Hackathon Project Phases Template

Project Title:

CoutureAI: Clothing Image Generator Using Stable Diffusion Pipeline

Team Name:

SQUAD TEAM

Team Members:

- M.Manikanth reddy
- M.Nethaniya
- P.Nikhil
- Y.Mani kumar

Phase-1: Brainstorming & Ideation

Objective:

Understand the primary challenges faced by target users (individual consumers, designers, e-commerce platforms, etc.) in fashion design and online shopping.

Key Points:

1. **Problem Statement:**
   . This project empowers consumers to visualize their unique clothing ideas, enhancing the shopping experience and bridging the gap between imagination and reality in fashion design.
2. **Proposed Solution:**
   . To create an AI-driven platform that generates personalized clothing images from textual descriptions using Stable Diffusion, providing a seamless and engaging shopping experience for users to visualize unique clothing designs before purchasing.

3.Target Users:

a. **Fashion Students**: Young designers and students in the fashion field can use the platform for learning, creating digital portfolios, or simply experimenting with design ideas.
b. **Online Shoppers**: Consumers who are looking for a more interactive and visually engaging shopping experience. They are typically frustrated by the lack of personalized options on e-commerce platforms.

3. **Expected Outcome:**
   The **expected outcome** of **CoutureAI** will center around improving the fashion experience for both consumers and industry professionals by leveraging AI technology to create customized, realistic clothing visualizations. Below are the key outcomes anticipated from the implementation of CoutureAI:

Phase-2: Requirement Analysis

Objective:

Identify and outline the core functionalities the platform must deliver to meet user needs.

Key Points:

1. **Technical Requirements:**

   a. Programming Language: stream lit
   b. Backend: python
   c. Frontend: python
   d. Database: chatgpt and googlecolab
2. **Functional Requirements:**

   a. User Account Management
   b. Clothing Design Generation
   c. Design Save and Retrieval
   d. Clothing Design Exploration

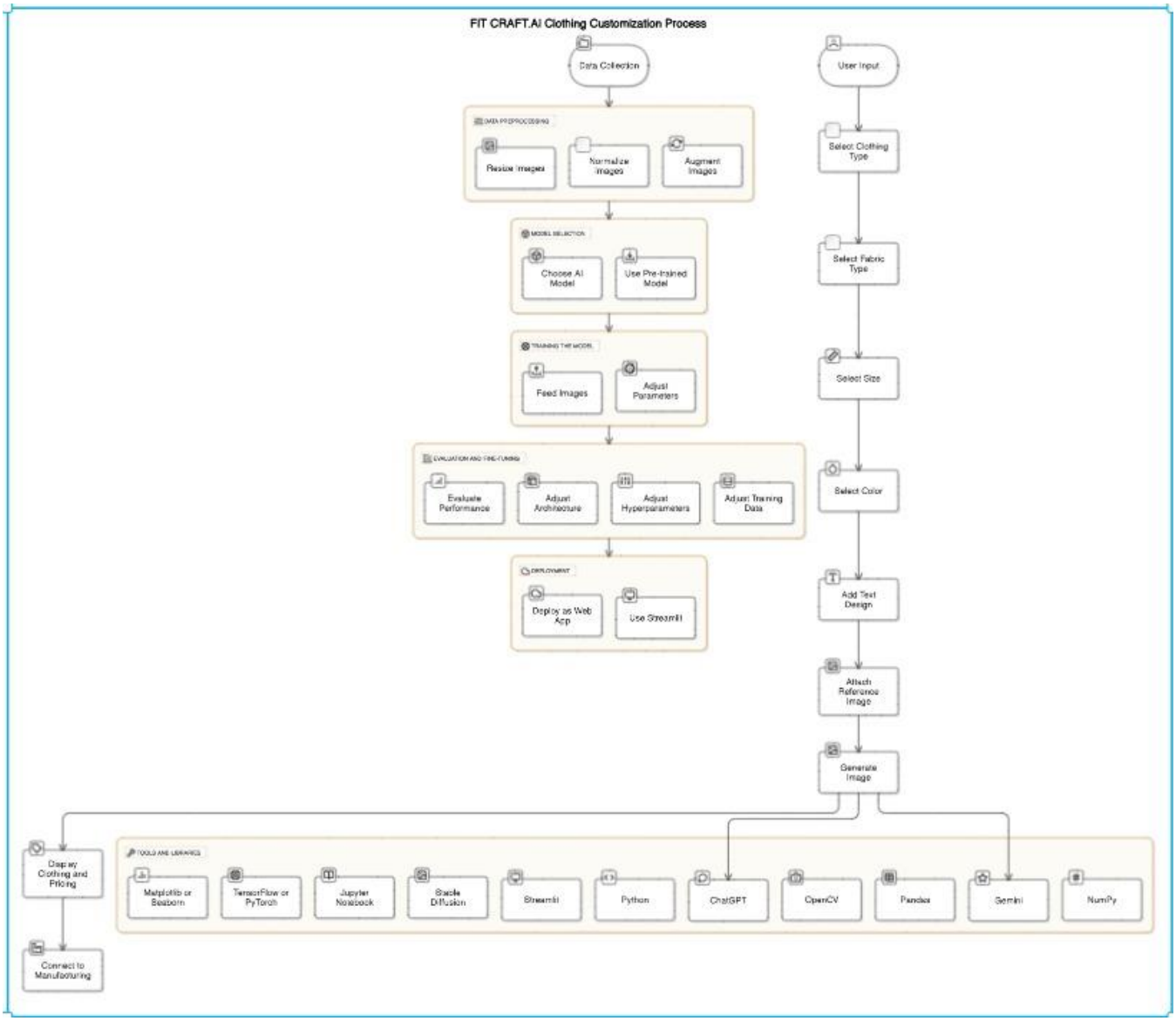
3. **Constraints & Challenges:**

    a. **Technical constraints**
    b. Scalability Issues
    c. Data Privacy & Security

Phase-3: Project Design

Objective:

Create an intuitive and visually appealing interface that allows users to easily interact with the platform and generate clothing designs based on their descriptions or selected templates.



Key Points:

1. **System Architecture**

    a. User Interface (Frontend)
    b. Backend
    c. AI Model (Stable Diffusion Pipeline)

2. **User Flow:**

    a. Entry Point: Landing Page

b. Account Creation / Login (Optional)
c. Review & Modify Design

3. **UI/UX Considerations:**

a. Simplicity and Intuitive Design
b. Personalization and Customization
c. Visual Appeal and High-Quality Graphics

Phase-4: Project Planning (Agile Methodologies)

Objective:

Break down development tasks for efficient completion.

Sprint	Task	Priority	Duration	Deadline	Assigned To	Dependencies	Expected Outcome
Sprint 1	Project Scope Definition	High	6 hours (Day 1)	End of Day 1	manikanth	Google API Key, Python,	API connection established & working
Sprint 1	Frontend UI Development	Medium	2 hours (Day 1)	End of Day 1	nethaniya	API response format finalized	Basic UI with input fields
Sprint 2	System Architecture & Design	High	3 hours (Day 2)	Mid-Day 2	nikhil	API response, UI elements ready	Search functionality with filters
Sprint 2	Backend Development	High	1.5 hours (Day 2)	Mid-Day 2	Member 1&4	API logs, UI inputs	Improved API stability
Sprint 3	System Integration & Testing	Medium	1.5 hours (Day 2)	Mid-Day 2	Mani kumar	API response, UI layout completed	Responsive UI, better user experience
Sprint 3	Final Presentation & Deployment	Low	1 hour (Day 2)	End of Day 2	Entire Team	Working prototype	Demo-ready project

Sprint Planning with Priorities

Sprint 1 – Setup & Integration (Day 1)

(🔴 High Priority) Set up the **environment** & install dependencies.
(🔴 High Priority) Integrate **Google Gemini API**.
(🟡 Medium Priority) Build a **basic UI with input fields**.

Sprint 2 – Core Features & Debugging (Day 2)

(🔴 High Priority) Implement **search & comparison functionalities**.
(🔴 High Priority) Debug API issues & handle **errors in queries**.

Sprint 3 – Testing, Enhancements & Submission (Day 2)

(🟡 Medium Priority) Test API responses, refine UI, & fix UI bugs.
(🟢 Low Priority) Final **demo preparation & deployment**.

Phase-5: Project Development

Objective:

To implement an AI-driven solution (using Stable Diffusion) capable of generating highly realistic, unique clothing designs based on text descriptions or other user inputs (e.g., fabric choice, color, style).

Key Points:

1. **Technology Stack Used:**

    a. **Frontend:** Streamlit
    b. **Backend:** streamlit
    c. **Programming Language:** Python
2. **Development Process:**

    a. Project Kickoff & Planning Phase

b. User Customization & Frontend Enhancements
c. User Accounts & Design Saving

3. **Challenges & Fixes:**

a. **Challenge:** AI Design Accuracy and Diversity
Fix: egularly fine-tune the AI model with **fashion-specific datasets** and user-generated designs to improve accuracy and diversity.

b. Challenge: Handling Complex Customization Requests
Fix: Start with simpler, more accessible customization options and gradually introduce more complex ones based on user demand and system performance.

Phase-6: Functional & Performance Testing

Objective:

Ensure that the AutoSage App works as expected.

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	Generate an image for "Formal Business Attire for Men"	An appropriate formal business attire image should be generated.	☑ Passed	Tester 1
TC-002	Functional Testing	Query " maintenance tips for winter"	Seasonal tips should be provided.	☑ Passed	Tester 2
TC-003	Performance Testing	Generate an image for "Summer Dresses for Women"	A stylish and relevant summer dress image should be generated.	✅ Passed	Tester 3
TC-004	Bug Fixes & Improvements	Fixed issue with inaccurate clothing pattern generation	Patterns should be more precise and match the description.	☑ Fixed	Developer
TC-005	Final Validation	Ensure UI is responsive across devices	The UI should work seamlessly on mobile, tablet, and desktop..	❌ Failed - UI broken on mobile	Tester 2
TC-006	Deployment Testing	Host the app using cloud deployment for public access	The app should be accessible online via the provided link.	🚀 Deployed	DevOps

Final Submission

1. **Project Report Based on the templates**
2. **Demo Video (one Minute)**
3. **GitHub/Code Repository Link**
4. **Presentation**