



Module 6

Kickoff Workshop



Icebreaker- Word scramble

1. **DLOME**
2. **NAGRINIT**
3. **TASEDTA**
4. **SIBA**
5. **ZIMOTIPEON**



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Agenda

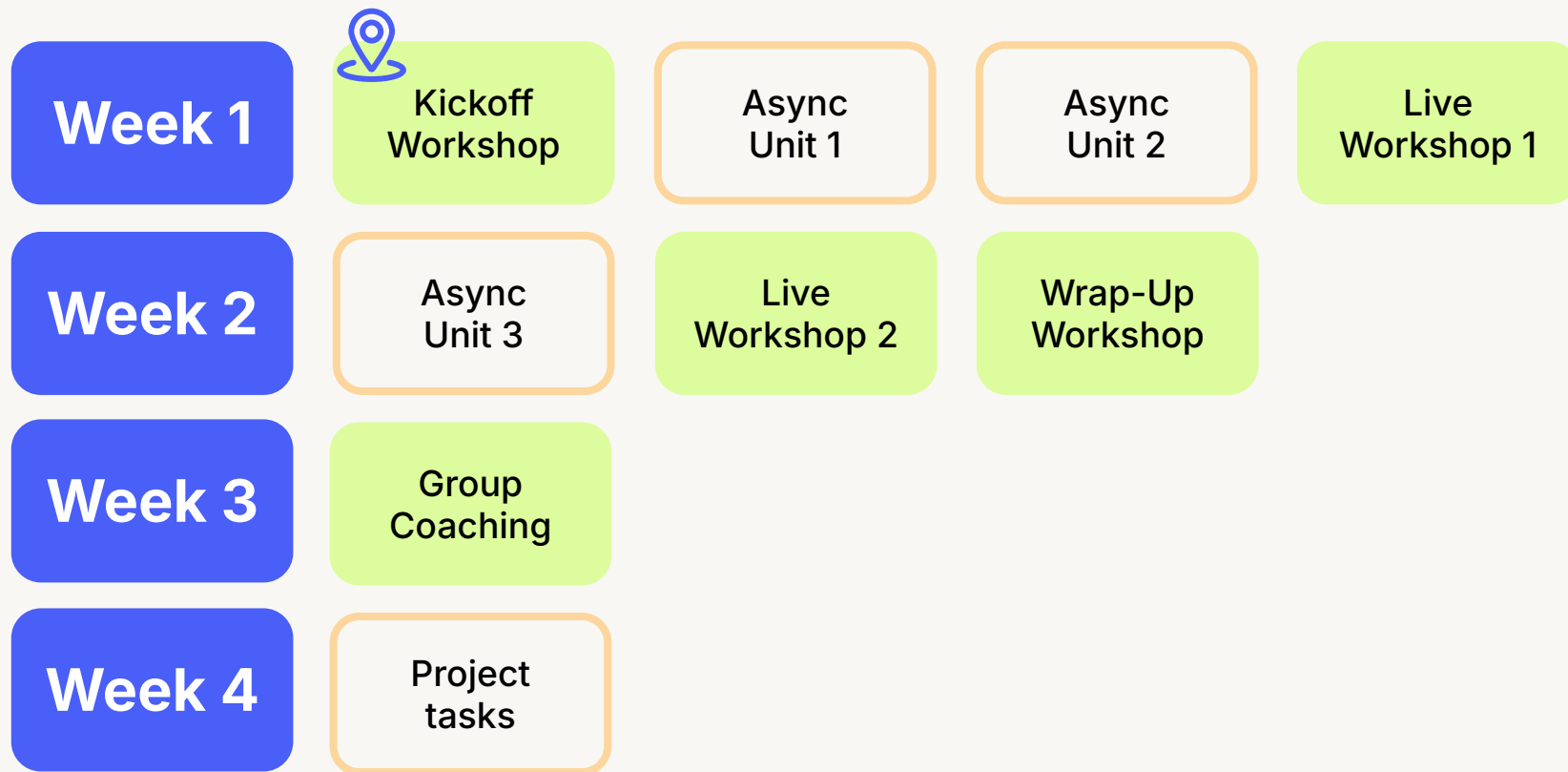
- **Welcome and introduction**
- **Module overview**
- **Applying module skills**
- **Project overview**
- **Q&A**
- **Next steps**



Module overview



Your learning journey



Module skills: from learning to applying

Understand various ML model architectures and training methodologies, enabling the selection and implementation of the most appropriate ML solutions for specific business problems.



Use your understanding of ML model types and training methods to choose and apply the right model when solving real business challenges, like predicting customer churn or automating decision processes

Apply techniques to fine-tune and optimize the training process, enhancing model performance, computational efficiency, and model fit to deliver robust ML solutions.



Apply optimization techniques during model training to improve performance and efficiency, helping your team deliver faster, more reliable insights from data.

Develop critical skills in bias detection, ensuring ML solutions are not only accurate but also fair and ethical across diverse user groups.



Use bias detection techniques to identify and reduce unfairness in your models, ensuring the solutions you help build are ethical and inclusive for all users.



Skill 1 in the real-world

Model Selection & Training Methodologies



Airbnb used decision trees and deep learning to power dynamic pricing, tailoring models by region and property type.



Improved booking rates and host satisfaction while ensuring the system scaled globally.



Continuously retrain with fresh data and share learnings across teams to improve other systems.





Applying module skills to your workplace



Skills application brainstorm

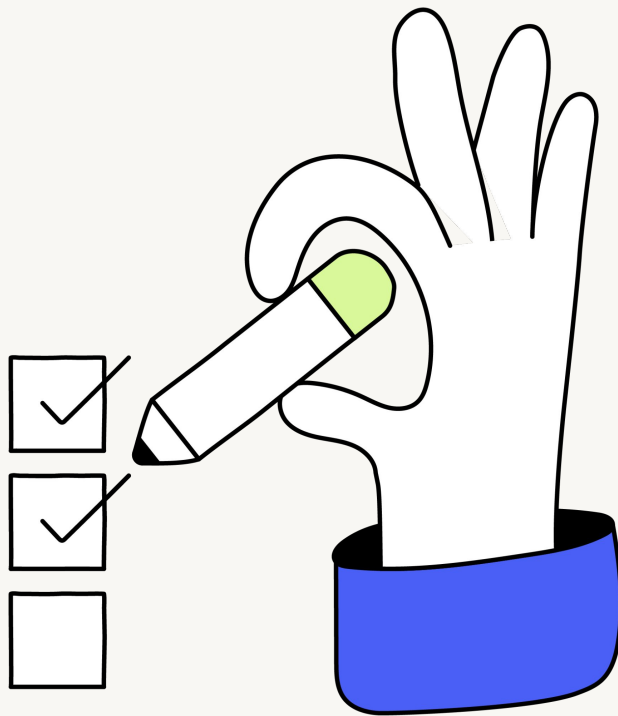
Choose a module skill and think of 3 ways to apply it in your role



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 Review other discussion posts.
- 2 Choose another person's post that you think is a great example of applying the skill.
- 3 Raise your hand to share your thoughts.





Project overview

Phase 2 project: Applying ML techniques

Project objective: Build and refine an ML model for performance, fairness, and security. Use XAI to address bias, define key metrics, and ensure full compliance with robust documentation and retraining plans.

**Module 6
milestone:**
Model
Engineering and
Training

**Module 7
milestone:**
Model Evaluation

**Module 8
milestone:**
Data Security,
Privacy, and
Governance

We are here!



Module 6 milestone: Model engineering and training

Phase project objective: Build and refine an ML model for performance, fairness, and security. Use XAI to address bias, define key metrics, and ensure full compliance with robust documentation and retraining plans.

Milestone task 1



Model development and training fundamentals: Build and train an initial version of the ML model using the refined dataset from Phase 1. Experiment with different algorithms and hyperparameters to determine the most effective approach.

Milestone task 2



Training process optimization: Optimize the training process by systematically tuning hyperparameters, adjusting dataset sampling techniques (e.g., oversampling, undersampling, stratified sampling), and experimenting with advanced training techniques (e.g., transfer learning, ensemble methods, if relevant to your chosen algorithm and problem).

Milestone task 3



Identifying sources of bias and mitigation: Evaluate the model for algorithmic bias by analyzing dataset imbalances, prediction disparities across different subgroups (if relevant to your data and problem), and relevant fairness metrics (e.g., demographic parity, equalized odds).

Module 6 milestone: KSB requirements

Phase project objective: Build and refine an ML model for performance, fairness, and security. Use XAI to address bias, define key metrics, and ensure full compliance with robust documentation and retraining plans.

Task 1 KSBs



Model Development and Training Fundamentals: K19, S12

Task 2 KSBs



Training Process Optimization: K19, S12, B5

Task 3 KSBs



Identifying Sources of Bias and Mitigation: B5, K20



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