Functions – Day 1

Journal

- Students will understand the process of communication with functions.
- Students will be able to create and call functions.
- Students will be able to use both "fruitful functions" (sometimes just called *functions*) and "unfruitful functions" (which do not return a value - these are usually called *procedures*).
- Students will understand how functions simplify a project's creation.

Identify two or three people you know who have the same name. Explain to who the people are and how you and others tell them apart when talking about them.
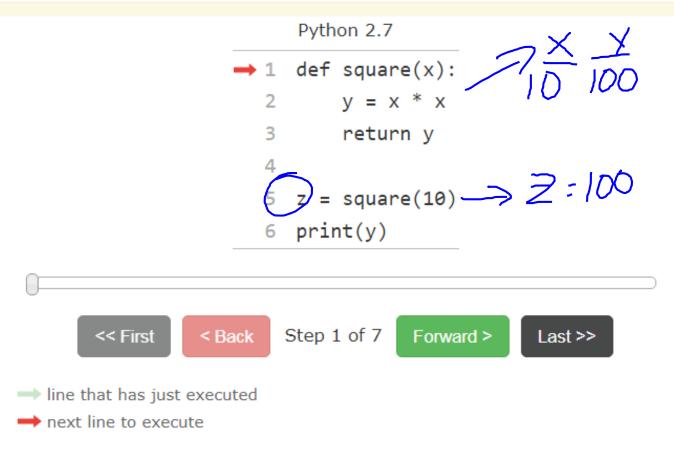
morning

CS Matters

- Creating a new function gives you an opportunity to name a group of statements, which makes your program easier to read, understand, and debug.

- Functions can make a program smaller by eliminating repetitive code. Later, if you make a change, you only have to make it in one place.

- Dividing a long program into functions allows you to debug the parts one at a time and then assemble them into a working whole.

- Well-designed functions are often useful for many programs. Once you write and debug one, you can reuse it.

- Paraphrase – why is this important in coding?

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6.4. Variables and Parameters are Local

An assignment statement in a function creates a **local variable** for the variable on the left hand side of the assignment operator. It is called local because this variable only exists inside the function and you cannot use it outside. For example, consider again the `square` function:

Python 2.7

```python
1  def square(x):
2      y = x * x
3      return y
4
5  z = square(10)
6  print(y)
```

$$\frac{x}{10} \quad \frac{y}{100}$$

$z = square(10) \rightarrow z = 100$

<< First   < Back   Step 1 of 7   Forward >   Last >>

→ line that has just executed

→ next line to execute

Local VS Global Variables & Parameters

Local VS Global Variables & Parameters

- Continue working though this section

- Discuss cautions and dangers with variable scope.

CS Matters

Local VS Global Variables & Parameters

- 6.5 The Accumulator Pattern

- Create rules for creating and using functions

guidelines

comment so you know purpose   Variables

name it what it does

? uppercase ? lowercase? camel case?

Name _ it

- 6.6 Functions can call other functions

- More examples of when this might be useful?

Physics application

hide many complex computations