Milestone Submission

Problem Definition, Data Exploration, Building Models, Techniques' Comparison, Final Solution Design

Problem Definition

- **Context - Why is this problem important to solve?**

  - Brief Introduction to the problem

  - Advantages of solving the problem

  - Good to add some facts and numbers to support your argument

- **Objectives - What is the intended goal?**

  - The goals you are trying to achieve.

  - Example - Reducing the attrition rate, Improving the lead conversion rate

  - There can be multiple goals

Problem Definition

- **The key questions - What are the key questions that need to be answered?**

  - Curating questions related to the problem that need to be answered

  - The burning questions or important insights you are planning to draw while solving the problem

- **The problem formulation - What is it that we are trying to solve using data science?**

  - Already explained the general form of the problem. Now, formulate the problem as a data scientist

  - How data science fits into the spectrum of solving the problem

  - The nature of the data science problem

Data Exploration

- **Data Description**

  - Background of the data and what is it about?

  - Information about the variables included in the data

- **Observations & Insights**

  - What are some key patterns observed in the data during EDA?

  - How do the key patterns affect/relate to the problem?

  - What are the data treatments or pre-processing steps performed, if any?

Building Models

- Try different models/techniques to solve the problem

- The models can be fine-tuned to improve the performance

- List the most meaningful insights from the model relevant to the problem

- A meaningful insight has three components:

  - Good interpretation of the output from the model

  - Potential reason for that output

  - What it means for the problem/business?

Comparison of Techniques and their Performances

- Compare the performance of different techniques based on the **metric chosen** for the problem

    - Why the metric chosen is the best for the problem at hand?

    - Which technique is performing relatively better?

    - Pros and cons of different techniques

    - Good to include a comparison table

- Is there scope to improve the performance further? If yes, how?

Proposal for the Final Solution Design

- **What model do you propose to be adopted?**

    - Based on the comparison, which is the best model for the problem?

    - Think of the tradeoff between model performance and model interpretability

- **Why is this the best solution to adopt?**

    - Reason for choosing the best model

    - How that solves the problem?

Final Submission

Executive Summary, Problem and Solution Summary, Recommendations

Executive Summary

- **What are the key takeaways?**

  - Identify and focus on the big picture first and all of its components

  - These components are usually the driving force for the end goal

  - Summarize the most important findings and takeaways in the beginning

  - Provide the final proposed model specifications

- **What are the key next steps?**

  - Steps that can be taken to improve the solution

  - How to make the best of the solution?

  - What are the steps to be followed by the stakeholders?

Problem and Solution Summary

- **What problem was being solved?**

  - Summary of the problem

- **Final proposed solution design**

  - What are the key points that describe the final proposed solution design?

- **Why is this a 'valid' solution that is likely to solve the problem?**

  - The reason for the proposed solution design

  - How it would affect the problem/business?

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

  - Take some rational assumptions to put forward some numbers on costs/benefits for stakeholders

- What are the key risks and challenges?

  - 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?

General Tips

Do's and Don'ts for a Good Project Report

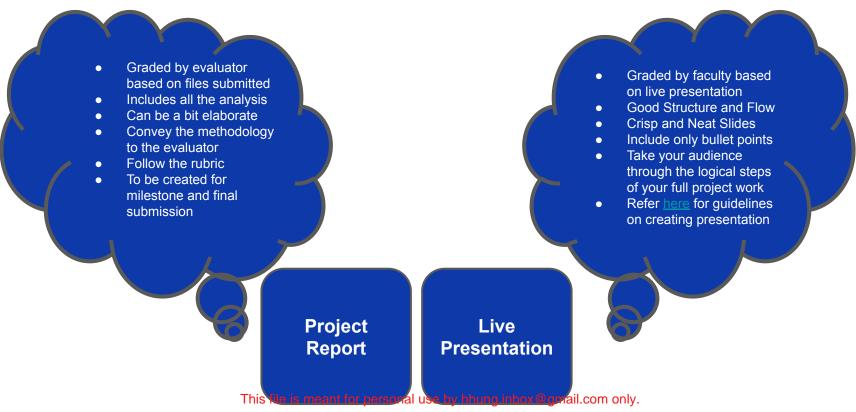| Do's |
|------|
| ✅ Focus must be on the business problem and solving the same by analyzing the data |
| ✅ Follow the guidelines provided on LMS and by the Program Office |
| ✅ Include only the important material in the main body. Appendix can contain codes and all less important tables, figures, etc. |
| ✅ Adding codes and reference in the Appendix |
| ✅ Easily readable tables, figures, and graphs. Work on the axis labels and legends |
| ✅ Present all numbers up to 2 places of decimals only, unless required otherwise |
| ✅ Highlight the innovations of the project and why the methods suggested there ought to be utilized by the industry |

Don'ts
❌ Following this template word to word. This template is just to help you get started
❌ Presenting numbers and figures without the business interpretation and what it means for the problem
❌ Using any non-standard abbreviation in your report
❌ Filling the main body of the report with codes
❌ Screenshots of tables/charts from Python output
❌ Explaining theory of the techniques in the project report
❌ Using very large fonts and/or adding unnecessary visuals
❌ Including too much content on a single slide

Project Report VS Live Presentation

- Graded by evaluator based on files submitted
- Includes all the analysis
- Can be a bit elaborate
- Convey the methodology to the evaluator
- Follow the rubric
- To be created for milestone and final submission

- Graded by faculty based on live presentation
- Good Structure and Flow
- Crisp and Neat Slides
- Include only bullet points
- Take your audience through the logical steps of your full project work
- Refer here for guidelines on creating presentation

Project Report

Live Presentation