Software Development Using AI

Final project

The course is nearly over and this is the time for you to make something of your own.

You will develop an API (using fastapi).

Your api parameters can be strings, numbers, images, videos or sound files.

Your code must have proper unit tests. Make sure to run a coverage tool to make sure you have good coverage.

Use proper logging.

You should use postman to check your API.

Your api should be deployed to Azure (using a docker container like you did in assignment #3) and <u>should be publicly accessible</u>.

In your code you can call openAI api, [azure api](), Serpapi, hugging face or any other api that you find online. You can of course call multiple apis from different companies your code and not just one.

Your project cannot be a simple 'wrapper' to an existing api. I mean that you cannot simply call an openai api and that's it. You must have some interesting logic of your own as well.

Your code should be in a **<u>private</u>** github repository.

Btw,<u>Make sure to not upload any api key (like openai key) to a public github</u>. You should set such api keys as environment variables.

You should have a basic CI. Each push of your code to github should publish the latest version of your code to azure **<u>automatically</u>**. For this you can use Jenkins OR Travis (free with github students) OR Azure Pipelines.

Your api can include one or more public methods.

Your code must use a database. It can be any relational database(sqlite,mysql etc) or a nosql database. If you don't have 'real' logic that you will use the database for, you should save to the database each api call that is done or write logs to the database.

First work on a proof of concept that shows the main 'logic'/'point' of your project working (no need for azure hosting etc for the proof of concept, you can run everything from your pc).

The submission of the final project has 2 parts:

- **February 20 - submission of the POC of the project.**
  You will present this Proof Of Concept in our last lesson of the course (on February 21). The presentation poc video should be a video of 2-5 minutes that shows and explains your Proof Of Concept. The presentation should be impressive (for me and the other students to watch)and you should show confidence and 'control' on your code and project when I ask you questions about your project. You can use any kind of video editing tools for the video.
  At this stage you do not have to submit to me any code, just the video.
  When you show the POC i might give you some comments/ideas about how to improve the project (for the final submission)
- **March 10- final deadline of the full project.**
  Full submission including the full source code and a final project video explaining everything.

If you cannot think of an idea of your own for the final project, here are some of my ideas

Examples of ideas (if you choose an idea from here, please make it more interesting and add some kind of twist/s to that idea to make it 'your own')
- Voice recording to cartoon. Input- a voice recording in any language. Output- a video consisting of frames of a cartoon 'movie' that is based on the input. 1 frames-per-second but with effects between the frames for transitions. Make sure to make the cartoon 'movie' consistent(same characters and style across the video).
- Yoga AI reviewer. Input- a video of a yoga exercise. Output- A video that highlights frames with posture names, frames with probably incorrect postures and also showing an image of a correct posture.
- Credit card spend optimizer. Input- excel files of credit card statements. Output- analysis, trends, recommendations and predictions regarding your credit card spend.
- 'Makeover'. Input- an image of a person. Output- multiple images of that person wearing different clothings.
- Soccer/basketball game analyzer. Input- a video of a soccer game (with audio commentary). Output- a report of an interesting analysis of the game and players (using the audio commentary and image analysis).
- Videomaker. Input- a script for a movie. Output- a movie created from parts of multiple youtube videos stitched together based on the script.
- CV improver. Input- a pdf of a CV(resume) file. Output- an improved CV pdf based on relevant job descriptions found online in realtime, google trends etc

You can also think of projects that call apis like openai in a loop or via multiple 'agents'.

You should choose/add your idea in [this](#) sheet ASAP. Do not use one of my ideas in more than 2 different teams.

Make your project interesting and not trivial. This kind of project can also help you a lot in job interviews.

Submission instructions:

For the POC, create the video file and submit [this](#) form. Upload to moodle a text file with a link to your video.

Before you submit your final project, please go over this whole file and make sure you implemented everything as I asked.

For the final submission, create a video file that explains your whole project(while you are talking). Include your unit tests, your CI/CD flow from push until auto deployment etc and submit [this](#) form. Also create a pdf that explains your final project and upload the pdf to moodle.