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0b100 - 0b110

# Exploring a Computing Innovation 2020-2021



## Unit 4. Data Acquisition

**Revision Date:** Jan 04, 2020

**Duration:** 2 50-minute sessions

### Lesson Summary

This is the third of three lessons where students will research a computing innovation.

This lesson will focus on:

Identification of the data used by a computing innovation

Explain how the data is consumed, produced, or transformed.

### Learning Objectives

#### CSP Objectives

- *EU CRD-1 - Incorporating multiple perspectives through collaboration improves computing innovations as they are developed.*
  - LO CRD-1.A - Explain how computing innovations are improved through collaboration.
- *EU CRD-2 - Developers create and innovate using an iterative design process that is user-focused, that incorporates implementation/feedback cycles, and that leaves ample room for experimentation and risk-taking.*
  - LO CRD-2.C - Identify input(s) to a program.
- *EU IOC-1 - While computing innovations are typically designed to achieve a specific purpose, they may have unintended consequences.*
  - LO IOC-1.A - Explain how an effect of a computing innovation can be both beneficial and harmful.
  - LO IOC-1.B - Explain how a computing innovation can have an impact beyond its intended purpose.

## Key Concepts

Students must understand how to identify data used in a computing innovation and explain how the data is consumed, produced, or transformed.

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## Teacher Resources

## Lesson Plan

### Session 1

#### Introduction

Today students will select and research a computing innovation in preparation for a written report about the innovation.

This lesson will focus on:

Identify the data used in a computing innovation

Explain how the data is consumed, produced, or transformed.

#### Activity 1 - Selection of a computing innovation

Say: To complete this project students will have to find a somewhat detailed explanation of how the innovation works or more specifically how it consumes, produces or transforms the data it uses. In this activity, students are to iterative select and research computing innovations until they identify one that is of interest to them and that they can obtain a description of the data it uses and the way in which the data is consumed, produced, or transformed.

When students have identified a topic with adequate references available they are to identify the topic for you, describe the data the computing innovation uses and provide at least one reference for how the data is used.

#### Activity 2 - Preparation of the report

Working in pairs, students are to propose and do preliminary research for a report:

1. describing the innovation and its creators
2. identifying the information the innovation uses.
3. describing the component data used to store the information.
4. explaining how the innovation consumes or processes the data.
5. containing a reference section with at least one citation in each of parts 1 - 4.

Students are to

Describe the computing innovation they are researching

Describe the data the computing innovation uses both in the sense of the information the innovation needs and the data the comprises that information.

Prepare an outline of their report.

When students finish their descriptions and their outline - and submit them for initial review - they should continue their research and begin **individually** writing their reports.

## Session 2

### Activity 1

Reports should be returned to students in pairs.

Teacher feedback is focused on the computing innovation and data the computing innovation is using.

Students read and assess the feedback, and as needed ask questions about the responses.

### Activity 2

Before resuming their reports ask students to share any resources they found useful in identifying how their innovation uses data.

Students resume researching and writing their reports.

### Wrap up

When the report is finished it should individually be submitted for assessment.

Think-pair-share:

Ask students to respond to these two questions.

Do you think the use of the computing innovation you researched differs from the way its developers originally intended?

Is it possible for the developers of a computing innovation to think of every possible future use of the innovation they created?

How can the rapid sharing of a program or running a program with a large number of users result in significant impacts beyond the intended purpose of the programmer?

## Evidence of Learning

## Formative Assessment

Written projects in preliminary form. Verify that students are describing the innovation and have identified the information the innovation is using.

## Summative Assessment

Written projects in final form. Check that students have explained how the data the information is processed. They should explain what the computer in the computing innovation is doing with the data they identified.



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