Introduction to Python Part 1

COMP 8347

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Python Basics

- Topics
  - Introduction

  - Why Python

  - Overview of IDLE

  - Input and Print in Python

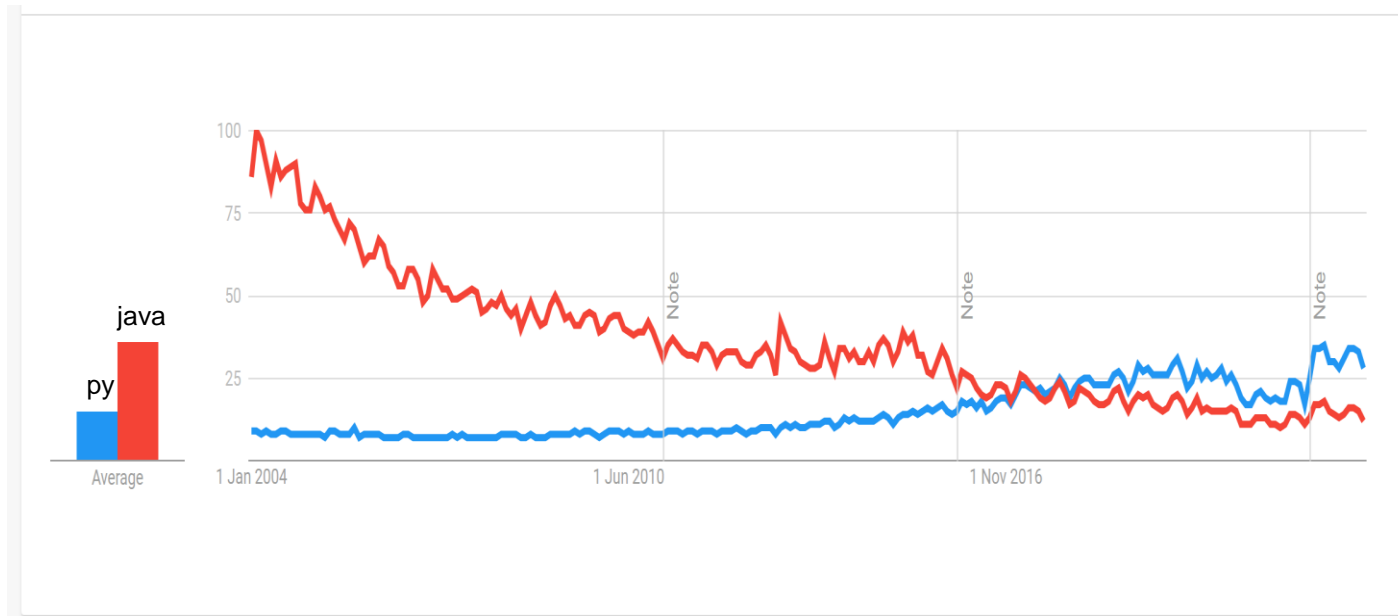University of Windsor

About the Course

Let us check the outline/syllabus….

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Relax and Talk About Yourself

Why Python?

Source: https://trends.google.com/trends/explore?date=all&geo=US&q=%2Fm%2F05z1_,%2Fm%2F07sbkfb

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Why Python?

Developed by Guido Van Rossum	Simple syntax and easy to learn	It emphasizes readability
Used for: •RAD and Scripting •Process text •Display images •Making calculations and predictions	What we see today on our devices is because of Python	Supports object-oriented programming: with classes and multiple inheritance.
	Dynamically typed language: Do not have to assign variable types	Python vs. Java?

Notable Features of Python

- **Elegant syntax and easy to use**: programs easier to read.

- **Large standard library:** supports many common programming tasks e.g. connecting to web servers, regular expressions, file I/O.

- A bundled development environment called IDLE.

- **Runs on different computers and operating systems**: Windows, MacOS, many brands of Unix, OS/2, …

- **Free software**: Free to download or use Python - the language is copyrighted it's available under **an open-source license**.
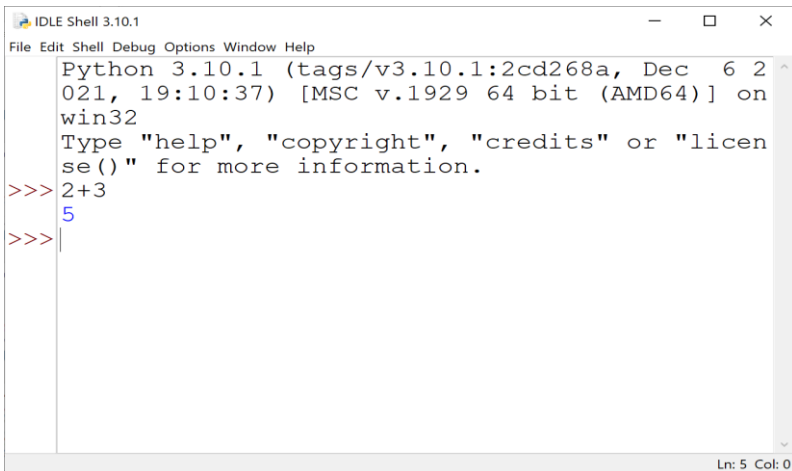
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Indentation

- Python does not use brackets to structure code, instead it uses whitespaces
  - Tabs are not permitted.
    - Four spaces are required to create a new block,
  - To end a block simply move the cursor four positions left.
  - An example: Nested loop

```
for i in range(5):
    for j in range(10):
        print(j)
    print(i)
print('done')
```
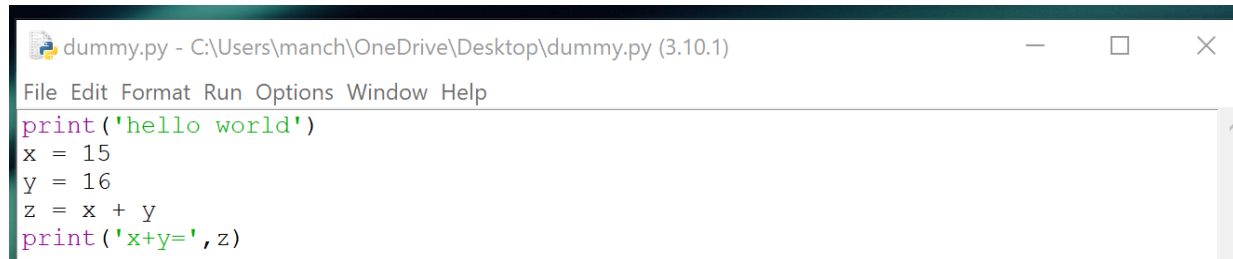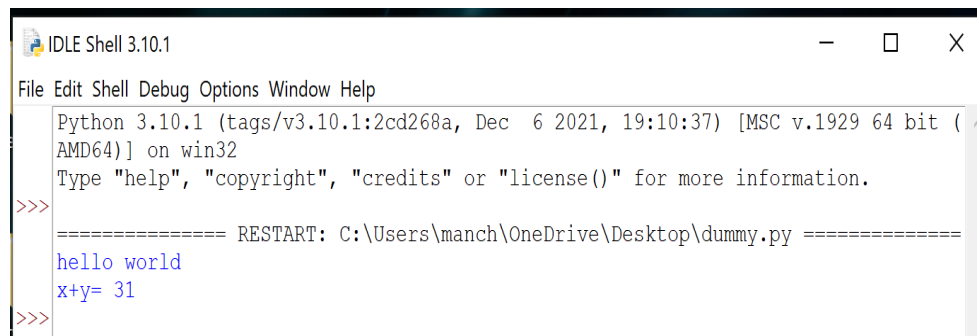
IDLE

- ▶ IDLE: Basic IDE that comes with Python

  - ▶ Should be available from Start Menu under Python program group.

  - ▶ Main "Interpreter" window.

    - ▶ Allows us to enter commands directly into Python

    - ▶ As soon as we enter in a command Python will execute it display the result.

    - ▶ '>>>' signs act as a prompt.

IDLE EXAMPLE

Numeric Data Types

▶ *int*: represents positive and negative whole numbers.

  ▶ Written <u>without</u> a decimal point

  ▶ e.g., 5, -2, 5555555555, 7

▶ *float*: written <u>with</u> a decimal point

  ▶ e.g., 3.0, 5.8421, 0.0, -32.5 etc.

▶ Rest in part 2…..

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Arithmetic Operators

▶ Basic arithmetic operators: + (addition), - (subtraction), * (multiplication), / (division)

- / (division) produces floating point value   15/3 → 5.0

- // (integer division) truncates any fractional part   25//3 → 8

- % (remainder) gives the remainder after integer division.   25%3 → 1

- Augmented assignment operators: +=, -=, *=, /=

Basic Input/Print

▶ Built-in input() function accepts input from user.

  ▶ Takes optional string argument to print on console

  ▶ Waits for user to type response and hit Enter

  ▶ If no text, user just hits enter: return empty string

  ▶ Otherwise, return string containing entered text

  ▶ Example: i = input("Enter an integer: ")

▶ Built-in print() function for output.

  ▶ Example: print("int = ", i)

References

▶ Slides from Dr. Jaekel and Dr. Saja

▶ https://www.linkedin.com/learning/python-quick-start/python-vs-java?autoAdvance=true&autoSkip=true&autoplay=true&resume=false&u=56973065

▶ https://www.coursera.org/articles/python-vs-java

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