**HackathonProjectPhasesTemplate**

**Project name:**

## “AI Personalized Email Generator”

### Team Name:

***“Smart Coders”***

# Team Members:

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# Phase-1: Brainstorming & Ideation

## Objective:

The primary objective of the **AI Personalized Email Generator** is to enhance email communication by leveraging artificial intelligence to create highly customized, engaging, and efficient email content. This tool aims to:

1. **Automate Personalized Email Creation** – Generate tailored emails based on recipient data (name, preferences, past interactions) to improve engagement and response rates.
2. **Enhance Productivity** – Reduce the time spent on email drafting by providing AI-generated suggestions, templates, and automated follow-ups.
3. **Improve Email Effectiveness** – Optimize tone, structure, and content for different purposes (sales, customer support, marketing, networking) to maximize open and conversion rates.
4. **Integrate Seamlessly** – Work with CRM platforms, email marketing tools, and messaging apps to ensure smooth workflow integration.
5. **Support Multi-Tone & Multi-Language Writing** – Enable users to adjust tone (formal, friendly, persuasive, etc.) and generate emails in different languages for global communication.
6. **Leverage AI Analytics & Optimization** – Provide insights on email performance, A/B testing, and suggestions to improve effectiveness.
7. **Ensure Data Privacy & Security** – Implement secure data handling, GDPR compliance, and AI-driven personalization without compromising user privacy.

## Key Points:

**1.Problem statement**

In today’s competitive market, establishing a memorable brand identity through a captivating logo is crucial for businesses. However, many companies face challenges in creating unique and compelling logos that accurately represent their brand values and vision.

LogoCraft addresses this issue by leveraging cutting-edge Diffusion technology to generate custom logos based on user-provided descriptions. By offering a seamless interface and intuitive controls. LogoCraft empowers businesses of all sizes to effortlessly create professional-grade logos that resonate with their target audience.This project aims to revolutionize the logo design process, enabling businesses to stand out in a crowded marketplace and make a lasting impression on their customer

**2.Proposed solutions**

* AI-powered tool for automated and personalized email generation.
* Uses NLP and machine learning to create context-aware emails.
* Enhances sales, customer engagement, follow-ups, and outreach.
* Customizable tone, dynamic personalization, and automated follow-ups.
* Boosts efficiency, engagement, and response rates. 🚀

1. **Target Users:**

* Sales & marketing professionals.
* Business owners & entrepreneurs.
* Customer support teams.
* HR professionals for recruitment emails.

1. **Expected Outcome:**

 **Time Efficiency** – Automates email writing, reducing manual effort.

 **Higher Engagement** – Personalized content increases open and response rates.

 **Improved Conversion Rates** – AI-driven follow-ups enhance lead nurturing.

 **Consistent Branding** – Ensures a professional and uniform communication style.

 **Scalability** – Enables bulk personalized emails without compromising quality.

# Phase-2: Requirement Analysis

**OBJECTIVE:**

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## Key Points:

1. **Technical Requirements:**
   * Programming Language: **Python**
   * Backend: **Google Gemini Flash API**
   * Frontend: **Streamlit Web Framework**
   * Database: **Not required initially (API-based queries)**
2. **Functional Requirements:**
   * Ability to **fetch vehicle details** using Gemini Flash API.
   * Display **specifications, reviews, and comparisons** in an intuitive UI.
   * Provide **real-time vehicle maintenance tips** based on seasons.
   * Allow users to **search eco-friendly vehicles** based on emissions and incentives.
3. **Constraints & Challenges:**
   * Ensuring real-time updates from **Gemini API**.
   * Handling **API rate limits** and optimizing API calls.
   * Providing a **smooth UI experience** with Streamlit.

# Phase-3: Project Design

## Objective:

Develop the architecture and user flow of **AI Personalized Email Generator**

## Key Points:

1. **System Architecture:**
2. **User Interface (UI)** :Users input preferences and details.
3. **Backend Server** : Processes requests, stores data, and handles communication between components.
4. **AI Engine** : Analyzes input and generates personalized email content using AI models.
5. **Email Content Generator** : Creates the email based on templates and user data.
6. **Preview and Edit** : Users review and make adjustments to the email.
7. **Email Delivery System** : Sends the email or exports it in different formats.
8. **Feedback Loop** : Collects user feedback for system improvements.

User Flow:

* **Login/Sign-up** : User logs in or creates an account to access the system.
* **Input Personalization Detail :** User provides preferences like email tone, target audience, and other customization options.
* **AI Data Processing :** The AI analyzes the user input and relevant data for personalized email creation.
* **Generate Email** : AI generates a draft email based on the user’s input and personalization data.
* **Preview Email** : User reviews the generated email content to ensure it meets expectations.
* **Edit Email (Optional)** : User makes any desired changes to the email content.
* **Send or Export Email :**User can send the email directly or export it in formats like HTML or PDF.
* **Provide Feedback :** User submits feedback to help improve the AI model for future emails..
* **Simple Layout**: Clean and intuitive design.

## Responsive Design: Mobile and desktop optimization.:

# UI/UX Considerations:

 **Live Preview**: Real-time email viewing.

 **Easy Navigation**: Clear buttons for actions.

 **Feedback System**: Easy way to collect user feedback

## Phase-4: Project Planning (Agile Methodologies)

## Objective:

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sprint** | **Task** | **Priority** | **Duration** | **Deadline** | **Assigned To** | **Dependency** | **Expected Outcome** |
| Sprint 1 | Research AI email generation tools | High | 1 week | March 11, 2025 | AI Specialist | None | Comprehensive understanding of available tools |
| Sprint 2 | Define user personas and email goals | High | 3 days | March 14, 2025 | Product Manager | Sprint 1 | Clear user personas and goals for personalized emails |
| Sprint 3 | Develop email template framework | Medium | 1 week | March 21, 2025 | Developer | Sprint 2 | Template structure for varied personalized content |
| Sprint 4 | Implement AI-based personalization algorithm | High | 2 weeks | April 4, 2025 | AI Specialist | Sprint 3 | AI algorithm for personalizing email content |
| Sprint 5 | Integrate email personalization with CRM | High | 1 week | April 11, 2025 | Developer | Sprint 4 | Integrated system for generating personalized emails |
| Sprint 6 | Test AI-generated emails with real users | Medium | 1 week | April 18, 2025 | QA Tester | Sprint 5 | Verified accuracy and relevance of email content |
| Sprint 7 | Analyze feedback and improve algorithm | High | 1 week | April 25, 2025 | AI Specialist | Sprint 6 | Improved AI model based on user feedback |
| Sprint 8 | Final deployment and monitoring | High | 3 days | April 28, 2025 | Developer/PM | Sprint 7 | Successful deployment and monitoring of performance |

## 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.

# **Phase-5: Project Development**

## Objective:

Implement core features of the **AI Personalized Email Generator**

## Key Points:

1. **Technology Stack Used:**
   * **Frontend:** Streamlit
   * **Backend:** Google Gemini Flash API
   * **Programming Language:** Python
2. **Development Process:**
   * Implement **API key authentication** and **Gemini API integration**.
   * Develop **vehicle comparison and maintenance tips logic**.
   * Optimize **search queries for performance and relevance**.
3. **Challenges & Fixes:**
   * **Challenge:** Delayed API response times.

**Fix:** Implement **caching** to store frequently queried results.

* + **Challenge:** Limited API calls per minute.

**Fix:** Optimize queries to fetch **only necessary data**.

# Phase-6: Functional & Performance Testing

## Objective:

Ensure that the AutoSage App works as expected.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Category** | **Test Scenario** | **Expected Outcome** | **Status** | **Tester** |  |  |  |  |  |  |
| TC-001 | Functional Testing | Query "Best budget cars under ₹10 lakh" | Relevant budget cars should be displayed. | ✅ Passed | Tester 1 |  |  |  |  |  |  |
| TC-002 | Functional Testing | Query "Motorcycle maintenance tips for winter" | Seasonal tips should be provided. | ✅ Passed | Tester 2 |  |  |  |  |  |  |
| TC-003 | Performance Testing | API response time under 500ms | API should return results quickly. | ⚠ Needs Optimization | Tester 3 |  |  |  |  |  |  |
| TC-004 | Bug Fixes & Improvements | Fixed incorrect API responses. | Data accuracy should be improved. | ✅ Fixed | Develop er |  |  |  |  |  |  |
| TC-005 | Final Validation | Ensure UI is responsive across devices. | UI should work on mobile & desktop. | ❌ Failed - UI broken on mobile | Tester 2 |  |  |  |  |  |  |
| TC-006 | Deployment Testing | Host the app using Streamlit Sharing | App should be accessible online. | 🚀 Deployed | DevOps |  |  |  |  |  |  |

# Final Submission

Project Report Based on the templates

1. **Demo Video (3-5 Minutes)**
2. **GitHub/Code Repository Link**
3. **Presentation**

| **Step** | **Description** |
| --- | --- |
| **1. Define Product Vision** | **Set clear goals for the email generator (purpose, target audience, etc.).** |
| **2. Create Product Backlog** | **List all features and tasks (e.g., user login, email generation, personalization).** |
| **3. Sprint Planning** | **Break down tasks into smaller sprints, prioritize based on importance.** |
| **4. Sprint Execution** | **Develop features in 2-4 week sprints, hold daily standups for progress updates.** |
| **5. Review and Feedback** | **Review progress after each sprint, collect feedback, and adjust priorities.** |
| **6. Iteration** | **Continue the cycle of sprints to refine and enhance the product.** |
| **7. Release and Deployment** | **Finalize the product after sufficient iterations, test, and deploy to production.** |

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**THANK YOU**