Foundations 1 - Computational Thinking, you will be introduced to foundational programming concepts and data structures in JavaScript. You will assign variables and work with various data types, craft conditional statements and loops, and write basic functions. By the end of this week, you will be able to schedule execution by writing functions that are executed at certain times or intervals.

This **foundations** week is designed to reinforce foundational programming concepts in JavaScript. If you are an experienced programmer in JavaScript or in another language, please skip ahead to the key activities, then review the videos if you need more practice.

A Note On Coding

Coding activities in this program are intended to be challenging. Instructions are in each activity, but often, in order to be successful, you must incorporate information that is discussed in the videos or was included in prior activities.

You will be expected to analyze and synthesize information on your own. Coding can be complex and each tiny step will not necessarily be included in the instructions. This is by design so that you become increasingly independent.

It is not unusual for learners to make several attempts before getting the code just right. If you've made several attempts and feel frustrated, you may access the solution set at any time. After viewing the solution set, attempt the activity again. If any part of the activity is still unclear, please bring your question to office hours and ask your Learning Facilitator for help!

Learning Outcomes

Course Learning Outcomes Addressed

- Explain key web programming concepts
- Build web applications using JavaScript, HTML, and CSS

By the end of this week, you will be able to:

1. Explain the core components of the languages and tools used in front end development
2. Build web pages using JavaScript, HTML, and CSS
3. Define variables and arrays using JavaScript
4. Write conditional statements to define when a program should take certain actions
5. Define functions to store specific actions that a program can execute upon new data
6. Define objects to store data in key value pairs
7. Write a program that executes after some criteria are met

Activities

Key activities

- Knowledge Checks 2.1 through 2.4
- Discussions
    - Create a Web Page
    - Explaining Arrays, Loops, and Functions
    - Bonus Exercise Coding Challenge
    - Technical Challenge Reflection
- Coding Activities
    - Working with Variables
    - Working with Arrays
    - Working with Functions
    - Working with Objects
    - Working with Conditionals
- Coding Assignments
    - Scheduling Computation
    - Repeating Computation
    - Maintaining Information on a Page
    - Simulating Ball Movement

Self-study activities

- Bootstrap coding exercise
- Functions-libraries coding exercise
- Functions-objects exercise
- Moving in Time and Space exercise
- Coding Challenge