



Module 4

Kickoff Workshop



Icebreaker

Bad data leads to bad results.

Spot the data issue...

- A survey asks for income, but half the responses are blank.
- A weather prediction model uses zodiac signs as a feature.
- A shopping recommendation system is only trained on data from one country.



Agenda

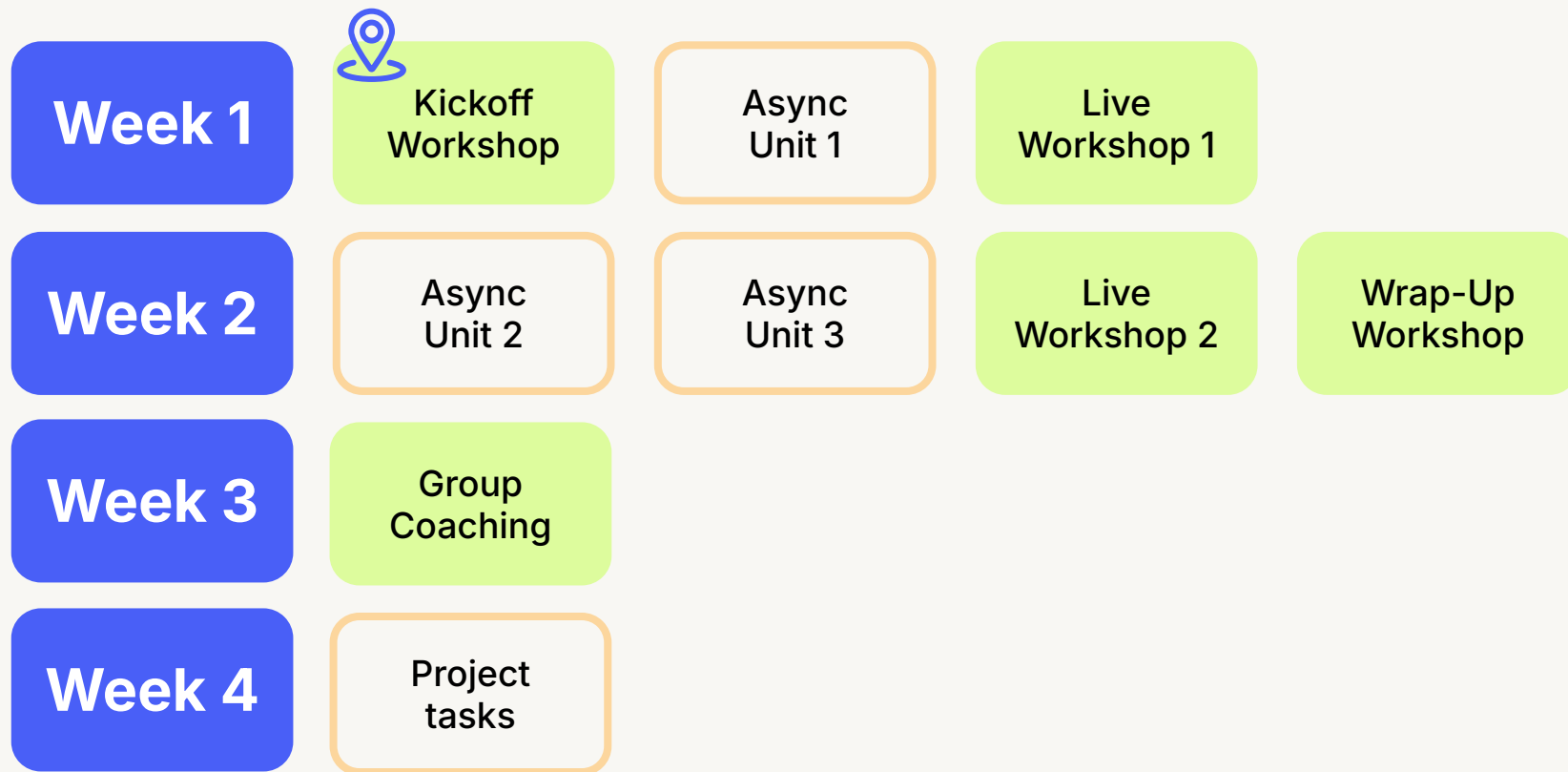
- **Welcome and introduction**
- **Module overview**
- **Applying module skills**
- **Project overview**
- **Q&A**
- **Next steps**



Module overview



Your learning journey



Module skills: from learning to applying

Leverage AI-based approaches for feature engineering and data preparation.



Optimize key variables and engineer new features to improve predictive accuracy in business forecasting, customer analytics, and operational efficiency.

Leverage AI-based approaches for feature engineering and data preparation.



Automate feature selection and transformation using AI-driven techniques to enhance data quality and accelerate ML model deployment in real-world applications.

Apply essential data preprocessing techniques, such as handling missing data, detecting outliers, and normalizing data, to build machine learning models on a foundation of high-quality data.



Implement robust data-cleaning workflows to reduce errors, improve model consistency, and ensure reliable insights for data-driven decision-making in organizations.



Skill 1 in the real-world

Leverage AI-based approaches for feature engineering and data preparation.



In 2022, JPMorgan Chase used AI to create new features for fraud detection. It analyzed transaction speed, location, and spending patterns.



Fraud detection accuracy improved by 30%, reducing false positives and protecting customers.



Real-time AI feature engineering can further adapt to new fraud patterns and enhance security.





Applying module skills to your workplace

Skills application brainstorm

Choose a module skill and think of 3 ways to apply it in your role



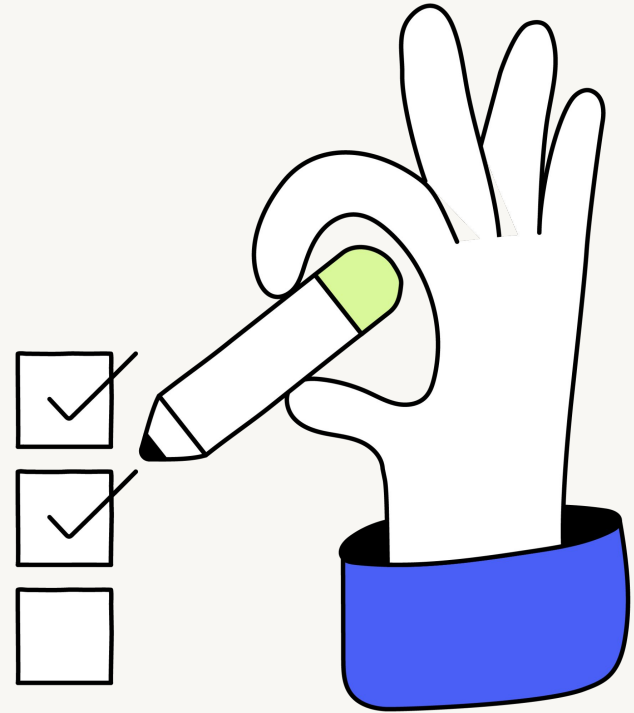
Choose the best potential application



Create a post for the group explaining how you'd like to apply this skill this month



Post your explanation in the Skill Application Brainstorm discussion board





Skill application share out

- 1 What was the biggest challenge you faced in this activity?
- 2 Did anything surprise you?
- 3 How do you see this skill benefiting you in your role?





Project overview

Phase 1 Project: Scoping your ML/AI solution

Project objective: Identify a pressing business challenge or opportunity within your organization that can be addressed using machine learning and artificial intelligence.

**Module 1
milestone:**
Fundamentals of
ML and AI

**Module 2
milestone:**
Solving Business
Problems with
Machine Learning

**Module 3
milestone:**
Data Ethics and
Responsible AI

**Module 4
milestone:**
Data Preparation
and Feature
Engineering

We are here!



Module 4 milestone: Data Preparation and Feature Engineering

Phase Project objective: Identify a pressing business challenge or opportunity within your organization that can be addressed using ML and AI.

Milestone task 1



Data preprocessing and quality control:

Prepare your dataset for the proposed ML/AI solution by collecting relevant data and ensuring it meets the quality and governance standards established in Module 3. Clean, preprocess, and validate the data, addressing common issues such as missing values, outliers, and inconsistencies to ensure it is ready for modeling.

Milestone task 2



Feature engineering and selection:

Design and select features that improve the performance and interpretability of the ML/AI solution.

Milestone task 3



AI-based approaches and automation opportunities:

Identify opportunities to enhance efficiency through automation by evaluating potential areas where AI solutions can be embedded within AI/ML solution. Describe the approach you used to identify these opportunities and explain your reasoning. Additionally, assess and integrate AI-based tools and techniques to support and streamline data preparation and feature engineering, and describe your integration process.

Milestone task 4



Pipeline documentation and feedback:

Present your findings and proposed ML/AI project idea to a manager or stakeholder for feedback and initial buy-in.

Module 4 milestone: KSB requirements

Phase Project objective: Identify a pressing business challenge or opportunity within your organization that can be addressed using ML and AI.

Task 1 KSBs



Data preprocessing and quality control: none

Task 2 KSBs



Feature engineering and selection: none

Task 3 KSBs



AI-based approaches and automation opportunities: K30, S33, S34

Task 4 KSBs



Pipeline documentation and feedback: S34



Questions?



Closing Out

- **Action items:** Async Unit 1
- **Have questions?**
 - Chat with Atlas
 - Reach out to your Cohort Coach
 - Sign up for Tutoring
- **Log your OTJ hours**
- **Take the Workshop Survey** on My Multiverse

multiverse