ML Flow Set Up - Mac

Setting up a python virtual environment and MLflow on macOS

1. Create a Virtual Environment:
    - Open Terminal.
    - Navigate to your desired directory where you want to create the virtual environment. For example, to navigate to your home directory (equivalent to C:\Users\YourName\ on Windows), use:
      cd ~
      This command takes you to /Users/your_username/.
    - Create the virtual environment by running:
      python3 -m venv <Environment_Name>
      Replace <Environment_Name> with your preferred name, e.g., FinalProjectEnv.

2. Activate the Virtual Environment:
   Run the following command to activate the environment:
      source <Environment_Name>/bin/activate
      For example:
      source FinalProjectEnv/bin/activate
      After activation, your terminal prompt should change to indicate the environment is active.

3. Install MLflow:
   With the virtual environment activated, install MLflow using pip:
      pip install mlflow

4. Install Jupyter and ipykernel:
   Still within the activated environment, install Jupyter and ipykernel:
      pip install jupyter ipykernel

5. Add the Virtual Environment to Jupyter (for use in VS Code):
   Add your environment to Jupyter with:
      python -m ipykernel install --user --name=<Environment_Name> --display-name "Python (<Environment_Name>)"
      Replace <Environment_Name> with your environment's name.
    - In VS Code:
        - Open your project folder.
        - Press Cmd + Shift + P to open the Command Palette.
        - Select "Python: Select Interpreter".
        - Choose "Enter interpreter path...", then "Find...".
        - Navigate to and select:
          ./<Environment_Name>/bin/python
          Replace <Environment_Name> with your environment's name.

6. Select the Kernel in VS Code:
    - For Jupyter Notebooks:
        - Open your .ipynb file.
        - Click on "Select Kernel" in the top-right corner.
        - Choose "Python (<Environment_Name>)".
    - For Python Scripts (.py files):
        - Press Cmd + Shift + P to open the Command Palette.
        - Select "Python: Select Interpreter".
        - Choose "Python (<Environment_Name>)".

Start ML Flow

1. Open Terminal:
    Press Cmd + Space, type Terminal, and hit Enter to open the Terminal app.

2. Navigate to your project directory:
Use the cd command to change to the folder where your project files are located. For example:
    cd /path/to/your/project/folder
    Replace /path/to/your/project/folder with the actual path to your project.

3. Create a Virtual Environment:
If you haven't already created a virtual environment, run:
    python3 -m venv venv_name
    Replace venv_name with the desired name of your virtual environment.

4. Activate the Virtual Environment:
On macOS, activate the virtual environment with:
    source venv_name/bin/activate
    After activation, your terminal prompt should change to indicate the virtual environment is active, e.g., (venv_name).

5. Install MLflow:
Ensure your virtual environment is active, and then install MLflow with:
    pip install mlflow

6. Start MLflow UI:
Run the following command to start the MLflow UI:
    mlflow ui
    This will start the MLflow tracking server, and you'll be able to access the web interface at http://127.0.0.1:5000 from your browser.

7. Set Tracking URI (Optional):
If you want to use a specific database (e.g., SQLite or a remote server), set the tracking URI. For example, to use an SQLite database:
    import mlflow
    mlflow.set_tracking_uri("sqlite:///path/to/your/mlflow.db")
    Replace path/to/your/mlflow.db with the actual path where you want the database to be stored.

8. Access the MLflow UI:
Open a web browser and navigate to:
    http://127.0.0.1:5000
    This will open the MLflow UI, where you can track and monitor experiments, models, and more.