Great Learning
POWER AHEAD

Applied Data Science Program

Capstone Project Briefing

Capstone Objectives

- Experience end-to-end problem-solving using a combination of tools and techniques in machine learning
- Learn practical implementation of various analytical techniques and choose the one which gives results most appropriate for business
- To understand the trade-offs that need to be made when solving a problem in real life
- To develop better presentation and report writing skills

Capstone Project Timelines

MIT-PE ADSP May'23							
Course	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 8 Recommendation Systems	10Jul	11Jul	12Jul	13Jul	14Jul	15Jul	16Jul
	LVC 1 + Elective Project Preference form Submission Deadline		LVC 2	Elective Project Release Date	LVC 3	MLS 1	MLS 2
Week 9 Revision Week	17Jul	18Jul	19Jul	20Jul	21Jul	22Jul	23Jul
	Optional Case Study Revision Session 2	Optional Conceptual Revision Session 2	Office Hours Session	Elective Project Submission Deadline		Capstone Briefing session + Capstone Milestone Project release Date	
Week 10 Capstone Week 1	24Jul	25Jul	26Jul	27Jul	28Jul	29Jul	30Jul
			Elective Project Score Release				Capstone QnA Session
Week 11 Capstone Week 2	31Jul	1Aug	2Aug	3Aug	4Aug	5Aug	6Aug
				Milestone Project Submission Deadline			Capstone QnA Session
Week 12 Capstone Week 3	7Aug	8Aug	9Aug	10Aug	11Aug	12Aug	13Aug
		Milestone scores release		Final Capstone Submission Deadline		Live Presentation	Live Presentation
Great Learning Events	14Aug	15Aug	16Aug	17Aug	18Aug	19Aug	20Aug
	Hackathon Registeration Open				Hackathon Registeration Closed	Hackathon Release Date	
	21Aug	22Aug	23Aug	24Aug	25Aug	26Aug	27Aug
				Hackathon Deadline		Program Completion Ceremony	
	28Aug	29Aug	30Aug	31Aug	1Sep	2Sep	3Sep
	Capstone Project Scores Release						

Applied Data Science Program

Capstone Project

02

REGRESSION

(Machine Learning)

01

UNSUPERVISED LEARNING

(Data Analysis & Visualization)

03

CLASSIFICATION

(Practical Data Science)

04

DEEP LEARNING

Malaria Detection & Facial Emotion Detection

(Deep Learning)

05

RECOMMENDATION SYSTEM

(Recommendation Systems)

MIT-PE Applied Data Science Program

CAPSTONE PROJECT

STAGES :

01

PROJECT OVERVIEW AND SELECTION

02

PROJECT RELEASE

03

MILESTONE

04

FINAL SUBMISSION & LIVE PRESENTATION

LOW CODE Vs FULL CODE

Submission type	Who should choose	What is the same across the two	What is different across the two	Final submission file [IMP]	Submission Format
Full-code	Learners who aspire to be in hands-on coding roles in the future focussed on building solution codes from scratch	Perform exploratory data analysis to identify insights and recommendations for the problem	Focus on code writing: 10-20% grading on the quality of the final code submitted	Solution notebook from the full-code template submitted in .html format	.html
Low-code	Learners who aspire to be in managerial roles in the future-focussed on solution review, interpretation, recommendations, and communicating with business		Focus on business report: 10-20% grading on the quality of the final business report submitted	Business report in .pdf format with problem definition, insights, and recommendations	.pdf

SUBMISSION

FULL CODE VERSION:

The full code way is to write the solution code from scratch and only submit a final Jupyter notebook in **.html format** with all the insights and observations.

Please follow the below steps to complete the submission:

- -Download the full-code version of the learner notebook
- -Follow the instructions provided in the notebook to complete the project
- -Clearly write down insights and recommendations for the business problems in the comments
- -Submit only the solution notebook prepared from the learner notebook **[format - .HTML]**

SUBMISSION

LOW CODE VERSION:

The low-code way is to use an existing solution notebook template to build the solution and then submit a Business Report in **.PDF format** with insights and recommendations.

Please follow the below steps to complete the submission:

- Download the low-code version of the learner notebook
- Follow the instructions provided in the notebook to complete the project
- Prepare a Business Report with insights and recommendations to the business problem

Submit only the presentation **[format: .PDF]**

Kindly note that if you submit the notebook along with the report, ONLY the report will be evaluated

MILESTONE

1. Problem Definition

a. The context - Why is this problem important to solve?
b. The objectives - What is the intended goal?
c. The key questions - What are the key questions that need to be answered?
d. The problem formulation - What is it that we are trying to solve using data science?

2. Data Exploration

a. Data Description - What is the background of this data? What does it contain?
b. Observations & Insights - What are some key patterns in the data? What does it mean for the problem formulation? What are the data treatments or pre-processing performed?

3. Building various models - This involves constructing multiple relevant models to solve the problem and evaluating their performance. The models can be fine-tuned to determine whether their performance can be improved.

4. Comparison of various techniques and their relative performance - How do different techniques perform? Which one is performing relatively better? Is there scope to improve the performance further?

5. Proposal for the final solution design - What model do you propose to be adopted? Why is this the best solution to adopt?

MILESTONE SCORING

Criteria	Pts
Problem Definition	4.0 pts
Data Exploration	4.0 pts
Building Models	4.0 pts
Comparison of various techniques and their relative performance based on chosen Metric (Measure of success)	4.0 pts
Proposal for the final solution design	4.0 pts
Total Points:	**20 pts**

FINAL SUBMISSION

The Final Submission should focus on the key takeaways from the project. This is the final proposal to solve the problem that a business leader or a decision-maker should consume.

This Final Submission should have three key parts:

1. Executive Summary -

- What are the most important findings from the analysis done in Milestone?
- Describe the final proposed model specifications

2. Problem and solution summary -

- Provide the summary of the problem
- State the reasons for the proposed solution design
- How it would affect the problem/business?

3. Recommendations for implementation -

- What are some key recommendations to implement the solution?
- What are the key actionables for stakeholders?
- What is the expected benefit and/or costs (List the benefits of the solution. State some rational assumptions to put forward some numbers on costs/benefits for stakeholders)?
- What are the potential risks or challenges of the proposed solution design?
- What further analysis needs to be done or what other associated problems need to be solved?

FINAL SUBMISSION SCORING

Criteria	Pts
Executive Summary	15.0 pts
Problem and Solution Summary	10.0 pts
Recommendations for Implementation	15.0 pts
Total Points:	**40 pts**

LIVE PRESENTATION

- This is the final stage of the Capstone journey, where you are supposed to present your solution to a panelist for 8-9 minutes and then answer the questions in the next 4-5 minutes.
- The objective should be to draw your audience's attention to the key points of your project - problem definition, solution design, key findings/insights, and business recommendations.
- **Structure the presentation well**. It is good to start with key takeaways - overview of the problem, approach for the solution, key findings & insights, and recommendations & next steps. The inclusion of the potential benefits of implementing the solution will give you the edge
- **You will be given 8-9 minutes to present** and there will be a hard stop after 9 minutes, so practice well to present within the time limit
- **This will be followed by 4-5 minutes of question & answer**. Questions can be from a business or academic perspective (sometimes there might be a Subject Matter Expert sitting in the room, who will ask academic or conceptual questions pertaining to your submission). 1-2 minutes shall be allotted as buffer time.
- **Focus on explaining the takeaways** in an easy-to-understand manner (a business leader wouldn't know about the term 'confusion matrix' but might understand '% of events (1s) predicted correctly by the model')
- The final presentation **should be submitted before the session**.
- The date & time of the presentation will not change once finalized

LIVE PRESENTATION SCORING

Criteria	Pts
Quality of Slides - Structure, flow and neatness	10.0 pts
Understanding of the solution - Ability to explain concepts	15.0 pts
Depth of analysis - Methodology & Rigour	15.0 pts
Total Points:	**40 pts**

SUPPORT SYSTEM

ROLE OF A MENTOR

What to Expect: A mentor is a guide who will enable you to achieve your project outcomes.

- **Consultant:** Share his/her own industry experience and provide direction with his/her expertise.
- **Guru/Mentor:** Provide knowledge, hacks, insights, guidance, identify resources to learn, and stay updated.
- **Leader:** Motivate and build confidence, offer encouragement, and help you move out of your comfort zone.

What NOT to Expect: The mentor will not provide feedback or solutions to the project questions

Other Support Channels:

- **Slack Channel:** We will create new group channels on Slack on the basis of your project selection. You could engage in discussions with your peers via these channels
- **FAQ Document:** We request that you kindly check the FAQ document for your project for any queries/questions.
- **Support Tickets:** Our academic team shall guide you as in when you need them, too. You could raise support requests through the '*Need Assistance*' option in Olympus to seek their assistance for the queries unresolved through FAQ documents

Please reach out to your Program Manager in case you require any further assistance.

ANY QUESTIONS?