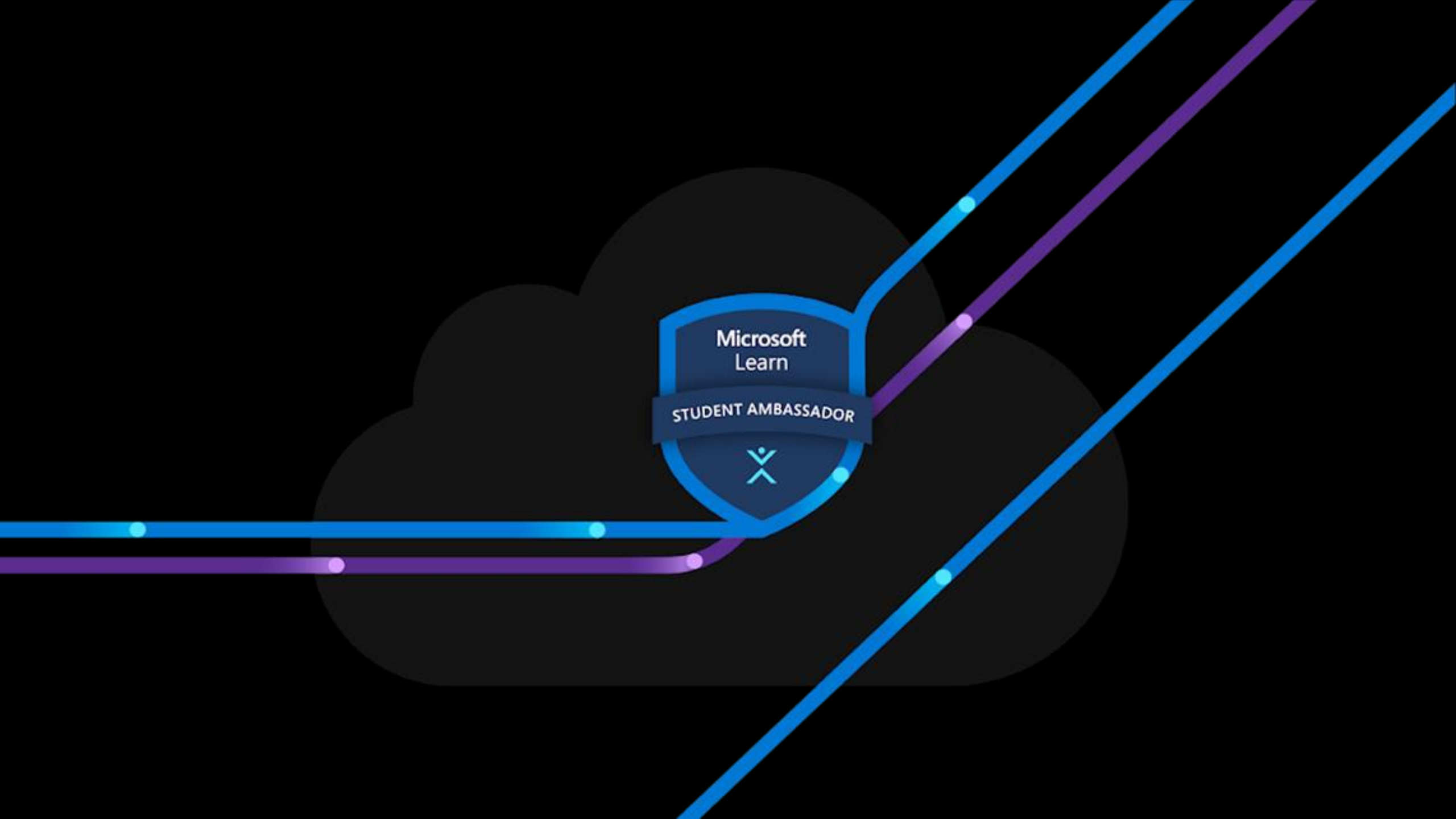
Microsoft
Learn
STUDENT AMBASSADOR

Microsoft Learn
Student Ambassadors

Introduction to
Python using Visual Studio Code

Speaker: Cyprian Abeiku Maison

About

- Microsoft Learn Student Ambassador
- Electrical/Electronic Engineering Student

Skills & Interests

- Python Programming
- C/C++ Programming
- AI & Machine Learning
- Internet Of Things

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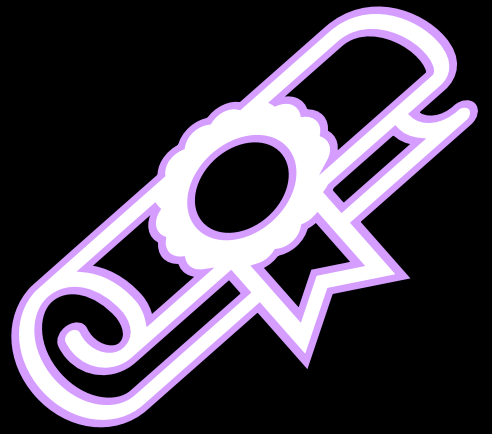
Agenda

- Computer Programming
- Python Programming (Definition, Uses, Benefits)
- IDEs & Code Editors
- Visual Studio Code
- How to install VS Code
- How to install Python
- Setting up Python in Vs Code
- Run First Python Code
- Guess Game Project Overview
- Things to Know
- Learning Resources
- Practical Session



Computer Programming

- Computer programming is the process of designing and building an executable computer program to accomplish a specific computing result or to perform a specific task.

- This program is written in a programming language i.e. C, JavaScript, Java, C++, C#, Dart, R, Python etc.

What is Python?

Python is an interpreted high-level general-purpose programming language.

Python is an interpreted language because it goes through an interpreter, which turns code into the language understood by the computer's processor.

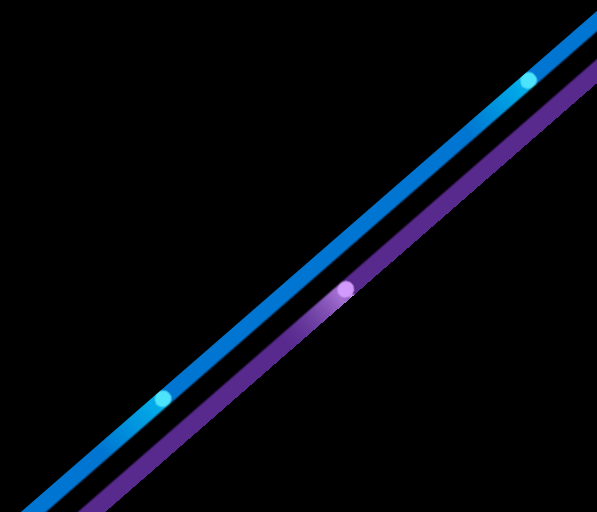
Python is considered high-level because it is closer to human language and further from machine language.

Uses of Python

1. AI and Machine learning
2. Data Science, Analytics and Visualization
3. Web Development
4. Game development
5. Search Engine Optimization
6. Automation
7. Natural Language Processing

Benefits of Learning Python

- Python is easy to read, write, and learn
- Python is extremely versatile, with vide variety of uses
- Python is in high demand for jobs
- Python has an incredibly supportive community
- Automatic memory management
- Stepping stone to other languages
- It’s free to use(open source)!

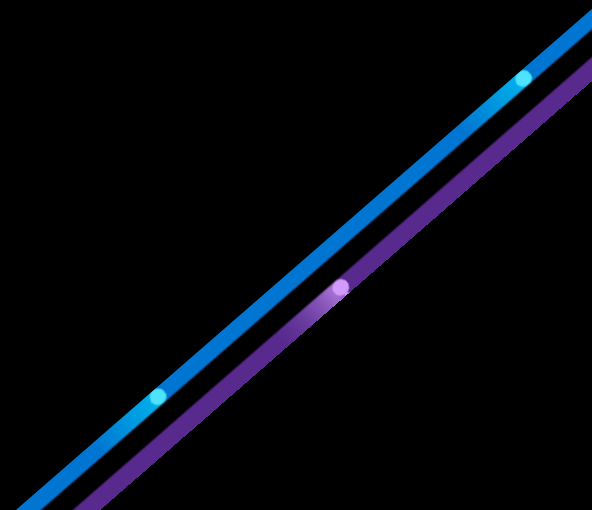


IDEs & Code Editors

An Integrated development environment (IDE) and a Code Editor are both software used to write and edit code, and build applications, all in a single graphical user interface.

Examples:
Microsoft Visual Studio, Microsoft Visual Studio Code, PyCharm, Sublime Text, Atom, etc.

Default Python IDE: Integrated Development and Learning Environment (IDLE)



Microsoft Visual Studio Code (VS Code)

Visual Studio Code is a **code editor** with support for development operations**,** made by **Microsoft** for Windows, Linux and MacOS Devices**.**

Features of VS Code

_Integrated CLI (Command Line Interface)
_Support for Multiple Languages
_Extension Market Place
_Keyboard shortcuts
_Split view
_Debugging
_Themes & Customization
_Status Bar

How To Install VS Code

1. Go to https://code.visualstudio.com/.
2. Select the Stable Version for your Operating System and Download.

After Download Finishes,

3. Open VSCodeUserSetup-x64 in your downloads folder.
4. Follow the prompt, the default selections are best.

(Remember to select Add to Path)

How to Install Python

Python comes by default in most Linux and Mac OS systems, but it needs to be installed on Windows.

1. Visit https://www.python.org/downloads/
2. Download the latest stable version of python.

After Download Finishes,

3. Launch the Python setup in your downloads folder.
4. Check the add Python to Path box and click Install now.

After Installation Ends,

6. Launch Command Prompt by searching for cmd in the start menu.
7. Type Python and Press Enter.

(The Python Version should be displayed if Installation was successful)

Setting Up Python in VS Code

1. Launch the VS Code Application.
2. Open the Extensions Marketplace or use Shortcut (Ctrl + Shift + X)
3. Search Python and select the verified option from Microsoft (Usually the first option)
4. Click Install and wait for it to Finish.

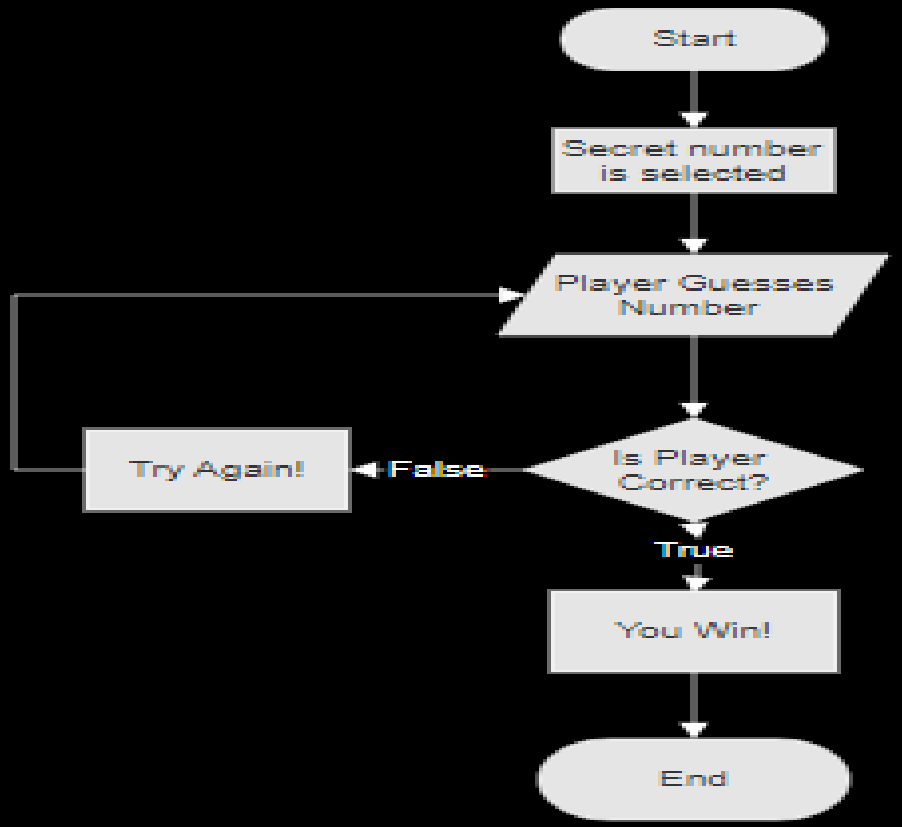
Running Your First Program

1. Click on File and Select Open Folder.
2. Create a New Folder in a directory of your choice and select it.
3. Right Click on the left pane where the directory is displayed and select New File.
4. Give the file a name with the extension (.py). E.g. filename.py
5. Type: print(“Hello World”) in the workspace.
6. Locate and Click on the Play button in the top right corner

Congratulations!!!

You just run your first Python Program

Guess Game Project Overview

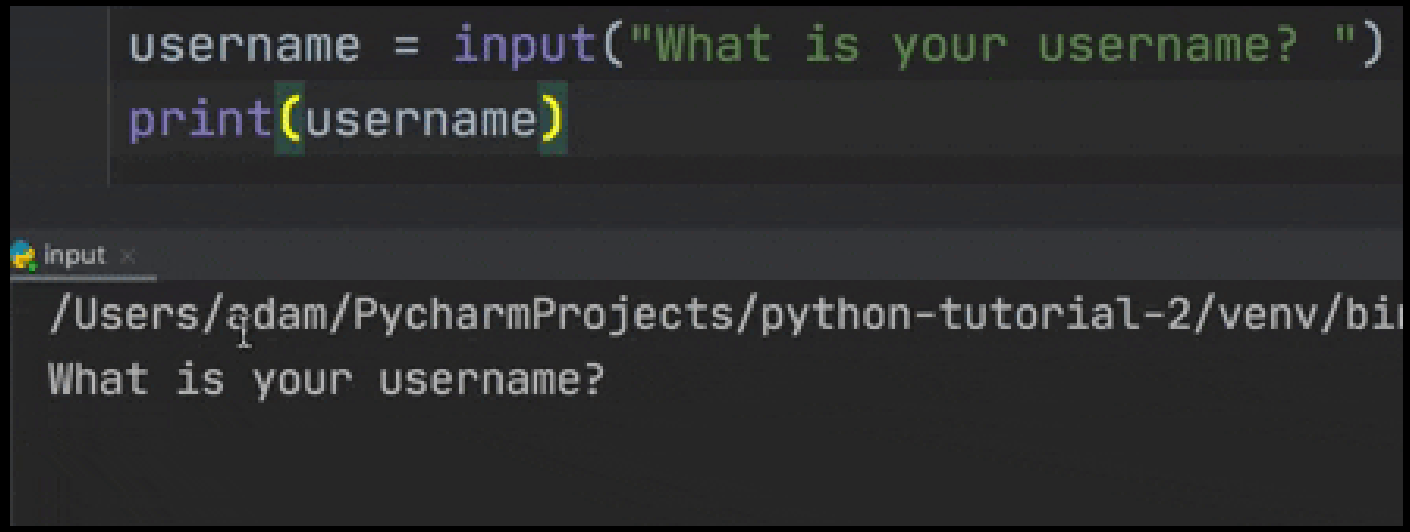


Some things to Know

1. Print & Input
2. Variables
3. Operators
4. Integers and Strings
5. Conditionals
6. While Loops
7. The random Module

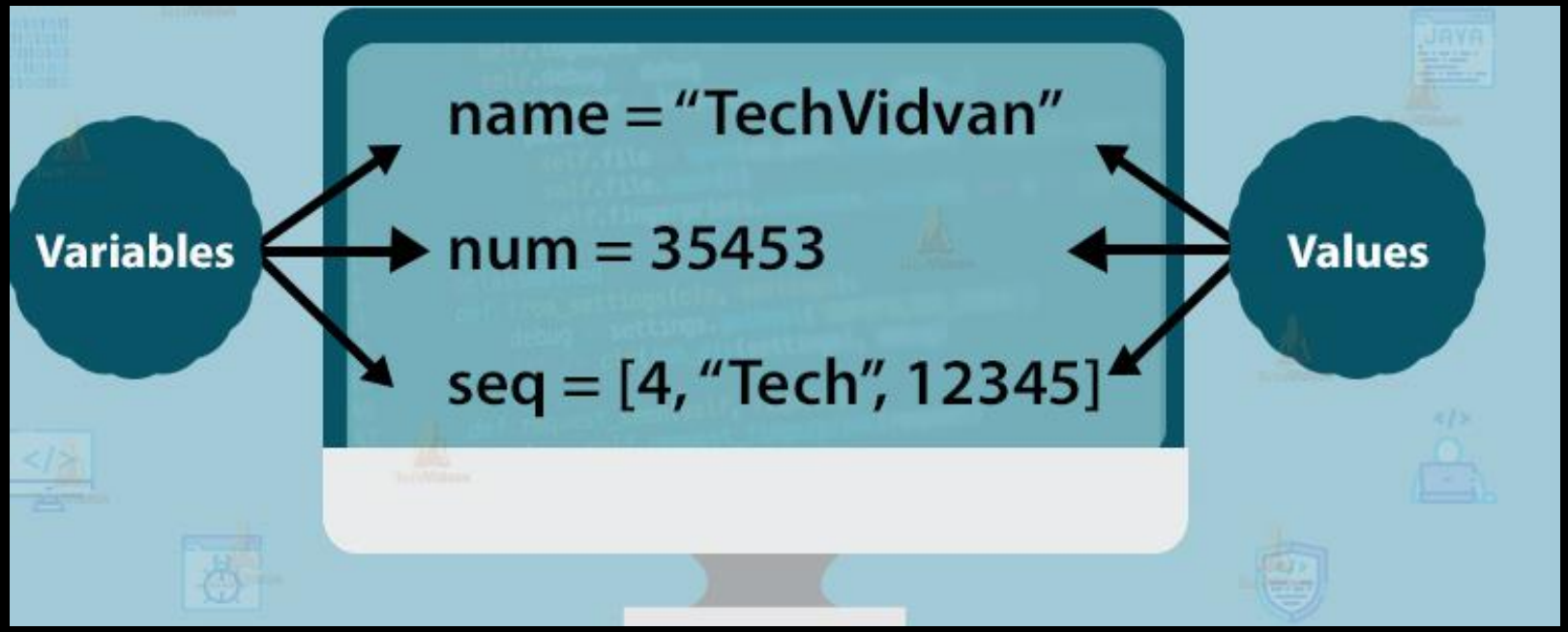
Print & Input

- The Python print() function takes in any number of parameters, and prints them out on one line of text.
- The input() function is used to take input from the user. Whatever is entered as an input is stored as a string.



Variables

Variables can represent numeric values, characters, strings, and more. Variables enable programmers to write flexible programs because, rather than entering data directly into a program, a programmer can use variables to represent the data.



Operators

Operators are used to perform operations on variables and values. There are many Operators in python, but we will be looking at only a few:

Operator	Description	Example
+	Addition	x + y
==	Equal	x == y
!=	Not Equal	x != y
>	Greater than	x > y
<	Less than	x < y
=	Assignment Operator	x = 3 assigns 3 to the variable x
+=	Increment Operator	x += 3 is the same as x = x + 3
and	Returns True if both statements are true	x < 5 and x < 10

Integers & Strings

- Integers or int are whole number that can be positive, negative, or zero. Fractional numbers or decimals are not integers.

  Examples: 0, 1, -2, -8, 12, -45, 15.

- Stings are an ordered sequence comprised of a set of characters that can also contain spaces and numbers. Strings are commonly denoted by a set of single (‘ ‘) or double quotes (“ “).

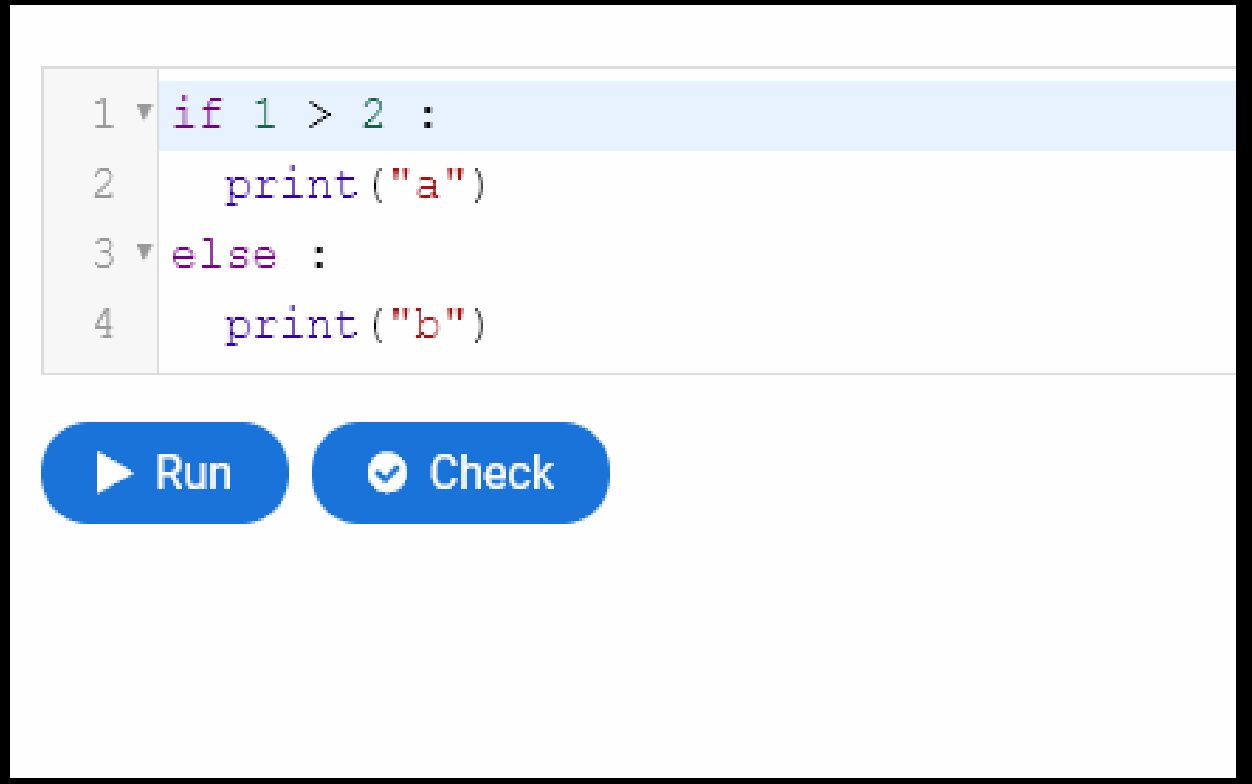
  Examples : ‘hello world’, “pizza”, ‘A slice of pizza’

Conditional Statements

Conditional Statements perform different actions depending on whether an argument evaluates to true or false. In python, conditional statements are handled by if, elif and else.

Syntax:

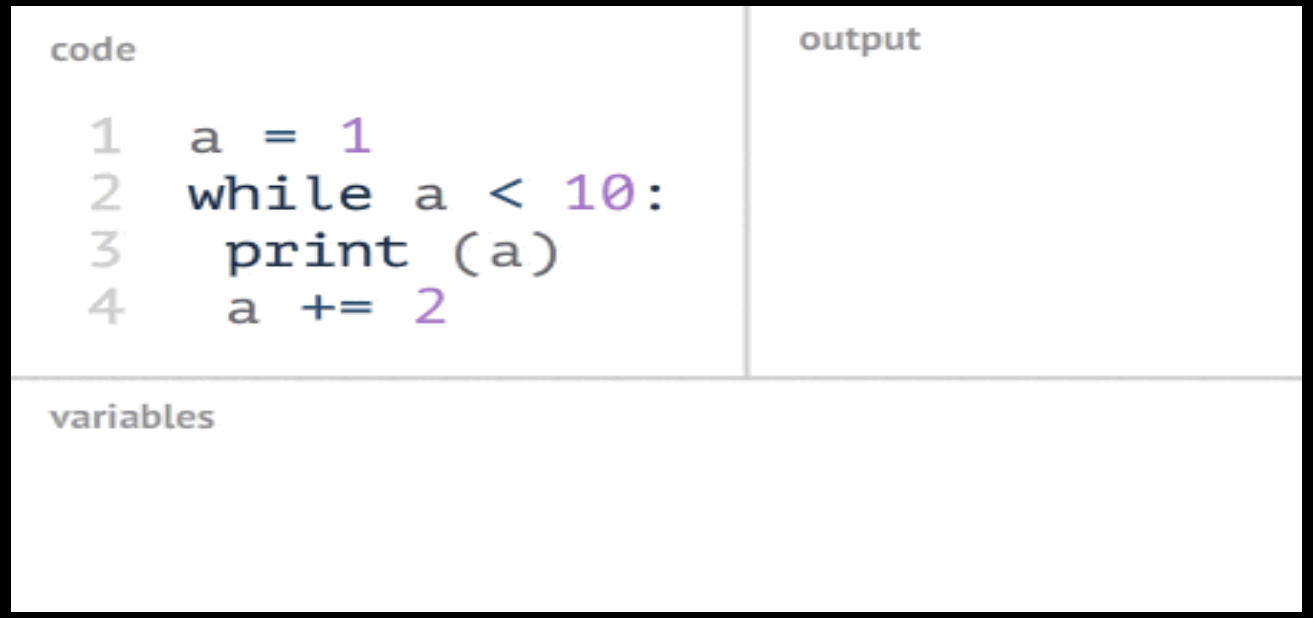
```
if  x > y:
   do something
elif x < y:
   do something else
else:
   do this if all conditions are false
```



While Loops

The while loop executes a set of statements in a continuous loop as long as a condition is true.

If at any point you would like the loop to end, you must include the break function.



The random Module

- A module is a python file that can be imported into a program to give a programmer access to extra functions.
- The Random module is an in-built python module which is used to generate random numbers.
- We will be using it in conjunction with the randint( ) method, which returns an integer from a specified range.

```
import random
random.randint(low,high)
```

Learning Resources

Guess Game Code & Slides:
https://github.com/camaison/Introduction-to-Python-using-VS-code.git

The “Take Your First Steps With Python Learning Path” by Microsoft:
https://docs.microsoft.com/en-us/learn/paths/python-first-steps/

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Thank you!