

Python For Everyone

Avnit Bambah

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- 20 years of IT experience
 - Developer, Manager, Security Architect
 - BE and MS Computer Science and MBA in Finance, Loyola University
 - Love coding projects, building servers and IoT projects.

Schedule

- Week 1 : Introduction to Python and Setting up
 - Control Flow and Data Structures
- Week 2 : Data Structures (Cont)
 - Functions and Modules
- Week 3 : File Handling and Exception Handling
 - Reading from the file
 - Handling errors and exceptions
- Week 4 : Object Oriented Programming (OOP)
 - Classes and Objects
 - Inheritance and Polymorphism

Schedule

- Week 5 : Working with Data
 - NumPy and Pandas
 - Data Manipulation
 - Regular Expressions
- Week 6 : Matplotlib Diagrams and Data Analysis
 - Data Frame Functions
 - Lambda Expressions
- Week 7 : Multithreading and Queues
 - Project Creation and discussion
- Week 8: Project Presentation

Installing Python

- Download
 - <https://www.python.org/downloads/>
- Development environment
 - Visual studio code <https://code.visualstudio.com/download>
 - PyCharm Community Edition <https://www.jetbrains.com/pycharm/>

Running the first program

Create a GitHub account

- Sharing the code
- Share the github account with me before the next session
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Python basics

- Variable and Data Types
 - Numerical Data Types

Data Type	Keyword	Description
Integer	Int	A whole number
Float	Float	A floating point number
Complex	Complex	A complex Number (which has a real and a imaginary part to it)

Strings

- Strings are basic sequence of characters or basically a text.
- Strings are always surrounded by quotation marks
- Keyword is str
- Example
- `a = "my name is xyz"`
- Type function helps us determine what is the type of the variable it is.

Concat two strings

- `a = "my name"`
- `b = "xyz"`
- `c = a + b`
- `Print(c)`

Booleans

- It can be True or False
- Keyword bool

SEQUENCES

- Collection of variable, objects

Data Type	Keyword	Description
List	List	Collection of values
Tuple	Tuple	Immutable list
Dictionary	Dict	List of key value pairs

Operators

Operator	Name	Description	Example
+	Addition	Adds two numbers	$5+2 = 7$
-	Subtraction	Subtracts two numbers	$5-2=3$
*	Multiplication	Multiples two numbers	$5*2 =10$
/	Division	Divides two numbers	$5/2 =2.5$
%	Modulus	Returns the remainder of a division	$5\%2 =1$
**	Exponent	Takes a value to the power of another value	$5**2 = 25$
//	Floor division	Returns the result of a division without decimal places	$5//2 =2$

Assignment Operators

Operator	Description	Example
=	Assigns a value to variable	A = 10
+=	Adds a value to a variable	A += 1
-=	Subtracts a value from the variables	A -= 1
*=	Multiplies a values with a variable	A *= 10
/=	Divides the variable by a value	A /= 10
%=	Assigns the remainder of a division	A %= 2
=	Assigns the result of a exponential	A=2
//=	Assigns the result of a floor division	A //= 2

Comparison Operators

Operator	Name	Description	Example
==	Equals	Two values are the same	a == b 10 == 10 -> True
!=	Not Equals	Two values are not the same	a != b 10 != 20 -> True
>	Greater than	One value is greater than the other	a > b
<	Less than	One value is less than the other	a < b
>=	Greater than or equal	One value is greater than or equal to another	a >= b
<=	Less than or equal to	One value is less than the other value	a <= b

Logical Operator

Operator	Description
Or	At least one has to be true
And	Both has to be true
Not	Negates the input

A is true and B is false
A or B is true

OR (A/B)	True	False
True	True	True
False	True	False

AND operator

AND (A / B)	TRUE	FALSE
TRUE	TRUE	FALSE
FLASE	FALSE	FALSE

USER INPUT

- `Name = input("please enter your name")`
- `Print (name)`

Conditions

- IF, ELIF, ELSE
- `x = int(input("enter the marks obtained as an interger only ? "))`
- `# Check if value greater than 70`
- `if (x > 70):`
 - `print("Your Grade is A")`
- `elif (x > 60):`
 - `print("Your Grade is B")`
- `elif (x > 50):`
 - `print("Your Grade is C")`
- `elif (x > 40):`
 - `print("Your Grade is D")`
- `else:`
 - `print("Your Grade is F")`

Nested If statement

- If number %2 == 0:
 - If number == 0 :
 - Print ("Your number is 0")

Loops

- While
 - endless loop
- For Loop
- Range
- Break and Continue