

## 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
  - Our 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
- O 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

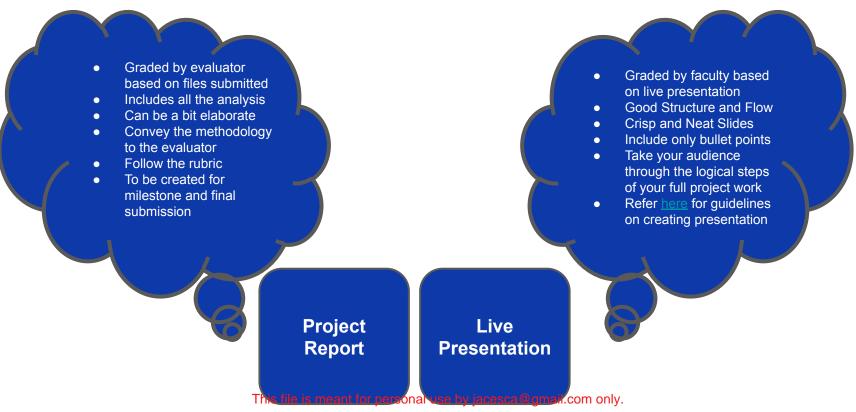
#### Don'ts

- 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
- X Using any non-standard abbreviation in your report
- X Filling the main body of the report with codes
- Screenshots of tables/charts from Python output
- X Explaining theory of the techniques in the project report
- X Using very large fonts and/or adding unnecessary visuals
- X Including too much content on a single slide

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## **Project Report VS Live Presentation**





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