Coding using Microbits - Python — Reflections

Module 3: Everything Counts (Variables)

Computer programs process information. Some of the information that is input, stored, and used in a computer program as values that vary or change during the running of a program. Programmers create variables to hold the value of information that may change. In a game program, a variable may be created to hold the player's current score, since that value would change (hopefully!) during the course of the game. Students will be making projects like a people counter, pedometer, score keeper, and/or dice roll.

Module 3: Everything Counts (Variables)

List constants and variables in your life.

_____

_____

_____

Kinds of variables (list examples):

number: _____

string: _____

boolean: _____

list: _____

Play **Newspaper Toss** with a team:

Game 1	Score
Team 1	
Team 2	

Game 2	Score
Team 1	
Team 2	

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Rules for naming variables and identifiers:

- Use descriptive names
- Start with lowercase letters
- Only use letters (a-z) and numbers (0-9). **No** spaces or symbols
- Use camelCase when putting 2 words together
- An underscore "_" can also be used to connect words
- Constants are done in all CAPS
- Math operators: +, -, *, /, %, **, //

What is the assignment operator and how does it work?

03.2a People Counter Activity

Pseudocode to create a People Counter program.

03.2b Score Keeper Activity

Pseudocode to create a Score Keeper program.

Modifications to People Counter or Score Keeper programs

03.3 Project: Everything Counts

In this project you will plan, design, and create something that counts. It should keep track of input by storing values in variables, process the input, and output in some visual and useful way. It should also perform mathematical operation on the variables to give useful output. It should also use a maker elements as part of the design and construction.

Brainstorm Ideas _____

_____

_____

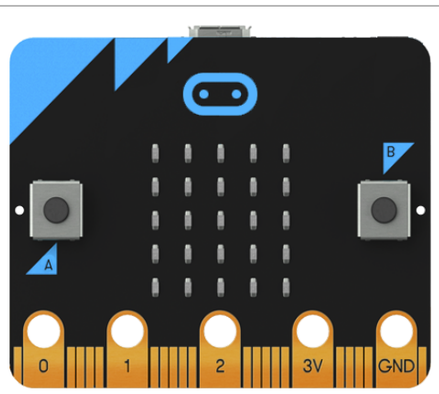
_____

Project: _____

Description: _____

_____

Project Sketch:



Everything Counts Algorithm & Pseudocode

_____

_____

_____

Materials Needed: _____

Coding Plan: _____

_____

_____

_____

_____

_____

_____

_____

_____

Notes & Reflections

What problem were you trying to solve? _____

_____

How well did your prototype work? _____

_____

What did you change? _____

_____

Describe a difficult point and how you resolved it: _____

_____

_____

Photos

Assessment Rubric - Competency scores

Competency	4	3	2	1
Variables	At least 3 different variables are implemented in a meaningful way.	At least 2 variables are implemented in a meaningful way.	At least 1 variable is implemented in a meaningful way.	No variables are implemented.
Variable Names	All variable names are unique and clearly describe what information values the variables hold using CamelCase	The majority of variable names are unique and clearly describe what information values the variables hold.	A minority of variable names are unique and clearly describe what information values the variables hold.	None of the variable names clearly describe what information values the variables hold.
Mathematical Operations	Uses a mathematical operation on at least two variables in a way that is integral to the program.	Uses a mathematical operation on at least one variable in a way that is integral to the program.	Uses a mathematical operation incorrectly or not in a way that is integral to the program.	No mathematical operations are used.
Micro:bit Program	micro:bit program: 1) Uses variables in a way that is integral to the program 2) Uses mathematical operations to add, subtract, multiply, and/or divide variables 3) Compiles and runs as intended 4)Meaningful comments in code.	micro:bit program lacks 1 of the required elements.	micro:bit program lacks 2 of the required element.s	micro:bit program lacks 3 or more of the required elements.
Collaboration Reflection	Reflection piece addresses all prompts.	Reflection piece lacks 1 of the required elements.	Reflection piece lacks 2 of the required elements.	Reflection piece lacks 3 of the required elements.