AI and Machine Learning

1. AI-Based Voice Bot for College (Problem ID: HACK-8694)

Description: An AI-powered voice assistant that can answer common queries from students and staff about class schedules, exam results, events, and college policies.

Problem Solving: It reduces the burden on administrative staff and provides students with a more convenient way to access information quickly and efficiently.

Example: A student can ask the voice bot, 'What is my schedule for today?' or 'When is the next college event?' and receive an immediate response.

2. AI-Based Automated Class Scheduling System (Problem ID: HACK-2557)

Description: An AI-driven system that generates optimal class schedules based on student preferences, professor availability, and room capacity to avoid conflicts and enhance classroom utilization.

Problem Solving: An AI system can handle multiple parameters to create an optimal schedule.

Example: Students fill out a survey indicating preferred times for classes, and the system automatically generates a schedule that minimizes conflicts and maximizes availability.

3. Smart Academic Mentor: AI-Based Student Performance Predictor and Intervention Recommender (Problem ID: HACK-2579)

Problem Description:

The **Smart Academic Mentor** is an AI system designed to predict how well students will perform academically based on data like grades, attendance, and participation. It aims to identify students who may be at risk of failing or dropping out. By recognizing these students early, the system can recommend helpful actions, such as tutoring or additional study resources, to improve their performance.

Problem Solving:

To solve this, the system first collects data on each student, including grades and attendance. Using machine learning algorithms like **Decision Trees** or **Random Forest**, the

system predicts the likelihood of a student's success. If a student is predicted to struggle, the system will recommend interventions such as tutoring or extra study sessions. It also provides explanations for the predictions, making it clear why certain actions are suggested. The results are shown in a simple dashboard for teachers to track and manage interventions effectively.

Example:

For instance, John Doe, a third-year student, has low grades and irregular attendance. The AI predicts he is likely to fail his exams. Based on this, the system suggests he attend tutoring sessions and improve his attendance. After following the recommendations, John improves his performance and passes his exams successfully.
