

# Lesson 15: Open Source Code

45 minutes

## Overview

### How have I grown as a software engineer?

Students examine open source code and connect real-world applications and the concepts they have learned in this unit. Students review the characteristics of software engineers and reflect on how they demonstrate these characteristics while planning and implementing solutions.

## Agenda

### Warm Up (10 minutes)

#### Software Engineering Characteristics

### Activity (25 minutes)

#### Exploring Open Source Code Making Connections

### Wrap Up (10 minutes)

#### Show What You Know Week

#### Assessment: Check for Understanding

## Objectives

Students will be able to:

- Identify familiar concepts in open source code
- Reflect on personal identity as a software engineer

## Preparation

- Enter the words/phrases from Lesson 1 onto the indicated slide
- Gather sticky notes (at least three for each student)
- Print copies of the Exploring Open Source Code handout (one for each student)
- Print copies of the Unit 1 Study Guide (one for each student)
- Check the **Teacher's Lounge** for verified teachers on the CSA Forum to find additional strategies or resources shared by fellow teachers

## Links

**Heads Up!** Please make a copy of any documents you plan to share with students.

For the students

- **Exploring Open Source Code** - Handout
- **U1L15 Extra Practice** - Handout
- **Unit 1 Study Guide** - Resource

## Vocabulary

- **open source code** - code that is freely available for anyone to use,

## Teaching Guide

### Warm Up (10 minutes)


#### Software Engineering Characteristics

 **Do This:** Show the quote as students enter the classroom. Read the quote to the class.

#### *Remarks*


Just like Erik, you have become a sponge and started a new chapter in computer science. In class today, you will reflect on the characteristics of software engineers that you learned about in Lesson 1.

 **Distribute:** Give each student at least three sticky notes.

 **Do This:** Have students write down a word or phrase on each sticky note about software engineering.

 **Do This:** Review the definition of a *software engineer*.

**Group:** Place students in groups of four.

 **Do This:** Show the words and phrases from Lesson 1, then have students share the words and phrases from their sticky notes with their group.

 **Discuss:** Click through the animated slide to display the prompts.

- *What has changed?*
- *What characteristics are important for software engineering?*


**Discussion Goal:** Students notice how their perceptions about software engineering have changed and identify important characteristics. Students may share examples of things that changed their perceptions and how their personal identity as software engineers has developed.

### Activity (25 minutes)

#### Exploring Open Source Code (15 minutes)

#### *Remarks*

So far in class, you have been writing code in Java Lab to navigate `Painter` objects through The Neighborhood. In today's lesson, we will look at open source code.

 **Do This:** Review the lesson objectives.

 **Do This:** Define *open source code*.

 **Discuss:** Use the Retrieve-Pair-Share strategy to discuss the prompt.

- *What parts of this open source code look familiar?*

**Discussion Goal:** Students identify familiar code they have learned throughout the unit, such as the conditional statements and while loops.

#### Teaching Tip

Encourage students to identify the keywords or code segments that look familiar. Do not explain to students what the code does.

#### Remarks

Software engineers also spend a lot of time looking at open source code to get ideas and help them solve new problems. Let's look at some examples of open source code to see how the things we have learned are used in the real world and what we can learn from these examples.

**Group:** Place students in groups of four.

**Distribute:** Give each group the Exploring Open Source Code handout. Assign each group one of the open source code options.

#### Teaching Tip

Have the group choose one recorder and one speaker to share their results.

**Do This:** Direct students to complete the Exploring Open Source Code handout.

## Making Connections (10 minutes)

#### Remarks

Looking at open source code helps people become better programmers. Because open source code is public, you can study it to learn to make better software. Now that you have reviewed some open source code, let's share what we saw and learned from these examples.

**Discuss:** Click through the animated slide to display the prompts.

- *Do you see vocabulary terms from previous lessons in your code?*
- *What is happening in the program?*
- *What would you say if you were sending it for a code review?*

**Discussion Goal:** Students share familiar terms and concepts in their open source code and what they think the program does. Students make suggestions about the feedback they would give in a code review.

#### Teaching Tip


If you have multiple groups with the same code, have each group with that option share only one question from their Exploring Open Source Code handout.


## Wrap Up (10 minutes)

### Show What You Know Week

#### Remarks

Our perceptions about software engineering have changed throughout the unit. You have also made a lot of progress developing knowledge and skills as you became a software engineer in this course.


 **Distribute:** Give each student one sticky note.


 **Do This:** Have students write their name and one characteristic of a software engineer they most identify with on their sticky note.

 **Do This:** Review the concepts covered in this lesson.

### *Remarks*


The next five lessons are an opportunity to Show What You Know! We begin with the unit project, then spend a day practicing answering AP-style free-response questions and wrapping up the unit with a multiple-choice assessment. You've learned so much in this unit, and now you're ready to show what you know!

 **Distribute:** Give each student a copy of the Unit 1 Study Guide.

 **Do This:** Introduce the Show What You Know week.

### *Remarks*

In the next lesson, we will begin our unit project. You will be creating asphalt art using the classes and methods we have made throughout this unit that represents something meaningful and interesting to you. Your art can represent a hobby, a favorite item or concept, or an abstract idea. Start thinking about what you might want to make for your project!

 **Do This:** Introduce the Asphalt Art Project.

 **Display:** Key Vocabulary

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## Assessment: Check for Understanding

*Check For Understanding Question(s) and solutions can be found in each lesson on Code Studio. You can use these questions as an exit ticket.*



**Check for Understanding**



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