Tim Berners-Lee launched the world's first website (Pepper, T. August 12, 2022). While the concept of organizing and categorizing information to improve search results existed prior to modern search engines, it wasn't until 1997 that SEO as we know it began to take shape (see Matt, 2017). The roots of SEO can be found in the works of early search engines like Archie and

Gopher, which used basic keyword matching to index files (Seymour et al., 2011). As the internet gained popularity, webmasters realized the importance of ranking higher on search engine results pages (SERPs). This led to the birth of SEO techniques like keyword stuffing and meta tag manipulation. Keyword stuffing is a practice in search engine optimization (SEO) where a webpage's content is overloaded with excessive and often irrelevant keywords, with the aim of manipulating search engine rankings. Meta tag manipulation refers to the practice of altering or optimizing the meta tags within the HTML code of a web page for the purpose of influencing how search engines and social media platforms perceive and display the content. However, these practices were short-lived as search engines evolved to provide more accurate and relevant results. It was the emergence of more sophisticated search engines like WebCrawler and Lycos that spurred the need for website owners to optimize their content for better visibility. (see Matt, 2017). The seminal paper "The Anatomy of a Large-Scale Hypertextual Web Search Engine" by (Brin & Page, 1998). laid the foundation for Google's PageRank algorithm, significantly impacting the SEO landscape. Google's commitment to providing the best user experience led to the introduction of various algorithm updates. (Weideman, 2021). Google Panda, introduced in 2011, aimed to penalize websites with thin or low-quality content. This update emphasized the importance of creating valuable and informative content to improve search rankings. In 2012, Google Penguin targeted websites that engaged in manipulative link-building practices. It emphasized the importance of earning high-quality backlinks from reputable sources. The Hummingbird update, launched in 2013, focused on understanding user intent and the context of search queries. It paved the way for semantic search and the use of conversational phrases. RankBrain, a machine learning algorithm introduced in 2015, helped

Google process search queries better by understanding their intent. This marked the beginning of AI's integration into search algorithms.

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Search engines utilize complex algorithms to determine the ranking of websites on their SERPs. While the exact algorithms are closely guarded secrets, some essential ranking factors include, Relevance and quality of content, Backlinks from reputable websites, Page load speed, Mobile-friendliness, Website security (Hypertext Transfer Protocol Secure), User experience, and engagement metrics.(see Matt, 2017). With the rapid increase in mobile device usage, Google introduced the Mobilegeddon update in 2015. Websites that were not mobile-friendly experienced a drop in their rankings, further emphasizing the importance of mobile optimization. The rise of virtual assistants and voice-activated devices has changed how people search the web. Optimizing for voice search and using conversational language became vital for SEO success (Pepper, T. August 12, 2022). User experience gained prominence as a ranking factor. Google started considering metrics like page loading speed, mobile responsiveness, and user engagement to evaluate a website's overall quality. Backlinks continue to be a critical factor in determining a website's authority. However, the focus shifted from quantity to quality, and earning natural, relevant backlinks became essential. Local SEO gained significance with the rise of smartphones. Businesses aimed to optimize their online presence to attract local customers searching for products or services in their area.

Factors That Affect SEO

Search Engine Optimization (SEO) success is influenced by several factors that impact a website's visibility and ranking on search engine result pages (Ziakis et al., 2019). The key factors that influence SEO performance, focus on both on-page and off-page elements.

Businesses and websites that effectively optimize these factors can expect better visibility, more organic traffic, and increased conversion rates.

On-Page Search Engine Optimization

On-Page Search Engine Optimization (SEO) is a critical aspect of digital marketing that focuses on optimizing various elements within a website to improve its search engine ranking and visibility. On-Page Search Engine Optimization (SEO) forms the cornerstone of a successful digital marketing strategy. It involves refining and optimizing various elements directly on a website to enhance its visibility and ranking on search engine results pages (SERPs). Through keyword research, the creation of high-quality and relevant content, optimization of meta tags, headings, and URLs, and the improvement of overall user experience, on-page SEO aims to provide search engines with clear signals about a webpage's subject matter and its value to users. By adhering to best practices such as mobile responsiveness, fast loading times, and the utilization of structured data markup, businesses can not only improve their organic search rankings but also deliver a seamless and informative experience to their online visitors. Effective on-page SEO serves as the foundation for driving targeted organic traffic and achieving long-term online visibility and success.

High-Quality and Relevant Content

Creating valuable and informative content that addresses user intent and satisfies search queries is crucial for On-Page SEO success. Search engines, such as Google, prioritize websites that offer unique and engaging content to their users. High-quality and relevant content plays a pivotal role in the realm of SEO, serving as the bedrock upon which successful digital strategies are built. In the ever-evolving landscape of search engine algorithms, content that is not only well-crafted and engaging but also tailored to address users' needs, stands out. Such content not

only captivates and retains the audience's attention but also establishes a website's authority and credibility in its niche. Search engines increasingly prioritize content that provides value, answers queries, and addresses specific topics comprehensively. By incorporating strategic keywords naturally and thoughtfully, high-quality content enhances discoverability, driving organic traffic and improving the chances of higher rankings. Ultimately, the synergy between SEO and top-notch content cultivates a harmonious online environment where users' desires for information are met and search engines recognize and reward the digital efforts of websites that genuinely strive to be informative, relevant, and valuable (Sial et al., 2023).

Keyword Research and Usage

Keyword research plays a crucial role in enhancing a website's visibility and online presence. It involves the process of identifying and analyzing the specific words and phrases that users enter into search engines when looking for information, products, or services. By comprehensively researching these keywords, SEO professionals gain valuable insights into user intent and preferences. This knowledge allows them to strategically integrate these keywords into website content, meta tags, and other relevant elements, thereby increasing the likelihood of the website appearing prominently in search engine results pages. Effective keyword research not only drives organic traffic but also aids in understanding the competitive landscape and refining the overall SEO strategy for optimal results in terms of targeted traffic, conversions, and business success (Sial et al., 2023).

Meta Tags and Descriptions

Meta tags are snippets of code embedded in the HTML of a webpage that provide information to search engines about the page's content. They encompass various elements, with the most significant being the title tag, which summarizes the page's subject. The meta

description tag offers a concise preview of the content, aiming to entice users to click through. Crafting well-optimized meta tags and descriptions involves incorporating relevant keywords that users might search for, thus enhancing the page's visibility in search engine results. A well-crafted meta tag and description does not only boost a website's search engine ranking but also increase the likelihood of attracting organic traffic, as they serve as the first point of contact between the webpage and potential visitors in the digital landscape (Sial et al., 2023).

URL Structure

A clear and concise URL structure enhances both user experience and search engine visibility. When crafting URLs, it's essential to include relevant keywords that accurately reflect the content of the page. A hierarchical structure, mirroring the site's organization, aids both users and search engines in understanding the website's architecture. Short, descriptive URLs are more memorable for users and tend to rank better in search results. Avoiding unnecessary parameters, numbers, and symbols in URLs not only makes them more user-friendly but also contributes to a cleaner appearance in search engine listings. Employing hyphens to separate words within the URL aids readability and helps search engines distinguish between individual words. Ultimately, a thoughtfully designed URL structure can significantly impact a website's SEO performance by improving discoverability, user engagement, and search engine ranking (Sial et al., 2023).

Image Optimization

Alt text, or alternative text, is a concise description of an image's content, designed to assist search engines in understanding the image's context and purpose. By incorporating relevant keywords and conveying the image's essence, alt text enhances the accessibility of a website for visually impaired users while also providing search engines with valuable information for indexing. Well-optimized alt text can contribute to improved rankings in image

searches, driving organic traffic to a website. It's essential to strike a balance between descriptive accuracy and keyword integration to ensure that alt text not only serves SEO goals but also offers a meaningful browsing experience for all users, underscoring the symbiotic relationship between image optimization and effective SEO strategies. Also by compressing images without compromising their quality, you can enhance page loading speed, a crucial ranking factor for search engines. Large images can significantly slow down page loading times, leading to higher bounce rates and lower search engine rankings. By appropriately resizing and compressing images, website owners can strike a balance between visual quality and file size, ensuring swift page loads. This enhanced performance not only boosts user satisfaction but also aligns with search engines' preference for fast-loading websites, positively impacting SEO efforts. Therefore, a thoughtful approach to image optimization, encompassing size reduction and efficient compression techniques, emerges as a crucial strategy for enhancing both user engagement and search visibility (Hmdy, 2021).

Internal Linking

Internal linking involves strategically placing hyperlinks that connect different pages within the same website. By doing so, website owners can guide both search engine crawlers and users through the content, establishing a hierarchical structure and emphasizing the significance of specific pages. Not only does internal linking aid in the discovery of new content, but it also distributes the flow of authority and ranking equity across the website. This contributes to improved search engine rankings, as search algorithms recognize the interconnectedness of pages as a sign of informative and user-friendly content. Furthermore, internal linking fosters seamless navigation, enabling users to explore related topics effortlessly and prolonging their stay on the website (Hmdy, 2021).

User Experience (UX) Considerations

When a website loads swiftly, it enhances user engagement, reduces bounce rates, and fosters higher levels of satisfaction. Search engines, such as Google, consider page load speed as a key metric for ranking websites, as it directly impacts the overall user experience. Slow-loading pages often result in frustrated users who are more likely to abandon the site, leading to negative signals for search engines. In contrast, faster-loading pages contribute to improved crawlability and indexability, enabling search engines to assess and rank the content more. Also, as the majority of online users now access content through mobile devices, search engines prioritize mobile-responsive websites to enhance user experience. A mobile-friendly website ensures that its layout, design, and functionality seamlessly adapt to various screen sizes, providing easy navigation and readability. Google's mobile-first indexing further underscores the significance of this aspect, as it evaluates a site's mobile version for indexing and ranking purposes. Neglecting mobile friendliness can lead to high bounce rates and diminished user engagement, adversely affecting a website's visibility in search results. Therefore, integrating mobile optimization strategies into the broader SEO framework is not just a recommendation, but a necessity to secure a competitive edge in the digital landscape (Hmdy, 2021).

Off Page SEO Strategies

Off-page SEO strategies are essential techniques used to improve a website's visibility and authority beyond its own pages. These strategies focus on activities that occur outside the website itself, aiming to enhance its reputation and credibility across the broader online landscape. Common off-page SEO methods include building high-quality backlinks from reputable websites, engaging in social media marketing to promote content and interact with audiences, submitting guest posts to relevant blogs, participating in online forums and

communities, and leveraging influencer partnerships. Off-page SEO not only increases a site's search engine rankings but also establishes its presence as an authoritative and valuable resource within its industry, ultimately driving more organic traffic and boosting online prominence. Backlink building is a major strategy in Off-page (SEO). It involves the process of acquiring hyperlinks from external websites to your own, with the aim of improving your site's credibility, authority, and visibility on search engine results pages. These inbound links act as endorsements, signaling to search engines that your content is valuable and relevant. However, the quality of these links is paramount – links from reputable, authoritative websites carry more weight than those from spammy or low-quality sources. Effective link building requires a combination of outreach, content creation, and relationship building, all aimed at fostering genuine connections with other online platforms. When executed judiciously, link building can significantly enhance a website's organic search rankings and overall online presence. Also, social media marketing plays a pivotal role in Off-Page SEO strategies. Through the creation and dissemination of engaging content across various social platforms, businesses can foster brand awareness, increase website traffic, and encourage valuable backlinks. The interactions and engagement garnered from social media activities signal search engines about a website's credibility and relevance, thus helping a website to rank well in search engines (Ghulam & Hyder, 2016). Local SEO is also a digital marketing strategy focused on enhancing a business's online visibility within a specific geographic area. It involves optimizing various elements of a company's online presence, such as its website, Google My Business profile, and online reviews, to improve its rankings in local search results. By incorporating location-based keywords, ensuring accurate business information, and fostering positive customer reviews, businesses can effectively connect with their local audience. Local SEO is particularly crucial for establishments seeking to

attract nearby customers. It allows them to stand out in local searches, increase foot traffic, and ultimately drive conversions. In an era where consumers heavily rely on online searches to find local products and services, mastering local SEO has become an indispensable tool for businesses striving to thrive in their communities (Smith, K. September 20, 2022)

Generative AI Research

Artificial Intelligence (AI) has revolutionized various industries, from healthcare to finance and entertainment (Saranya & Priya, 2023). Generative AI is a branch of artificial intelligence that focuses on the development of models capable of generating novel content in various forms, including images, texts, music, and more (Feuerriegel et al., 2023). Unlike traditional AI, which relies on explicit instructions and data to perform tasks, generative models have the ability to create new and original data based on patterns and examples in the training data. Generative AI has been extensively applied to image generation tasks, including photorealistic image synthesis, artistic style transfer, and data augmentation for enhancing the performance of image classification models. Language models like OpenAI's GPT (Generative Pre-trained Transformer) have demonstrated impressive capabilities in generating coherent and contextually relevant text (Regalado, 2023). These models have been used for tasks such as text completion, summarization, and machine translation. Generative AI has also shown promising results in music composition. Recurrent Neural Networks (RNNs) (Schmidt, 2019) and Transformer-based models have been employed to create original melodies and harmonies, contributing to the evolution of AI-generated music. Generative AI dates back to the early days of artificial intelligence research. The concept of machines being able to create something new fascinated researchers, leading to the development of early generative models. However, it wasn't until the advent of Generative Adversarial Networks (GANs) that the field experienced a

groundbreaking shift (Cao, 2023). GANs are a class of generative models introduced by Ian Goodfellow and his colleagues in 2014 (Goodfellow, 2014). The GAN framework consists of two neural networks: the generator and the discriminator. The generator creates new data instances, while the discriminator evaluates whether the generated data is real or fake. This adversarial training process results in the generator continuously improving its output (Cao, 2023). Real-world applications of GANs are diverse, ranging from realistic image synthesis to creating high-quality deepfakes. They have also found utility in domains like art, fashion, and design. These models have seen significant advancements in recent years, enabling impressive feats such as photorealistic image generation and creative text synthesis. A class of neural networks called Recurrent Neural Networks (RNNs) has shown promise in generative AI (Schmidt, 2019). RNNs have a feedback mechanism that allows them to retain information from previous computations, making them suitable for tasks involving sequential data, such as text and music generation. Variational Autoencoders (VAEs) are probabilistic generative models that aim to learn the underlying structure of the input data (Kingma, 2013). They are commonly used in applications like image generation, where they learn to encode and decode images, enabling them to create new and realistic samples (Cao, 2023).

Applications Of Generative AI

Generative AI, a groundbreaking technology, finds applications across various domains, revolutionizing industries and enhancing creative processes. In the realm of art and design, it produces visuals, music, and literature, assisting artists in exploring new frontiers of creativity. In healthcare, it aids in medical image synthesis, drug discovery, and personalized treatment recommendations. Natural language generation capabilities enable it to craft human-like text, benefiting content creation, chatbots, and language translation. In gaming, it crafts dynamic

environments and characters, heightening the gaming experience. Generative AI's potential extends to data augmentation for improved machine learning models and even generating lifelike faces and objects for virtual simulations. As this technology evolves, its applications continue to broaden, reshaping the landscape of innovation across diverse industries (Gozalo-Brizuela & Garrido-Merchán, 2023). Generative AI presents a promising avenue for revolutionizing Search Engine Optimization (SEO) strategies. With its advanced capabilities in content creation, Generative AI can play a pivotal role in generating high-quality, relevant, and engaging content that aligns seamlessly with search engine algorithms. By leveraging AI-generated content, SEO professionals can maintain a consistent flow of fresh and valuable articles, blog posts, and other content types that cater to the interests and queries of their target audience. This not only enhances website credibility and authority but also contributes to improved search engine rankings, as search engines reward websites with informative and engaging content. Furthermore, Generative AI can assist in crafting optimized meta descriptions, title tags, and headers that are crucial components of on-page SEO. AI-powered tools can analyze search trends, user intent, and keyword data to generate compelling and relevant meta content that drives higher click-through rates from search engine result pages. This streamlined approach ensures that websites are more likely to attract organic traffic, resulting in improved visibility and potentially higher conversion rates.

Evolution of Google Analytics

The role of web analytics tools has become increasingly crucial for businesses to understand user behavior, optimize online performance, and make data-driven decisions (Jahan et al.,2019). Among the myriad of analytics tools available, Google Analytics (GA) stands out as a dominant force, providing a robust platform for tracking and analyzing website data(Gaur et

al.,2016). Google Analytics, launched in 2005, as noted by Van Duinen(2021) has undergone significant evolution, adapting to the changing needs of online businesses. Early studies emphasize the revolutionary impact of GA in democratizing web analytics, making it accessible to businesses of all sizes. Subsequent research delves into the platform's updates and enhancements, such as the introduction of Universal Analytics and the more recent shift to Google Analytics 4 (GA4) in 2020 (Van Duinen, January 29,2021).

METHODOLOGY

Overview

Two live websites were created, one with text content generated by ChatGPT (Generative AI) and the other with content crafted by a Human Copywriter. Both the Human Copywriter and ChatGPT(Generative AI) produced text content for a Digital Marketing Agency website. Text content was provided for Homepage, About Us Page, Main Service Page, Website Design Service Page, UI/UX Design Service Page, Copywriting Page, Search Engine Optimization Page, Contact Us Page, and 2 Blog Posts. The SEO Title. Meta Descriptions and Alternative texts for images were also provided by each text generator, that is ChatGPT (Generative AI) and the Human Copywriter. The purpose of this minimal viable product was to dissect and analyze the capabilities of Generative AI when applied to SEO tasks, providing valuable insights into whether Generative AI can surpass human content writers in enhancing website performance and search engine rankings. To evaluate content quality, opinions from coursemates and industry professionals were gathered through surveys. Additionally, an online plagiarism checker, known as Copyscape, was employed to ensure content originality and identify any duplicate issues. Google Analytics was set up for both websites to monitor and analyze their performance in Google's search engine.

Finding And Selecting A Domain Name

Before designing the websites, two domain names were needed. A domain name is a unique and easy-to-remember name that helps you access websites. When you type a domain name into your web browser (by example www.example.com), it takes you to that website's location on the internet. It is the internet's way of making sure you can find and visit your favorite websites without needing to remember long strings of numbers. A domain name is like

the address of a website on the internet. Just as your home has a street address to help people find it. Your website's domain name is your online address, and it plays a crucial role in shaping your online identity. Finding and choosing the right domain name is a crucial step in establishing your online presence. Your domain name should reflect your brand identity or the purpose of your website. To find the domain names "domain name generator ai free" was typed in Google. (see Figure 1). A couple of websites came up. Amongst them being Namelix.com, Namy.ai, Oneword.domains, Domainwheel.com and Looka.com. Looka.com was chosen. (Refer to Appendix C)

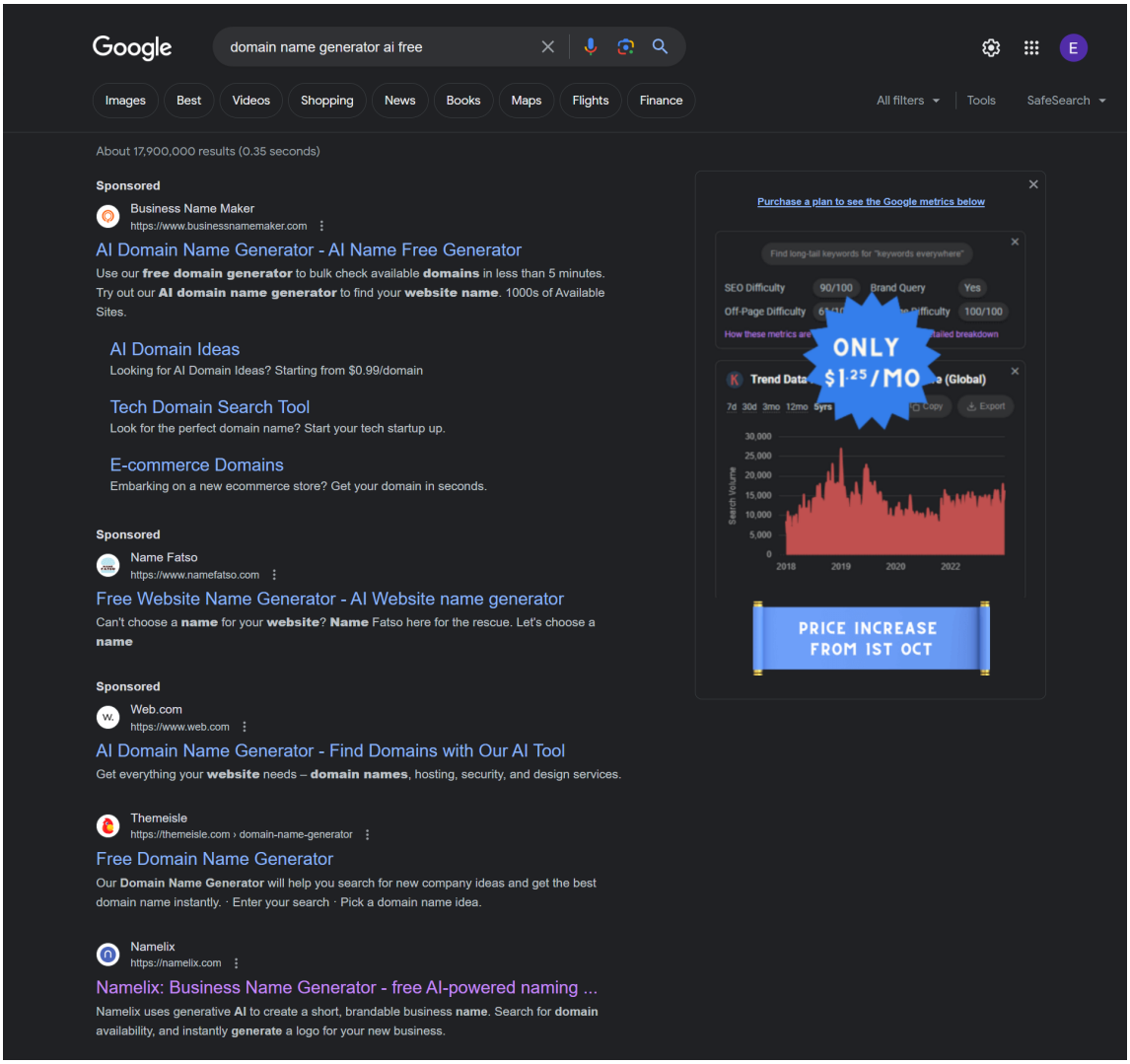


Figure 1 Screenshot of Results after typing “Domain Name Generator Free”

Looka.com employs AI algorithms to generate unique and creative business name suggestions. This can be valuable for businesses looking for distinctive and memorable names that stand out in the market. After visiting Looka.com, the keyword “Digi” was typed and “7 character” length was chosen. This is because there were no 4-6 character length domains available. The website provided me with 11 suggestions (see Figure 2).

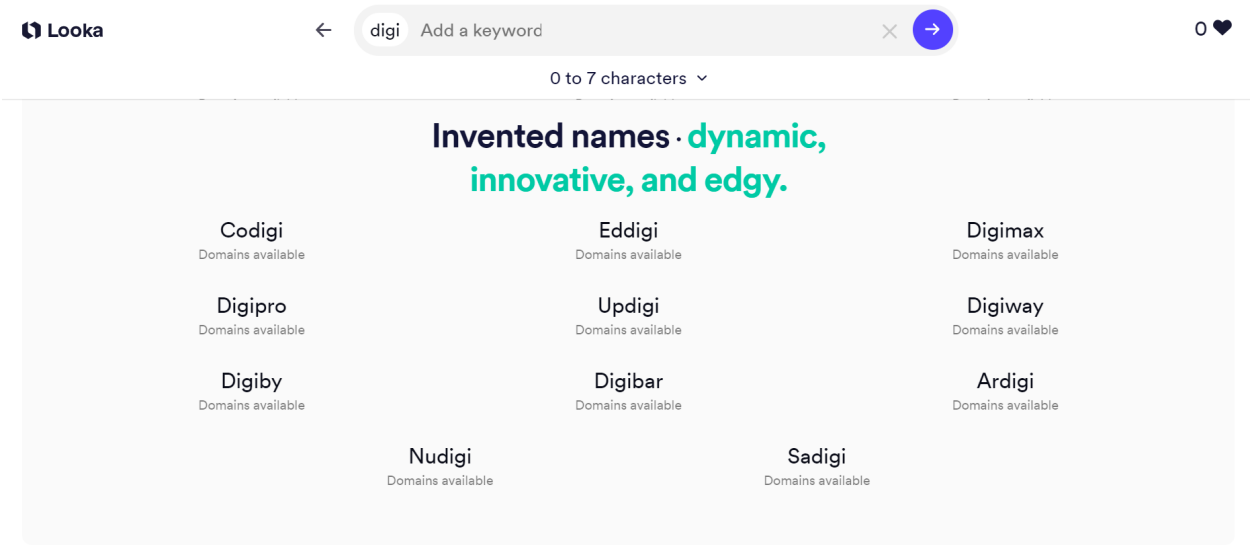


Figure 2 Screenshot of 11 Name Suggestions Looka.com Provided

From the 11 domain name suggestions, "Digibar.site" and "Digiby.site" were chosen. These two domains were chosen because I am doing a comparative analysis and there has to be a common ground for all comparisons. These two domain names had the same search volume and syllabi which are 20 and 3 respectively (see Figure 3 & 4) Also, these domain names have the word "digi" which was needed to represent the digital marketing brand. Unfortunately, not surprising though, the ".com" extensions had both been taken. The ".ca" extension for Digibar had also been taken, so the" .site" extension was chosen for both websites.

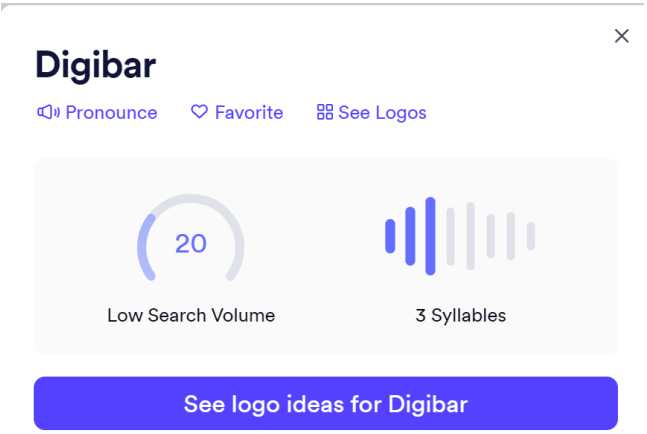


Figure 3

Digibar Search Volume and Syllabus

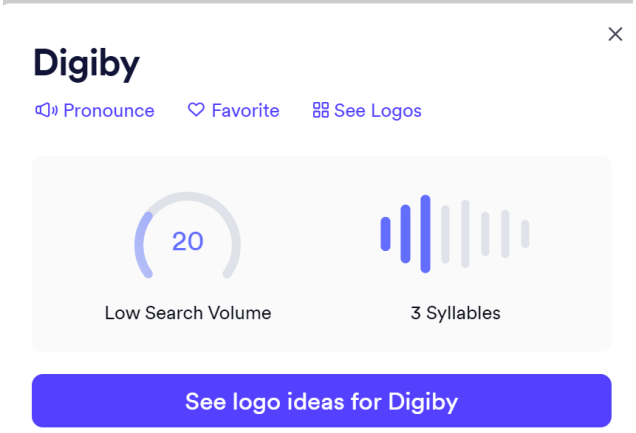


Figure 4

Digiby Search Volume and Syllabus

Website Design Process

After finding and selecting both domain names, that is “digiby.site” and “digibar.site”. Both domain names were pointed to a hosting server. A hosting server is a powerful computer or a network of computers that are specifically designed and configured to store and serve websites, applications, or data to users over the internet. These servers are equipped with hardware and software resources necessary to ensure the availability, performance, and security of hosted content. Hosting servers are responsible for processing user requests, delivering web pages, handling database queries, and performing other tasks required to make online content accessible to visitors. There are various types of hosting servers, such as web servers that primarily serve web pages, database servers that manage and store data, and application servers that execute software applications. Hosting providers maintain and manage these servers in data centers, ensuring they are consistently up and running to provide uninterrupted online services to their customers. There are a couple of top-rated web hosting providers like Godaddy.com, Hostinger.com, Siteground.com, and Blueshost.com. The two domains were hosted on Bluehost.com . Before designing the website, research was made to know which tool to use to

design the website. During the research , three Website AI Generators were discovered. They were 10web , Durable and Hocos. 10web is absolutely easy to use. It is web-based. 10web created a website including images and copy in less than 5 minutes. It Needs a subscription in order to be able to make edits. Hocos is easy to use. Web-based. Very Easy to customize and edits can be made without a subscription. Durable is also easy to use, web-based. With Durable I was able to make changes after signing up.

All the three website generators had a similar creation process. (See Appendix D for all the website generation process). You first start with a signup, then select the type of business. In this case a Digital Marketing Agency was chosen. A business name and description of the company was added. Then 3 main services were typed. After a “Finalize” button was clicked. In about 5-10 seconds the websites were designed.(See Figure 5, 6 & 7). The website produced by 10web was impressive. 10web AI Generator provided all the images and copies. Although a subscription was needed to make changes to the website. Hocos also generated a website within seconds. The website and copy were also great. Although the website design was quite simple for me, it was well laid out. And with their customization feature, you could edit the website to suit your preference. Durable generated a great website. Website edits were possible after the website was generated. The structure was also amazing.Overall, the Website AI-generators can be a valuable tool for quickly creating simple websites. However, for complex, highly customized, or innovative websites, human expertise is often essential. The ideal approach may involve a combination of AI tools and human intervention, depending on the specific needs and goals of the project. Ultimately, the choice between AI-generated and human-created websites should be based on the project’s requirements and the desired level of customization, creativity, and user experience.

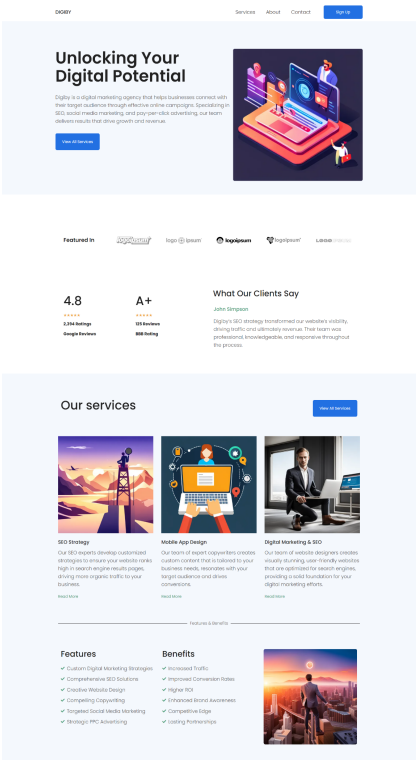


Figure 5 (Screenshot of website produced by 10web Website AI Generator)

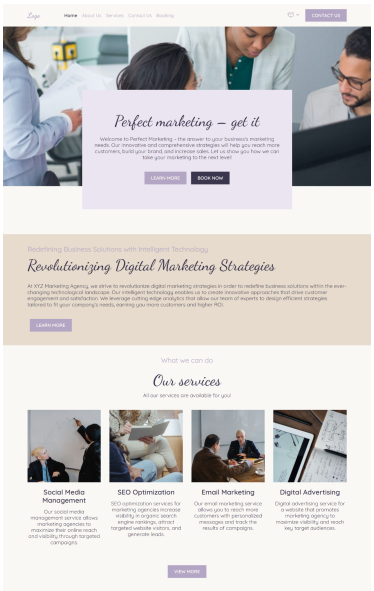


Figure 6 (Screenshot of website produced by Hocos Website AI Generator)

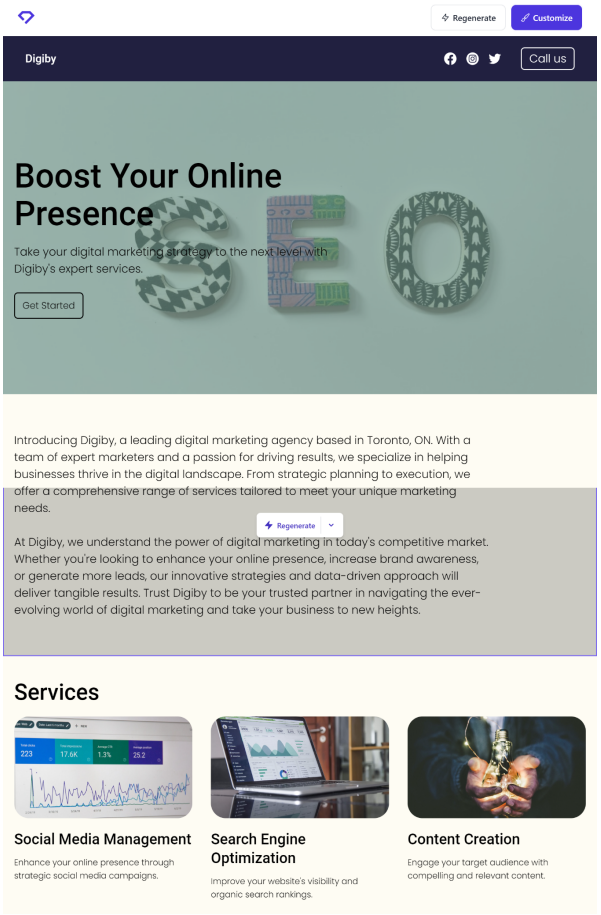


Figure 7 (Screenshot of website produced by Durable Website AI Generator)

For the two websites I established, I did not use any of these Website AI Generators. I wanted both websites to have some features like a chatbot and language switcher, which cannot be provided by these website AI generators. I used WordPress which is one of the popular website builders and my personal favorite among other website builders like Wix, Joomla, Webflow, Drupal and Squarespace to design the two websites. Digiby.site (see Appendix O) will

be the website with text content generated by ChatGPT (Generative AI) and Digibar.site (see Appendix N) will be the website with text content created by a Human Copywriter.

Logo Design Process

A logo is a distinctive and visually impactful symbol, design, or emblem that represents a brand, company, organization, or product. It serves as a unique identifier, instantly recognizable to consumers and the public, conveying the essence and identity of the entity it represents. Logos are carefully crafted to encapsulate the values, personality, and mission of the brand, often combining elements such as typography, colors, and imagery to create a memorable and meaningful visual representation. A well-designed logo not only helps in brand recognition but also communicates a sense of trust, professionalism, and credibility, making it a crucial element in marketing and brand identity (Celikkol, 2018). The importance of a logo cannot be overstated in the world of branding and business. A well-designed logo serves as the visual cornerstone of a company's identity, instantly communicating its values, personality, and purpose to the world. It acts as a powerful symbol that fosters recognition and recall among consumers, helping to differentiate the brand from competitors in a crowded marketplace. A memorable logo builds trust and credibility, making it easier for customers to connect with and choose a brand. Additionally, logos can be versatile, appearing on everything from products and packaging to marketing materials and digital platforms, reinforcing brand consistency and unity across various touchpoints. In essence, a logo is not just a graphic; it's a vital tool for brand recognition, loyalty, and successful marketing.

For the purpose of this research paper, I decided to have 4 logos designed, 2 designed by a Creative Manager with professional design skills, Robinson Aryee (CEO of Aryee Studios), and the other 2 designed by Logo Maker (An Artificial Intelligence Logo Maker). Both Robin

and the generative AI logo maker produced one logo each for “Digibar” and “Digiby”. In the end, the best-designed logos will be used for both websites. Robin used 10 business days to design both logos (see figure 8 & 9) at a charge of $500. For the logo designed by Generative AI, Logo.com was used (see Appendix E). Logo.com provides a user-friendly and intuitive platform that simplifies the logo creation process. The platform also leverages AI technology to provide design suggestions based on your preferences, saving you time and effort in the creative process. The free Plan was used to generate two logos with high-resolution logo files (see Figure 10 & 11)

Figure 8 Digibar Logo Designed by Robin

Figure 9 Digiby Logo Designed by Robin

Figure 10 Digibar Logo Designed by Logo.com

Figure 11 Digiby Logo Designed by Logo.com

After both logos had been designed, an online survey was created. 40 people amongst whom were fellow Master of Digital Media Cohorts, Lecturers, Design Industry Players, and friends took part in the survey (see Appendix F for logo survey results) The main aim of the

survey was to determine if logos designed by Generative AI are as good as logos designed by Human Designers. Two questions were asked during the survey. The first question asked respondents which of the two logos they preferred. The second question asked respondents which logos they thought were created by Robin, the Human Creative Manager. For Digiby, of the 40 survey participants, 27 (67.5%) preferred the logo designed by Robinson Aryee, while 13 (32.5%) preferred the logo generated by the AI logo maker for "Digiby." Furthermore, 26 participants (65%) correctly identified the logo created by Robinson Aryee as the one designed by the human creative manager (Figure 12) . For the "Digibar" logo, 28 participants (70%) favored the design by Robinson Aryee, and 12 participants (30%) favored the AI-generated logo. In this case, 23 participants (57.5%) correctly attributed the logo designed by Robinson Aryee to the human creative manager (Figure 13).

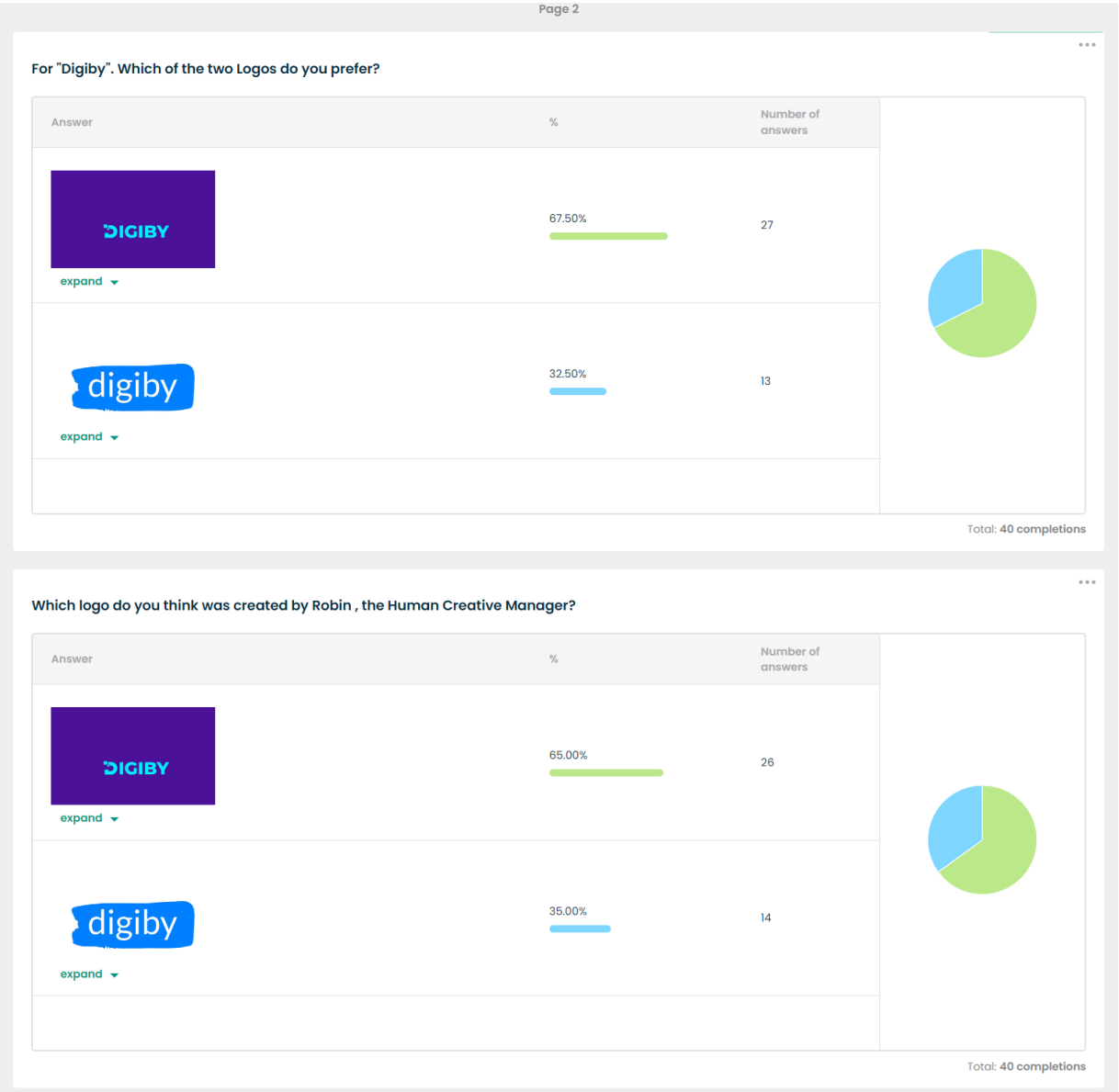


Figure 12 Image of Digiby Logo Survey Results

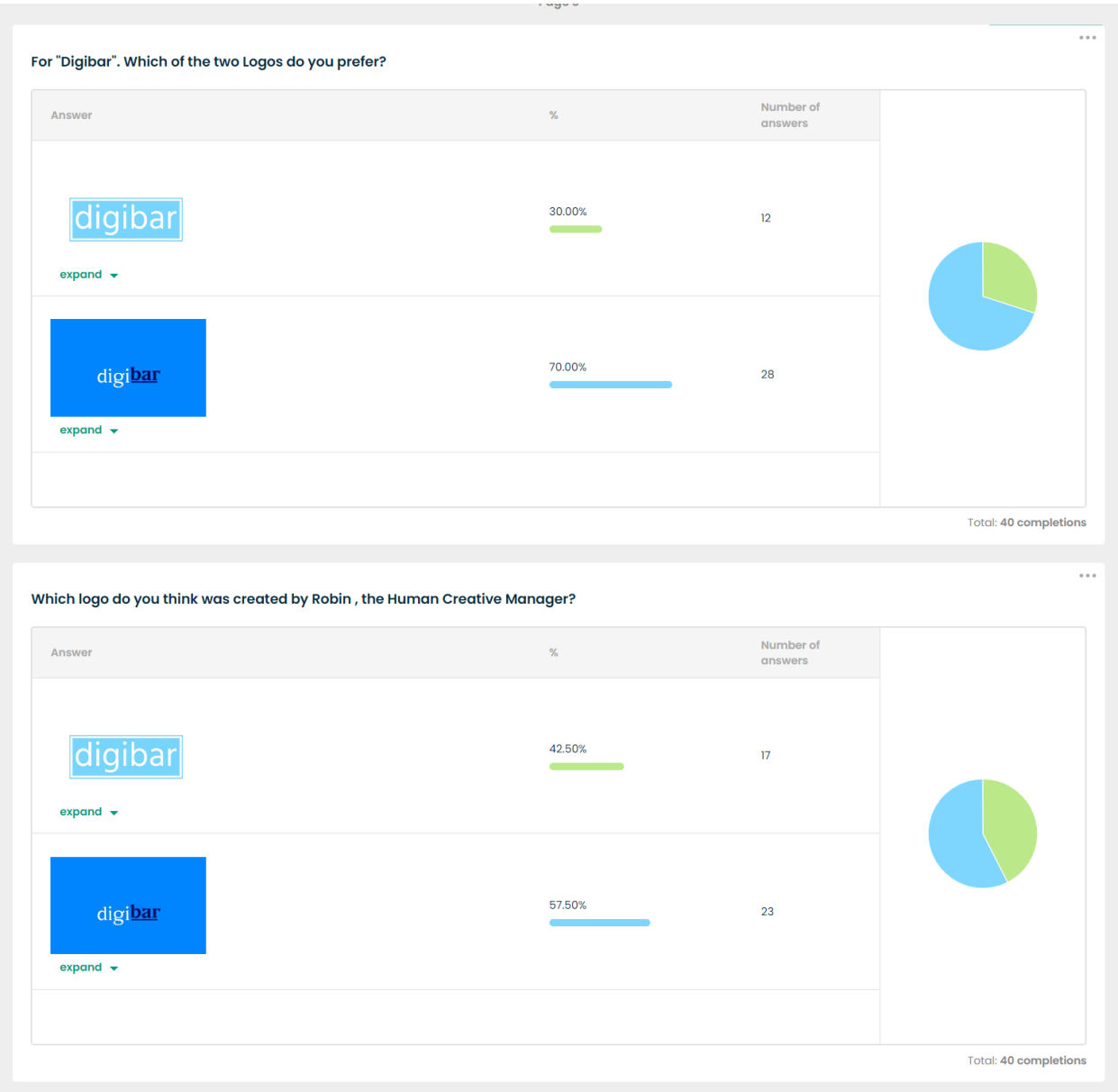


Figure 13 Image of Digibar Logo Survey Results

Logo Result and Evaluation

The survey results revealed interesting insights into public perception regarding logos created by human designers and AI. In both cases, logos designed by Robinson Aryee received higher preference ratings, suggesting that human-created logos are more appealing to the

surveyed individuals. This is consistent with the idea that human designers possess a level of creativity and intuition that AI logo generators may struggle to replicate. Furthermore, it is noteworthy that a significant portion of the participants correctly identified the logos created by Robinson Aryee. This indicates that participants were able to distinguish between logos designed by a human and those generated by an AI tool to some extent. This suggests that there may be certain characteristics or nuances in human-designed logos that participants are subconsciously recognizing. However, I would like to remove any bias and also consider the cost and time it took to get both logos designed. In terms of cost, there is a significant contrast between the two approaches. The logo designed by Robin Aryee incurred a direct cost of $500. This cost reflects the fee for his expertise, creative input, and labor. On the other hand, the logo generated by the AI logo maker was entirely free, as it did not involve any monetary expenses. This financial aspect makes AI-generated logos an attractive option for those with budget constraints, startups, or individuals looking for cost-effective design solutions. The time factor is also noteworthy when comparing these two approaches. The logo designed by Robin Aryee required two weeks to be completed. This two-week timeframe accounts for the ideation, design, and revisions. In contrast, the AI-generated logo was created within minutes. AI design tools are capable of producing logos rapidly, making them an appealing choice for projects with tight deadlines or when quick turnaround is essential.

In conclusion, while human designers, such as Robinson Aryee, continue to excel in delivering creative, unique, and aesthetically pleasing designs, AI logo makers offer a compelling alternative based on cost-effectiveness and speed. For clients with flexible budgets and an appreciation for the artistry of design, human designers remain the preferred choice. The survey participants demonstrated a clear inclination towards logos crafted by Robinson Aryee,

highlighting the value of human creativity and the distinctiveness it brings to design. On the other hand, AI-generated logos are a practical solution for those with budget constraints and time-sensitive projects. The cost savings and rapid turnaround offered by AI tools can be essential in various scenarios, particularly for smaller businesses or projects requiring a quick design solution. Ultimately, the choice between human designers and AI logo makers hinges on a client's specific needs, priorities, and constraints. The decision-making process should consider factors such as available resources, project objectives, and the desired balance between cost, time, and design quality. As technology continues to advance, it is likely that AI design tools will become even more sophisticated, potentially closing the gap in design quality, and further complicating this decision for clients in the future. From the survey, both logos designed by Robin got the highest preference so both will be used for the two websites.

Content Generation Process

To create content for Digby.site, (website with text content generated by ChatGPT (Generative AI)), research was first made to know which AI Writer to use. Four content generators were discovered. They are ChatGPT , Bing AI, Google Bard and Chatsonic. ChatGPT is a powerful language model developed by OpenAI.

ChatGPT is designed to engage in conversational interactions, providing responses and information on various topics. It can understand and generate text in a coherent and contextually relevant manner, making it a valuable tool for tasks such as answering questions, generating creative content, and offering assistance in natural language processing tasks. ChatGPT is web-enabled and very easy to use.

Bing AI is the artificial intelligence technology used by Microsoft's search engine, Bing. It incorporates machine learning and natural language processing techniques to enhance the

search experience for users. Bing AI enables features such as intelligent suggestions, auto-completion, and voice search. It can understand user queries more effectively, providing relevant search results and refining the results based on context. Bing AI also powers other Microsoft services, such as Cortana, to deliver personalized and intelligent assistance to users. tasks. Bing AI requires Microsoft Edge download. At the time of doing this research, I did not have Microsoft Edge installed on my PC. It took me a couple of minutes to download and start using Bing AI.

Googlebard is a language model developed by Google, inspired by OpenAI's ChatGPT. It is designed to facilitate conversational interactions and provide users with helpful responses. Googlebard leverages Google's vast knowledge graph and search index to offer information and insights on a wide range of topics. The model can engage in dialogue, answer questions, and generate text that is informative and contextually relevant. Googlebard aims to enhance user experiences by providing conversational assistance and engaging in meaningful interactions. It is surprising google bard is available in more than 180 countries but is still not available in Canada and some EU nations. In an email statement, the company explained that it is rolling out Bard "gradually" and that it is working closely with experts and policymakers to ensure that Bard aligns with local requirements. I had to turn on my virtual private network to access Google Bard.

Chatsonic is an AI-powered conversational agent that specializes in generating natural language responses. Developed by an independent research team, Chatsonic employs deep learning techniques to understand and generate text based on user input. It is designed to provide human-like responses in real-time conversations, making it suitable for applications such as chatbots, virtual assistants, and customer support systems. Chatsonic's goal is to create engaging

and interactive conversations that mimic human communication patterns and improve user experiences. Chatsonic is also web enabled and easy to use. The sign-up process was fast as well.

For the Digiby.site website, ChatGPT was used for the content generation (see Appendix L). It took a few minutes to generate content for the Homepage, About Us Page, Main Service Page, Website Design Service Page, UI/UX Design Service Page, Copywriting Page, Search Engine Optimization Page, Contact Us Page, and 2 Blog Posts (Figure 14). All content produced was free. The SEO Title. Meta Descriptions and keywords for Alternative texts for images (Figure 15) were also generated by Chat GPT.

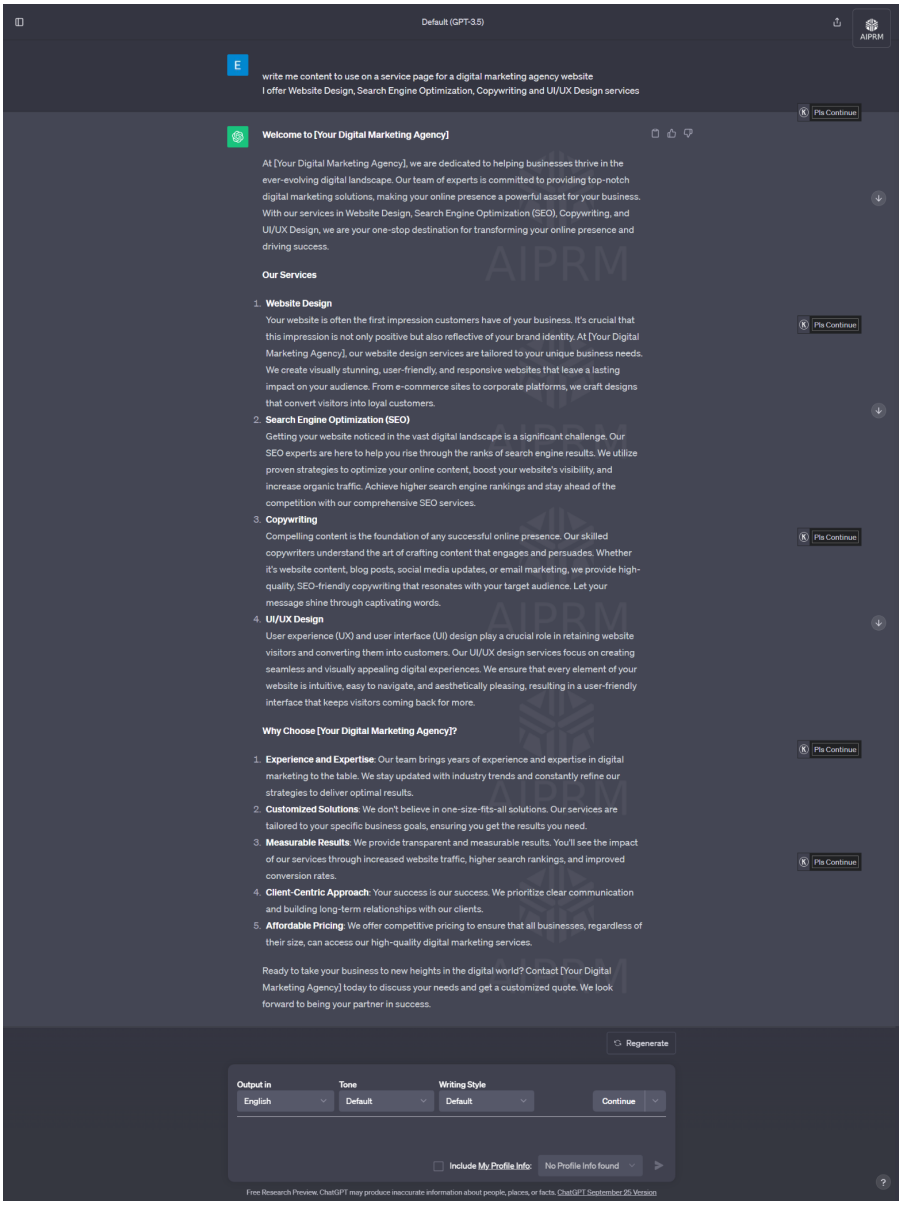


Figure 14 Screenshot of Prompt and results for Service Page.

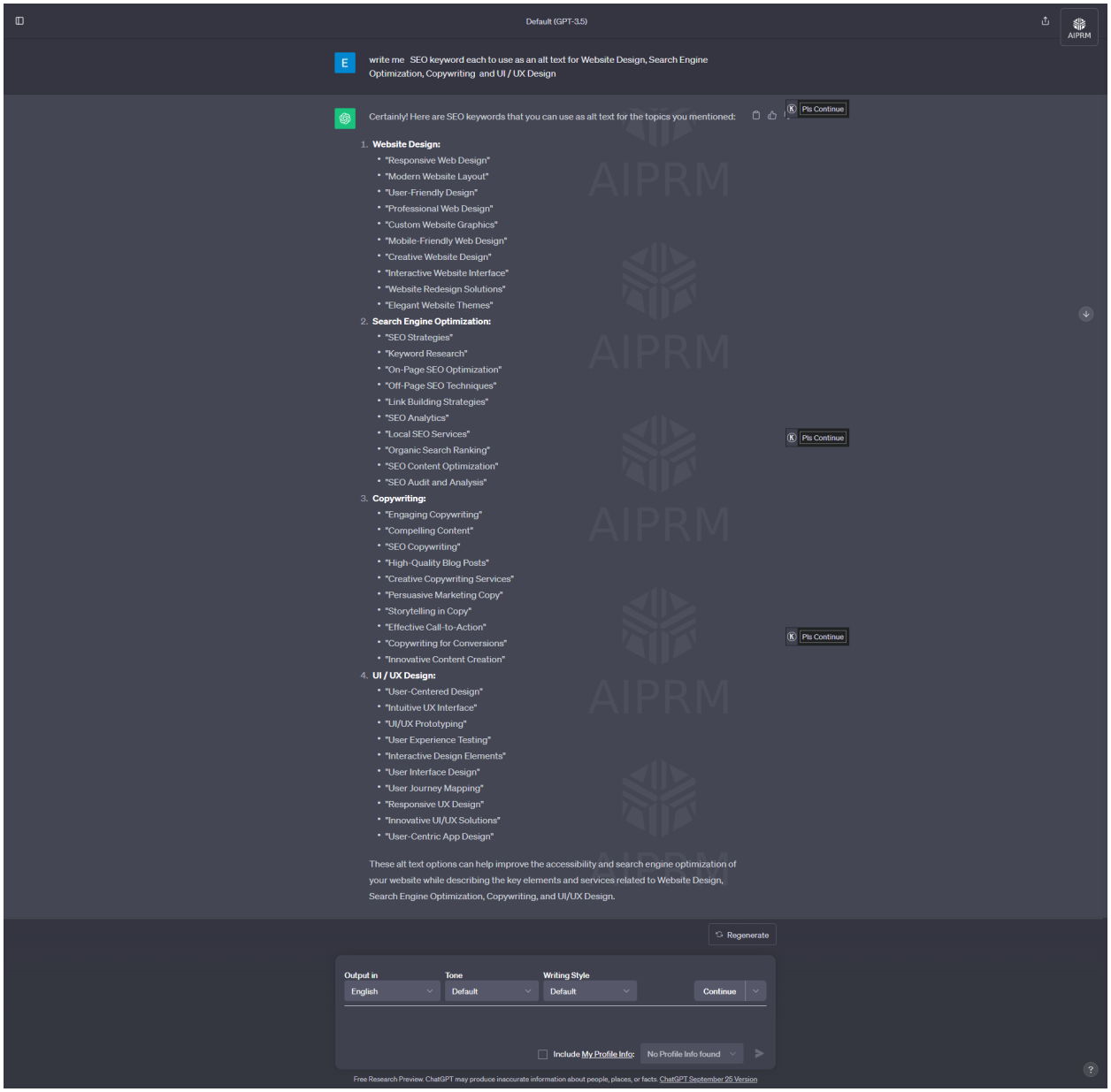


Figure 15 Prompt and results for Alternative Text for Images

For Digibar, (website with text content created by a Human Copywriter) , I asked Grace, a copywriter, and a former work colleague to produce the content (see Appendix J). It took Grace 10 business days to generate content for the Homepage, About Us Page, Main Service Page, Website Design Service Page, UI/UX Design Service Page, Copywriting Page, Search Engine

Optimization Page, Contact Us Page, and 2 Blog Posts. Grace also provided the SEO Title, Meta Descriptions, and Alt texts for images for Digibar Website. Grace's content incurred a cost of $1000.

Grace has a well-defined process for crafting copy for any website that reflects her expertise and dedication to copywriting. Her method combines extensive research, selective content curation, and the art of transforming borrowed content into something unique and captivating. To begin, Grace immersed herself in the realm of digital marketing by going online and downloading PDFs and articles related to the subject. She understands the value of knowledge and believes that in-depth understanding is the foundation of effective copy. Therefore, she reads extensively, absorbing the intricacies of digital marketing, which enables her to write with authority and authenticity. Grace's approach doesn't stop at theoretical research. She believes in practical exposure. Hence, the next step involved visiting the websites of digital marketing agencies (see Figure 16), where she delved into the products and services they offer. Her focus was not only on the services themselves but also on the content these agencies use to present them. By analyzing their copy, she discerned the elements that make it impactful and engaging. She selectively picked pieces that resonate with her objectives, providing a valuable source of inspiration. However, her intention was not to replicate these pieces verbatim. Instead, she adopted them as a foundation upon which she built her own content. With the knowledge amassed through her research, Grace embarked on the creative process of rewriting and generating her original content. She ensured that her work was distinct from the material she initially borrowed. This transformation involves infusing her unique voice, style, and perspective into the content. Grace's expertise lies in turning the ordinary into the extraordinary, making the information she imparted both meaningful and captivating. Her end goal was to craft content that

not only educates but also captivates and persuades her audience, whether they are seeking information on digital marketing or looking for services in the field. Grace's methodology reflects the essence of effective copywriting—going beyond the surface and diving into the subject matter. Her thorough research and ability to extract valuable insights from existing content enable her to create pieces that stand out in the digital landscape. By combining her knowledge with the art of rewriting and infusing creativity, she delivered a copy that is not only informative but also compelling and attention-grabbing.

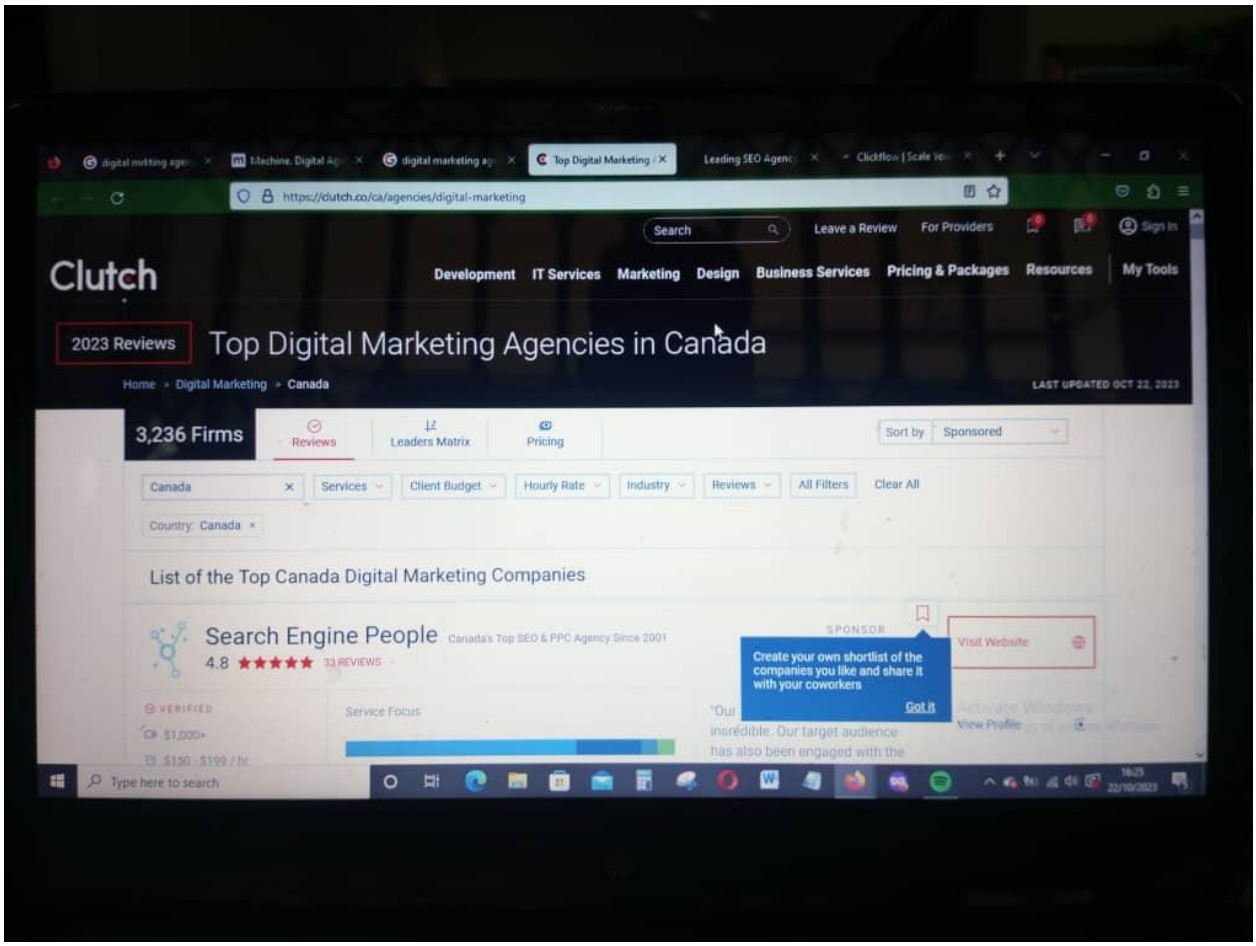


Figure 16 Screenshots of Grace visiting websites of digital marketing agencies

Content Plagiarism

Website content plagiarism is a pressing issue in the digital age, particularly as the internet continues to grow and evolve. This practice involves the unauthorized use of someone else's written material on a website. Website copy plagiarism is not only unethical but can also have significant consequences for the online presence and reputation of a website. Plagiarism has several negative effects on a website's visibility in Google's search results. To maintain or improve search engine rankings, it's crucial for website owners and content creators to prioritize original, high-quality content. Google's algorithms are designed to reward such content with better visibility while penalizing duplicate or plagiarized material. By respecting intellectual property rights and focusing on creating unique and valuable content, website owners can build trust with their audience and improve their online visibility.

Both contents produced by ChatGPT, the AI Content Generator, and Grace, the Human Copywriter were checked for Plagiarism before uploading the contents on the respective websites. Checking for plagiarism is a great practice to help website owners upload original content only to their websites. To check for plagiarism, the Copyscape.com website was used. Copyscape is a widely recognized online plagiarism detection and content monitoring service. It was established in 2004 and has since become an invaluable tool for individuals, businesses, writers, and educators to ensure the originality and authenticity of written content. Copyscape.com provides a range of services designed to help users protect their intellectual property and maintain the integrity of their written work. One of Copyscape's primary features is its ability to scan the internet for duplicate or closely matching content. Users can enter a URL or upload a piece of text, and Copyscape will check it against a vast database of web pages, articles, and documents to identify any instances of potential plagiarism. 18 pages, 9 each from content

produced by ChatGPT, the AI Content Generator, and content produced by Grace, the Human Copywriter was run through the Copyscape.com website.

Plagiarism Result and Evaluation

The results revealed that, for content produced by ChatGPT, out of the 9 pages, four pages exhibited indications of potential plagiarism (see Appendix M). These pages include the About Us page, the website design page, and two separate blog pages. To ensure that Digiby website remains original and in adherence to SEO best practices I edited the pages that had plagiarism, rerun them through Copyscape, and uploaded content on the website after no plagiarism was detected. For content produced by Grace, the human content writer, out of the 9 pages, 3 were flagged for potential plagiarism (see Appendix K). These three pages included the UI/UX design page, the home page, and the website design page. It's worth noting that while these results might raise concerns, the identification of potential plagiarism serves as an opportunity for Grace to revisit and refine these sections, ensuring that her work remains original and in adherence to SEO best practices. Grace refined and revisited the pages. The pages were rerun and they passed copyscape. I have also uploaded Grace's content onto the Digibar Website. For Digiby, content produced by ChatGPT, out of the nine pages, four exhibited indications of potential plagiarism. This suggests that while AI generators are efficient, they aren't infallible when it comes to producing completely original content. It's important however to recognize that the plagiarized content was limited to just a few sentences within the articles produced (Figure 17).

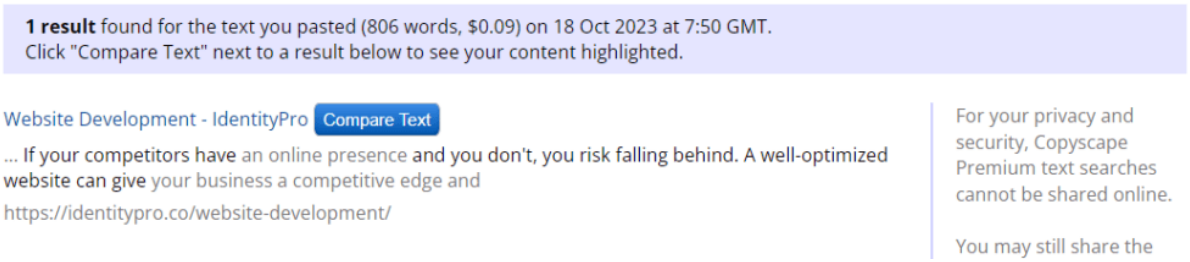


Figure 17 Screenshot showing results of Digiby content plagiarism

One of the most significant advantages of AI text generators is their instant results. They can generate content within seconds, making them a valuable tool for those who require content quickly. This speed can be a game-changer when you need content for timely events, news updates, or regular blog posts. On the cost front, AI text generators are incredibly economical. They require no ongoing payment plans and, in many cases, are either low-cost or entirely free. This is in stark contrast to human writers, who charge substantial fees for their services. So, if you're on a budget and need content fast, AI text generators can be your best bet. But it is always best to check for content produced to ensure its ethical use and also free from any bias. On the other hand, the results from Grace, the human content writer, showed that out of the same nine pages, three were flagged for potential plagiarism. Grace's plagiarized content was also limited to a few sentences within the articles produced (Figure 18).

Figure 18 Screenshot showing results of Digibar content plagiarism

Grace's content creation process however took 10 business days and came with a price tag of $1,000. The time taken to produce content is relatively long, which may not align with your need for swift content creation. Additionally, the high cost can be prohibitive for many individuals or businesses. To compare the two approaches directly in terms of plagiarism, AI text generators had a slightly higher plagiarism rate (44%) compared to the human writer (33%). This is impressive considering the time and free cost it took ChatGPT to produce all its content.

Website Insights

After uploading both contents on the website, that is content generated by ChatGPT (Generative AI Text Generator) and Human Copywriter, Grace, website analytics was set up to track, review, and measure web activity (see Appendix H for setup process). Google Analytics and Google Search Console was set up to help with website insights. Google Analytics is akin to a digital detective for websites. Imagine you have a store, but it's on the Internet instead of a physical place. You want to know how many people visit your store, where they come from, what they look at, and whether they buy anything. Google Analytics helps you with all of that. It's a tool that watches over your website and gathers information about your visitors. It tells you things like how many people visited your site, which pages they visited, how long they stayed, and even where they're located. It's a bit like having a secret camera in your store, but instead of identifying individual people, it gives you overall trends and numbers. This information is incredibly useful for businesses and website owners because it helps them understand what's working on their website and what needs improvement. It's like having a map to guide you in making your online store better and more appealing to your customers. Google Analytics helped me determine which website performed better in Google's search engine. Google Search Console is like a backstage pass to the internet for website owners. Imagine you have a website, and you

want to know how well it's doing on Google. Search Console is your tool for that. It shows you how often your website shows up in Google search results, what keywords people use to find it, and if there are any problems that might be preventing your site from performing its best. Think of it as a dashboard that helps you understand how your website appears on Google's search engine. It's like having a window into how the world's biggest search engine sees your site, and it gives you valuable insights to make your website even better. It's a tool to help you fine-tune your website's performance and visibility in Google's search results.

RESULTS AND EVALUATION

Survey Results and Evaluation

After designing websites for both Digiby and Digibar and uploading content produced by ChatGPT, the AI Content Generator, and Grace, the Human Copywriter to each website, an online survey was created (see Appendix I for the entire Survey, Google Analytics, Grammar results). Thirty participants amongst whom were fellow Master of Digital Media Cohorts, Lecturers, Design Industry Players, and friends took part in the survey. The main aim of the survey was to determine if text generated by Generative AI is as good or better than copy written by Human Copywriters. In the survey, I asked respondents to first rate the quality of text content on Digibar & Digiby Website using the star rating scale (1 star being poor, 5 stars being excellent) and secondly asked respondents which website had text generated by ChatGPT (Generative AI).

For Digibar, which features content created by human copywriters, the results (see Figure 19) revealed that no respondents rated Digibar content as poor (1 star). This suggests that none of the participants found the human-generated content to be of the lowest quality. Only 2

participants (6.67%) gave a 2-star rating. This indicates a minimal dissatisfaction with the content, but the majority of respondents found it to be better than poor. 6 respondents (20%) rated Digibar content with 3 stars. While this is a significant portion, it still suggests that the majority of participants had a positive perception of the human-generated content. The most common rating for Digibar content was 4 stars, chosen by 11 respondents (36.67%). This suggests a strong overall positive sentiment towards the quality of content produced by human copywriters. An additional 11 participants (36.67%) gave the highest rating of 5 stars, indicating a substantial number of respondents highly valued the quality of the content on the Digibar website. The majority of respondents (73.34%) rated Digibar content as either very good (4 stars) or excellent (5 stars), with a relatively small percentage expressing some level of dissatisfaction (2 or 3 stars). For Digiby, (Figure 19) which features content generated by ChatGPT, (Generative AI), the results revealed that Similar to Digibar, no respondents rated Digiby content as poor (1 star). It is fascinating, however, that there were no respondents who gave Digiby content a 2-star rating to Digiby content as compared to 2 participants who gave Digibar a 2-star rating. 3 participants (10%) rated Digiby content with 3 stars. Fourteen respondents (46.67%) gave Digiby content a 4-star rating, signifying a substantial positive sentiment towards the quality of the AI-generated content. An additional 13 participants (43.33%) rated Digiby content with 5 stars, indicating a strong overall positive perception. The majority of respondents (90%) rated Digiby content as either good (4 stars) or excellent (5 stars), with only a small percentage expressing some level of dissatisfaction (3 stars).The average rating for Digibar was 4.033 whereas the average rating for Digiby was 4.33. The results show that the respondents found the text on both websites to be of good quality. However, the Digiby website received slightly higher ratings,

which suggests that the respondents found the text generated by Generative AI to be slightly better than the text written by human copywriters.

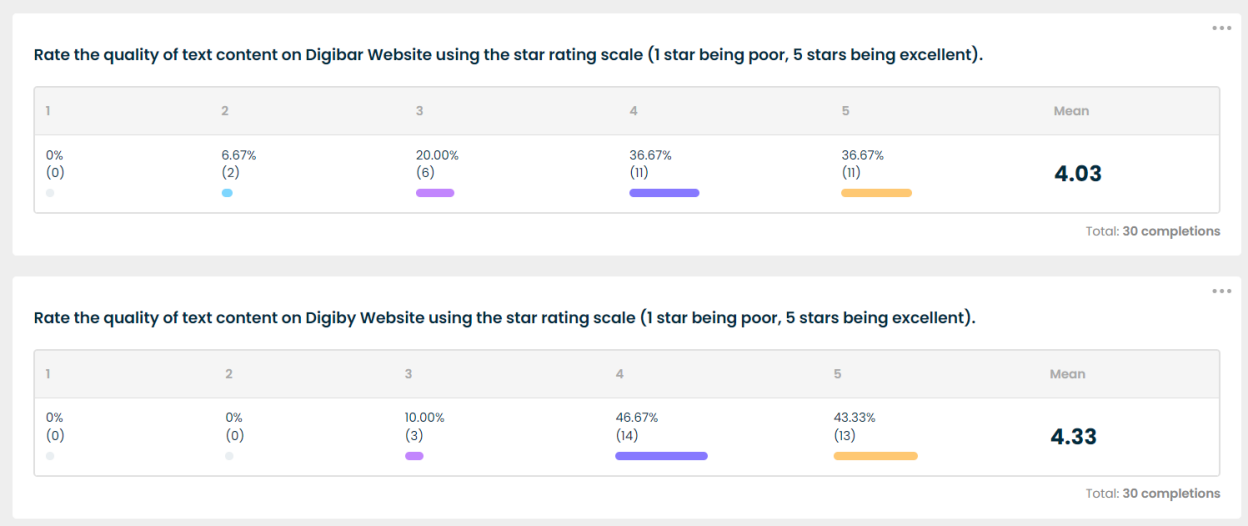


Figure 19 Survey Results for Quality of Text Content

For the second question in the survey, (Figure 20) respondents were asked which website had text generated by ChatGPT . Out of the 30 respondents, 18 participants (60%) chose Digibar as text generated by ChatGPT. The result indicates a majority perception that Digibar, the website featuring content generated by human copywriters, is likely to be the source of the text generated by ChatGPT. Whereas 12 participants (40%) chose Digiby as text content generated by ChatGPT (Generative AI). The survey results revealed that a majority of participants (18 out of 30) incorrectly identified the human-generated content (Digibar) as being produced by Generative AI. Only 12 participants correctly identified Digiby as the website generated by ChatGPT. This finding suggests that individuals have difficulty distinguishing between human-written and Generative AI-generated text. Thus from the first question in the survey

where respondents chose Digiby as the website with higher text quality most of the respondents were a bit biased in the second question in the survey by associating quality content with human creation, therefore incorrectly choosing Digibar as the website with content generated by ChatGPT.

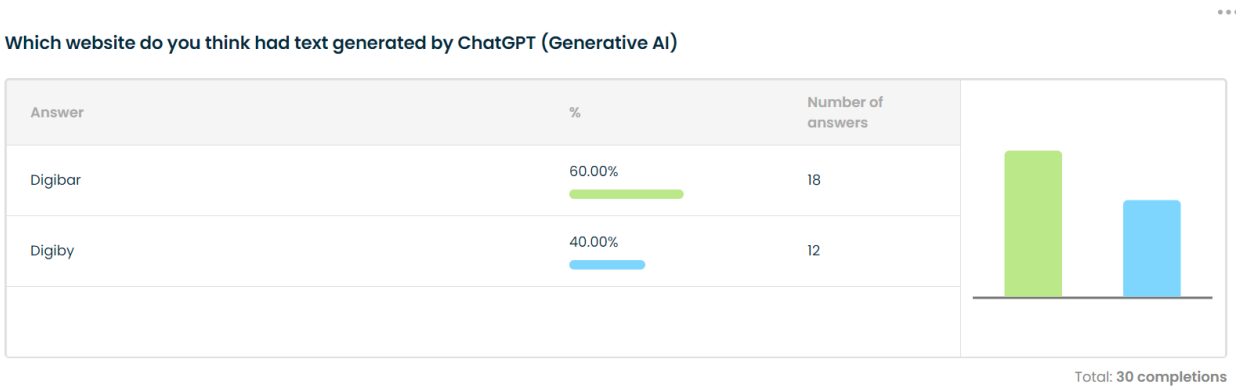


Figure 20 Survey Results for Second Questionnaire

Google Analytics Results and Evaluation

For Google Analytics, in the last 7 days, Digibar (Human Generated Content Website) recorded 1 new user and 11 event counts (Figure 19). In Google Analytics, an event is a user interaction or occurrence on your website or app that you want to track. Events can be anything from clicking a button to watching a video to completing a purchase. By tracking events, you can gain valuable insights into user behavior and measure the success of specific actions on your site or app. The event count is the total number of times an event has been triggered during a specified time period. Digibar had 5 page views. Digiby,(Generative AI Content Website) in contrast, exhibited a more robust performance over the same period. With 9 new users and a notable 45 event count (Figure 20). This showcases a higher level of user engagement compared

to Digibar. The visitor distribution is diverse, with 7 from the United States, 1 from Canada, and 1 from Ghana. Digiby had 18 page views.

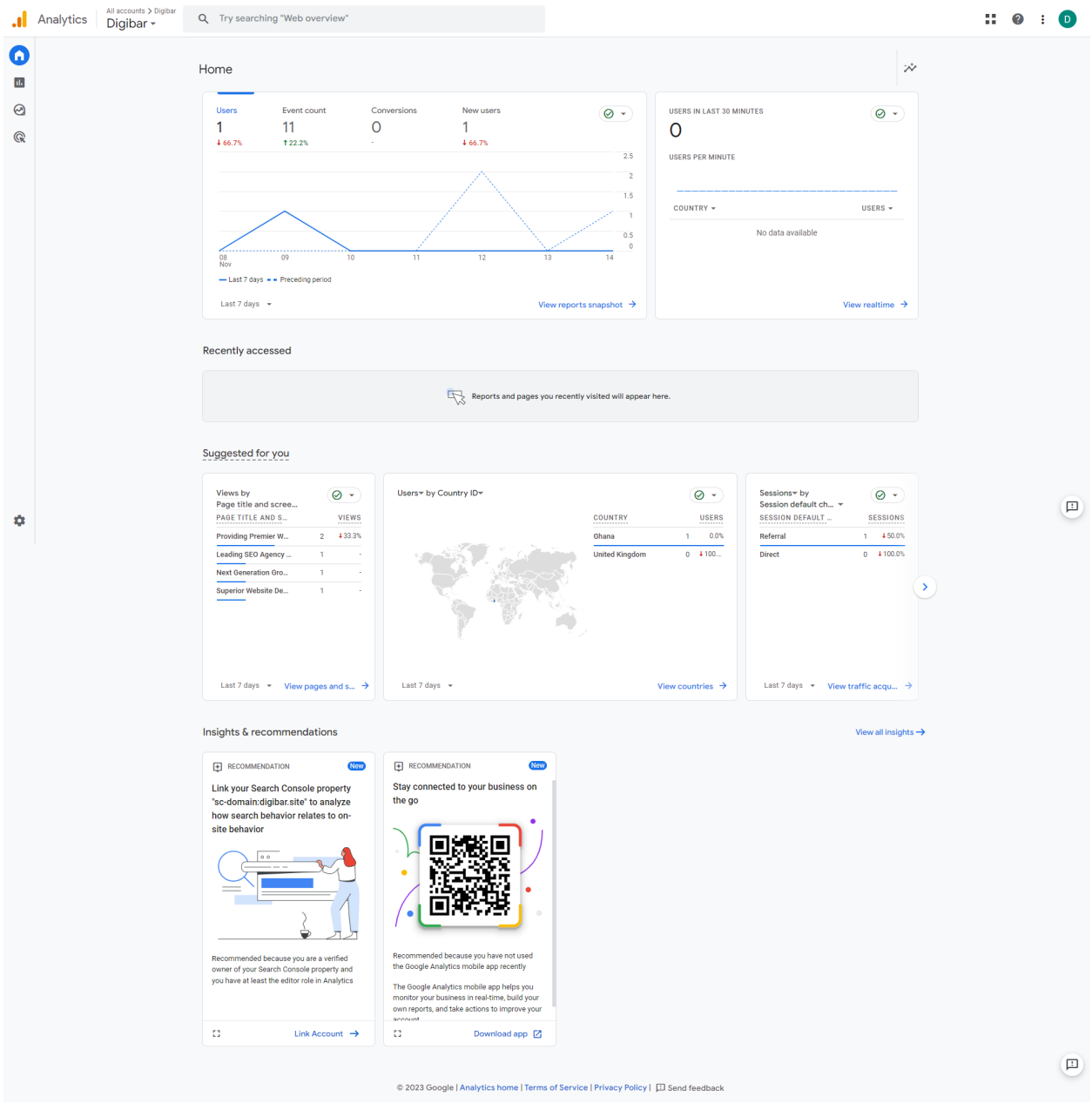


Figure 21 - Digibar Google Analytics Results

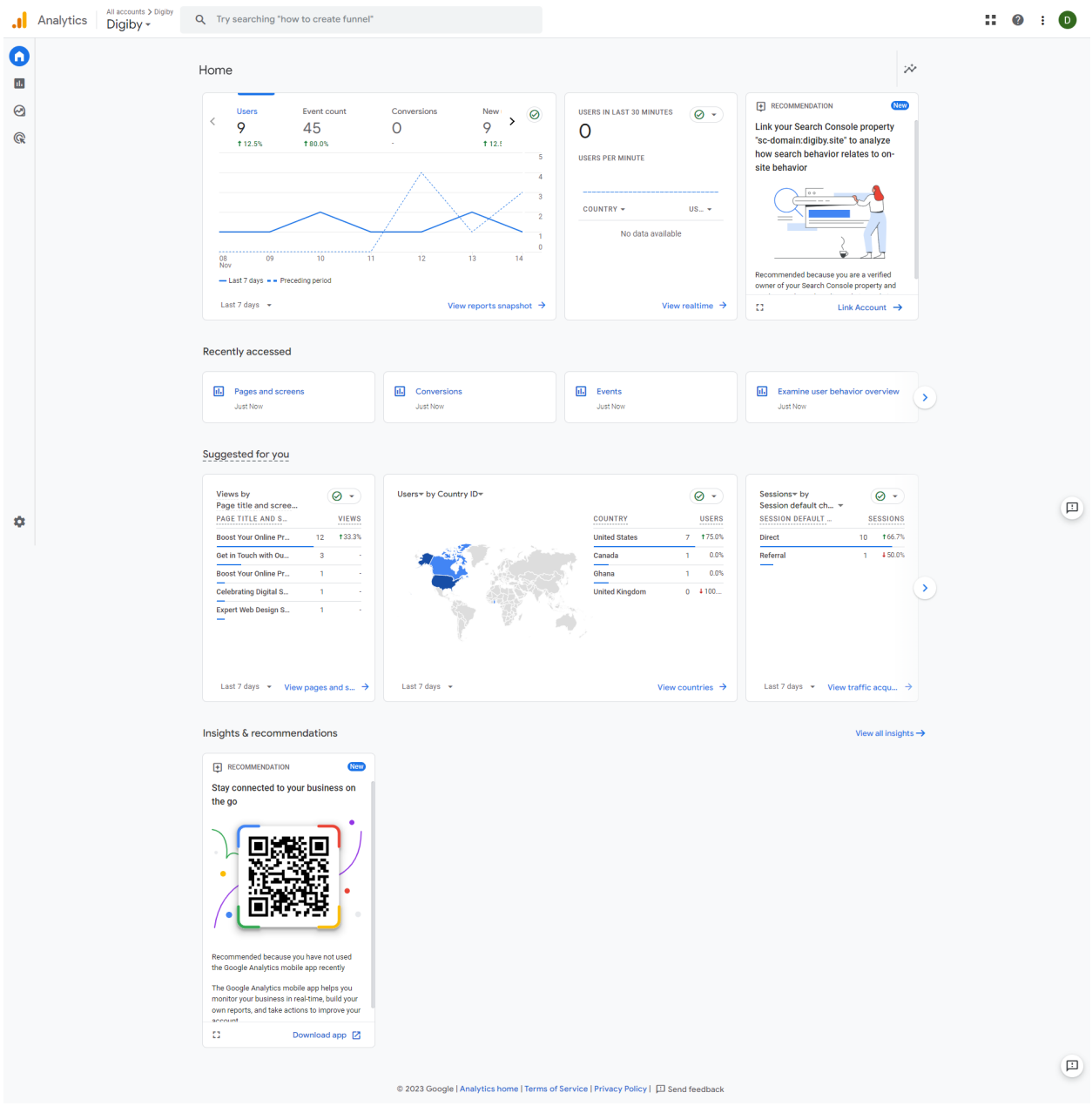


Figure 22 - Digiby Google Analytics Results

Digiby (Generative AI Content Website) outperforms Digibar (Human Generated Content Website) in terms of new users and event count, indicating a potential advantage in user attraction and interaction through AI-generated content. The geographic distribution of Digiby's visitors is also more diverse, spanning across North America and Africa. This suggests that

AI-generated content may have a broader international appeal compared to human-generated content, which is crucial for websites aiming to reach a global audience. The findings of this analysis suggest that Generative AI-produced content may be an effective alternative to Human-Written content for websites.

Grammar Results and Evaluation.

As part of text generation review, the Website Design page content produced by both ChatGPT – the AI Generator, and Grace, the Human Content writer were checked for grammatical errors. Grammarly was used for checking the grammatical errors. Grammarly is a software that reviews spelling, grammar, punctuation, clarity, engagement, and delivery mistakes in English texts, detects plagiarism, and suggests replacements for the identified errors. For Digibar, Grammarly made 36 grammar suggestions (see Figure 21). The higher number of suggestions suggests that there may be more grammatical errors or areas for improvement in human-generated content. For Digiby, (see Figure 22) Grammarly made 11 grammar suggestions. The relatively low number of suggestions indicates a commendable grammatical accuracy. The results suggest that Digiby demonstrates commendable grammatical accuracy, while Digibar, despite its human touch, may benefit from additional editing.

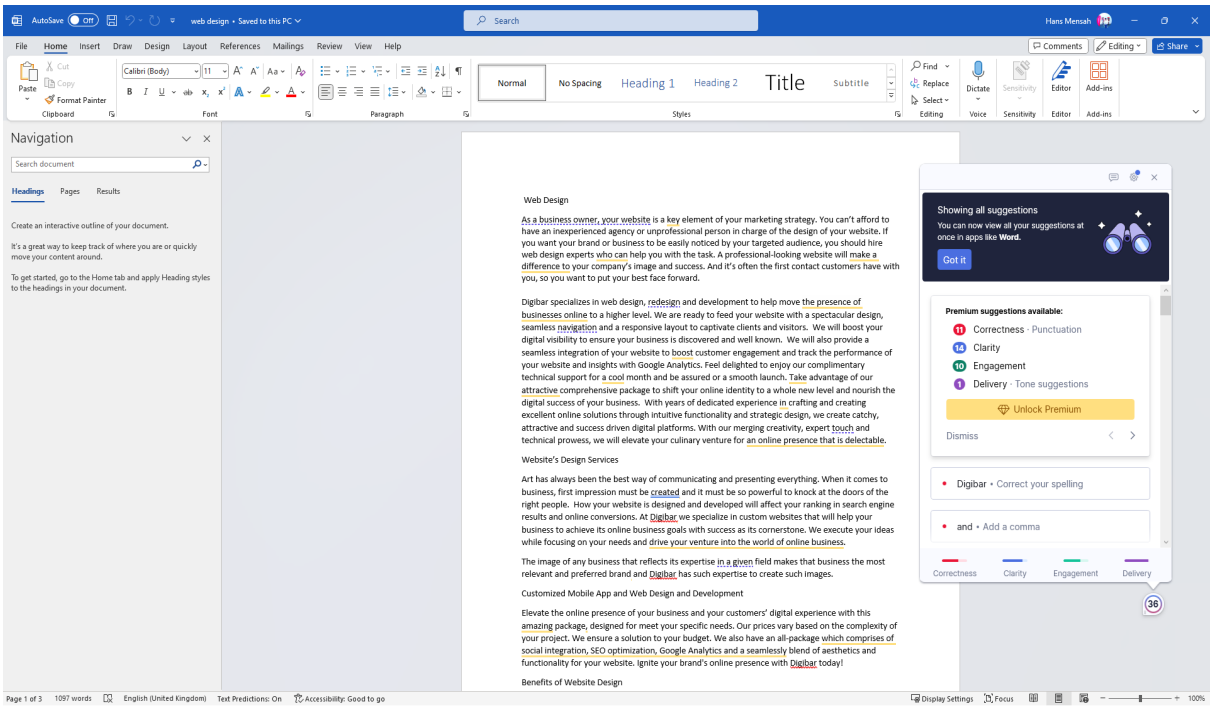


Figure 23 Grammarly Suggestions For Digibar

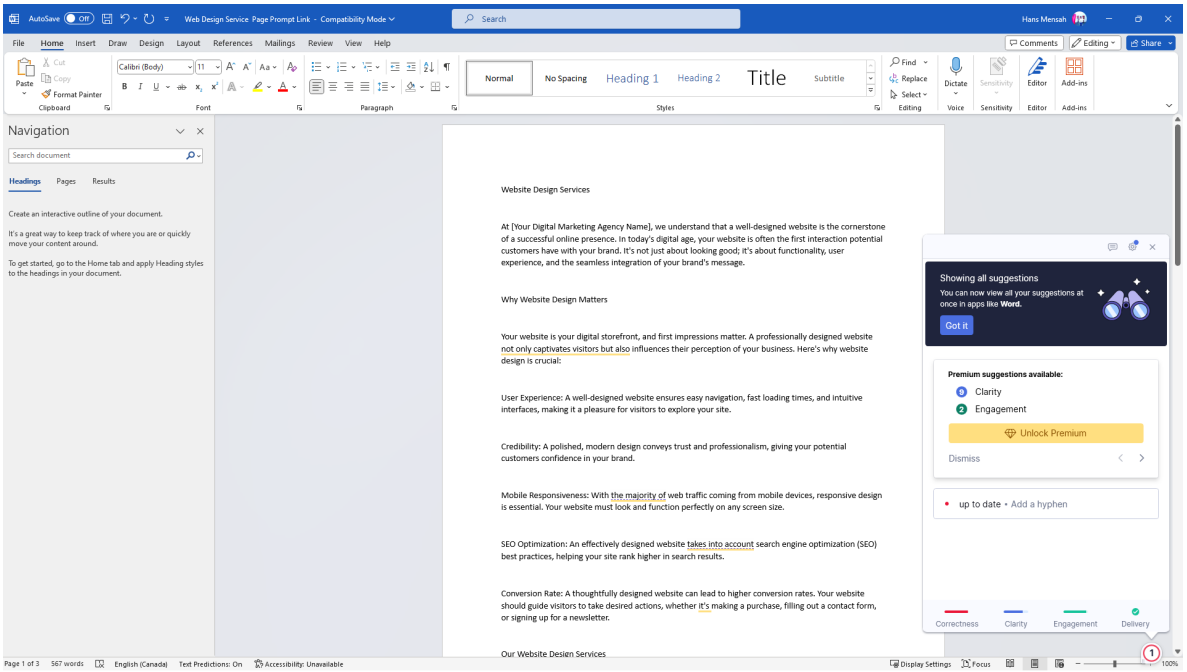
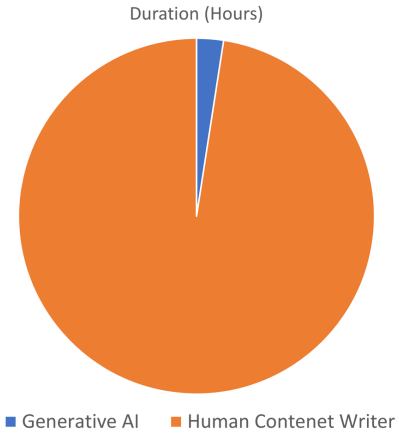


Figure 24 Grammarly Suggestions For Digiby

Time and Cost Analysis



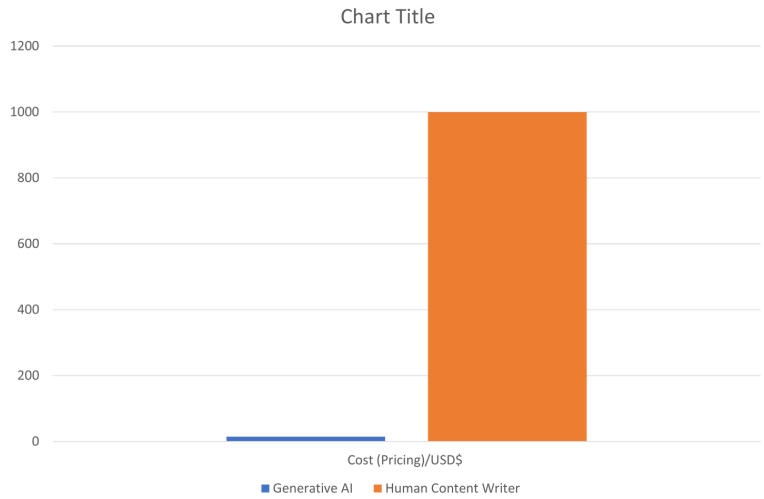


Figure 25 Time Pie Chart

Generative AI : 5 Minutes

Human Content Writer : 4800 Minutes

Figure 26 Cost Bar Graph

Generative AI : $15

Human Content Writer : $1000

Website content including the Homepage, About Us Page, Main Service Page, Website Design Service Page, UI/UX Design Service Page, Copywriting Page, Search Engine Optimization Page, Contact Us Page, and 2 Blog Posts, generated by ChatGPT (Generative AI) exhibited a remarkable efficiency, requiring only 5 minutes for completion. This rapid pace is a testament to AI systems' automated and parallel processing capabilities. Generative AI operates by ingesting vast data and swiftly synthesizing coherent and contextually relevant content. On the contrary, the human-driven approach by Writer Grace demanded a significantly larger time investment of 10 Days. To avoid any bias I asked Grace and she used 8 hours per day for 10 days, hence the 80 hours thus 4800 minutes. This discrepancy is attributed to the inherently iterative and time-intensive nature of human creativity. Grace, like many skilled writers, engages

in thoughtful ideation, research, and revisions to deliver a polished piece. The cost associated with ChatGPT which I used to produce content for the Digiby website was entirely free, but to avoid any bias, I added the premium charge of $15 per month in my analysis. Generative AI is significantly lower than that of a human writer. The cost associated with human-driven content creation is notably higher. Grace's services, valued at $1000, highlight the financial commitment required to employ a skilled human writer. This cost encompasses not only the writer's time but also their expertise, creativity, and subjective interpretation of the given task.

CONCLUSION

According to the survey results, Grammarly results and Google Analytics results, the content generated by ChatGPT (Generative AI) is marginally superior to that produced by Grace, (Human Copywriter). ChatGPT's ability to analyze patterns, understand context, and produce grammatically sound content contributes to its high-quality output. While the human touch in content creation often adds a unique flair and creativity, as shown by the less number of pages that exhibited indications of potential plagiarism, the survey results suggest that the content produced by Grace is slightly edged out by ChatGPT (Generative AI). This finding may be surprising given the common perception that human-generated content is inherently superior as can be seen in the second questionnaire when a majority of respondents incorrectly chose Digibar as the website with content produced by ChatGPT. However, it underscores the evolving capabilities of Generative AI in understanding and emulating human-like writing. Generative AI's most striking advantage is its rapid content generation, making it an ideal choice for time-sensitive projects. The low upfront cost and minimal ongoing expenses make Generative AI an attractive option for organizations with budget constraints. In addition, Generative AI

maintains a consistent level of output quality, avoiding fluctuations associated with factors like writer's block or personal bias. However, it is worth noting that , while capable of producing coherent content, Generative AI may struggle with truly creative and innovative writing that requires a deep understanding of emotions and context. Another limitation is the quality of content is dependent on the data the AI is trained on, which may result in biased or limited perspectives. On the other hand, Human writers bring a level of creativity and understanding that AI may struggle to replicate, particularly in areas requiring emotional depth or complex storytelling. Human writers like Grace, can adapt their writing style to suit the unique requirements and voice of a particular brand or project. The main limitation of Human Content writers is time constraints. The extensive time required for human content creation may not be feasible for projects with tight deadlines. Also, the subjective nature of writing means that quality may vary based on individual writer skills and preferences. The choice between the two text generation methods ultimately depends on the specific requirements of the project, considering factors such as budget, time constraints, and the desired level of creativity and emotional depth in the content.

Future Work

In the future phase of the project, "Comparing How Effective Generative AI Can Help with On-Page Search Engine Optimization as Compared to Human Content Writers," a collaborative approach is envisioned to combine the strengths of both Generative AI and Human Writers. My objective will be to find a synergy where human writers can utilize Generative AI as a tool to enhance their, on page SEO efforts. My aim is to take advantage of the efficiency and accuracy of Generative AI in producing content. Human writers like Grace will play a role in

refining the AI generated content infusing it with their creativity and ensuring it seamlessly aligns with the brands voice and message. This collaborative model aims to optimize the benefits of both content generators resulting in a blend that maximizes, on page SEO effectiveness.

APPENDIX

Appendix A - Introduction Page

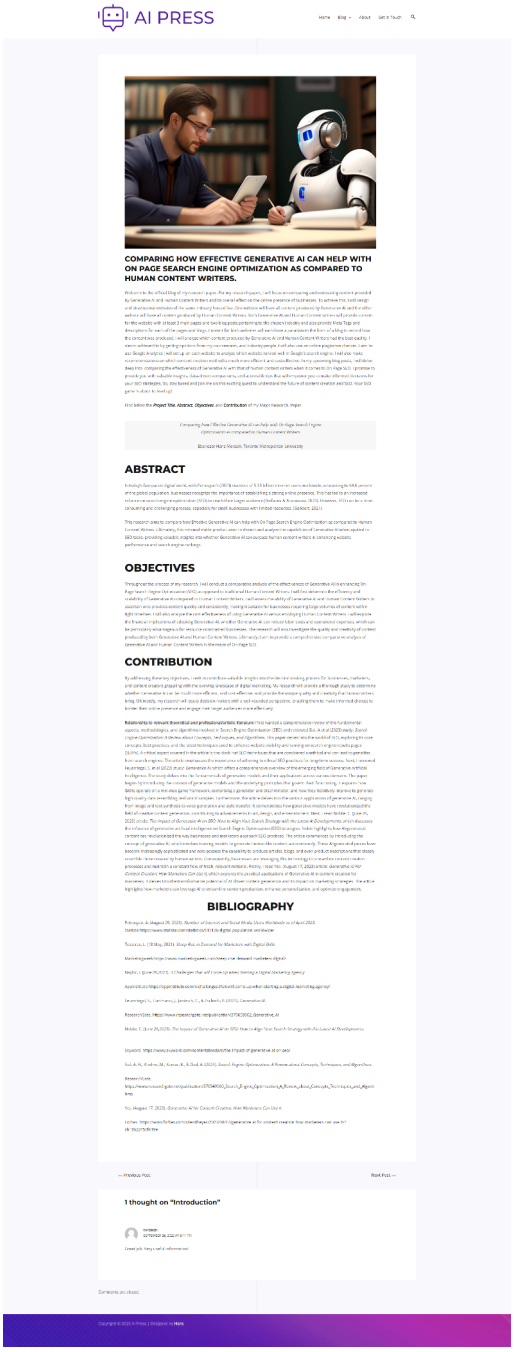


Figure A-1 Desktop Screenshot of Project Introduction Page

To see this in detail, please visit https://aipress.ca/major-research-paper/introduction/

Appendix B - Choosing an Industry and Domain Name

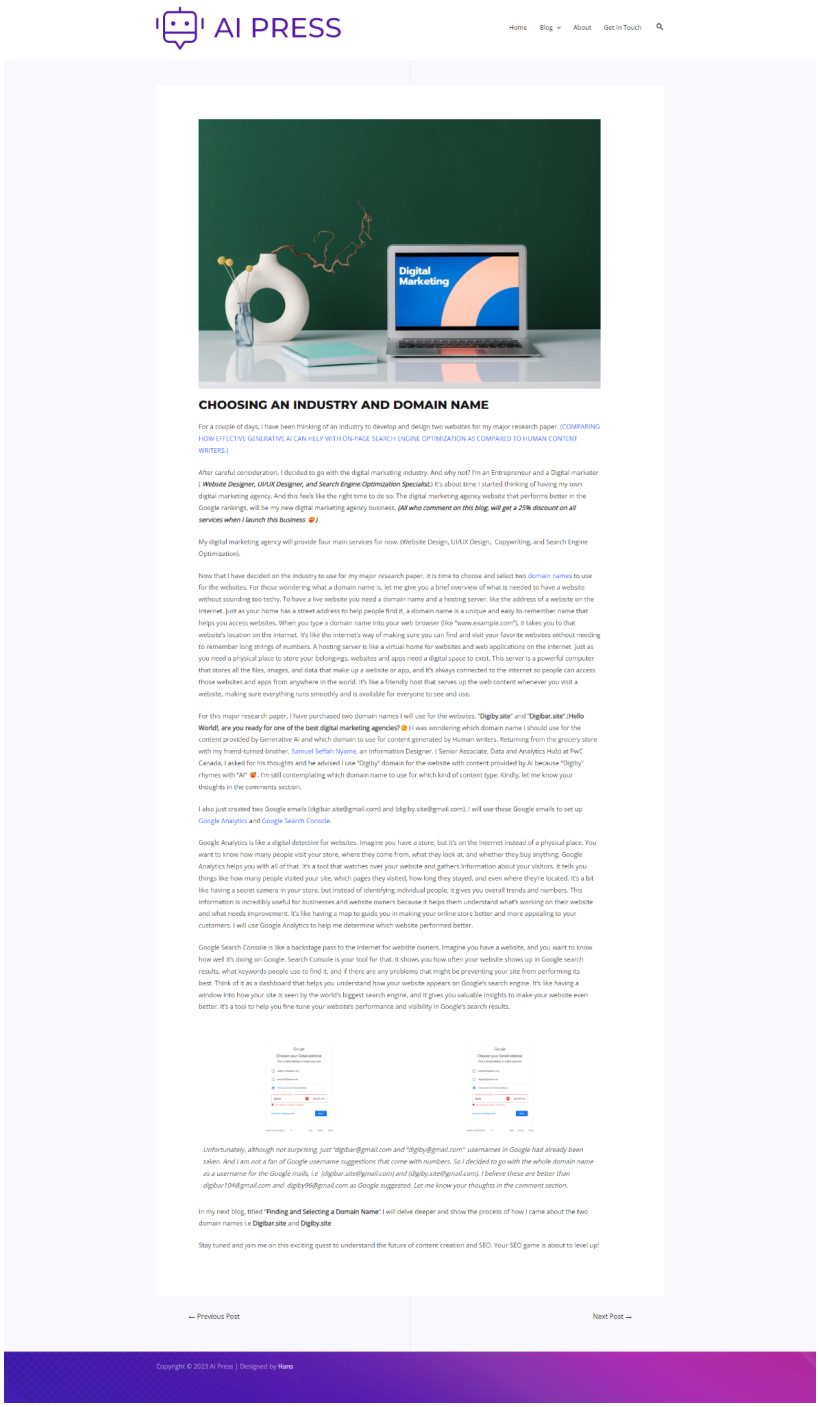


Figure B-1 Desktop Screenshot of Choosing an Industry and Domain Name Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/digital-marketing/

Appendix C - Finding and Selecting a Domain Name

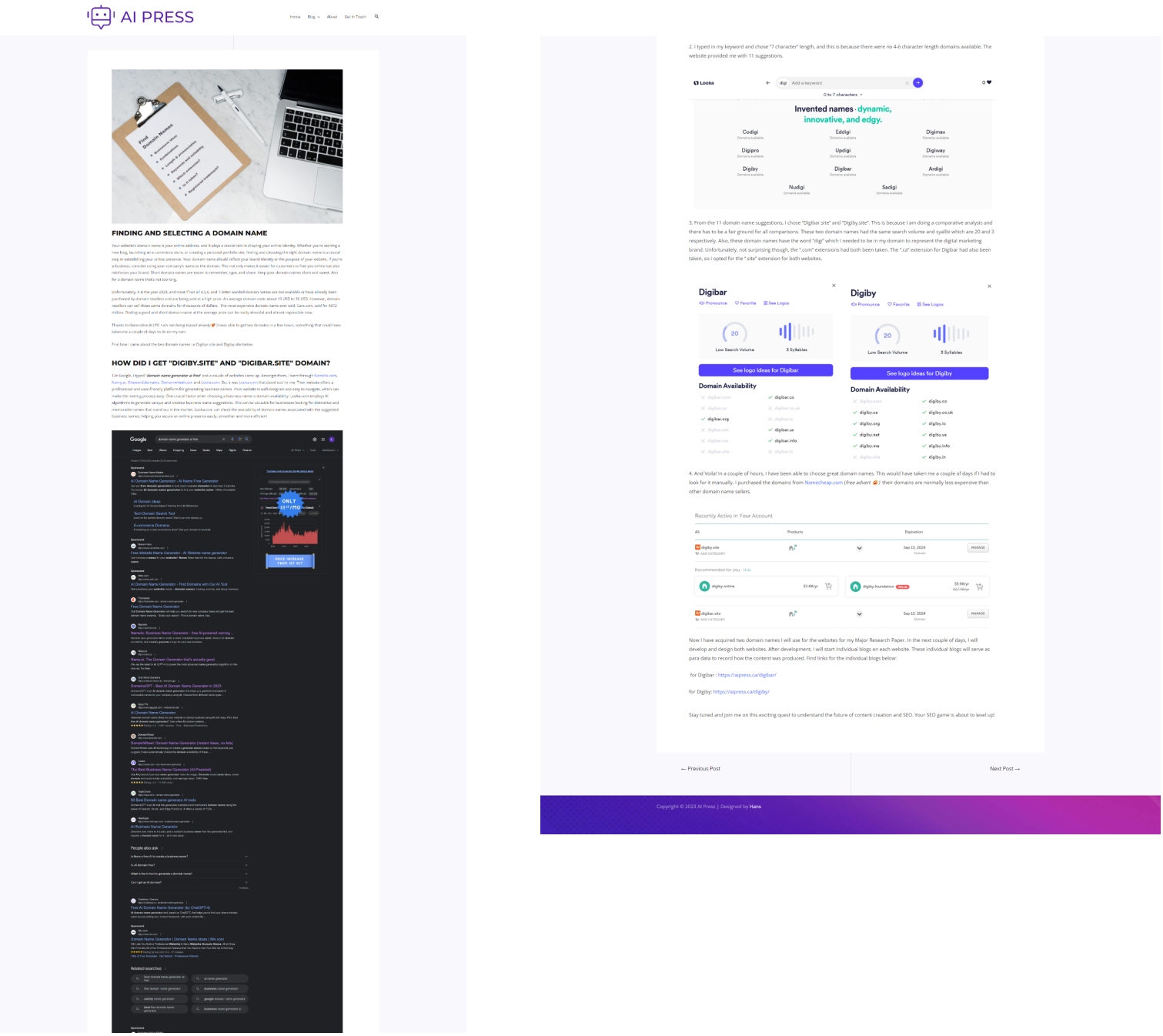


Figure C-1 Desktop Screenshot of Finding and Selecting a Domain Name Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/finding-domain-name/

Appendix D - Website Design Process

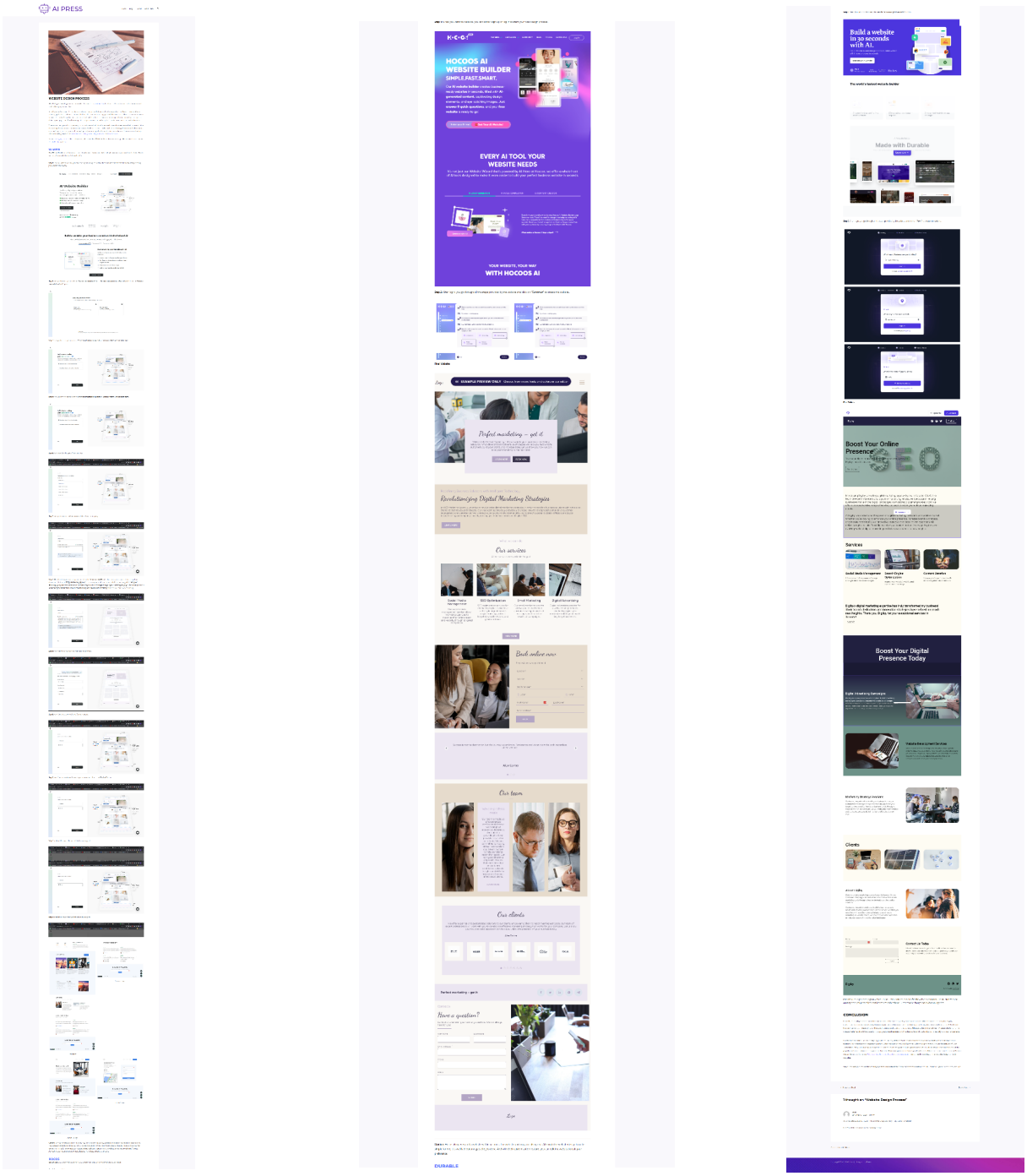


Figure D-1 Desktop Screenshot of Website Design Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/website-design/

Appendix E - Logo Design Process Part 1

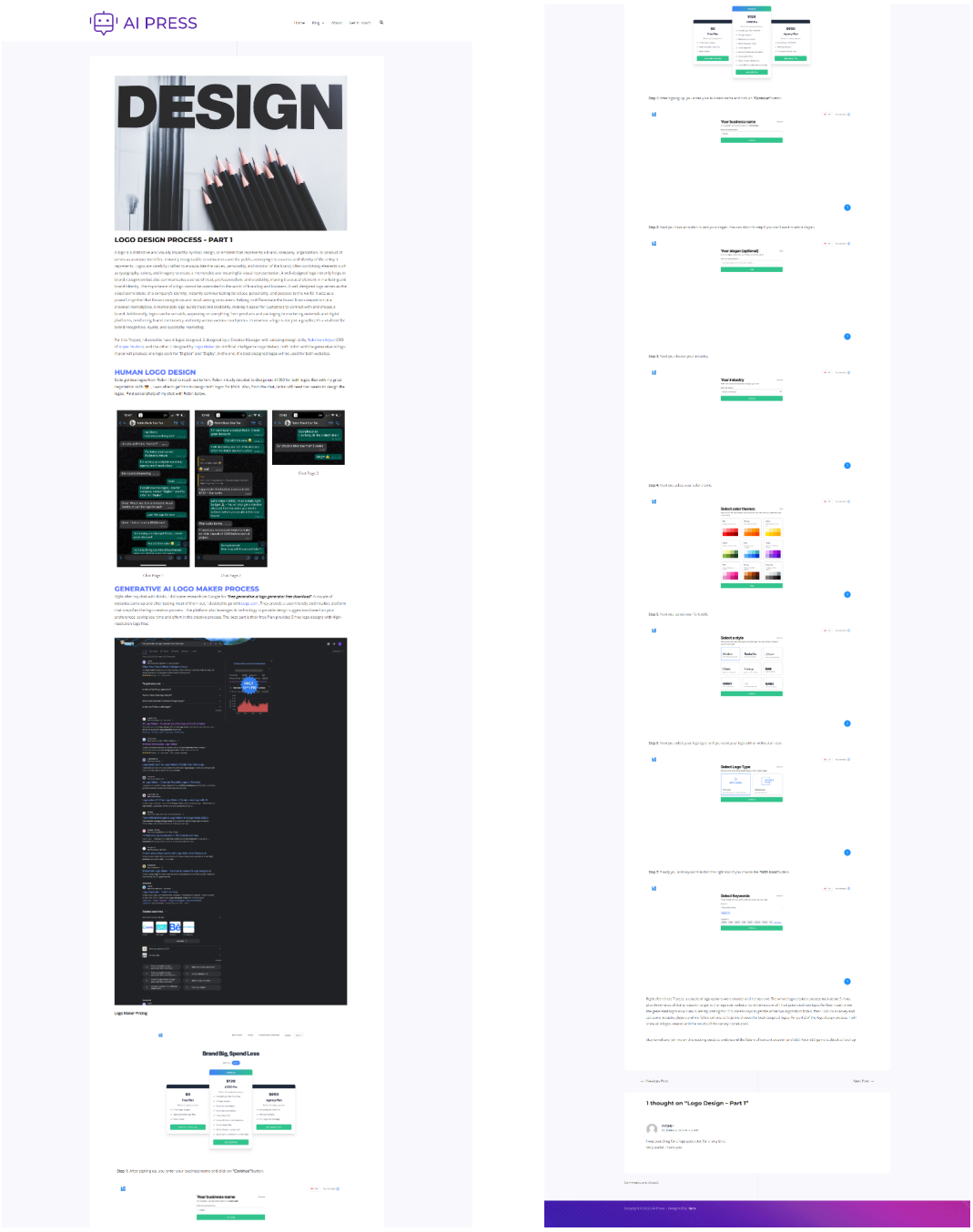


Figure E-1 Desktop Screenshot of Logo Design Process 1 Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/logo-design-1/

Appendix F - Logo Design Process Part 2

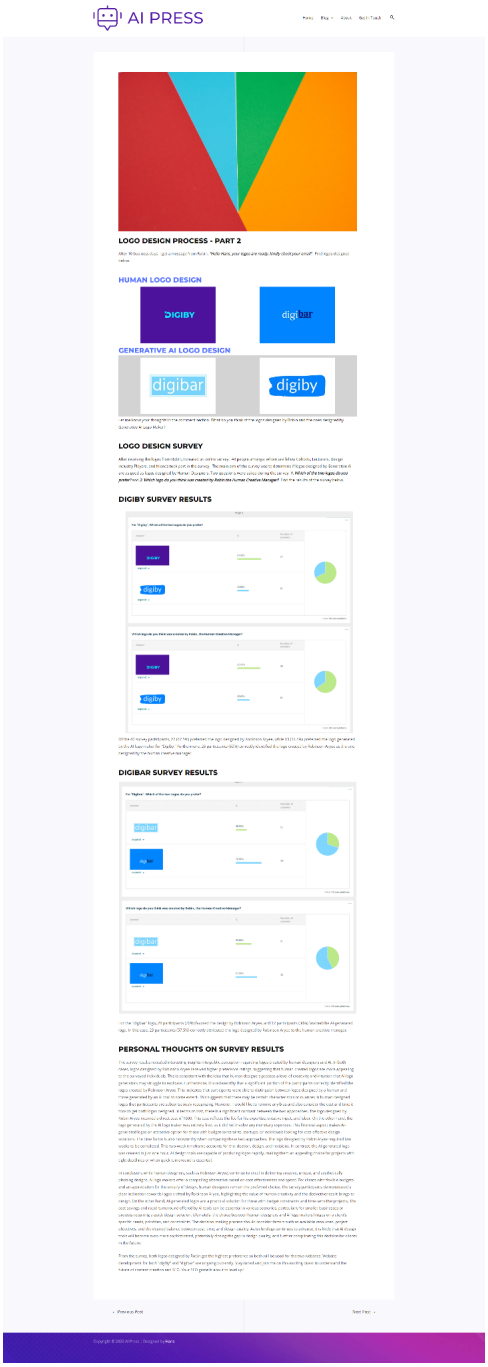


Figure F-1 Desktop Screenshot of Logo Design Process 2 Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/logo-design-part-2/

Appendix G - Content Plagiarism Overview

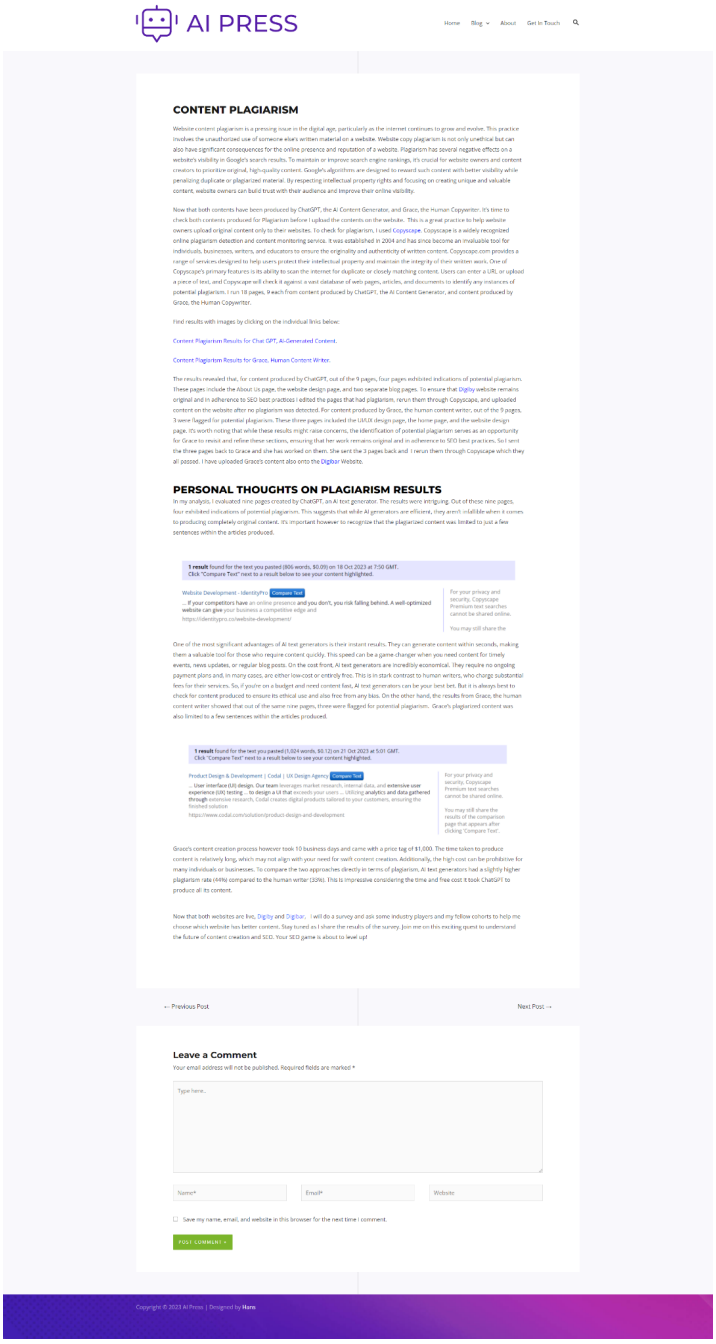


Figure G-1 Desktop Screenshot of Content Plagiarism Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/content-plagiarism/

Appendix H - Website Insights

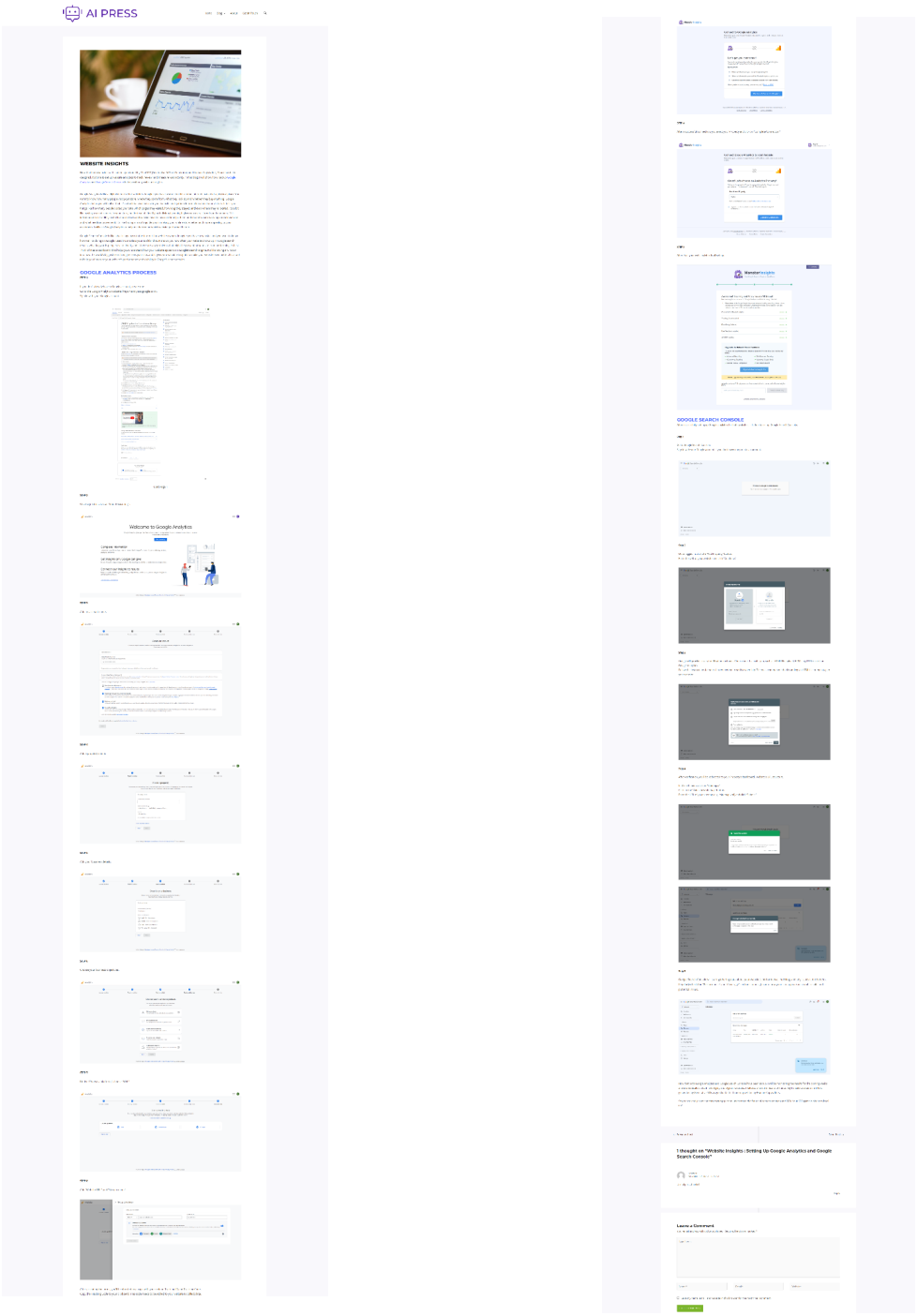


Figure H-1 Desktop Screenshot of Website Insights Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/website-insights/

Appendix I - Survey Results and Evaluation

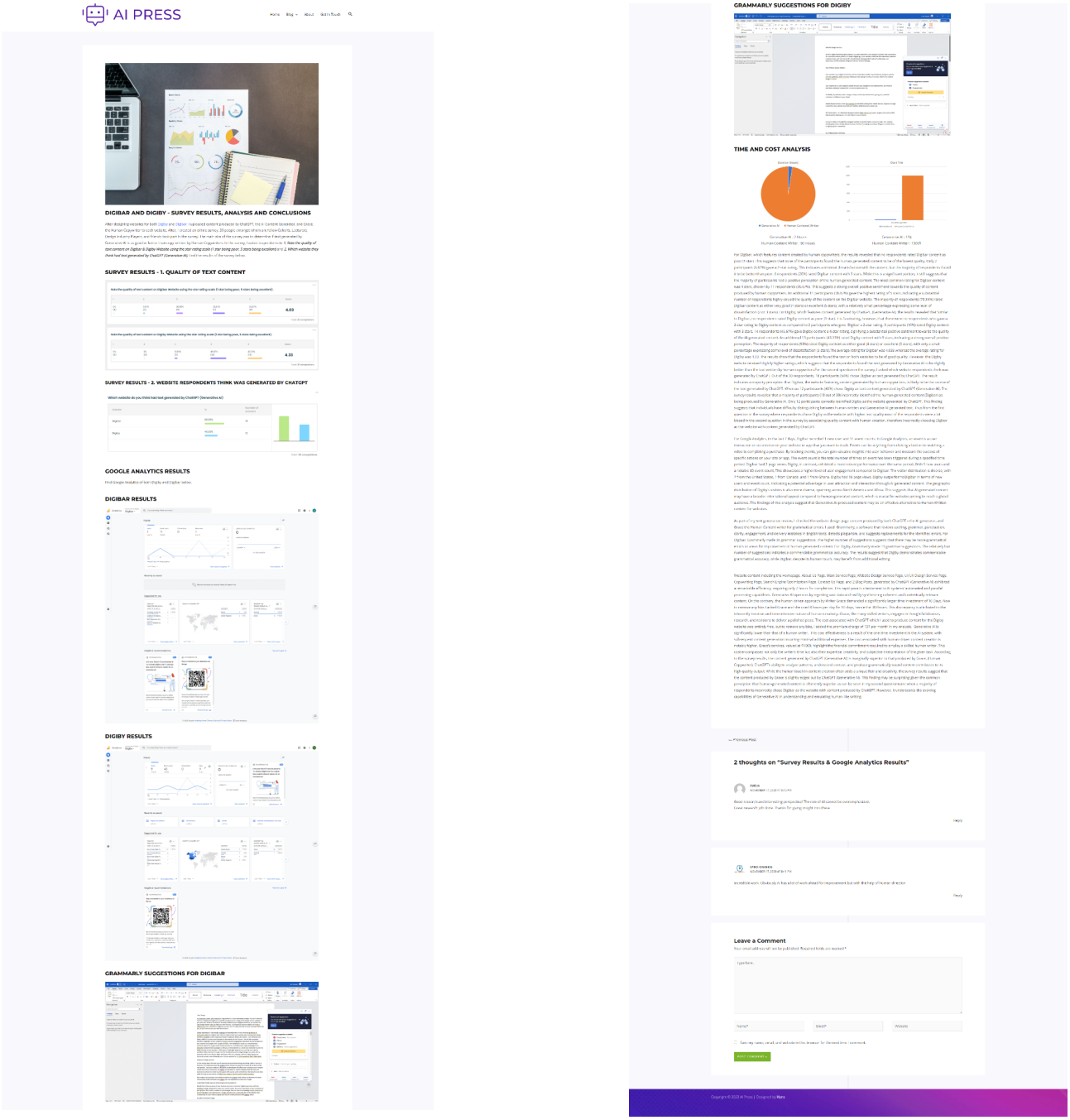


Figure I-1 Desktop Screenshot of Survey Results and Evaluation Blog Page

To see this in detail, please visit https://aipress.ca/major-research-paper/survey-results/

Appendix J - Digibar Content Generation Process

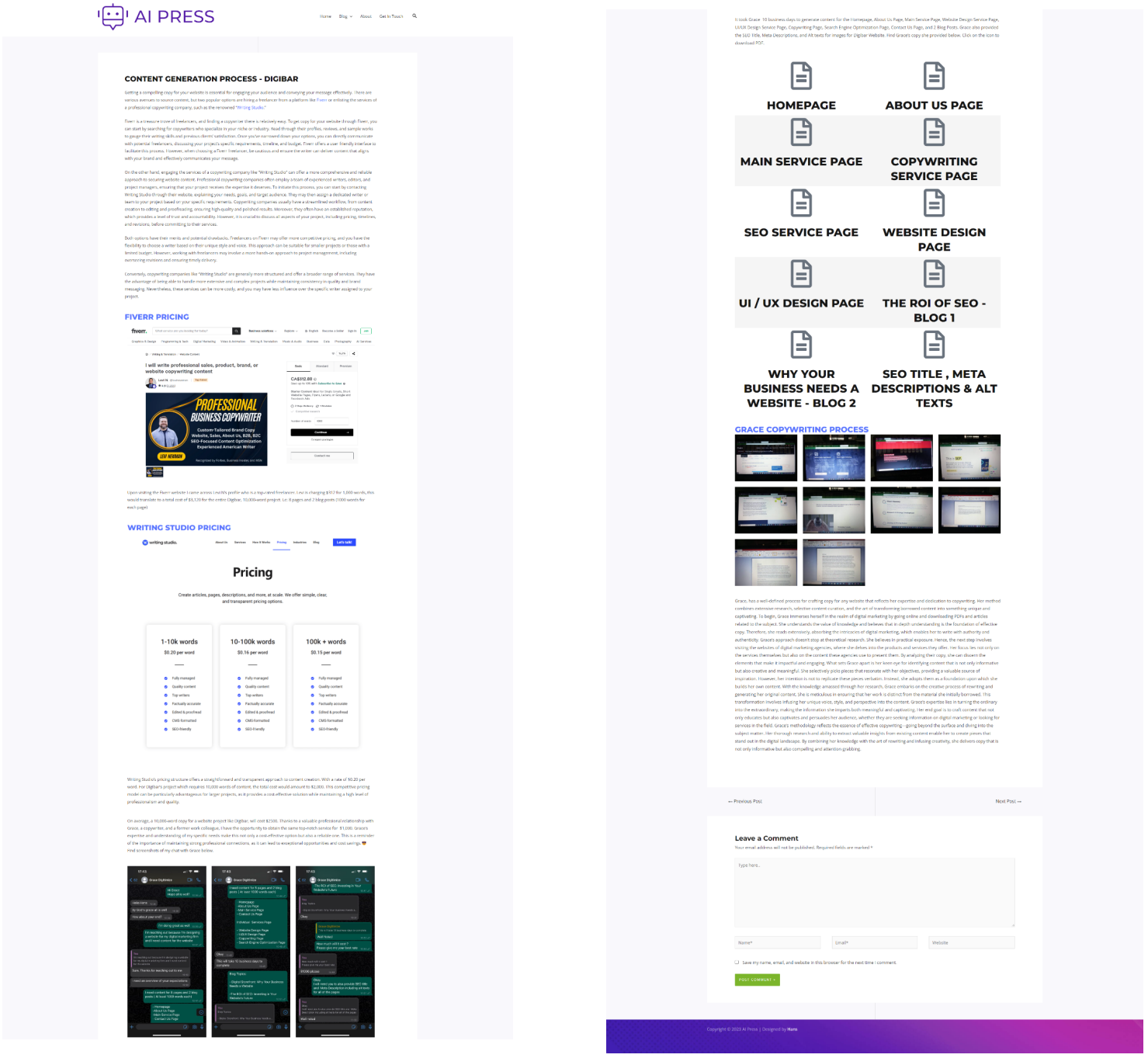


Figure J-1 Desktop Screenshot of Digibar Content Generation Blog Page

To see this in detail, please visit https://aipress.ca/digibar/digibar-content-generation-process/

Appendix K - Digibar Content Plagiarism Results

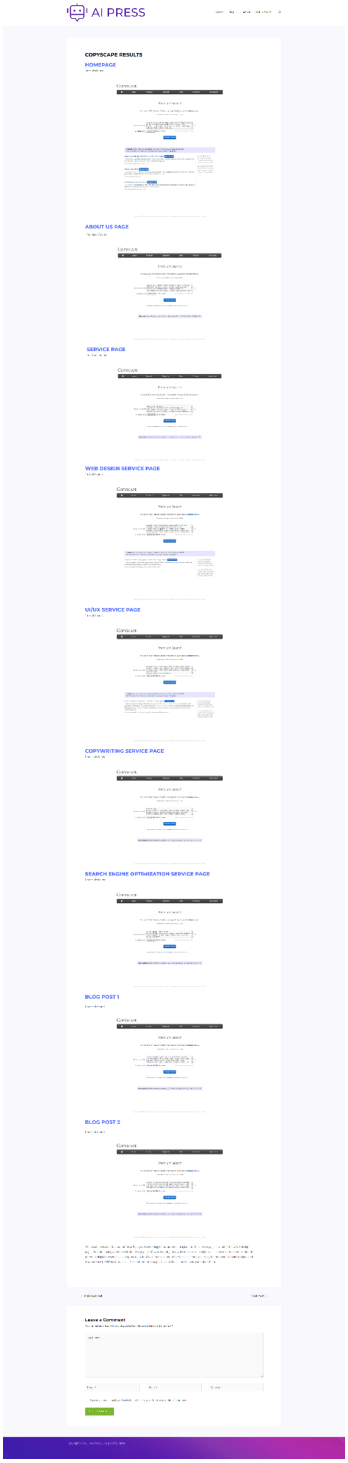


Figure K-1 Desktop Screenshot of Digibar Content Plagiarism Results Blog Page

To see this in detail, please visit https://aipress.ca/digibar/content-plagiarism-detection-digibar/

Appendix L - Digiby Content Generation Process

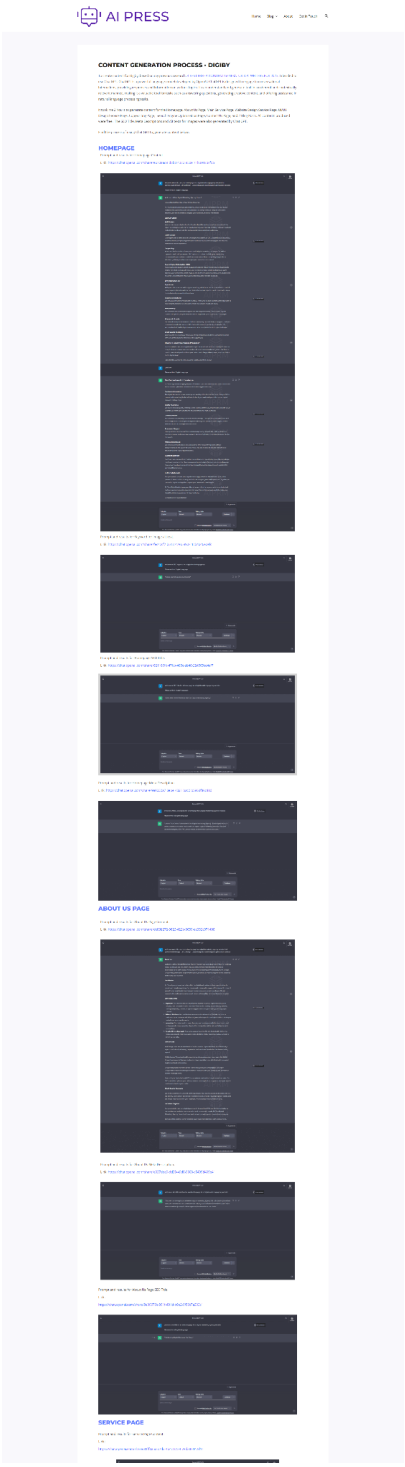


Figure L-1 Desktop Screenshot of Digiby Content Generation Blog Page

To see this in detail, please visit https://aipress.ca/digiby/content-generation-process/

Appendix M - Digiby Content Plagiarism Results

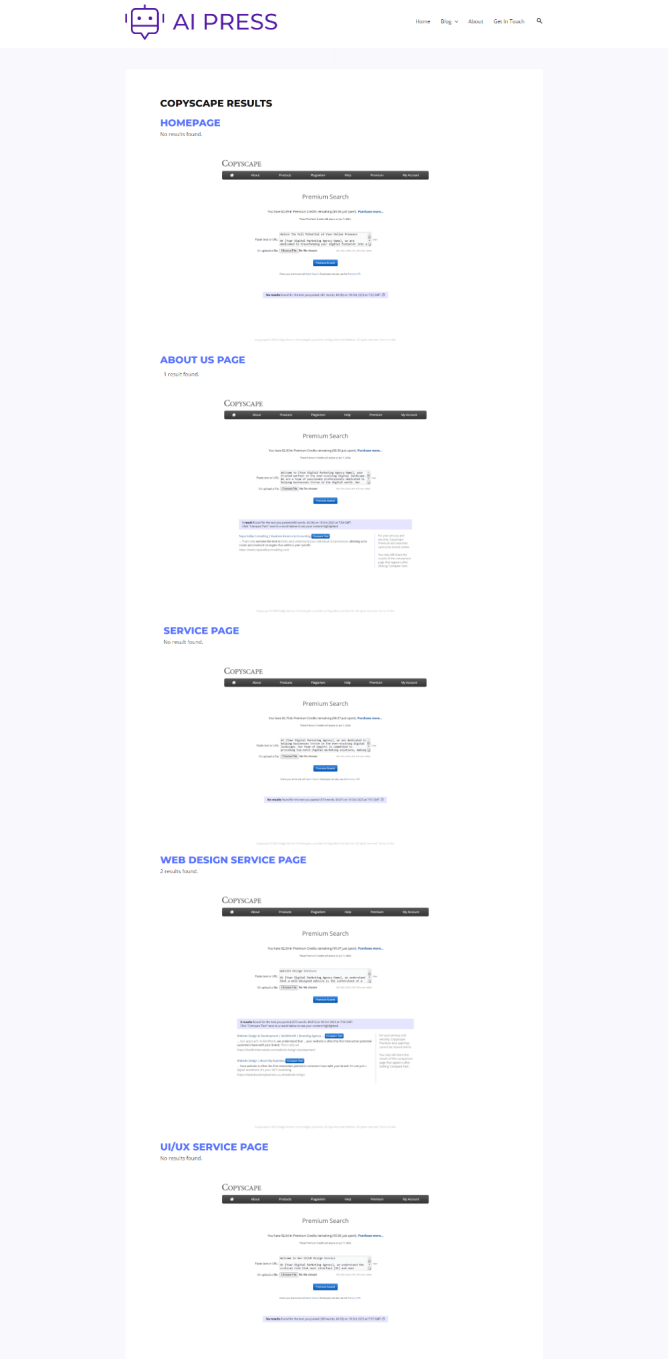


Figure M-1 Desktop Screenshot of Digiby Content Plagiarism Results Blog Page

To see this in detail, please visit https://aipress.ca/digiby/content-generation-process/

Appendix N - Homepage of Digibar Website (Human Copywriter Text Content)

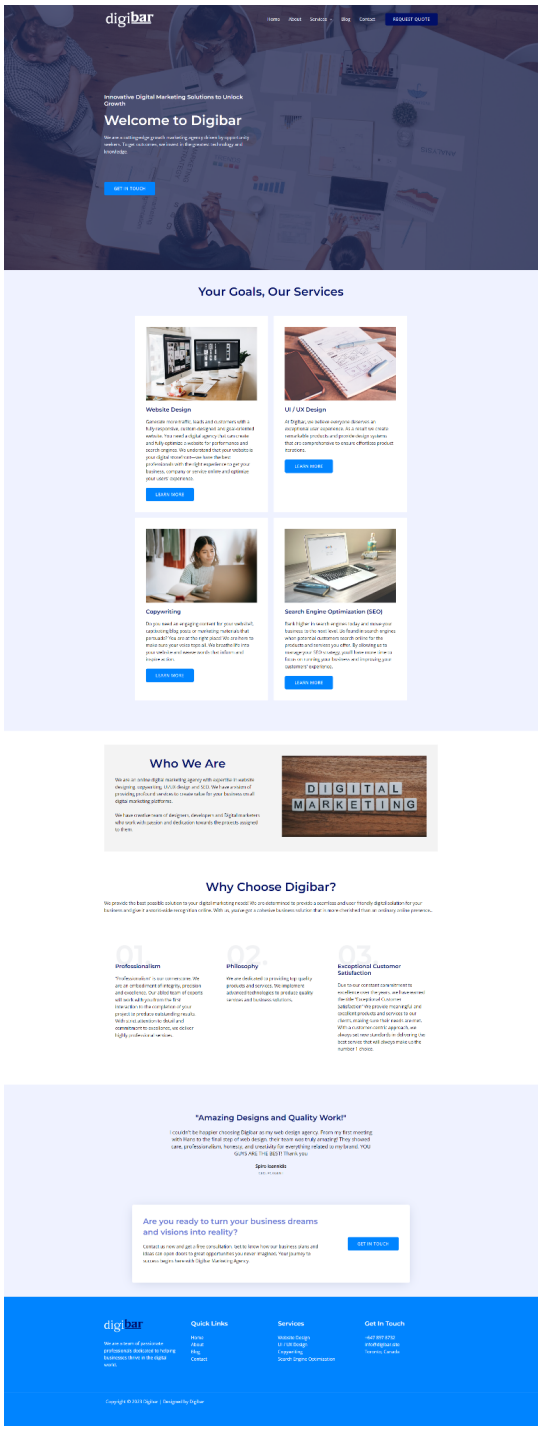


Figure N-1 Desktop Screenshot of Digibar Website Homepage

To see this in detail, please visit https://digibar.site/

Appendix O - Homepage of Digiby Website (Generative AI Text Content)

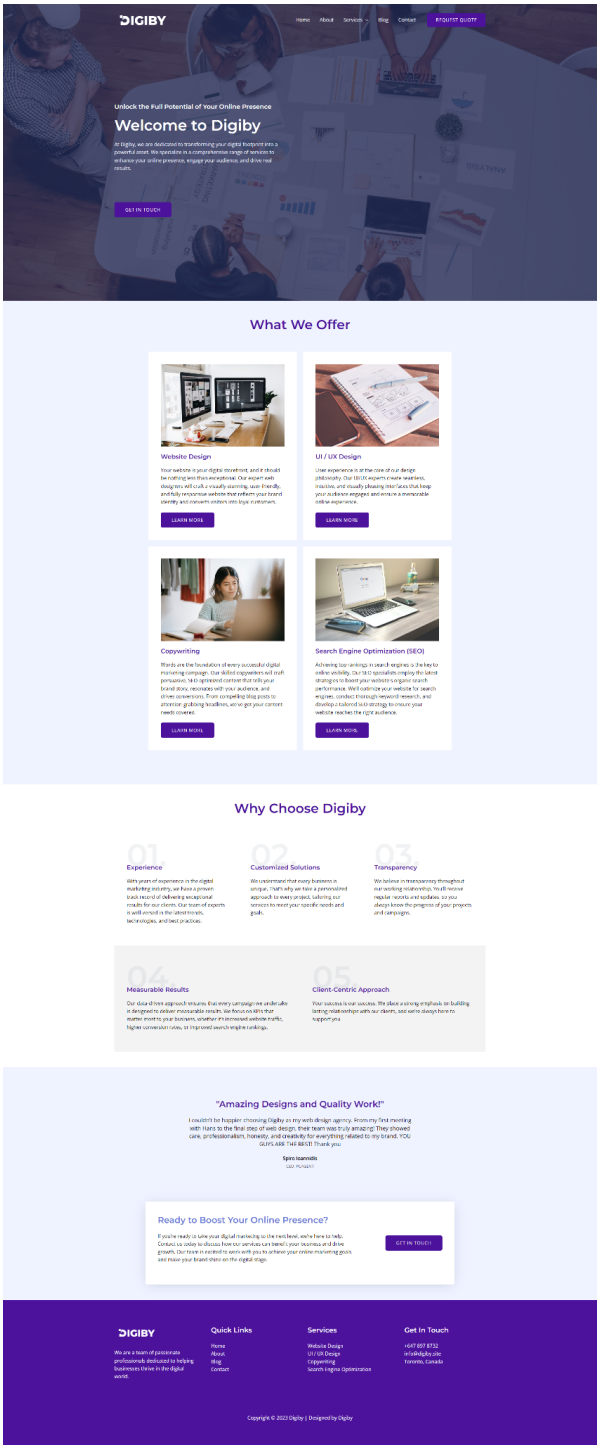


Figure O-1 Desktop Screenshot of Digiby Website Homepage

To see this in detail, please visit https://digiby.site/

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