CODE JAM HACKATHON PROBLEM STATEMENTS

1. Taxi Price Prediction

Problem Statement: A ride-sharing company wants to create a model that predicts the price of taxi rides based on factors such as distance, time of day, and ride duration. This model will help users get accurate price estimates before booking a ride and allow the company to optimize its pricing strategies.

Deliverables:

1. A regression model trained on a dataset containing ride details such as distance, time of day, and price.
2. A report including data preprocessing, exploratory data analysis (EDA), and model evaluation using R^2 score and Mean Absolute Error (MAE).
3. A set of visualizations highlighting key insights from the dataset, such as average prices by distance and time of day.

Optional: Develop a **Web App (Streamlit or Flask)** where users can input ride details (distance, time of day, duration) and get a predicted price estimate.

Dataset: **Taxi Trip Price Prediction Dataset**

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2. Mushroom Classification

Problem Statement: A foraging group needs a reliable tool to classify mushrooms as edible or poisonous based on their physical characteristics. By building a classification model, they aim to ensure safety and better decision-making during mushroom collection.

Deliverables:

1. A classification model trained on a dataset containing mushroom characteristics and their edibility status.
2. A report with data cleaning, EDA and model evaluation metrics such as accuracy, precision, and recall.
3. Visualizations highlighting the relationship between specific mushroom features and edibility.

Optional: Create a **Web App (Streamlit or Flask)** where users can input mushroom characteristics and receive a prediction of whether the mushroom is edible or poisonous.

Dataset: **Mushroom Dataset**

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3. Student Performance Factors

Problem Statement: An education institution wants to analyze student data to understand factors influencing academic performance, such as study time, parental education level, and extracurricular activities. This analysis will help in designing better educational policies and interventions.

Deliverables:

1. An analysis of the dataset to explore correlations between factors such as study time, family support, and grades.
2. Visualizations like scatter plots, pie charts, and histograms to highlight patterns and trends in student performance.
3. A report summarizing key findings and offering recommendations for improving student outcomes.

Optional: Develop an **interactive dashboard** where educators can filter and view data by factors such as gender, study time, and grade level.

Dataset: **Student Performance Dataset**

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4. Monthly Budget Planner Application

Problem Statement: Managing personal finances is a crucial skill in today's world. Create a user-friendly web or mobile application that allows users to track their monthly income and expenses effectively. The app should provide an intuitive interface to log income and categorize expenses, along with visual representations like pie charts or progress bars to help users analyze their spending habits.

Deliverables:

1. A responsive application with features to:
    - Log monthly income and expenses with categories (e.g., groceries, rent, entertainment).
    - Display a breakdown of expenses and savings using **pie charts** or **progress bars**.
    - Provide a summary of the user's financial health (e.g., total savings, spending trends).
2. A brief report detailing the app's features, technologies used, and implementation process.

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5. Interactive Resume Builder

Problem Statement: Job seekers need an engaging way to showcase their skills, experience, and achievements to potential employers. Build a responsive web application that allows users to create visually appealing, interactive resumes. The app should enable users to add their information, customize the design, and generate a dynamic resume that is viewable on any device.

Deliverables:

1. A responsive application with features to:
    - Input details like personal information, education, skills, experience, and certifications.
    - Provide multiple templates with interactive elements, such as progress bars for skills and timelines for experience.
2. A brief report explaining the app's functionalities, design approach, and technologies used.

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6. Habit Tracker Application

Problem Statement: Building and maintaining healthy habits can significantly improve productivity and well-being. Design a habit tracker web or mobile application that allows users to track their daily habits, such as drinking water, exercising, or reading. The app should help users stay consistent and visualize their progress over time.

Deliverables:

1. A responsive application with features to:
    - Add, edit, and delete habits.
    - Mark habits as completed for the day.
    - View weekly or monthly progress through a calendar or graph.
2. A brief report explaining the app's features, technologies used, and implementation process.