Hackathon Project Documentation

Overview

Project Title	LogoCraft: Innovative Logo Generation with Diffusion Technology
Team Name	HackSquad
Team Members	• Kalaga Sadhana • Mamidi Srivaishnavi • Indukuri Kanthi • Jami Leighna

Phase-1: Brainstorming & Ideation

Objective:

To develop LogoCraft, an AI-powered tool, that aims to simplify logo creation using AI-powered **Diffusion technology**, enabling businesses to generate unique, professional logos effortlessly. It helps brands establish a strong identity to stand out in the competitive market by eliminating design barriers.

Key Points:

Problem Statement	• Businesses struggle to create unique, professional logos due to limited skills, time, and resources. • Traditional logo design is often expensive, time-consuming, and inaccessible.
Proposed Solution	• LogoCraft uses Diffusion technology to generate custom logos from user descriptions. • Its intuitive interface enables fast, affordable, and professional logo creation for businesses of all sizes. • LogoCraft helps brands stand out and make a lasting impact.
Target Users	• **Entrepreneurs & Startups** - New businesses needing professional logos. • **Small & Medium Businesses** – Affordable, quick brand identity solutions. • **Marketing & Design Agencies** – AI-powered logo creation for clients.
Expected Outcome	• An AI-driven platform that generates unique, professional logos based on user input, using advanced diffusion technology. • Define the technical and functional requirements for the LogoCraft platform.

Phase-2: Requirement Analysis

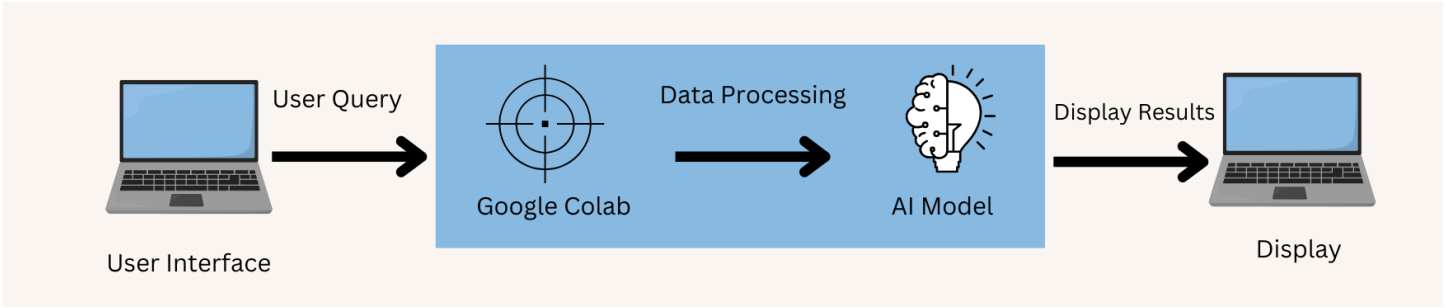
Objective

Define the technical and functional requirements for the LogoCraft platform.

Key Points:

Technical Requirements	• **Frontend:** Gradio • **Backend :** Python (Stable Diffusion) • **AI Model:** Stable Diffusion 2.1 Base • **Hosting:** Google Colab
Functional Requirements	• Generate unique, high-quality logos based on user input using AI. • Offer an intuitive UI that customizes colors, fonts, andstyles based solely on the user's prompt. • Enable users to download logos in PNG format.
Constraints & Challenges	• Ensuring high-quality logo generation using AI diffusion models. • Optimizing response time for seamless user experience. • Balancing creative flexibility with an intuitive, user-friendly interface.

Phase-3: Project Design



Objective

Develop the architecture and user flow of the **LogoCraft** platform.

Key Points:

System Architecture	• User enters logo requirements via UI (e.g., brand name, industry, style). • Query is processed using an AI-powered Diffusion model. • AI model generates multiple logo variations based on user input. • Can customize logo designs with editing options.
User Flow	• User enters logo details (e.g., "Modern tech startup logo with a futuristic style"). • This processes the input using AI and generates multiple logo options. • The application displays the logo designs, allowing users to refine or download them.
UI/UX Considerations	• Minimalist, user-friendly interface for seamless logo creation. • Customization options for colors, fonts, and design elements. • Download in PNG format for easy accessibility.

Phase-4: Project Planning

Objective

Break down development tasks for efficient completion.

Sprint	Task	Priority	Duration	Deadline	Assigned to	Dependencies	Expected outcome
1	Environment Setup & AI Model Integration	🔴 High	6 hours (Day1)	End of day1	Sadhana	AI Diffusion Model, Python	AI Model Integrated & functional
1	UI Development	🟡 Medium	2 hours (Day 1)	End of day1	Kanthi	UI framework setup	Basic UI with input fields
2	Logo generation & Customization Features	🔴 High	3 hours (Day 1)	End of day1	Sadhana	AI model response, UI elements	AI-generated logos with user customization
2	Error Handling and Debugging	🔴 High	1.5 hours (Day 2)	Mid -day 2	Kanthi	API logs, UI inputs	Improved AI performance & stability
3	Testing and UI Enhancements	🟡 Medium	1.5 hours (Day 2)	Mid -day 2	Leighna and Srivaishnavi	AI response,UI layout completed	Responsive UI, Improved user Experience
3	Final Presentation & Deployment	🟢 Low	1 hour (Day 2)	Mid -day 2	Sadhana, Kanthi Leighna & Srivaishnavi	Working prototype	Demo-ready platform

Sprint Planning with Priorities

Sprint 1-Setup & Integration (Day 1)	(🔴 **High Priority)** Set up the **environment** & install dependencies. (🔴 **High Priority)** Integrate **AI-powered logo generation model**. (🟡 **Medium Priority)** Build a **basic UI** for logo input & customization.
Sprint 2 – Core Features & Debugging (Day 2)	(🔴 **High Priority)** Implement **AI-driven logo generation & customization**. (🔴 **High Priority)** Debug **AI response issues & UI functionality**.
Sprint 3 – Testing, Enhancements & Submission (Day 2)	(🟡 **Medium Priority)** Test **AI-generated outputs, refine UI, & fix bugs**. (🟢 **Low Priority)** Final **demo preparation & deployment**.

Phase-5: Project Development

Objective

Develop core features of LogoCraft for AI-powered logo generation using Diffusion technology.

Key Points:

Technology Stack Used	• **Frontend:** Gradio • **Backend :** Python (Stable Diffusion) • **AI Model:** Stable Diffusion 2.1 Base • **Hosting:** Google Colab
Development Process	• Implement user input processing for brand descriptions. • Integrate Diffusion AI to generate logos based on inputs. • Develop an interactive UI and optimize image rendering.
Challenges & Fixes	• **Challenge:** High processing time for AI-generated logos. **Fix:** Implement model optimizations. • **Challenge:** Ensuring logos are unique and visually appealing. **Fix:** Fine-tune prompt engineering and improve AI-generated variations.

Phase-6: Functionality & Performance Testing

Objective

Ensure that the website functions as expected and delivers optimal performance.

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	User inputs brand description for logo generation	AI generates relevant logo variations	✅ Passed	Kanthi
TC-002	Functional Testing	User selects and downloads a logo	Logo downloads successfully	✅ Passed	Sadhana
TC-003	Performance Testing	AI generates logo within 30 seconds	Logo should be generated quickly	⚠ Needs Optimization	Leighna
TC-004	Bug Fixes & Improvements	Fixed inaccurate logo rendering	Logos are more aligned with user descriptions	⚠ Needs Optimization	Srivaishnavi
TC-005	Final Validation	Ensure UI is responsive	Works on desktop	✅ Passed	Srivaishnavi & Leighna