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Data Visualization with RawGraphs 2020-2021



Unit 6. Data Visualization

Revision Date: Jan 04, 2020

Duration: 2 50-minute sessions

Lesson Summary

Students learn how to create how to make their own data visualizations.

Student can express the usefulness of data visualization for identifying trends, making connections, and addressing problems.

Students will demonstrate how programs such as spreadsheets help efficiently organize and find trends in information.

Learning Objectives

CSP Objectives

- *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.A - Describe the purpose of a computing innovation.
 - LO CRD-2.C - Identify input(s) to a program.
 - LO CRD-2.E - Develop a program using a development process.
 - LO CRD-2.F - Design a program and its user interface.
- *EU DAT-2 - Programs can be used to process data, which allows users to discover information and create new knowledge.*
 - LO DAT-2.A - Describe what information can be extracted from data.
 - LO DAT-2.C: - Identify the challenges associated with processing data.
 - LO DAT-2.D - Extract information from data using a program.
 - LO DAT-2.E - Explain how programs can be used to gain insight and knowledge from data.

- *EU IOC-1 - While computing innovations are typically designed to achieve a specific purpose, they may have unintended consequences.*
 - LO IOC-1.E - Explain how people participate in problem-solving processes at scale.

Teacher Resources

Lesson Plan

Data Visualization with Raw/Graphs

Session 1

Introduction

Say: This session we will learn to use another data visualization tool named RawGraphs and begin planning a visualization you will make.

As stated on their website, RawGraphs was, “Primarily conceived as a tool for designers and vis geeks, RAW Graphs aims at providing a missing link between spreadsheet applications (e.g. Microsoft Excel, Apple Numbers, OpenRefine) and vector graphics editors (e.g. Adobe Illustrator, Inkscape, Sketch).”

Programs, such as spreadsheets, help efficiently organize and find trends in information.

ACM DL Author-ize service RAWGraphs: A Visualisation Platform to Create Open Outputs – PDF file in Green Open Access

Warm up (4 min)

Watch this video that introduces RawGraphs (<https://youtu.be/2TtYlty-M5g>) and answer the questions:

1. What is RawGraphs?
2. How can it efficiently organize and find trends in information?

Activity 1 (10 min)

Visit the RawGraphs gallery and do an online gallery walk with your elbow partner. For at least three of the images complete the following table.

Title	Visual Interest	What is the purpose	What is a question you have.
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Activity 2 (30 min)

Say: Let's start learning how to make our own visualizations. Visit [RawGraphs.io/learning](https://rawgraphs.io/learning/) (<https://rawgraphs.io/learning/>).

Complete the first two video tutorials, How to make a barchart and How to make an alluvial diagram, and then a third you and your elbow partner choose to view.

Wrap up (5 min)

Plan with your elbow partner a visualization you would like to create. Answer these questions:

- What data will it be based on?
- What purpose will it have?
- What will it look like?

Session 2

Introduction

Say: Today you will make your own visualization. The data you found to use could have come from a variety of sources including through surveys, user testing, interviews, direct observations or other means. No matter how appealing the visualization it can only be as reliable as the data it is based upon. We will be using an iterative process refining and revising based on your reflections throughout the process. Its okay if you need to make changes in your original plan as you work through the process.

Warm up

Consider again your answers to these questions:

- What data will it be based on?
- What purpose will it have?
- What will it look like?

Activity

Part 1: Each student is to create their own visualizations however elbow partners should work together at first. In the first part of class build a prototype. Keep it simple.

Part 2: Discuss the next step with your elbow partner. Elbow partners can work in their own direction t this point. Either refining the prototype or building an entirely new visualization..

Each student is to create/refine their own visualization.

Wrap up

Say: Data and data visualization provide opportunities for:

- identifying trends.
- making connections.

- addressing problems.

Thinking back on the visualization gallery you explored in the past discuss with your elbow partner how data visualization can help with each of these three opportunities.

Evidence of Learning

Formative Assessment

Student expression of the power of data visualization for identifying trends, making connections, and addressing problems.

Summative Assessment

Students should explain the iterative nature of this project development and explain the role reflection played in that process.



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