NSE talent sprint | Indian Institute of Science
भारतीय विज्ञान संस्थान

Module 5: Mini Project-1 Part-B

Bike rental prediction

Testing and Packaging

For this project, we will test and package a bike rental count prediction system using modular programming. Please refer to Module 5 - AST 2 for this mini-project.

PART B [Mini-project Session - 8th March 2025]

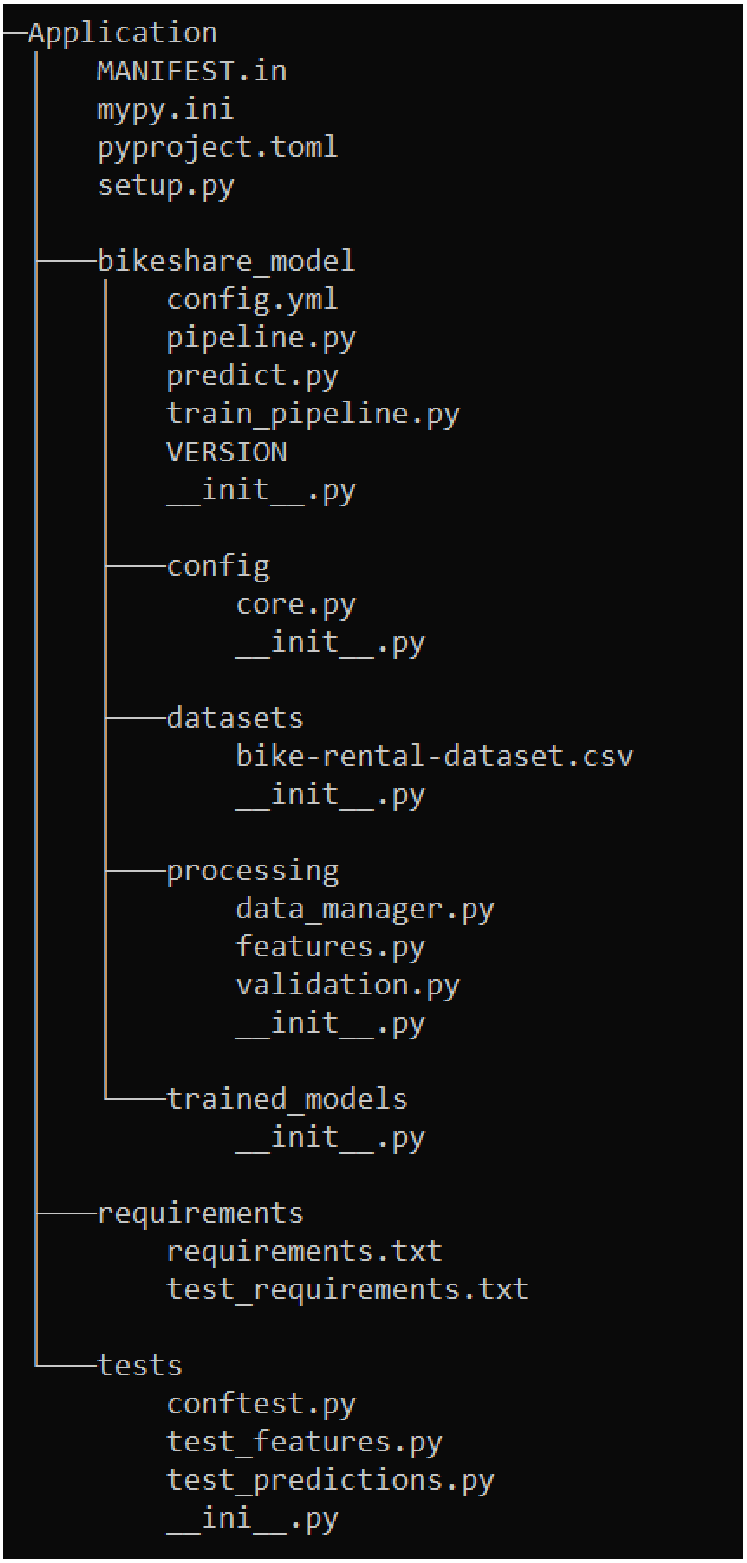
Step 1: Ensure to go through the previous mini-project [PartA]

Step 2: Project Setup in VS Code: (2 points)

2.1 Use the existing project folder from the previous mini-project PartA session and open it in VS Code.

2.2 Update the project structure by creating new files for testing and packaging, as shown below.

- Add the files for testing: `conftest.py`, `test_features.py`, `test_predictions.py`
- Add test requirements
- Add the files related to packaging: `pyproject.toml`, `setup.py`, `manifest.in`, and `mypy.ini`



```
─Application
 │   MANIFEST.in
 │   mypy.ini
 │   pyproject.toml
 │   setup.py
 │
 ├───bikeshare_model
 │   │   config.yml
 │   │   pipeline.py
 │   │   predict.py
 │   │   train_pipeline.py
 │   │   VERSION
 │   │   __init__.py
 │   │
 │   ├───config
 │   │       core.py
 │   │       __init__.py
 │   │
 │   ├───datasets
 │   │       bike-rental-dataset.csv
 │   │       __init__.py
 │   │
 │   ├───processing
 │   │       data_manager.py
 │   │       features.py
 │   │       validation.py
 │   │       __init__.py
 │   │
 │   └───trained_models
 │           __init__.py
 │
 ├───requirements
 │       requirements.txt
 │       test_requirements.txt
 │
 └───tests
         conftest.py
         test_features.py
         test_predictions.py
         __ini__.py
```

Step 3: Implement the following test cases: (3 points)

Implement test cases for:

- Pipeline processing steps, including imputation, mapping, and custom class transformations
- Prediction steps

Step 4: Create a Virtual Environment:

4.1 Open the terminal in VS Code and navigate to the project folder.

4.2 Create a virtual environment as demonstrated in Module 5 - AST 1

Step 5: Install Dependencies: (1 point)

5.1 Activate the virtual environment in the terminal.

5.2 Install the necessary dependencies by running the "pip install" command for required libraries.

Step 6: Train the Model: (1 point)

6.1 Execute the "train_pipeline.py" script to train the bike rental prediction model using the prepared data.

Step 7: Run Test cases: (2 points)

7.1 Run the test cases (created in Step 3) by executing the "pytest" command in the terminal.

Step 8: Build a package for the application: (1 point)

8.1 Install the “build” library by running the "pip install" command.

8.2 Run the "build" command to create distributable files (.tar, .whl, etc).