

AI - Powered Website Generator

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DATA 298A: MSDA Project I

Dec 09, 2024

CHAPTERS

Chapter 1 : Introduction

Chapter 2 : Data and Project Management Plan

Chapter 3: Data Engineering

Chapter 4: Modeling

Project Background and Execute Summary

Problem Statement

- High cost of traditional web development services.
- Technical and financial barriers for freelancers, startups, and small-scale businesses.
- Growing need for efficient, low-resource solutions for establishing a web presence.

Current Market Challenges

- Web development costs hinder small companies.
- Difficulty in creating multi-page websites without developer expertise.
- The increasing importance of online presence for business growth and customer engagement.

Solution Overview

- AI-Generated Model for multi-page website creation.
- Utilizes GPT-4, LLaMA 2, PaLM, and Gemini to automate web development.
- Generates fully customizable websites without requiring developers.

Key Features

- User-Friendly Input
- Multi-Page Website Generation
- Customization
- Industry-Specific

Benefits of the Solution

- Cost-Efficient
- Time-Saving
- Accessibility
- Sustainability

Project Requirements

Functional Requirements

- User Input Interface
- Multi-Page Website Generation
- Content Update System
- Template and Theme Customization
- SEO Optimization & Performance Measurement

AI-Powered Requirements

- AI-Based Content Generation: **GPT-4 and LLaMA 2**
- AI for Code and Structure Generation : **Claude and Gemini** (clean HTML, CSS, and JavaScript).
- AI for Personalization - layouts and user experience enhancements - **PaLM**.
- AI for SEO and Performance Optimization - Lighthouse score.
- AI for Dynamic Updates

Data Requirements

- Website data
- JSON format

Project Deliverables

Project Deliverables and Timeline

Deliverable	Description	Due Date
Project Proposal	A detailed document proposing the project goals, methodology, and expected outcomes.	09/02/24
WBS	Describing project breakdown in CRISP DM methodology using a Work Breakdown Structure.	09/07/24
Gantt Chart	Create a Gantt chart showcasing the project deliverables timeline, tasks with their dependencies.	09/15/24
Data Management Plan	Plan outlining the scraping of data from publicly available websites.	09/13/24
Data Collection Plan	Gathering raw HTML, CSS, JS, and images from 500 B2B SaaS websites.	09/04/24
Data Transformation	Organizing the data into separate folders for each website with page linking.	10/04/24
Data Preprocessing	Converting website data into single JSON files to preserve the hierarchy and create prompt-completion pairs.	10/07/24
Data Loading	Adding the preprocessed data into an S3 bucket for modeling.	10/10/24
Model Development	Developing NLP models with GPT 4, RAG, Llama2, and Claude.	12/07/24
NLP User Input and Front-End Creation	Developing user interface in Streamlit for real-time website generation.	12/07/24
Model Evaluation and Deployment	Evaluating models based on Fréchet Inception Distance, Google Lighthouse Score, BLEU, and ROUGE score.	12/07/24
Final Report	Project documentation in APA format containing a description of each phase, results, and recommendations.	12/10/24
Presentation	Project presentation highlighting the preprocessing, pipeline, and modelling with a focus on the results.	12/10/24

Technology and Solution Survey

MODEL	ADVANTAGES	DISADVANTAGES
Llama (TC-Llama 2 & Llama 3)	Excels in generating templates for technology-product matching and programming tasks, bilingual content generation, optimized for large datasets	High computational demands, memory limitations, requires fine-tuning
GPT-4	High-quality, multimodal content generation, excels in creating accurate templates for various use cases	Potential for biased content, resource-intensive
Claude-2	Strong in generating detailed explanations and educational content templates, Constitutional AI ensures safe and relevant outputs	Limited versatility outside specified domains
Gemini	Excellent in personalized content and template generation, text-to-image and image-to-text workflows	Complex architecture, resource-intensive

Literature Survey of Existing Research

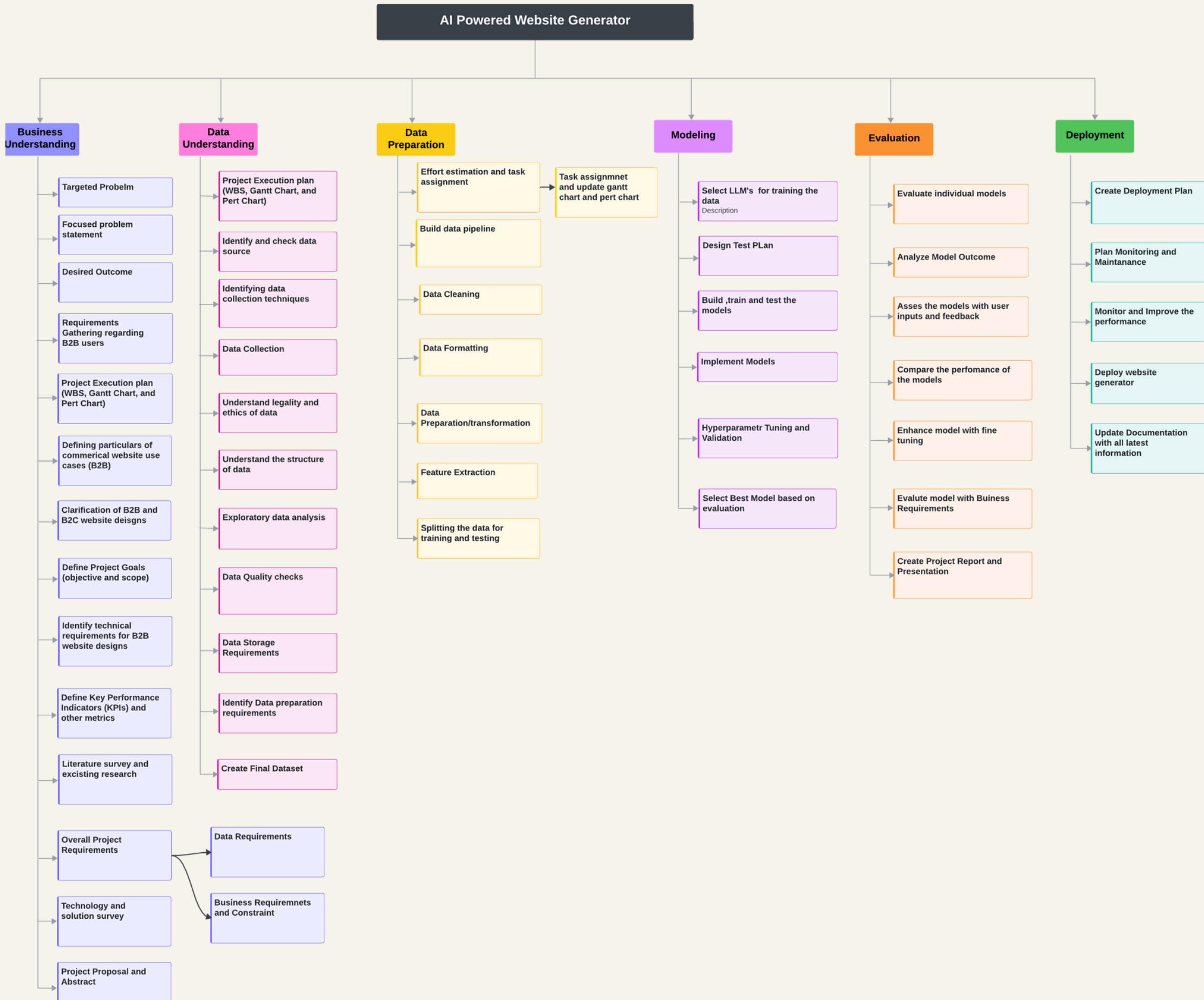
PAPER	MODEL	ADVANTAGES	DISADVANTAGES
Kingma & Welling (2013)	Auto-Encoding Variational Bayes (AEVB)	Superior to the wake-sleep algorithm, effective optimization of variational lower bound	Challenges with large datasets, intractable posterior distributions
Maddigan & Susnjak (2023)	GPT-3, Codex	High accuracy in transforming natural language queries into data visualizations	Issues with user intent recognition when queries are poorly structured
De Fausti et al. (2020)	CNN for Website Classification	CNN model performs well in enterprise website classification	Ranked lower in performance compared to SVM and SLAD, especially in F-measure
Zhao et al. (2023)	Retrieval-Augmented Generation (RAG)	Improved accuracy, robust content generation with retrieval processes	High training costs, knowledge leakage risks from training data

Data and Project Management Plan

PROJECT FLOW



Project Organization Plan



Project Resource Requirements and Plan

Hardware requirements:

- The hardware requirements for AI powered website generator platform is important as models will be trained and will require GPUs to take workload.
- The specifications regarding CPU, GPU and RAM are mentioned below.

CPUs:

- High-performance multi-core processors like Intel i9 , amd Ryzen 7.

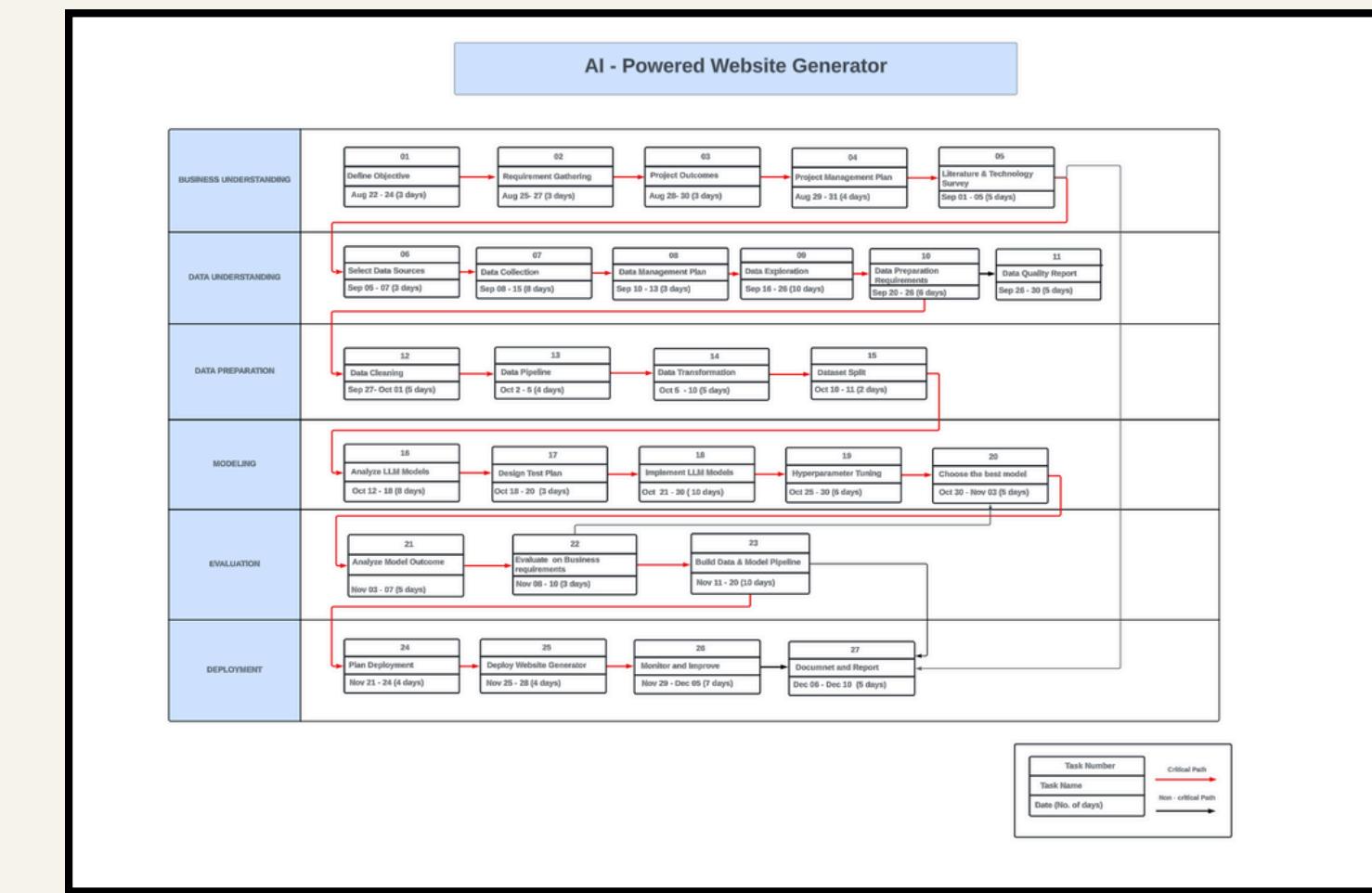
GPUs:

- NVIDIA GPUs optimized for AI/ML workloads. For development: NVIDIA GeForce RTX 4080 , 4060 and 4090 (24GB VRAM).
- RAM: At least 128GB-256GB per server.

Tools and Licenses

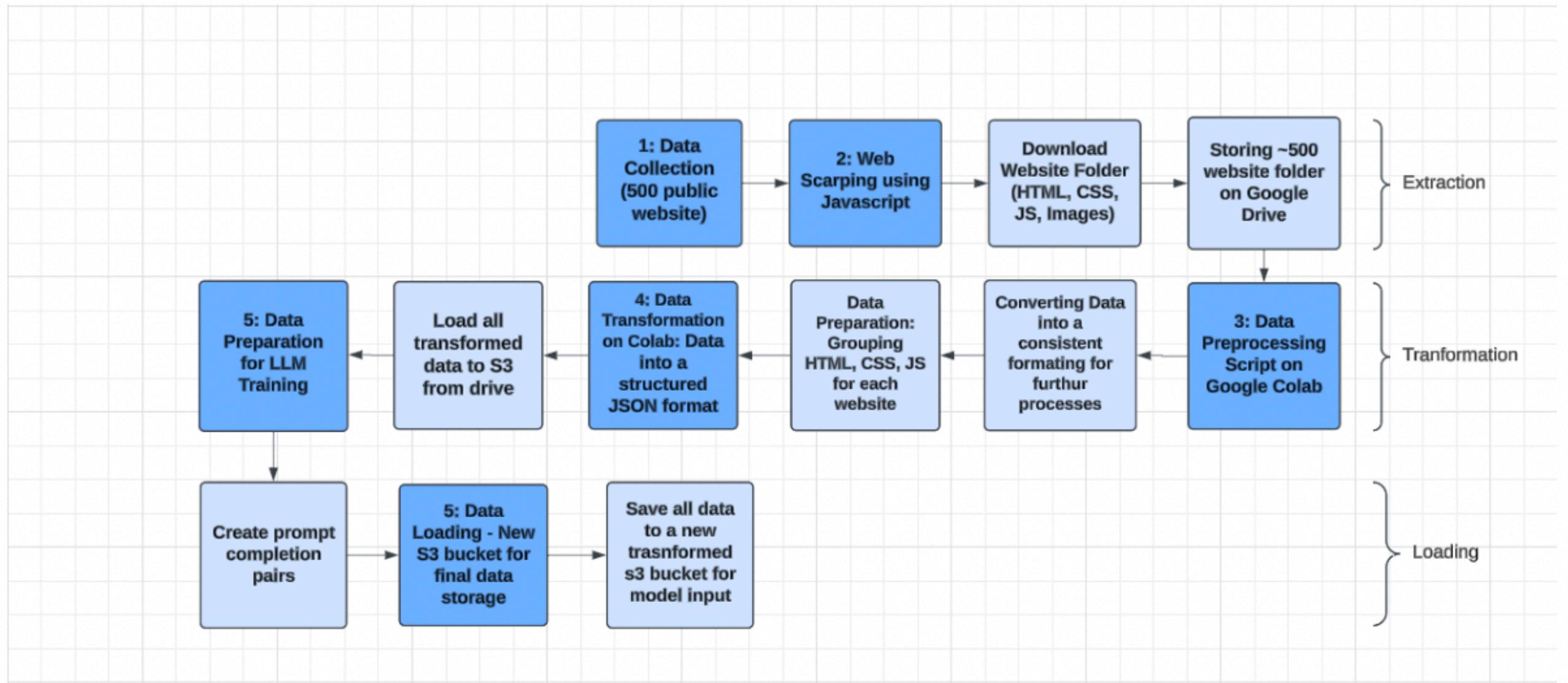
Tools	License	Purpose
Lucid Chart	Free	flowcharts(WBS,Gantt,pert)
Canva	Free	Project Presentation
Notion	Free	Project Management
Google Docs	Free	Documentation
Microsoft Office 360	Free	Reporting and Documentation
Zoom	Free	Project Team Meeting
GitHub	Free	Version control and Repository
Jupyter Notebook	Free	Code Editor
Google Colab	Free	Cloud based code editor

Project Schedule: Gantt Chart and Pert Chart



ETL ARCHITECTURE

ETL Process for Data Scraping and Transformation



Data Collection

Webscraping websites

	A	B	C
1	amberflo	https://www.amberflo.io/	Done
2	Atlist	https://www.atlist.com/	Done
3	Kissmetrics	https://www.kissmetrics.io/	Done
4	Butter	https://butter.us/	Done
5	FlyCode	https://www.flycode.com/	Done
6	Trello	https://trello.com	Done
7	Ikefs	https://ikefs.io	Done
8	Vendr	https://www.vendr.com	Done
9	Swan	https://www.swan.io/	Done
10	syncari	https://syncari.com/	Done
11	bamboohr	https://www.bamboohr.com/	Done
12	regal.ai	https://www.regal.ai/	Done
13	barmetrics	https://baremetrics.com/	Done
14	alteryx	https://www.alteryx.com/	Done

1. 500 open-access B2B SaaS business websites

```
JS app.js x
Users > yogavarshniramachandran > Documents > JS app.js > templatePage
1  const cheerio = require("cheerio");
2  const axios = require("axios");
3  const path = require('path');
4  const puppeteer = require('puppeteer');
5  const robotsParser = require('robots-parser');
6  const fs = require("fs");
7
8
9  async function templatePage(url){
10    try {
11      let updatedUrl = new URL(url);
12      updatedUrl.search = "";
13      let scrapeURL = updatedUrl.href;
14      scrapeURL = scrapeURL.replace(/\/+$/, "");
15      let data;
16      try{
17        const response = await axios.get(scrapeURL);
18        data = response.data
19      }
20      catch(err){
21        console.log("error", err)
22      }
23
24      const $ = cheerio.load(data);

```

2. Web Scraping using Javascript

Nov 4, 2024 at 10:34PM -- Folder

Nov 4, 2024 at 10:31PM	-- Folder
Nov 4, 2024 at 10:31PM	-- Folder
Nov 4, 2024 at 10:31PM	-- Folder
Nov 4, 2024 at 10:31PM	-- Folder
Nov 4, 2024 at 10:31PM	-- Folder
Nov 4, 2024 at 10:40PM	-- Folder
Nov 4, 2024 at 10:31PM	105 KB HTML document

3. Downloaded Website Folder

www_amberflo_io

assets
CSS
js
platform
assets
CSS
js
index.html
privacy-policy
assets
css
js
index.html
solutions
index.html

4. Downloaded Website Folder Structure

Data Preparation

Converting Data into a consistent formating for furthur processes

Data Preprocessing Script

```
    internal_links.append({
        'source': relative_path,
        'links': linked_pages
    })

# Construct the final JSON structure for the current website
website_structure = {
    'pages': pages,
    'css_files': [os.path.relpath(path, css_dir) for path, _, files in os.walk(css_dir) for file in f],
    'js_files': [os.path.relpath(path, js_dir) for path, _, files in os.walk(js_dir) for file in f],
    'images': [os.path.relpath(path, image_dir) for path, _, files in os.walk(image_dir) for file in f],
    'internal_links': internal_links
}

# Save JSON structure to file for the current website
json_output_path = os.path.join(output_dir, f'{item}_structure.json')
with open(json_output_path, 'w', encoding='utf-8') as json_file:
    json.dump(website_structure, json_file, indent=4)

print(f'Processed and saved: {json_output_path}')

↳ Processing website: www_atlist_com
Processed and saved: /content/www_atlist_com_compiled/www_atlist_com_structure.json
Processing website: www_kissmetrics_io
Processed and saved: /content/www_kissmetrics_io_compiled/www_kissmetrics_io_structure.json
Processing website: www_flycode_com
Processed and saved: /content/www_flycode_com_compiled/www_flycode_com_structure.json
Processing website: butter_us
Processed and saved: /content/butter_us_compiled/butter_us_structure.json
Processing website: baremetrics_com
Processed and saved: /content/baremetrics_com_compiled/baremetrics_com_structure.json
Processing website: basecamp_com
Processed and saved: /content/basecamp_com_compiled/basecamp_com_structure.json
Processing website: checkout_com
```

Pre-processed Data

Name

 image_files

 js_files

 css_files

 html_pages

 www_amberflo_io_structure.json 

Shared with me > Compiled_Website_Data >

Type

People

Modified

Name

 platform

 solutions

 privacy-policy

Data Preparation

- **html_pages/**: Contains all HTML files for individual pages.
- **css_files/**: Contains CSS files for styling.
- **js_files/**: Contains JavaScript files for interactive functionality.
- **image_files/**: Contains images used on each page of the website.

```
input-bucket/
└── website1/
    ├── html/
    ├── css/
    ├── js/
    └── images/
└── website2/
    ├── html/
    ├── css/
    ├── js/
    └── images/
```

```
example_site_compiled/
└── html_pages/
    ├── index.html
    ├── features.html
    └── contact.html
└── css_files/
    ├── main.css
    └── features.css
└── js_files/
    ├── main.js
    └── interactive.js
└── image_files/
    ├── logo.png
    ├── background.jpg
    └── feature1.png
```

Data Transformation

Goal: Transform website data into a structured JSON format that separates HTML,CSS, JS, and images for each website.

Steps Involved:

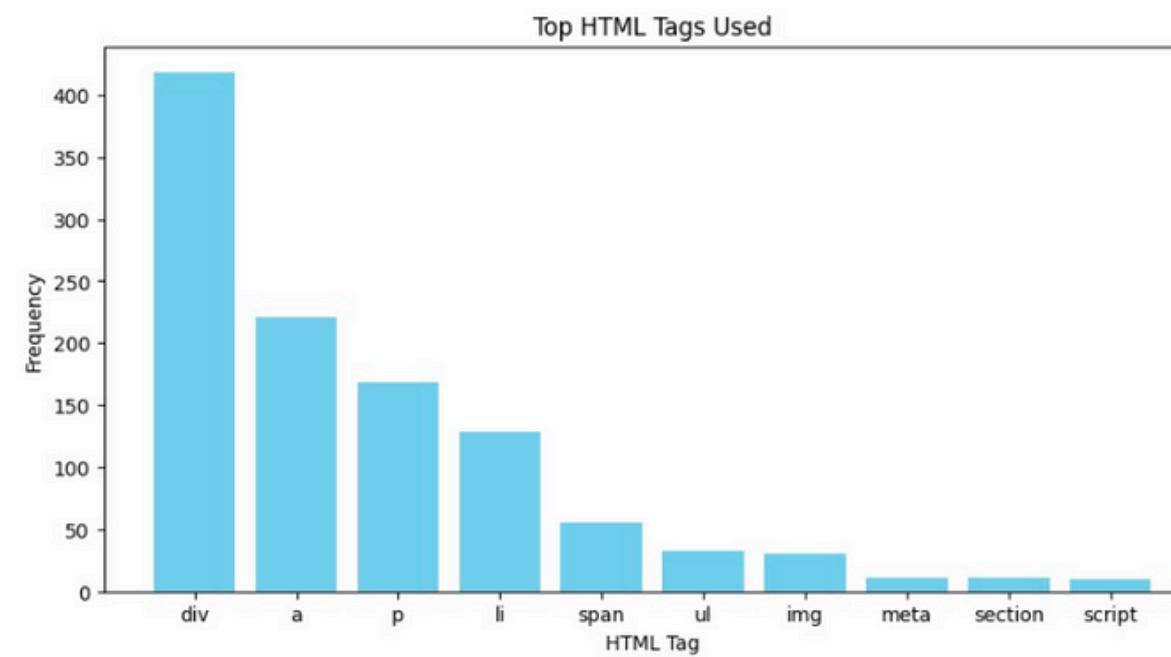
- 1. Directory Setup:** For each website folder, created separate directories for html_pages, css_files, js_files, and image_files.
- 2. File Copying:** Used Python functions to recursively copy files into corresponding directories based on their extensions (.html, .css, .js, images).
- 3. JSON Structure Creation:** Parsed each HTML file to identify internal links and navigation paths, storing this in a JSON format for each website.

- HTML Content:** Truncated sample of the HTML content.
- CSS and JS References:** List of files for styling and interactivity.
- Image Paths:** Location of images used on each page.

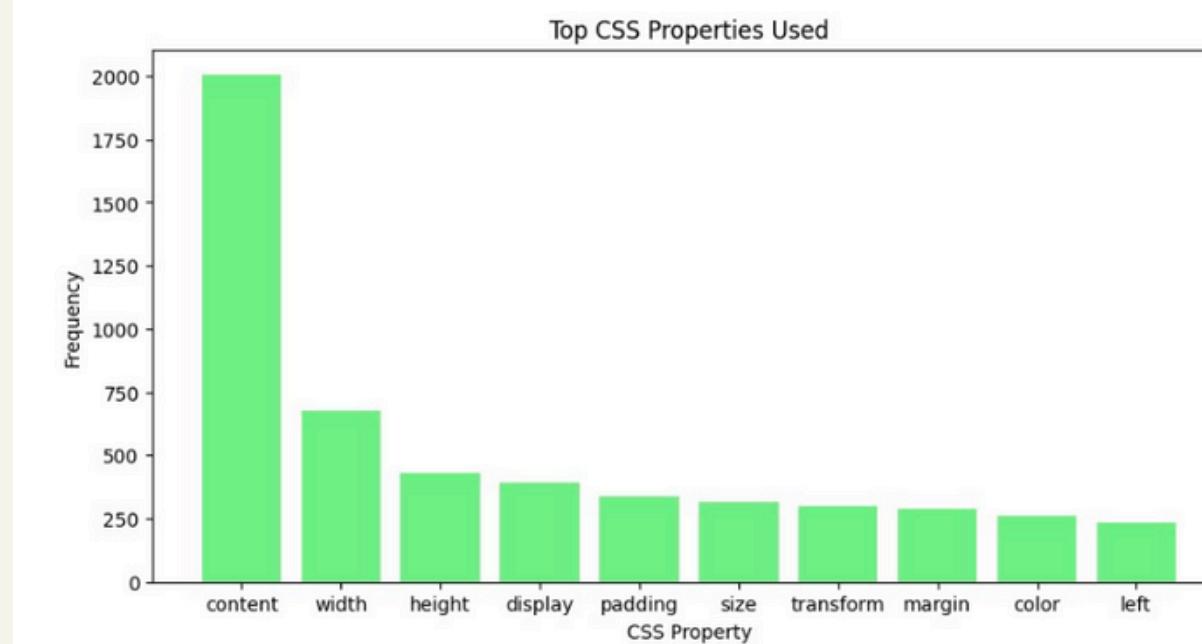
```
{  
  "website_name": "example_site",  
  "pages": [  
    {  
      "path": "index.html",  
      "content": "<html>... truncated HTML content ...</html>",  
      "linked_pages": ["features.html", "pricing.html"]  
    },  
    {  
      "path": "features.html",  
      "content": "<html>... truncated HTML content ...</html>",  
      "linked_pages": ["index.html", "contact.html"]  
    }  
  "css_files": [  
    "css/main.css",  
    "css/features.css"  
  ],  
  "js_files": [  
    "js/main.js",  
    "js/interactive.js"  
  ],  
  "images": [  
    "images/logo.png",  
    "images/background.jpg",  
    "images/feature1.png"  
  ],  
  "internal_links": [  
    {  
      "source": "index.html",  
      "links": ["features.html", "pricing.html"]  
    },  
    {  
      "source": "features.html",  
      "links": ["index.html", "contact.html"]  
    }  
}
```

Data Statistics

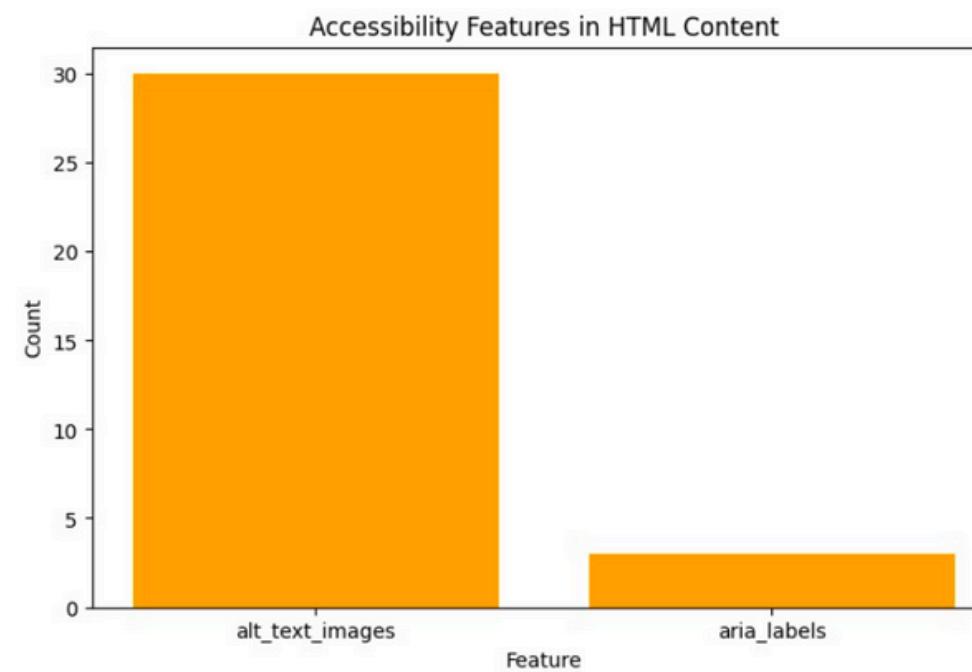
Top HTML Tags Used



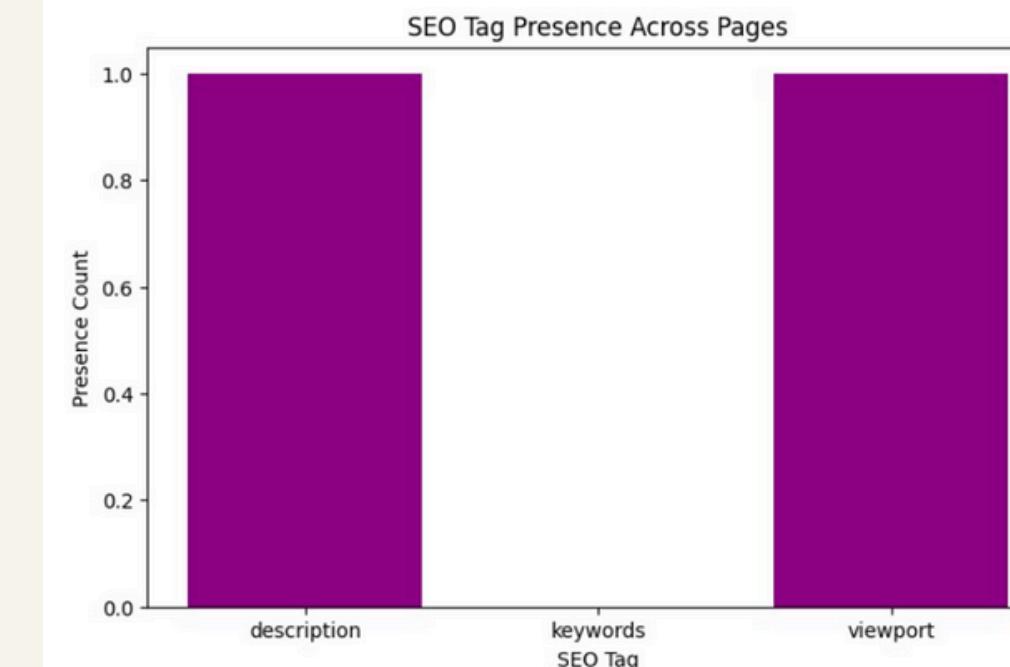
Top CSS Properties Used



Accessibility Features in HTML Content



SEO Tag Presence Across Pages



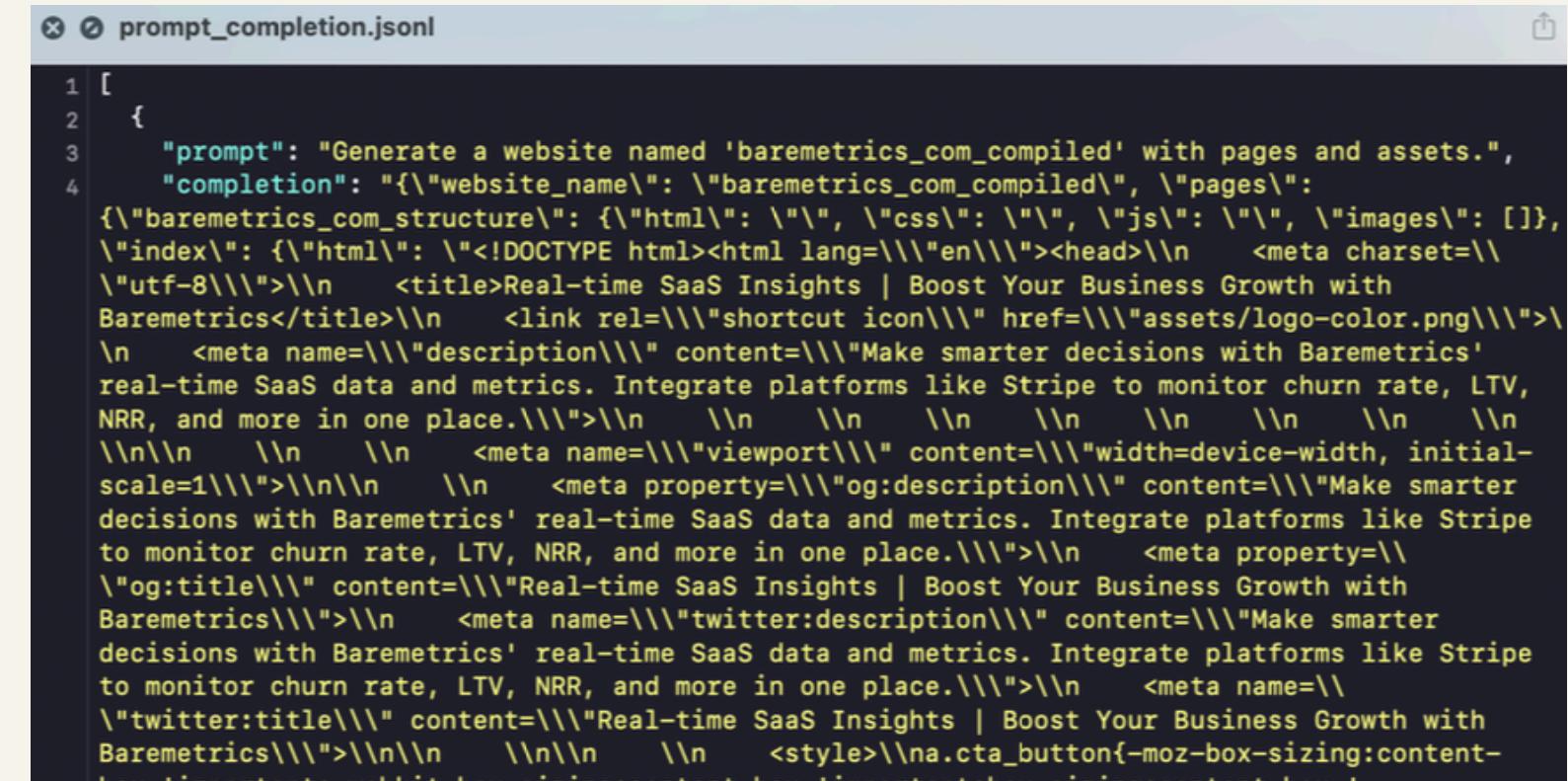
Data Preparation for LLM Training

Goal: Create prompt-completion pairs from the transformed data to train the LLM on website generation.

Sample Prompt-Completion Pair for LLM Training

Prompt Example:

"Generate a website named 'example_site' with a modern B2B design, including pages for features, pricing, and contact."



```
prompt": "Generate a website named 'baremetrics_com_compiled' with pages and assets.",  
completion": "{\"website_name\": \"baremetrics_com_compiled\", \"pages\": [{}], \"baremetrics_com_structure\": {\"html\": \"\", \"css\": \"\", \"js\": \"\", \"images\": []}, \"index\": {\"html\": \"<!DOCTYPE html><html lang=\"en\"><head>\n    <meta charset=\"utf-8\">\n    <title>Real-time SaaS Insights | Boost Your Business Growth with Baremetrics</title>\n    <link rel=\"shortcut icon\" href=\"assets/logo-color.png\"/>\n    <meta name=\"description\" content=\"Make smarter decisions with Baremetrics' real-time SaaS data and metrics. Integrate platforms like Stripe to monitor churn rate, LTV, NRR, and more in one place.\"/>\n    <meta name=\"viewport\" content=\"width=device-width, initial-scale=1\"/>\n    <meta property=\"og:description\" content=\"Make smarter decisions with Baremetrics' real-time SaaS data and metrics. Integrate platforms like Stripe to monitor churn rate, LTV, NRR, and more in one place.\"/>\n    <meta property=\"og:title\" content=\"Real-time SaaS Insights | Boost Your Business Growth with Baremetrics\"/>\n    <meta name=\"twitter:description\" content=\"Make smarter decisions with Baremetrics' real-time SaaS data and metrics. Integrate platforms like Stripe to monitor churn rate, LTV, NRR, and more in one place.\"/>\n    <meta name=\"twitter:title\" content=\"Real-time SaaS Insights | Boost Your Business Growth with Baremetrics\"/>\n    \n    <style>\n        .cta_button {\n            -moz-box-sizing: content-box;\n            border: 1px solid #007bff;\n            border-radius: 4px;\n            color: #007bff;\n            display: inline-block;\n            font-size: 14px;\n            font-weight: bold;\n            padding: 6px 15px;\n            text-decoration: none;\n            vertical-align: middle;\n        }\n        .cta_button:hover {\n            background-color: #007bff;\n            border-color: #007bff;\n            color: white;\n        }\n    </style>\n"}]
```

Completion Example

```
{  
    "website_name": "example_site",  
    "pages": {  
        "index": {  
            "html": "<html><head><title>Example Site</title></head><body>... truncated",  
            "css": "body { font-family: Arial, sans-serif; background-color: #f4f4f4; }",  
            "js": "function initialize() { console.log('Welcome to Example Site'); }",  
            "images": ["images/logo.png", "images/hero.jpg"]  
        },  
        "features": {  
            "html": "<html><head><title>Features</title></head><body>... truncated",  
            "css": "h1 { color: #333; } .feature { padding: 20px; }",  
            "js": "function featureToggle() { console.log('Feature toggled'); }",  
            "images": ["images/feature1.jpg", "images/feature2.jpg"]  
        },  
        "pricing": {  
            "html": "<html><head><title>Pricing</title></head><body>... truncated",  
            "css": ".pricing-table { border: 1px solid #ccc; }",  
            "js": "function showPricing() { console.log('Pricing displayed'); }",  
            "images": ["images/pricing_banner.jpg"]  
        }  
    }  
}
```

Models

- **Llama 2:** Structured content generation, suitable for headings, labels, metadata.
- **GPT-4:** SEO-optimized, engaging content for multiple pages, tone adaptation.
- **Gemini:** UI element generation, interactive design, multimodal support (text, images).
- **PaLM:** Layout and navigation optimization, ensuring responsive design.
- **Claude:** Frontend code generation (HTML, CSS, JS) for B2B SaaS functionality.

Advantages

- **Content Generation:** GPT-4 and Llama 2 for engaging, SEO-friendly content.
- **Interactive UI:** Gemini for user-friendly buttons and adaptive interfaces.
- **Navigation and Responsiveness:** PaLM's optimization for a smooth user experience.
- **Frontend Code:** Claude assists with code snippets tailored to web layouts.

Model support

Models and Configuration Requirements

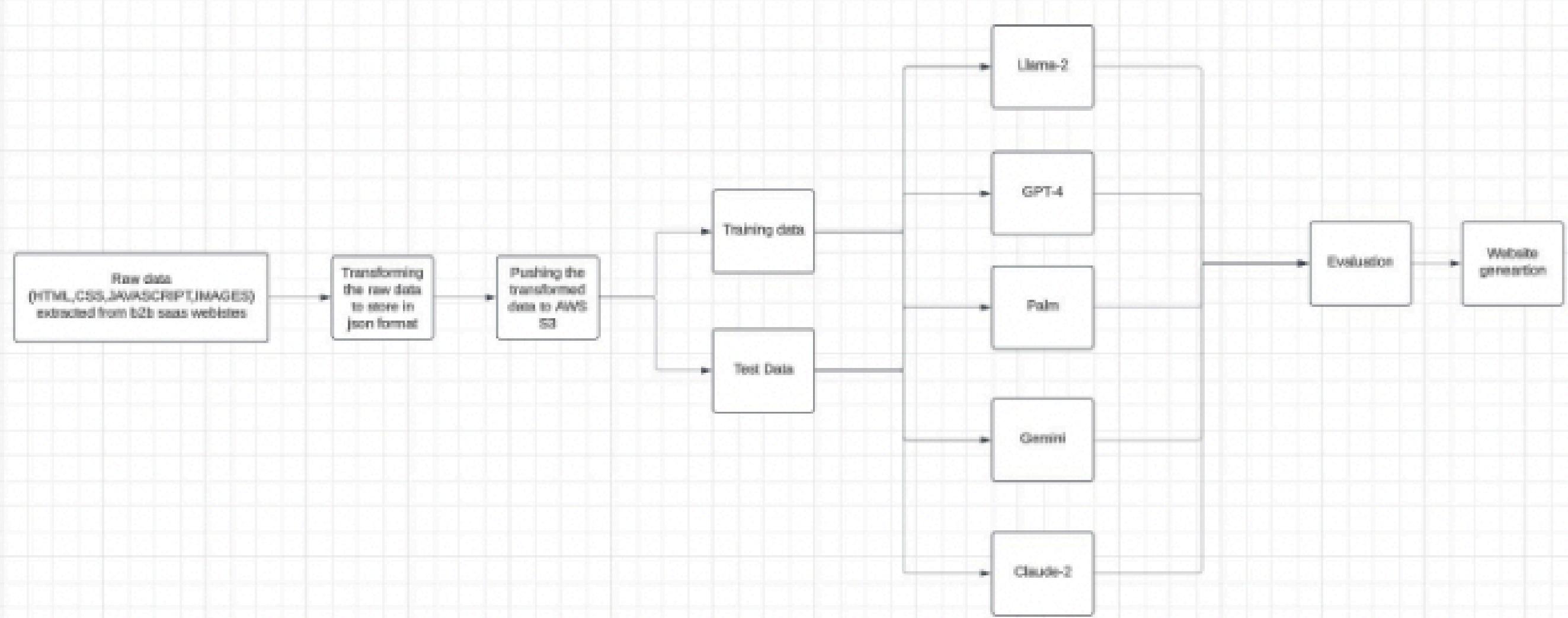
Model	RAM (GB)	Storage (GB)	Configuration Requirements
Llama 2	16–32	50–200	GPU (NVIDIA RTX 3090, A100, or similar), Python
GPT-4	32–64	200–500	High-performance GPU (NVIDIA A100, V100, RTX 3090), Python
PaLM	32–128	500–1000	Multi-GPU setup (NVIDIA A100, V100), Python
Gemini	32–64	200–400	Optimized GPU (NVIDIA A100 or better), SSD storage, Python
Claude-2	16–64	100–300	High-end GPU (NVIDIA RTX 3090, A100), Python

Libraries, Modules, Methods, and Their Purposes

Library	Module	Method	Purpose
Pandas	DataFrame	read_csv	Data loading and manipulation
Hugging Face Transformers	transformers	from_pretrained	Loading pre-trained language models
Matplotlib	pyplot	plot, show	Data visualization
NumPy	numpy	array, expand_dims	Numerical operations, array manipulation
scikit-learn	model_selection	train_test_split	Data splitting for training and testing
TensorFlow	keras	to_categorical	Converting labels to categorical format
PyTorch	torch	DataLoader	Efficient data loading for model training
tqdm	tqdm	tqdm	Display progress bars
json	json	load, dump	JSON and metadata handling
os	os	path, environ	File system interactions

Model Architecture and Dataflow

ML data flow for AI powered each website generation



Model comparison

Model Comparison (Part 1)

Model	Problems	Features	Approach	Strengths	Limitations
GPT-4	Create SEO-oriented dynamic content and engaging input.	Produces high-quality texts with perfect adaptation to input.	Combines SEO and generation techniques.	Delivers SEO-optimized content adaptable to user needs.	Limited in handling intricate interactive elements.
Gemini	Building interactive UI elements like buttons and navigation panels, and device interfaces.	Provides UI components like buttons, navigation panels, and device-adaptive interfaces.	Utilizes generative design and adaptive layout techniques.	Visually appealing and adaptable across devices.	Limited in personalization depth without detailed input; primarily focused on visuals/interface.
Llama-2	Ensuring structured content with professional format.	Standardizes headings, labels, and metadata for content.	Focuses on structured data outputs, yielding polished and professional results.	Consistently produces professional, structured content.	Limited in creating conversational or dynamic text suitable for diverse audiences.

Model	Problems	Features	Approach	Strengths	Limitations
PaLM	Enhancing website design, layout, and responsiveness.	Adjusts layouts for intuitive navigation and logical site structure.	Applies optimization and responsive design principles.	Improves usability with seamless navigation and responsive layouts.	Limited in executing complex layout customizations without additional guidance.
Claude-2	Generating customer code for B2B SaaS websites.	Assists with HTML, CSS, and layout suggestions.	Provides code snippets tailored to specific SaaS needs.	Simplifies development by producing code that fits SaaS-specific application logic.	Limited in handling complex front-end code and basic layout suggestions.

Model evaluation

GPT-4

- Content Quality: BLEU, ROUGE, and METEOR scores assess coherence, accuracy, and organization in SEO and calculated content.
- Fluency and Comprehension: METEOR score ensures semantic similarity and ease of understanding in conversational outputs.

Llama-2

- Structural Consistency: ROUGE and METEOR scores verify formatting, organization, and relevance in headings, labels, and metadata.
- SEO and Accessibility: Lighthouse metrics ensure structured content is optimized for search visibility and accessibility.

Gemini

- UI Performance and Accessibility: Lighthouse scores evaluate load times and accessibility, crucial for UI elements like buttons and menus.
- User Engagement: A/B testing and user ratings gauge the intuitiveness and appeal of generated UI.

PaLM

- Navigation Efficiency: Lighthouse metrics assess quick loading, responsive layouts, and smooth navigation experience.
- Inclusive Design: Accessibility checks ensure navigation elements are intuitive and usable for all users.

Claude-2

- Code Quality: Lighthouse Best Practices metrics ensure code complies with web standards for security and compatibility.
- Performance Optimization: Performance scores confirm efficient loading and rendering of HTML, CSS, and JS code.

User Prompt

AI Website Generator

Enter text to generate HTML content and images with AI:

Title: "IntelliPipeline: AI-Driven Workflow Optimization for B2B Enterprises"

Description: Design a B2B SaaS platform called IntelliPipeline that focuses on workflow automation and optimization for mid-to-large-sized enterprises. The platform should leverage AI and machine learning to:

Examples:

A website for a horse riding company in Roybon, France

The website for hair salon Hair Force One in St Marcellin, France

Le site internet de l'office du tourisme de Roybon, France

Le site internet de la boulangerie L'ami du pain à St Marcellin, France

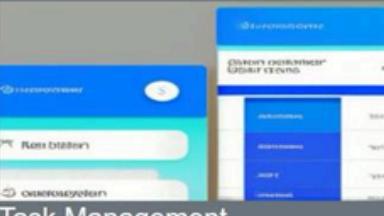
Submit

Website Generation Result 1

Welcome to Your Shared Team Todo List App

Efficiently manage your team's tasks and projects with our B2B SaaS solution.

Our Services



Task Management

Organize and prioritize your team's tasks with our intuitive interface.



Project Tracking

Track the progress of your projects with real-time updates and analytics.



Scheduling & Deadlines

Set deadlines and assign tasks effortlessly within your team.

What Our Clients Say



"A must-have tool for any team looking to improve collaboration and efficiency."

- Jane Smith, Project Manager

About Us

We are a dedicated team committed to providing innovative software solutions for team management. Our tools are designed to enhance productivity and streamline project processes.

Our Location

Visit us or reach out through the map below to get more information.

Pricing Plans

Basic	Professional	Enterprise
\$10/month	\$30/month	\$100/month
For small teams just getting started	For growing teams needing more features	For large teams and organizations
Basic Support	Priority Support	Dedicated Support
Limited Features	All Features	Custom Integrations
Choose Plan	Choose Plan	Choose Plan

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Lighthouse Report

12/9/24, 8:28 PM about:blank file:///C:/Users/pruth/Downloads/aigensites4/cloned_repo/index.html

○ 1/3 13/15 ▲ 2/5 4/6

Performance Accessibility Best Practices SEO

▲ 0-49 50-89 90-100

○ 1/3

Performance

DIAGNOSTICS

▲ Does not have a `<meta name="viewport">` tag with `width` or `initial-scale` No '`<meta name="viewport">`' tag found

Images were larger than their displayed size

○ Avoids an excessive DOM size — 104 elements

More information about the performance of your application. These numbers don't [directly affect](#) the Performance score.

PASSED AUDITS (1) Show

This screenshot shows the Lighthouse report interface. At the top, it displays the date and time (12/9/24, 8:28 PM), the URL (about:blank), and the file path (file:///C:/Users/pruth/Downloads/aigensites4/cloned_repo/index.html). Below this, the main scores are shown: Performance (○ 1/3), Accessibility (13/15), Best Practices (▲ 2/5), and SEO (4/6). Under each category, there are specific audit results. For Performance, it shows issues related to viewport meta tags and image sizes. For Accessibility, it highlights the lack of accessible names for buttons. For SEO, it points out the absence of a meta description and a robots.txt file. The bottom section provides more detailed information and links for each audit category.

▲ 2/5

Best Practices

USER EXPERIENCE

▲ Displays images with incorrect aspect ratio

▲ Does not have a `<meta name="viewport">` tag with `width` or `initial-scale` No '`<meta name="viewport">`' tag found

BROWSER COMPATIBILITY

▲ Page lacks the HTML doctype, thus triggering quirks-mode Document must contain a doctype

PASSED AUDITS / 21 Show

This screenshot shows the Best Practices section of the Lighthouse report. It includes sections for User Experience and Browser Compatibility. In User Experience, it lists issues like displaying images with incorrect aspect ratios and missing viewport meta tags. In Browser Compatibility, it notes that the page lacks an HTML doctype, which triggers quirks mode. The bottom part of the screenshot shows a summary of passed audits out of a total of 21.

13/15

Accessibility

These checks highlight opportunities to [improve the accessibility of your web app](#). Automatic detection can only detect a subset of issues and does not guarantee the accessibility of your web app, so [manual testing](#) is also encouraged.

NAMES AND LABELS

about:blank

12/9/24, 8:28 PM about:blank

▲ Buttons do not have an accessible name

These are opportunities to improve the semantics of the controls in your application. This may enhance the experience for users of assistive technology, like a screen reader.

CONTRAST

This screenshot shows the Accessibility section of the Lighthouse report. It starts with a score of 13/15. Below that, it provides general advice about improving web accessibility. Under the 'Names and Labels' category, it specifically highlights issues with buttons not having accessible names. The bottom part of the screenshot shows a summary of passed audits out of a total of 21.

4/6

SEO

These checks ensure that your page is following basic search engine optimization advice. There are many additional factors Lighthouse does not score here that may affect your search ranking, including performance on [Core Web Vitals](#), [Learn more about Google Search Essentials](#).

CONTENT BEST PRACTICES

▲ Document does not have a meta description

Format your HTML in a way that enables crawlers to better understand your app's content.

CRAWLING AND INDEXING

▲ robots.txt is not valid Lighthouse was unable to download a robots.txt file

To appear in search results, crawlers need access to your app.

This screenshot shows the SEO section of the Lighthouse report. It starts with a score of 4/6. It discusses basic search engine optimization (SEO) advice. Under 'Content Best Practices', it points out that the document does not have a meta description. In 'Crawling and Indexing', it notes that the robots.txt file is invalid. The bottom part of the screenshot shows a summary of passed audits out of a total of 21.

Website Generation Result 2

IntelliPipeline
AI-Driven Workflow Optimization for B2B Enterprises

Welcome to IntelliPipeline

Rewriting B2B Workflow Automation with AI

About IntelliPipeline

IntelliPipeline is a cutting-edge B2B SaaS platform designed to enhance workflow automation and optimization for mid-to-large-sized enterprises through the power of AI and machine learning.

Features

Automate Repetitive Tasks Seamlessly integrates with tools like CRMs and ERPs to automate manual processes.	Predict Workflow Bottlenecks Employs predictive analytics to proactively identify and address bottlenecks.	Cross-Department Collaboration Facilitates better teamwork with features like real-time messaging and collaborative dashboards.
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Our Services

Custom KPI Tracking Customizable dashboards to track and analyze key performance indicators.	Data-Driven Insights Advanced analytics providing actionable insights to optimize processes.	Plug-and-Play Integrations Easily integrates with existing SaaS tools to enhance functionality.
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Testimonials


John Doe, CEO of Logistics Inc.
"IntelliPipeline has transformed our workflow management, making it more efficient and responsive."

Location



Lighthouse Report

1/3 13/15 ▲ 2/5 4/6

Performance Accessibility Best Practices SEO

▲ 0-49 50-89 90-100

1/3

Performance

OSTICS

▲ 2/5

Best Practices

USER EXPERIENCE

- ▲ Displays images with incorrect aspect ratio
- ▲ Does not have a `<meta name="viewport">` tag with `width` or `initial-scale` No '`<meta name="viewport">`' tag found

BROWSER COMPATIBILITY

- ▲ Page lacks the HTML doctype, thus triggering quirks-mode Document must contain a doctype

PASSED AUDITS (1)

13/15

Accessibility

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NAMES AND LABELS

4/6

SEO

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CONTENT BEST PRACTICES

- ▲ Document does not have a meta description

Format your HTML in a way that enables crawlers to better understand your app's content.

Thank You