**Hackathon Project Phases Template** that ensures students can complete it efficiently while covering all six phases. The template is structured to capture essential information without being time-consuming.

# Hackathon Project Phases Template

**Project Title:**

Auto Sage

**Team Name:**

**AutoAnalyzer**

**Team Members:**

* Kavya Supe
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* Indu Namani

## Phase-1: Brainstorming & Ideation

**Objective:**

**Comprehensive Vehicle Information –** Provide detailed specifications, features, and performance insights for new two-wheeler and four-wheeler vehicles.

**Vehicle Comparisons** – Enable side-by-side comparisons of multiple vehicles based on specifications, price, and features for better decision-making.

**User-Friendly Interface** – Ensure a seamless and intuitive experience for users to easily navigate and find relevant vehicle information.

**Interactive Tools & Insights** – Offer interactive tools like EMI calculators, fuel efficiency estimators, and maintenance cost analysis to support smart purchasing decisions.

**Key Points:**

1. **Problem Statement:**
   * **Information Gap** – Lack of centralized vehicle details.
   * **Comparison Challenge** – Difficulty in comparing multiple vehicles.
   * **Outdated Data** – Delayed updates on pricing and trends.
2. **Proposed Solution:**

* AI-powered chatbot for real-time vehicle suggestions.
* Comprehensive comparison tables with specifications, features, and expert insights.
* A user-friendly interface that adapts to preferences for a tailored experience.

**Target Users:** Car & Bike Buyers, Automobile Enthusiasts, Dealerships & Showrooms, Auto Reviewers & Bloggers.

**Expected Outcome:**

* Accurate, AI-generated vehicle recommendations.
* Easy-to-understand comparisons of multiple automobiles.
* Personalized results based on user preferences.
* Improved decision-making through data-driven insights**.**

## Phase-2: Requirement Analysis

**Objective:**

● Define technical and functional requirements.

**Key Points:**

1. **Technical Requirements:**
   * **Integration with Google Generative AI (Gemini API) for intelligent responses.**
   * **A React-based frontend for a seamless user experience.**
   * **Secure API handling for fetching automobile data.**
   * **Scalability for increasing users and expanding vehicle databases.**
2. **Functional Requirements:**
   * **User-friendly search bar for easy vehicle lookup.**
   * **AI-generated insights based on real-time automobile trends.**
   * **Vehicle comparison functionality with structured tables.**
   * **Error handling for invalid queries.**
3. **Constraints & Challenges:**
   * **Real-time automobile data availability.**
   * **Ensuring AI-generated results are up-to-date and reliable.**
   * **Handling API rate limits and performance optimization.**

## Phase-3: Project Design

**Objective:**

● Create the architecture and user flow.

**Key Points:**

1. **System Architecture Diagram:**

* **Frontend: React.js for UI**
* **Backend: Google Generative AI API for recommendations**
* **Data Handling: Secure API calls & local state management**

1. **User Flow:**

* **User enters a search query (e.g., "Best electric cars under $30,000").**
* **AI processes the query and fetches relevant vehicle insights.**
* **Suggestions are displayed with comparisons, reviews, and pricing.**

1. **UI/UX Considerations:**

* **Minimalist UI for easy navigation.**
* **Responsive design for mobile and desktop users.**
* **Dark mode/light mode for better readability.**

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

**Objective:**

● Break down the tasks using Agile methodologies.

**Key Points:**

**1.Sprint Planning:  
Sprint Goal: Develop a working prototype of AutoSage with search and recommendation features.**

**2.Task Allocation:**

* **Frontend Development: UI components, search bar, and results display.**
* **Backend Integration: API calls and AI model connection.**
* **Testing: Functional testing and bug fixes.**

**3.Timeline & Milestones:**

* **Week 1: UI design & API integration**
* **Week 2: AI response handling & error handling**
* **Week 3: Testing & refinements**
* **Week 4: Finalization & deployment**

## Phase-5: Project Development

**Objective:**

● Code the project and integrate components.

**Key Points:**

1. **Technology Stack Used:**
   * **Frontend: React.js**
   * **Backend: Google Generative AI API**
   * **Styling: CSS/Tailwind**
   * **Deployment: Vercel/Netlify**
2. **Development Process:**
   * **Create UI components → Connect AI API → Process user input → Display recommendations.**
3. **Challenges & Fixes:**
   * **Issue: API response formatting was inconsistent.**
   * **Fix: Implemented text formatting for structured output.**

## Phase-6: Functional & Performance Testing

**Objective:**

● Ensure the project works as expected.

**Key Points:**

1. **Test Cases Executed:**
   * **Search with valid inputs (e.g., "Best SUVs 2024").**
   * **Search with invalid inputs (e.g., "gibberish text").**
   * **API failure handling and fallback suggestions.**
2. **Bug Fixes & Improvements:**
   * **Improved API request handling for faster results.**
   * **Enhanced error messages for better user experience.**
3. **Final Validation:**
   * **Does AutoSage provide accurate vehicle insights? ✅**
   * **Is the UI intuitive and user-friendly? ✅**
   * **Can users compare vehicles effectively?**
4. **Deployment:**
   * **Hosting on Vercel/Netlify**
   * **GitHub repo for open-source collaboration**

## Final Submission

1. **Project Report Based on the templates**
2. **Demo Video (3-5 Minutes)**
3. **GitHub/Code Repository Link**
4. **Presentation**