General Assembly
Sample Teach Guide

SAMPLE TEACH LESSON PLAN - Decision Trees - Denis Vrdoljak

DIRECTIONS

- Use the template below to plan your lesson.
- Note that help text questions are provided to guide your thinking; don't feel obligated to answer

STEP 1 (5 MIN)

Introduce Objective. Explain skill while asking questions to check comprehension and include visual aid (i.e. use slides or white boarding, etc. to illustrate concept)

OBJECTIVE

Write your objective & the agenda on the board at the start of your lesson

By the end of the lesson, students will be able to describe how decision trees work, when to use them, and how to impliment a decision tree model in SKLearn.

INTRODUCE TOPIC
(OPENING FRAMING)

- Explain how decision trees function, use whiteboard example
- (ask students for an example, or just use XOR function)
- Show how to us DT's in SKLearn, comparing to NB model code

White Board DT Example — Time: ____ minutes

EXPLAIN SKILL
(I DO)

Introduce new material, explaining the topic & modeling what you want students to do.

- Use BC dataset (and pre-written Python code) to demonstrate how to model a DT.
- Use export_graphviz to create viz, then walk through the model/DT
- Potential misunderstandings: where are different functions, which libraries (sklearn..tree package). How to viz .dot files (GraphViz, or convert)...import lines near examples in code blocks

BC dataset DT example — Time: ____ minutes

STEP 2 (5 MIN)

Student-directed pair (or small group) activity. Instructor monitors activity (by walking around & checking student work, etc.) to check for comprehension and give feedback on the spot

PRACTICE SKILL TOGETHER
(WE DO)

Guide student practice by facilitating a student-led activity.

- Students will download code and data from GitHub repo, and build from existing code.
- Existing code creates a NB model ("previous class"), students will edit for DT
- To check for understanding, the goal will be to see which team can identify the root decision first. Will ask other decision points from others too.

Code/Data on GitHub: https://github.com/denisvrdoljak/GAdenis — Time: 5 minutes

STEP 3 (5 MIN)

Review results of activity: confirm correct application of skill & correct any misconceptions about skill

ASSESS, DEBRIEF & CORRECT
(CLOSING)

Wrap up activity, recap the learning objective and key takeaways from the lesson, and transition to students' anticipated next steps

Ask students for takeaways on mini-project, and what they learned about the data.
Ask if DT's was the right model, and what were other options.
Ask if any questions.

White Board/code, as necessary — Time: 5 minutes