Instruction Manual

System Requirements

Before running the project, ensure that your system meets the following requirements:

- **Operating System:** Windows, macOS, or Linux
- **Python Version:** 3.8 or later
- **Required Libraries:** Flask, Pandas, NumPy, Scikit-learn
- **Browser:** any browser

3. Installation Guide

Follow these steps to set up and run the project:

Step 1: Install Python

Ensure that Python is installed on your system.

Step 2: Install Dependencies

Open a terminal or command prompt and install the required Python libraries:

```
pip install flask pandas numpy scikit-learn
```

Step 3: Run the Backend Server

1. Navigate to the project folder where pro.py is located.
2. Run the following command to start the Flask server:

```
python pro.py
```

3. The server will start running at http://127.0.0.1:5000/.

Step 4: Run the Frontend

1. Open the index.html file in a web browser.
2. Enter student details including **Attendance (%), Assignment Score, Quiz Score, and Final Exam Score**.
3. Click on the **Predict** button to get the prediction result.

4. How It Works

- The frontend takes user inputs and sends them to the backend using an API request.
- The backend processes the input using a **K-Nearest Neighbors (KNN) model** and returns the prediction result.
- The frontend displays the prediction, highlighting **Pass in green** and **Fail in red**.

5. Additional Notes

- Make sure the dataset file (student_performance_data.csv) is in the same directory as the backend script (spp.py).