Mr. Leite

Freshmen Intro CS- Functions

LO: To use functions that can be called repeatedly throughout the code.

Class Activities:

- Do Now-
- Mini Lesson
- Student work

LO: To use functions that can be called repeatedly throughout the code.

After this lesson you will be able to:

- Create functions
- Use functions to draw shapes

Rigor- we are building on prior knowledge and expanding our coding ability

LO: To use functions that can be called repeatedly throughout the code.

Do Now- on the stream

- Open the link that is in the stream
- Run the program
- Describe the code for drawing the circles

https://replit.com/@EDUARDOLEITE1/Circles#main.py

LO: To use functions that can be called repeatedly throughout the code.

Mini lesson:

- What if there were a way to draw the pyramid of circles without repeating the whole code for drawing a circle each time?
- There is a way to do it: **functions**

Definition: a function is a way to group a set of commands so that they can be called with one line of code.

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Mini Lesson- cont'd

- Recall our custom blocks from Snap

- Take a moment to run the Snap by clicking the link below
- Turn and talk to your partner about how the custom block draws the square

https://snap.berkeley.edu/snap/snap.html#present:Username=eleite&ProjectName=Custom%20block-square

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Mini Lesson- cont'd
Functions- naming conventions:
1- Always use descriptive names- names that remind you of what the function does (so what should you call a function that draws a square?)
2- Underscores take the place of dashes
3- Only lowercase letters are allowed
4- Cannot start with a number

Questions-
- Are the following names acceptable for functions? Why or why not?
- Fix the names that are not valid
  a- def 3-circles-pyramid():
  b- def three-circles-pyramid():
  c- def two_circles():
  d- def Bob_3_circles():

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Functions- naming and calling

- Just because you created a function does not mean that it will be used unless you **call it**

Calling a function-

- Write its name in a separate line of code so that it is executed
- Do not indent
- It can be called several times

https://replit.com/@EDUARDOLEITE1/square#main.py

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Student work:

- In pairs-
- Use functions to draw the pyramid of circles from the beginning of class
- Things to consider:
  a- how many functions to use
  b- where do you need to position the turtle to begin each row?
  c- name your function properly

Challenge- fill the shape with different colors using t.begin_fill and t.end_fill

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Differentiation

1- Pairing

2- Starter code

3- Challenge question

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Comp Sci Standards

9-12.CT.4- Implement a program using a combination of student-defined and third-party functions to organize the computation.

9-12.CT.7- Design or remix a program that utilizes a data structure to maintain changes to related pieces of data.

9-12.CT.5- Modify a function or procedure in a program to perform its computation in a different way over the same inputs, while preserving the result of the overall program.