

Project Execution

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$ echo "Data Sciences Institute"
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Review

- Yesterday, we discussed the goals of the Team Project and the value that it can bring to each of your portfolios. This is an opportunity to ***showcase the skills*** that you've learned, and your ability to apply them to a ***real-world problem*** to deliver ***real business value***.
- You should now be reasonably aligned with your team on the **industry** that you will be analyzing, the **business question** that you want to answer, and the **type of data** you will be using.

Today's Content

1. Executing your project and dealing with uncertainty.
2. Expectations for today.

Executing Your Project

Leveraging Project Management Methodologies

Explore methodologies like Scrum, Kanban, Waterfall, and Agile on your own. For now, let's focus on an essential concept: **spikes**.

Spikes are short, time-boxed research tasks designed to answer specific questions or solve particular problems before starting the main project work. They are designed to *reduce uncertainty*.

Handling Uncertainty in Your Project

Throughout your project, there will be moments when you are unsure of how to proceed, or what task to work on next. **Spikes** help us reduce uncertainty and make these decisions!

- Spikes are effort/time-bound tasks specifically designed to ***reduce uncertainty***, or make ***design/methodological decisions***.
 - E.g. Choosing between two model types.
- The outcome of a spike will be a more well-defined task(s).
 - E.g. Developing the model that seems more promising.

Benefits of Spikes

- **Clarify Requirements:** Quickly gather necessary information.
- **Solve Problems Early:** Address technical uncertainties before main development.
- **Prevent Delays:** Avoid excessive brainstorming that can stall progress.
- **Reduce Unknowns:** Lower the project's uncertainties.
- **Efficient Estimates:** Provide well-constrained estimates on specific work items.
- **Maximize Value:** A one-day spike giving 80% confidence can be more valuable than a three-day spike giving 90%.

Strategic Planning for Short and Long-Term Goals

Setting realistic time frames for your project stages is crucial. Use S.M.A.R.T goals to structure your planning effectively:

- **Specific:** Define clear details about what needs to be achieved, who's involved, and where it will occur.
- **Measurable:** Establish concrete criteria for measuring progress and success.
- **Achievable:** Ensure the goals are realistic, considering available resources and constraints.
- **Relevant:** Align goals with broader business objectives to ensure they are meaningful.
- **Time-bound:** Set definitive deadlines to maintain focus and urgency.



Example: Customer Retention Model

Scenario: Develop a predictive model to improve customer retention for a subscription-based service.

- **Specific:** Machine learning model to predict customer churn using six months of user activity and demographic data.
- **Measurable:** Target 80% accuracy on a validation set.
- **Achievable:** Use Python's Scikit-Learn and a marketing department dataset.
- **Relevant:** Aligns with the company's goal of reducing churn and improving retention.
- **Time-bound:** Initial model version in three months, with testing and deployment in the next quarter.

Team Goals for Today

1. Dig deeper into your business question to understand the value your will be delivering.
Who are your stakeholders and why do they care about your project?
2. Explore your dataset. Is it clean? What are its limitations? ***Will you be able to answer your question with this dataset?*** Start your analysis.
3. Add your project plan to your team's README file. This plan should include details on:
 - What value does your project bring to the industry?
 - How will you answer your business question with your chosen dataset?
 - What are the risks and uncertainties?
 - What methods and technologies will you use?
4. Assign data cleaning and analysis tasks to team members.

Team Goals for Today

Conduct a practise stand-up with your team! You should each be able to talk about:

- What you worked on yesterday.
- What you are planning to do today.
- Do you have enough detail to work on your tasks?
- Are there any blockers?

Questions?