

# **ST 1/ST1 G Capstone Project** **Programming Project**

Project submission due date: Week 13 Friday 11.59 pm  
This assignment is worth 40 marks

## **Project Description and Requirements**

Theme: **Data Analytics, Visualization, Prediction and Deployment**

Objectives: Demonstrate the understanding of some of the following Python Libraries/Packages: Pandas, NumPy, Matplotlib, Seaborn, Plotly, Scikit-learn, PyTorch, Keras, TkInter, Flask, Django or any similar open-source Python packages approved by tutor/convenor.

### Group/Solo Participation Requirements:

- i. Students enrolled in postgraduate version (8995/ST1G) will need to work as a solo group (Individual project).
- ii. Students enrolled in undergraduate version (4483/ST1) can work in groups, with following requirements:
  - a. Group of 1/Solo/Individual student, will do project with at least one dataset.
  - b. Group of 2 student, will do project with at least two different datasets.
  - c. Group of 3 students, will do project with at least three different datasets.
- iii. Student groups need to belong to same tutorial group, unless approved by tutor.
- iv. Each project task needs to be unique and approved by tutor and the Unit convenor. Please register your group and the project by end of week 9.
- v. The special tutorial/lab activities in week 9, week 10, and week 11, will provide further guidance on sample project tasks using (Pycharm, Google colab and Replit IDEs) and with appropriate submission templates for working on this capstone project activity.

## Capstone Task:

1. **Dataset Options: Find a dataset** from any **one** of the following data repositories:
  - I. <https://archive.ics.uci.edu/ml/index.php>
  - II. <https://www.kaggle.com/datasets>
  - III. <https://unstats-undesa.opendata.arcgis.com/>
  - IV. <https://grand-challenge.org/>
  - V. <https://data.gov.au/home>
2. Come up with **5 questions** that you want to answer while exploring dataset, and **Perform EDA** (Exploratory Data Analysis and Visualization) on your dataset with basic visualizations (using Pandas, NumPy, Matplotlib, Seaborn, Plotly or similar packages)
3. **Perform Classification (Predictive Analytics)** on your dataset to detect and predict different classes (using Scikit-learn, Keras, Pytorch or similar packages)
4. **Implementation and Deployment:** Deployment of your application as a desktop GUI app with tkinter **and** as web app with any of the python web frameworks ( Flask, Django, Snowflake, Streamlit, AWS)
5. Submit the final project report in the canvas and create one **GitHub repository** for your team Capstone project.
6. **Make a 10 min presentation** in the tutorial class on-campus/online about your team findings and be ready to present it online. Add presentation slides to your GitHub repo.
7. Give an **interview/viva-voce** about your project to the teaching team (tutor/convenor) on-campus/online, following the presentations.

\*\*\*\*\***End of Capstone Project Description**\*\*\*\*\*

## **ST1(4483) / ST1G(8995) Capstone Project Marking Rubric**

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Student Name/ID: Student Name/ID: Student Name/ID:		Unit: 4483/8995	Group/Solo		
Project Title:					
Assignment item	Assessment Criteria	Maximum Marks	Marks Obtained	Comments	
Project Participation	Logbook/Journal: Regular Weekly update on the project in tutorial class and maintaining a log-book journal to be submitted with final report	5			
Project Deliverable 1	Exploratory Data Analysis and Visualization Task  (Coding and Testing)	5			
Project Deliverable 2	Predictive Analytics Task  (Coding and Testing )	5			
Project Deliverable 3	Implementation and Deployment Task  (Interface Development, Coding and Testing)	5			
Project Deliverable 4	Project Report: Analysis/Design, Algorithm Flowcharts/Pseudocode, Code Listing, Evidence of Testing (Test plan, screenshots), Reflection)	10			

<b>Project Deliverable 5</b>	<b>Project Presentation and Interview:</b> 10-minute presentation of the project by the team or the student in the on-campus/online tutorial class and subsequent interview with the teaching team	<b>10</b>		

Total Mark (Out of 40): .....

Further Comments: