**PE01: Programming Exercise**

**Instruction**

**Resource:**

FastAPI (n.d.). <https://fastapi.tiangolo.com/>

Your task for this Programming Exercise is to achieve similar behavior as HOS01A-4 using the **FastAPI** framework.

1. Follow Virtual Environment (venv) setup steps 1 ~ 3 from HOS01A-4.
   1. **Optional**: It is encouraged to learn about Anaconda(Miniconda) by referencing the **Optional** section of this PE.

1. Instead of **Flask**, install **FastAPI** as shown in <https://fastapi.tiangolo.com/tutorial/#install-fastapi>
   1. pip install fastapi "uvicorn[standard]"
2. Follow <https://fastapi.tiangolo.com/tutorial/first-steps/> to achieve similar results in the web browser as HOS01A-4
   1. FastAPI requires executing uvicorn command instead of directly running python script. (ex. use “uvicorn main:app --reload” to start python backend server)

**Optional:** Instead of venv, Conda is often used in real-world applications for developing environments and sometimes as part of product service as well. Here are *optional* steps that do similar capabilities to venv. One of the benefits of using Anaconda instead of venv is that the user can change the Python version besides sandboxing the development environment.

1. Install Miniconda by following the doc at <https://docs.conda.io/projects/conda/en/latest/user-guide/install/index.html>
2. Download or clone the repository that we forked, and open the folder from VSCode. For example, “File” > “Open Folder...” > navigate to the folder we just created > click “Select Folder”
3. Open the terminal (From the top menu “Terminal” > “New Terminal”) type the command below to create a conda environment and activate it.

conda create --name ai510pe01  
conda activate ai510pe01

1. Install the required dependencies.

conda install -n ai510pe01 python=3.11 Flask=2.1.3 pandas=0.24.2 pylint=2.6.0 scikit-learn=0.20.3

1. Deactivate the conda environment after finishing the above steps by running the following command:

conda deactivate

**Submit the items below to the PE submission page:**

1. The GitHub link of your FastAPI server script commits.
2. Provide a 20 to 50 words analysis or thoughts for setting up a local web application backend with the screenshot after completing task step 3.
3. Make sure the PE module number and your name are written on the file name (e.g., "*PE01\_YourName.docx").*