Python Basics

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Mines ACM

A Small Survey

Welcome everyone! I'd like to get to know everyone a bit more and get a feel for everyone's prior experience with programming and Python.

- What year are you in?
- How many of you have programmed in any language before?
- How many of you have programmed in **Python** before?

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Overview

1. What is Python?
2. Programming Basics in Python

What is Python?

A Bit of History

- Python first appeared in early 1991. *This means that Python is older than Java and Ruby.*
- Guido van Rossum (GvR, the creator of Python) designed his language with **emphasis on readability**.
- Python was named after *Monty Python's Flying Circus*.
- The language quickly gained popularity because of its appeal to long-time UNIX/C hackers[1].

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Why Learn Python?

- Python is a *general purpose, multi-paradigm* language meaning that it is very flexible and can be used in many different scenarios.
- Some of the main applications of Python in industry are web programming, data science, machine learning, automation scripting.
- Python is an easy language to learn.
- Python runs anywhere, and generally requires little setup compared to other languages.

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A Note on Python 2 and Python 3

There are two main versions of Python: Python 2 and Python 3. As of earlier this year, Python 2 is no longer supported, so nobody should use it. Unfortunately, many projects and operating systems have not gotten with the times and are still reliant on Python 2.

Python 3 has many major advantages over Python 2 as it fixes many annoying inconsistencies with the older version.

For the purposes of this presentation, we will be talking *strictly of Python 3*.

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Programming Basics in Python

Follow Along

You can either install Python on your machine or use an online Python environment such as `https://repl.it/languages/Python3`.

Most of the things we will cover today can be done directly in the REPL (read-evaluate-print-loop) on the right.

Storing Data

At its core, programming is about storing and manipulating *data*.

In almost every programming language, there is a concept of a **variable** which *stores* data.

In Python, you can create a variable using the following syntax:

```
name = "Sumner"
age = 22
likes_acm = True
```

If you have ever programmed in a language such as Java, you may notice that there is no special keyword for declaring a variable.

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Showing the Data

Storing data isn't any good unless you can actually use it for something useful. One of the most basic things we can do with the data stored is print it out to the console.

To print anything in Python, use the `print` function:

```
name = "Sumner"
age = 22
print(name)
print(age)
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If you want to print multiple things at once, you can separate them with a comma:

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print(name, age)
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What Sorts of Data Can We Store?

There are many different *types* of data that we can store.

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* Variables * Data types * Basic operations on simple data types * If statements * For loops * Functions * Parameters * Union data types