DS 223 Marketing Analytics

Group Project

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AUA

Group Project

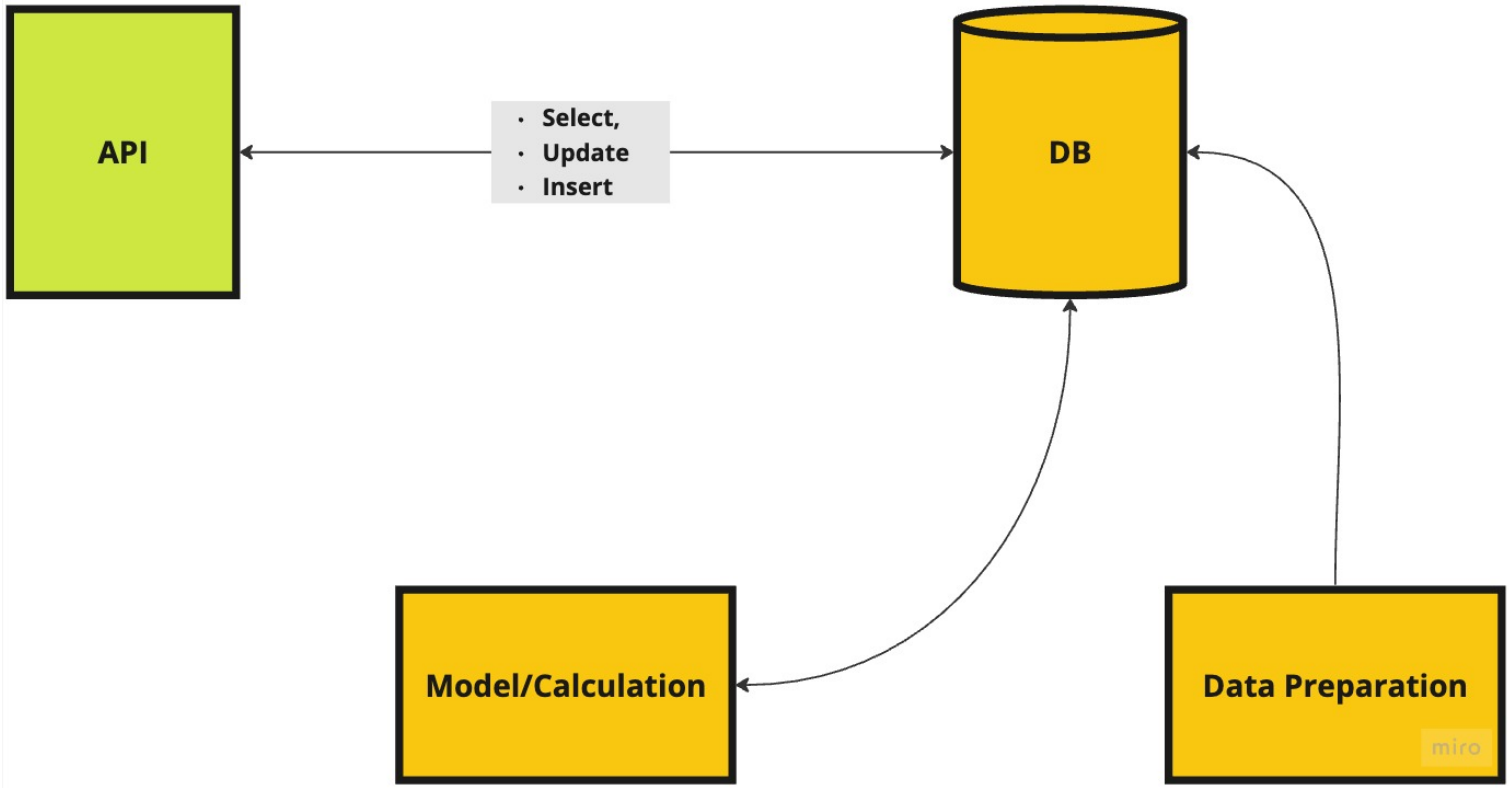
Scope

- Finding a Marketing related problem
- Understanding the methodology of the analysis
- Create a product using microservice architecture:
  - Predictive Model (component)
  - DB
  - Data Processing pipeline (if needed)
  - Backend
  - Frontend (only for the groups with 5 members)
- Add documentation

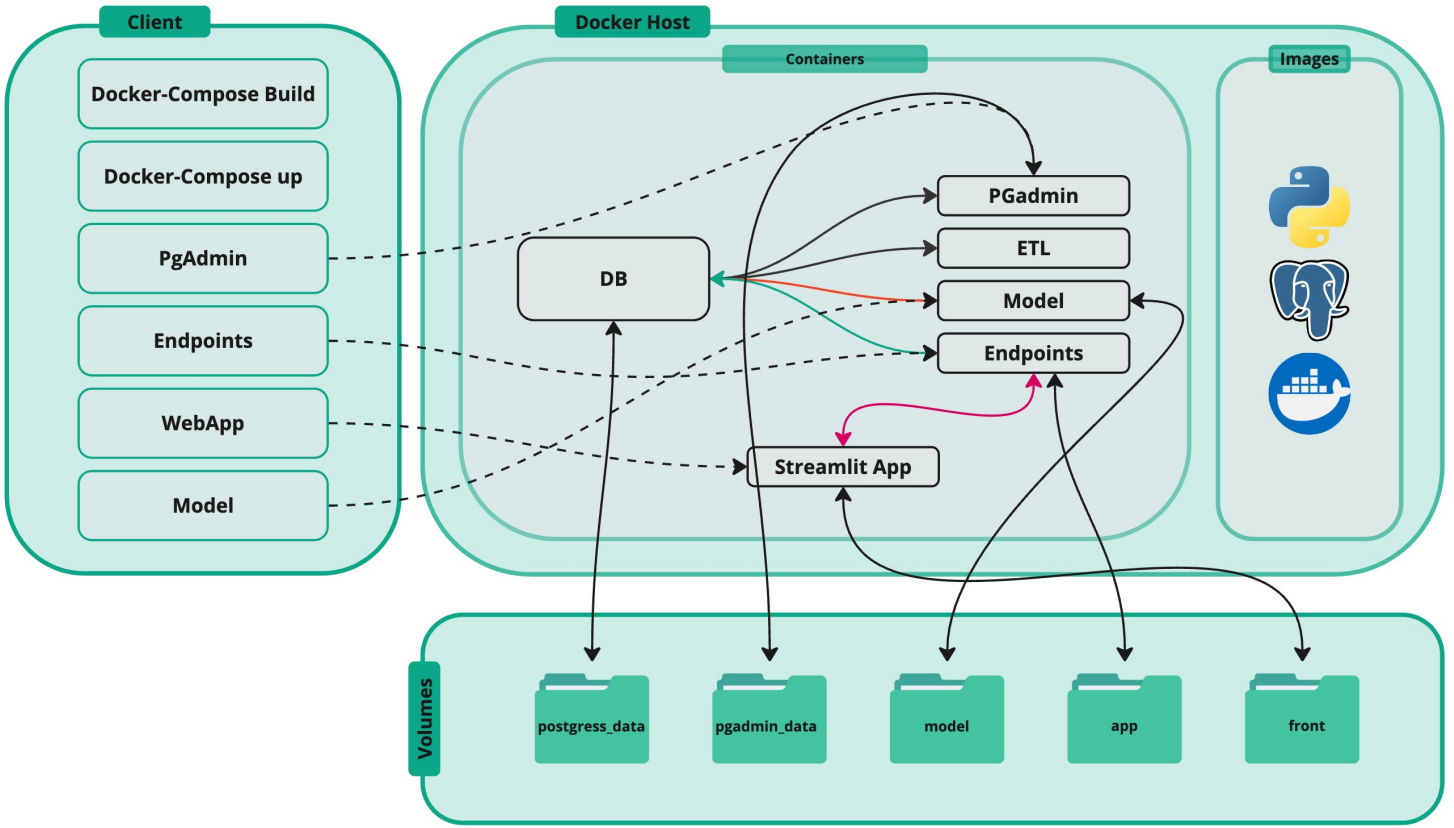
Team

- **Project/Product Manager:** team sync, product research
- **DB Developer:** responsible for the database development
- **Data Scientist/Analyst:** responsible for Modeling and EDA
- **Backend Developer:** responsible for the API
- **Frontend Developer:** responsible for the layout of the product

Flow


API
Select,
Update
Insert
DB
Model/Calculation
Data Preparation
miro

Architecture



Teamwork

"If you want to go fast, go alone. If you want to go far, go together."

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Project/Product Manager

Responsibilities

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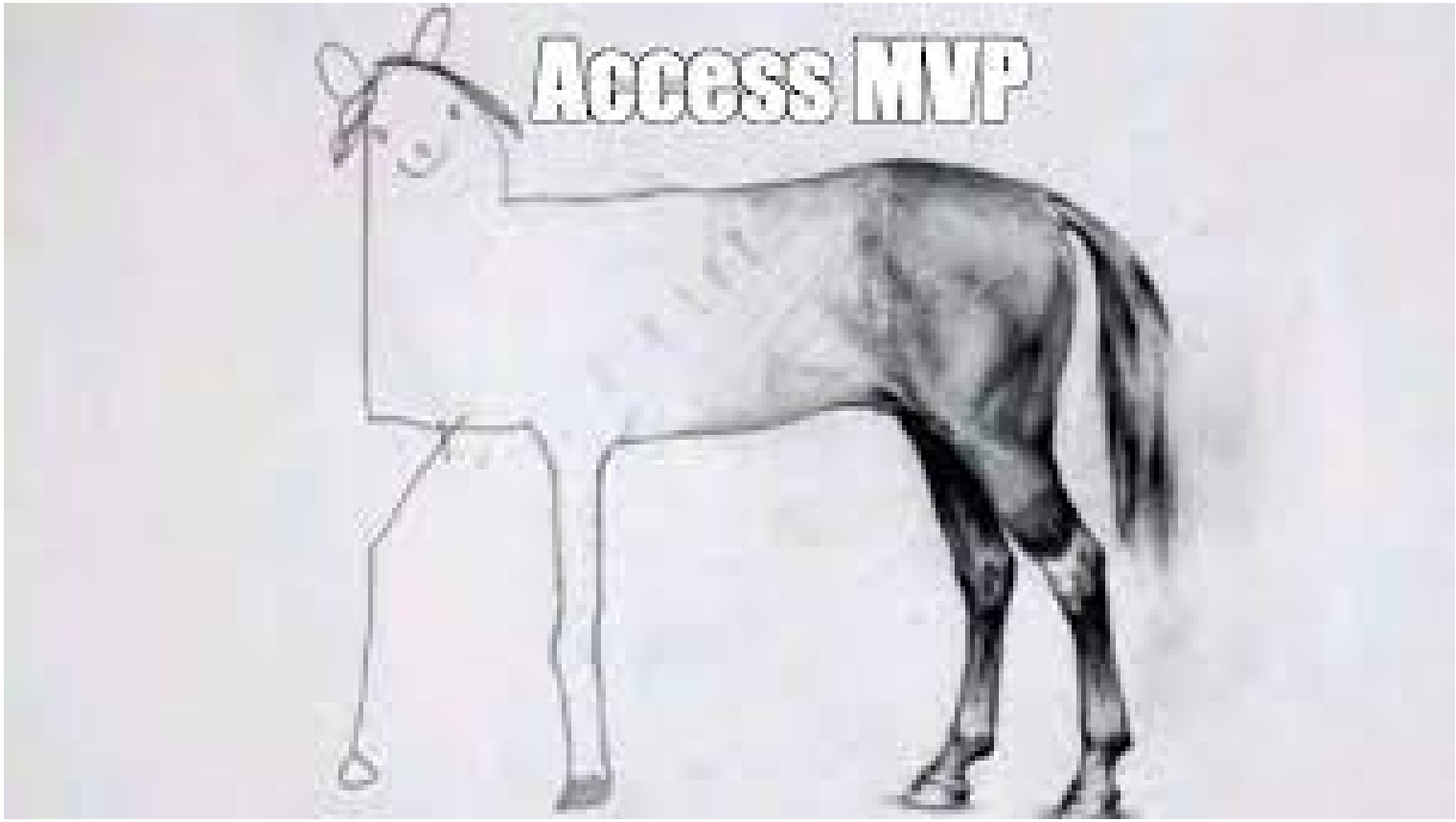
PPM in the scope of this project should do both:

1. Define a product
2. Define MVP
3. Manage Stakeholders:
   - Communicate with me and Garo
   - Manage team; Team Sync
4. Follow-up tasks
5. Build low fidelity mockup (expand the above flowchart)

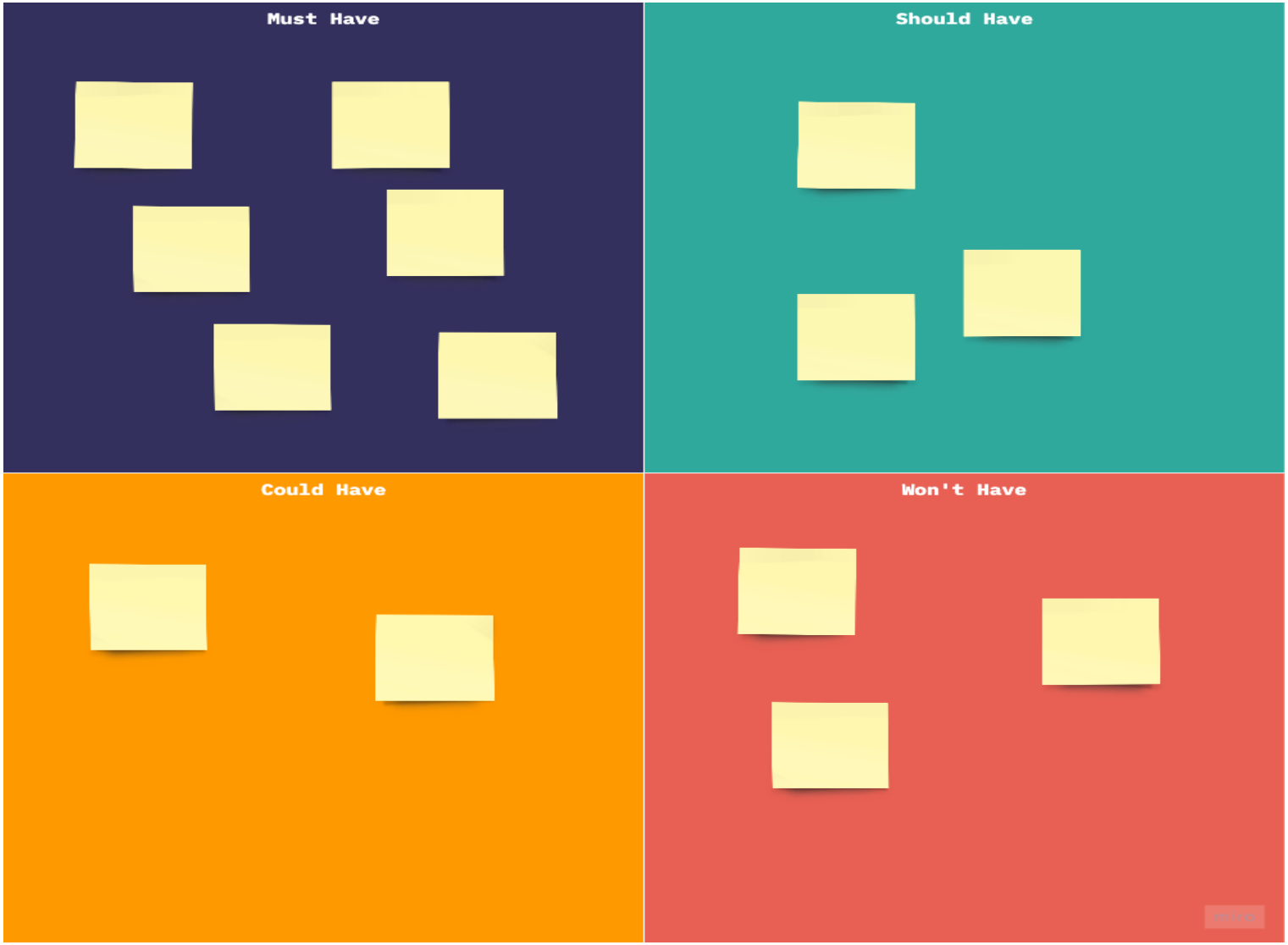
Tools

You are going to use Github Projects. Throughout the lectures/sessions you will learn more.

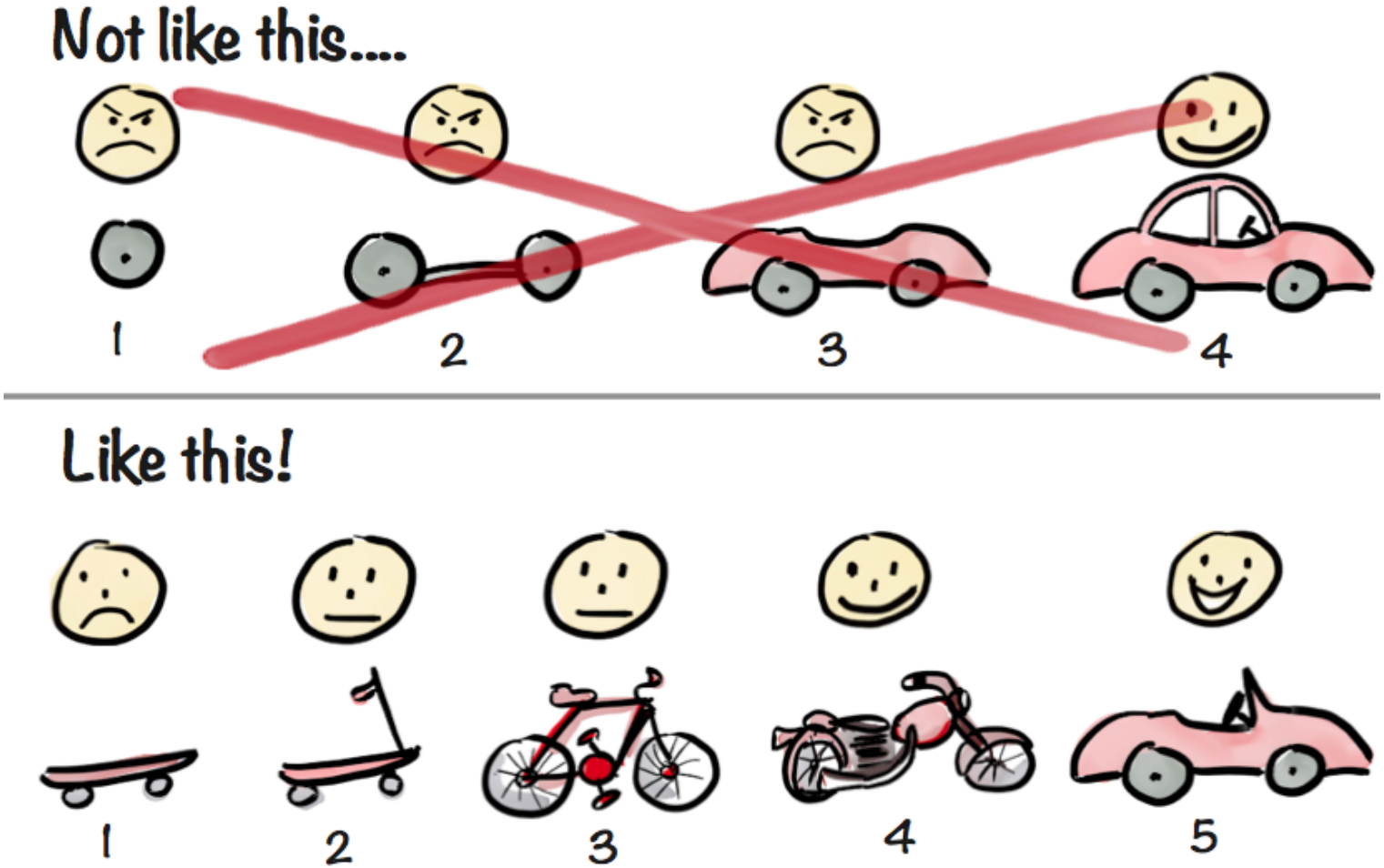
Prioritization



MoSCoW



MVP



Roadmap

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Project starts on **01Apr2025** and ends on **13May2025.** Thus, we have a little bit more than two months to complete the project.

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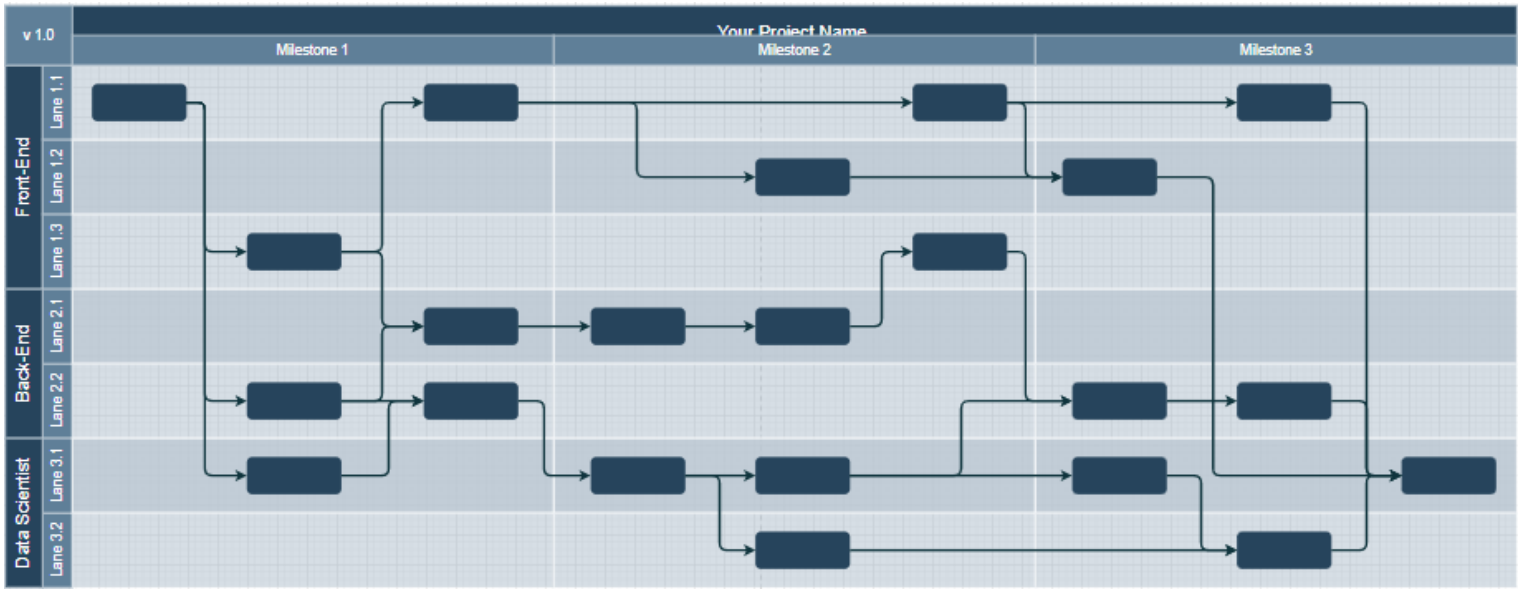


Tasks

After building the roadmap, teams should break down each block into tasks.

For the sake of simplicity, we can use the following flow:

$$\text{Backlog} \rightarrow \text{WIP} \rightarrow \text{Review} \rightarrow \text{Done}$$

1. **Backlog:** filling in all the tasks according to the roadmap
2. **WIP**- work in process:
   - Following up the status of the tasks
   - Discuss in the comments in case of issues. Feel free to add me and/or Garo in the discussion.
3. **Review:** checking whether the task is completed correctly
4. **Done**

Database Developer

Responsibilities

The Database Developer is responsible for:

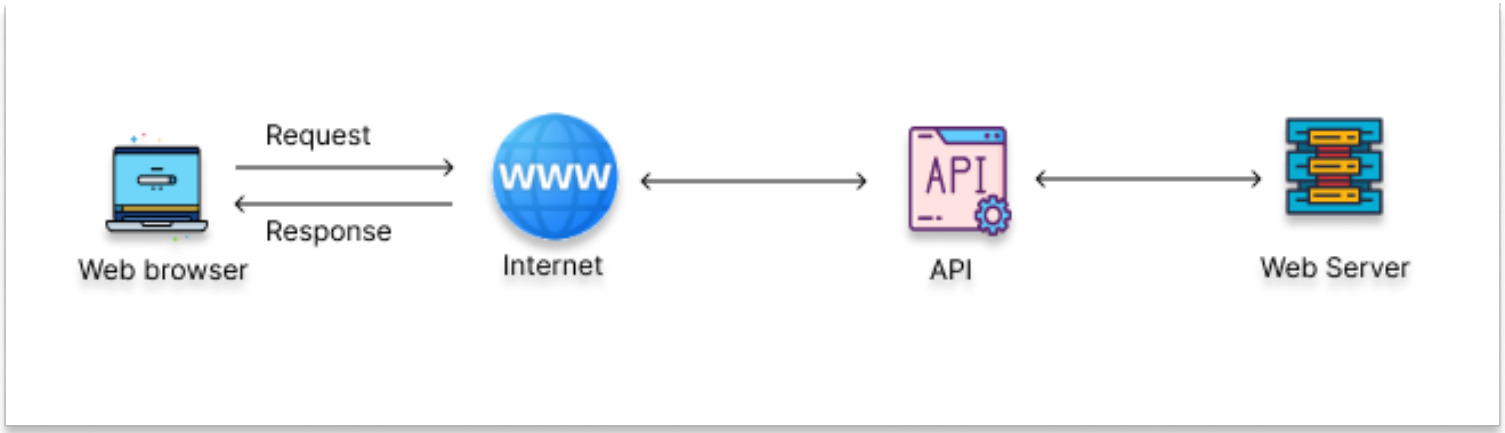
- designing database
- building the tables
- create functionality to interact with Python(CRUD and not only)

Backend Developer

Responsibilities

A Backend Developer is responsible to develop multiple endpoints according to the business logic. Our recommendation is to use **FastAPI**:

- it is really fast!
- the easiest one to learn
- has integrated swagger (API documentation)
- critical for Data Scientists, as it enables them to build and deploy end-to-end data science applications



Frontend Developer

Responsibilities

The Front-End Developer will be responsible for building a user-friendly interface for presenting the results and insights by collaborating with other team members (such as the data scientist, Backend developer, and database developer) to integrate data models, APIs, and visualizations into a cohesive, interactive web application.

Why Streamlit?

- **Quick Development:** Streamlit simplifies the process of turning Python scripts into interactive web applications, making it a great choice for a fast-paced group project where quick prototyping and iteration are important.
- **No Need for Front-End Knowledge:** developers don't need extensive knowledge of web technologies like JavaScript, making it easier for data scientists or Python developers to create visually appealing apps.
- **Real-Time Interaction:** supports interactive widgets like sliders, forms, and buttons that allow users to explore data models and see the impact of different parameters in real-time, which is valuable in marketing analytics projects (e.g., interactive A/B testing visualizations or customer segmentation insights).
- **Visualization Support:** works seamlessly with popular data visualization libraries such as *Matplotlib*, *Seaborn*, and *Plotly*, which can be useful for displaying complex marketing analytics results like clustering or survival analysis

Data Analyst/Scientist

Responsibilities

A data professional is responsible for the pipeline of predictive and/or analytical parts.

Data Scientist should provide below objects:

- Data generation
- Model building
- Model(s) evaluation
- Performance metric

Milestones

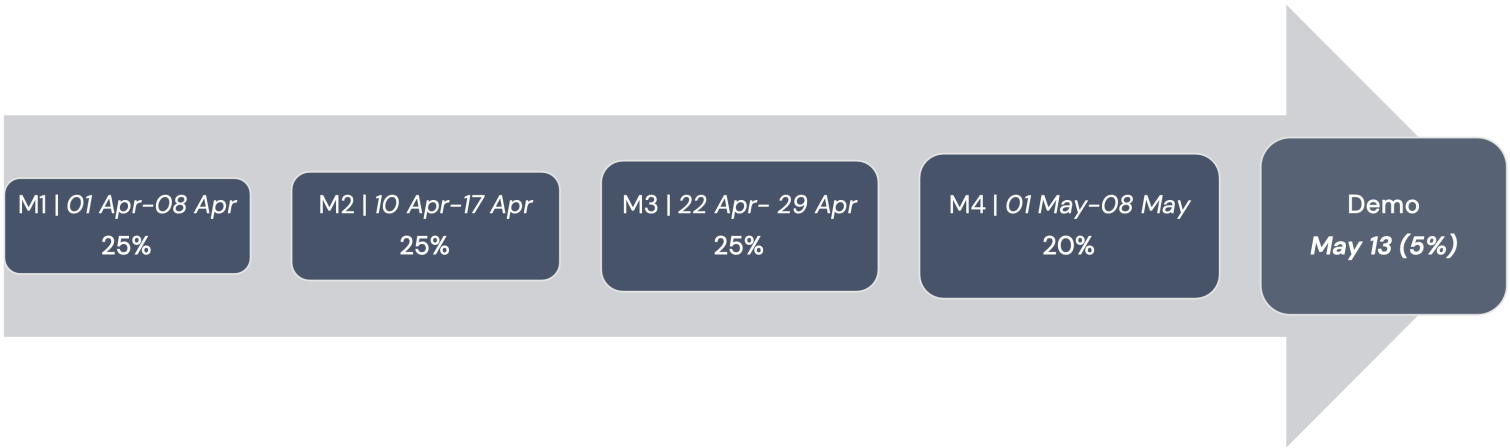
Construct Groups

Considering the complexity of a group project, we must start doing it as soon as possible! (not until April 08th !)

Milestones

We are going to have 4 **graded** milestones to complete the project.

Group Project Grade will be allocated to milestones, with the below weights:



Milestone 1 | 1 Apr - 8 Apr

1. Problem Definition (you can learn more about it here)
2. Finalizing roles here
3. Schedule a call/meeting with me and Artur
4. Create a product roadmap and prioritized functionality (items)
5. Creating GitHub repository included `readme.md` and `.gitignore` (for Python) files
6. Create a virtual environment in above repo and generate requirements.txt (venv must be ingnored in git)
    - create venv: `python -m venv venv`
    - activate: `source env/bin/activate`
    - install: `fastapi`
    - create requirements.txt `pip freeze > requirements.txt`
    - deactivate: `deactivate`
7. Push *point 1, point 4, point 6 (requirements.txt).*
8. Prototype the UI using *Figma* or other similar tool
9. Create a private Slack channel in our Workspace and name it **Group {number}**
10. Install VsCode (also install Project Manager extension)