
Introduction to Python



Fondren Library
Research Data Services

Introductions | Welcome to Python

1. Full Name
2. Current Career/Job
3. Dream Computing Project
4. Why Python?
5. Major Concerns for Learning Python



Programming is the process of creating a set of instructions that tell a computer how to perform a task. It involves writing code in a programming language to solve problems or automate tasks. By programming, we can develop software, apps, and websites, or analyze and visualize data. It combines logic, creativity, and technology to turn ideas into functional digital solutions.

Python is a versatile and widely-used programming language known for its simplicity and readability. It supports multiple programming paradigms, including procedural, object-oriented, and functional programming. Python's extensive libraries and frameworks make it an excellent choice for web development, data analysis, artificial intelligence, scientific computing, and more. Its community-driven development ensures it remains modern and accessible to beginners and experts alike.

Example 1: Basic Arithmetic Calculator

#This program adds two numbers provided by the user

#Get input from the user

number1 = float(input("Enter first number: "))

number2 = float(input("Enter second number: "))

#Add the two numbers

sum = number1 + number2

#Display the result

print("The sum of", number1, "and", number2, "is", sum)

Example 2: Email Address Validator

```
import re
```

```
#Function to validate an email address using regular expressions
```

```
def validate_email(email):
```

```
    pattern = r'^[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$'
```

```
    if re.match(pattern, email):
```

```
        return "Valid Email"
```

```
    else:
```

```
        return "Invalid Email"
```

```
#Example usage
```

```
email_input = input("Enter an email address to validate: ")
```

```
result = validate_email(email_input)
```

```
print(result)
```

Example 3: Sales Report Summary

#This program reads sales data from a text file, calculates total and average sales, and prints a summary

```
def read_sales_data(filename):  
    sales = []  
    with open(filename, 'r') as file:  
        for line in file:  
            #Convert each line to a float and add to the list  
            sales.append(float(line.strip()))  
    return sales  
  
def calculate_summary(sales):  
    total_sales = sum(sales)  
    average_sales = total_sales / len(sales)  
    return total_sales, average_sales
```

#Main function to handle the workflow

```
def main():  
    sales_data =  
    read_sales_data('sales_data.txt')  
    total, average =  
    calculate_summary(sales_data)  
    print(f"Total Sales: ${total:.2f}")  
    print(f"Average Sale:  
    ${average:.2f}")
```

#This line will run the main function when the script is executed

```
if __name__ == "__main__":  
    main()
```

Welcome to Python | Class Set-Up

1. 10 Weekly Mini-Projects (25%)
2. 10 Weekly Quizzes (25%)
3. 5 Pre-Project Quizzes (10%)
4. 1 Final Capstone Project (40%)



Module 1 Assignment and Quiz drops Wednesday at 9AM EST. It will be due Sunday at 11:59PM EST.



What is Python?

- Created by Dutch programmer Guido van Rossum as a hobby in 1989
- Name comes from “Monty Python”
- Open source
- Object oriented
- Useful as both a frontend and backend language
- Design philosophy: “Readability counts”





Why Python?

Python Programming Language



Easy

Useful

Powerful

Popular

General Purpose

Large Libraries

#Python

```
print ("Hello world!" )
```

#Java

```
public class Main {  
    public static void main(String[ ] args) {  
        System.out.println( "Hello, World!" );  
    }  
}
```

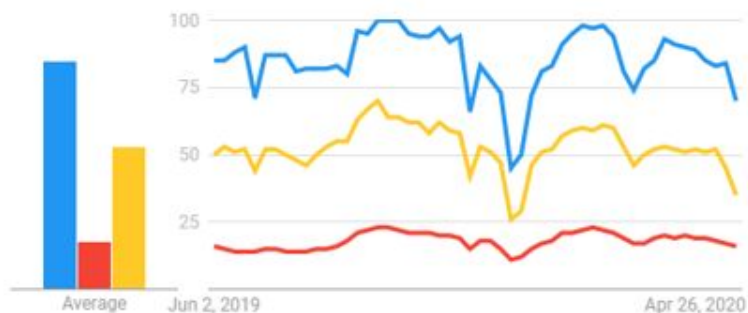


- One of the most popular programming languages

Interest over time

Google Trends

● Python ● C ● Java



United States. Past 12 months. Web Search.

- Top Ten Languages of 2019

Rank	Language	Type	Score
1	Python	📱 🖨️ 🌐	100.0
2	Java	📱 🖨️ 🌐	96.3
3	C	📱 🖨️ 🌐	94.4
4	C++	📱 🖨️ 🌐	87.5
5	R	🖨️	81.5
6	JavaScript	📱 🖨️ 🌐	79.4
7	C#	📱 🖨️ 🌐	74.5
8	Matlab	🖨️	70.6
9	Swift	📱 🖨️	69.1
10	Go	📱 🖨️	68.0

Source: [IEEE\(Institute of Electrical and Electronics Engineers\)](#)



What is Python Used For?

- Web Development (Django Web Framework, eg. Pinterest, Instagram)
- Data Analysis
- Data Visualization
- Web Scraping
- Predictive Analytics/Machine Learning/Deep Learning/Neural Networks



- Google Colab
- <https://colab.research.google.com/>

Also:

- Google Colab
<https://colab.research.google.com/>
- Jupyter Notebooks <https://jupyter.org/try>
- Visual Studio Code (My Favorite!)
<https://code.visualstudio.com/>
- Terminal (Search for Terminal)
- Replit <https://replit.com/~>

Office Hours - 8PM to 9PM

