Build a Machine Learning Model using Python

Capstone Project 4

Agenda

- Objective of the project
- General Process to be followed
- Presentation Format
- Rubrics

Objectives of the Capstone Project

Objective

The Capstone Project will enable students to apply and integrate what they have learnt and give them an opportunity to delve in greater depth, into one or more of the topics covered in the Machine Learning using Python courses. Mentors and Associate Trainers will be assigned to guide the cohort.

The capstone project should be completed within the given time.

Mode of Work

- Participants are to work on their Capstone Projects individually under the supervision of their mentor / trainer.
- Participants are expected to work with their mentors and trainers in understanding the business domain, problem definition and gaining access to documents and resources available.

Mode of Work

- Participants are encouraged to choose their own data and brainstorm ideas with their mentor/trainer.
- The Capstone Project is completely hands-on.
- The participants are expected to create machine learning models and explain the outcome as an end result.

Process to follow

Process

1. Formulate the hypothesis/objective.
2. Use data already used in one of the previous capstone projects. Identify the inputs and output(s) from that data. If not possible, gather new data.
3. Clean & Transform the data as required
4. Perform Feature Engineering
5. Build Machine Learning Models
6. Compare various Machine Learning Models using performance metrics
7. Optimize the model if required
8. Explain the end result. Circle back to the objective.

Presentation

Presentation Format

- Powerpoint slides only:
  - Bullet point format
  - Tabular and graphical visualizations

- NB: Do not need to present Jupyter notebooks, but may be requested by trainers for verifications

- 1. Introduction and Objective
  - Who are you?
  - What is the organization/department you are representing?
  - Who is your target audience?
  - State your business case/statement/goals/motivations
  - How will your prediction work help?

Presentation Format

- 2. Methodology
  - Datasets, Models, Metrics, Tools
- 3. Process Workflow
  - EDA, Data preparation, Data analysis, ML model training/evaluation
- 4. Results
  - Accuracy, MSE, R^2 score, F1-score, ROC Curve, etc
- 5. Conclusions
  - How did results of your work help with business case?
  - Recommendations
  - Interesting insights

Presentation Format

- 6. Future Opportunities
  - If you have more time, what else would you do?

- 7. Appendix
  - Everything else

Rubrics for Scoring (Total: 25)

Topic	Marks
Design	5
Data	5
Algorithms	5
Tools	5
Communication	5

Rubrics Explained

- Design : (design of project objectives and design of the process used to achieve them)
- Data : (dataset obtained and used for analysis, modeling, or system construction in the project)
- Algorithms : (this relates to the use of computational algorithms / their implementation in software as required by the project)
- Tools : (this relates to the use of any software/analysis/computing tools required by or complementary to the project)
- Communication : (this includes verbal presentation, slide content, and a written project description)

THANK YOU!

Any questions?