PATHWAY SAMPLE PS

OCTOBER 20

Introduction

To help us better understand your skills and approach to the problem statement, we have prepared the following list of tasks as part of your mock assignment.

We encourage you to approach it carefully and use it as an opportunity to showcase your technical aptitude and creativity

Please note that task 1 is compulsory while at-least one of task 2-4 may be attempted.

All the best

Task 1:

Setting up Docker

Pathway's library only works on Linux environments (unfortunately for us poor Windows users). Hence, we need to set up docker containers in order to ensure that every person on the team works on the same environment. So, your first task is to

1) Download Docker Desktop (https://www.docker.com/products/docker-desktop/)
2) Learn how to deploy Docker for a pathway application (https://pathway.com/developers/user-guide/deployment/docker-deployment/)
3) Show the execution of a program using the pathway library after applying docker containerization. (In this case any sample program will be accepted)

Now that you know how to deploy docker you can start working on the next part

Task 2:

Real time AI-driven stock price prediction

Over the last few years multiple companies have been leveraging AI in order to improve the quality of investment decisions. Since a fully-fledged AI based stock market predictor is beyond the scope of this mock problem statement, you have to implement a toy example in which a program can make financial decisions with minimal human intervention. To do this you have to complete the following

1) Train an AI model on historic data.
2) Apply the model on a market simulation where the model uses the price of the last few timestamps in order to predict the future change in the stock value.
3) Show a plot of predicted price vs actual price along with an accuracy score. The accuracy score is defined as the percentage of times the model predicted the direction of the stock (Up or down) correctly.

Note: - The model CANNOT look into the future price while making a prediction. (The prediction for timestamp t_n cannot take t_m for an input if m>n). In case your program does look at future data, it will IMMEDIATELY be disqualified. We place no restrictions on what data you use to in order to make your predictions as long as it is related to finance.

Sample Data Link: - https://coinmarketcap.com/currencies/bitcoin/historical-data/

Task 3:

Smart KYC checker

In this task you have to implement a barebones AI-powered KYC checker. Your solution should be able to do the following

1) Parse user documents (Like Aadhar, PAN, etc.).
2) Extract relevant user information from these documents.
3) Perform basic fraud detection (E.g. Checking names and details across documents).
4) Bonus points for implementing OCR (Optical Character Recognition) instead of reading text documents, since most people upload photographs.

Additional features will fetch bonus points for creativity.

Task 4:

AI-powered Customer Support

Automating customer support is one of the key areas of application for artificial intelligence. In this task you have to build an AI system which will communicate with a user in order to answer any financial queries it may have. The requirements are:-

1) Take user input in the form of a string.
2) Process the user input in a language model (may be hosted locally or on the cloud) and generate a response.
3) Display the user response.
4) Bonus points will be given for storing important user details from their text prompts.

Submission Guidelines:

Your submission must consist of the following things

1) **A GitHub link containing with your code.**
2) **A 2-page report with additional information about your approach.**

As previously stated, you don't need to do all the tasks in the problem statement. We will prefer quality over quantity.

Please note that you will be asked to explain your code during the interview.

Submission Link: - https://forms.cloud.microsoft/r/PXW5ADpcTX
Submission Deadline: - 11:59 pm 22nd October