



Python Coding

4th-5th Grade, Week of: June 17th, 2024

What We Did on...Monday:

Learning the Basics

- This morning, campers learned foundational concepts such as print statements and storing text as variables. They were able to create their first “Hello World” statements and become comfortable outputting text into the terminal.

Basic Calculator

- After learning the difference between data types such as strings and integers, students were able to apply their knowledge to create a basic calculator with all sorts of different operations.

Working With Input!

- Campers were introduced to the concept of an input, where they could collect information from a user. They learned how to ask the user many different questions and store the information that they collected.

String Operations

- The last core concept that the students learned today was string operations, where they figured out how to combine different strings and variables with one another to create more complete sentences.

Mad Libs

- At the end of the day, campers used all of the knowledge they gained to create an interactive game. After receiving different inputs from the user, such as nouns, verbs, and adjectives, they combined these words with the story they wrote to output a wacky and fun paragraph.



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What We Did on...Tuesday:

If and Else Statements Worksheets

- Before learning how to code conditional statements in Python, the campers got in the mindset of conditional thinking through worksheets using common everyday examples.

Python Conditional Statements and Comparison Operators

- Campers then learned how to code conditionally, using if and else statements. They also learned the meaning of each comparison operator and how to use them.

Quiz Game

- The campers used if-statements and inputs to code their own trivia quiz games. Campers then got to try playing each others' games.

Text-Based Adventure Game

- Campers made a choose-your-own adventure-game by planning out a storyline with decisions they want the user to make, and then branching out their story based on those decisions.



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What We Did on...Wednesday:

Program the Volunteers Activity!

- This activity was an introduction to learning the Turtle module. Campers wrote down commands similar to those used in Turtle for the volunteers to use in order to safely complete a makeshift obstacle course.

Carbon Emissions Calculator

- As a review of previous content, as well as a real-life application of what they have learned so far, the campers coded calculators which, when provided with the amount of gasoline used, output the total amount of carbon dioxide emitted. We then discussed the impact of carbon emissions on our atmosphere.

Learning the Python Turtle Module!

- The campers learned how to use the Turtle module, which is used to create art and graphics through Python code and commands.

Turtle Drawing Project

- Using the commands and tools they just learned, campers were able to create their very own Turtle art projects and discovered all of the fun and creative designs that could be made.



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What We Did on...Thursday:

Human List Activity

- Before learning how to create and work with lists and collections in Python, the campers participated in an activity in which they were each elements in a class-wide list. Using Python-similar commands, they physically acted out the process of how list functions work.

Python Lists and List Functions

- The campers learned how to create and manipulate collections in Python code using lists and the list functions. They then practiced using lists to streamline their coding process.

Loops in Python - While Loops

- For the first part of the Python loops lessons, campers learned how to code while loops. While loops are powerful in coding as they allow the shortening of repetitive code into a repeated procedure.

Number Guesser Game!

- Using all of the topics from the week so far, campers made a random number guesser game where a number between a minimum and maximum value is randomly generated and the user must attempt to guess the number within the max number of guesses.



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What We Did on...Friday:

Loops in Python - For Loops

- The second part of the Python Loops lesson is about for-loops. For-loops allow for a precise control on the number of times through which a section of code can be looped. Campers first learned how these for-loops work, then practiced using them in various methods.

For Loops in Turtle

- After learning how for loops work in Python, the campers revisited the Turtle module and were able to make more complex designs, such as spirals and gradients. For loops were applied to turtle functions such as forward(), backward(), left(), right(), pensize(), color(), and circle()

Making Python Projects!

- Campers had time to add upon and recreate (with their new knowledge) the Python projects which they created earlier in the week, (ex.: Mad Libs, Choose Your Own Adventure Game, Turtle, Number Guesser, etc.).

How Do I Continue Coding?

- All students took home a USB thumb drive containing all the code they made through the week!
- To run the code at home, campers can install Python and VS Code on a computer at home!
 - Python can be installed by going to python.org/downloads
 - VS Code can be installed by going to code.visualstudio.com/download
- Some of our favorite Python YouTube channels to continue learning:
 - Tech With Tim, Keith Galli, Corey Schafer