New Time-Efficient Fraud Detection System Using a Random Forest Model and AI Chatbot Layer

Project Submitted to Dr. Yanqing Zhang for Artificial Intelligence (CS 4810)

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Application Manual

This manual provides detailed instructions to setup and run the AI Chatbot integrated Fraud Detection System.

Prerequisites

Before running the application ensure you have the following:

1. **OpenAI API Key:**
   The OpenAI API key is required to run the chatbot part of the application. Follow these steps to obtain it.
   - Log in to https://platform.openai.com/
   - Navigate to “API Keys”
   - Create a new Key
   - Make sure to copy and store that API key as OpenAI only shows it once.
2. **Python Installation:**

   Make sure python is installed on device in order to run the application. Check by using the following command:

   ```
   python --version
   ```

   If python is not installed, then:

   - Download it from https://www.python.org/downloads/
   - Run the installer and confirm that python installed

     ```
     python --version
     ```

Steps to Run Application

1. **Clone the Repository**
   Use the following command to clone the repository from git hosting platform:
   `git clone https://github.com/shadmaanakhand/Fraud-Detection-and-Risk-Assessment-AI-Chatbot-System.git`

2. **Move to Project Directory**
   Change your working directory to cloned repository folder using:
   `cd <Project-Directory>`

3. **Create and Activate Virtual Environment**
   For Windows:
   I. **Create a virtual environment:**
   `python -m venv venv`
   II. **Activate the Virtual Environment:**
   `venv\Scripts\Activate`

   For Mac:
   I. **Create a virtual environment:**
   `Python3 -m venv venv`
   II. **Activate the Virtual Environment:**
   `source venv/bin/activate`

4. **Install all required Dependencies**
   Install the necessary python libraries (with the correct versions) listed in requirements.txt
   `pip install -r requirements.txt`

5. **Create a ".env" File**
   To use the OpenAI API key safely, create a .env file in the same repository and store the API key like this:
   `OPENAI_API_KEY = "Your API key"`
   Replace "Your API key" with the actual API key that you stored earlier.

6. **Run the Streamlit Application**
   After installing all the libraries needed, we are ready to run the application. Open the terminal and use the following command.
   `streamlit run fraud_detection.py`

This command will execute the application in a localhost environment. It takes a few minutes for the application to initially load but once loaded, user should see the following UI: