Data Science Masterclass

Fundamentals of Python Programming

H.M. Samadhi Chathuranga Rathnayake

M.Sc in CS (SU), PG.Dip in SML (Othm), PG.Dip in HRM (LRN), B.Sc (Hons) in IS (UOC), B.Eng (Hons) in SE (LMU), P. Dip EP & SBO (ABE), Dip SE, Dip IT, Dip IT & E-Com, Dip B.Mgt, Dip HRM, Dip Eng

Mathematical Operations

Addition	+
Subtraction	-
Multiplication	*
Division	/
Integer Division	//
Power	**
Modulus Operator	%

Relational Operations

Greater than	>
Less than	<
Greater than or equal	>=
Less than or equal	<=
Equal	==
Not equal	!=

Logical Operations

And	and
Or	or
Not	not

Primitive Data Types

Python has 4 primitive data types:

- Integers

- Floats

- Booleans

- Strings

Compound Data Types

Python has 4 compound data types:

- Lists

- Tuples
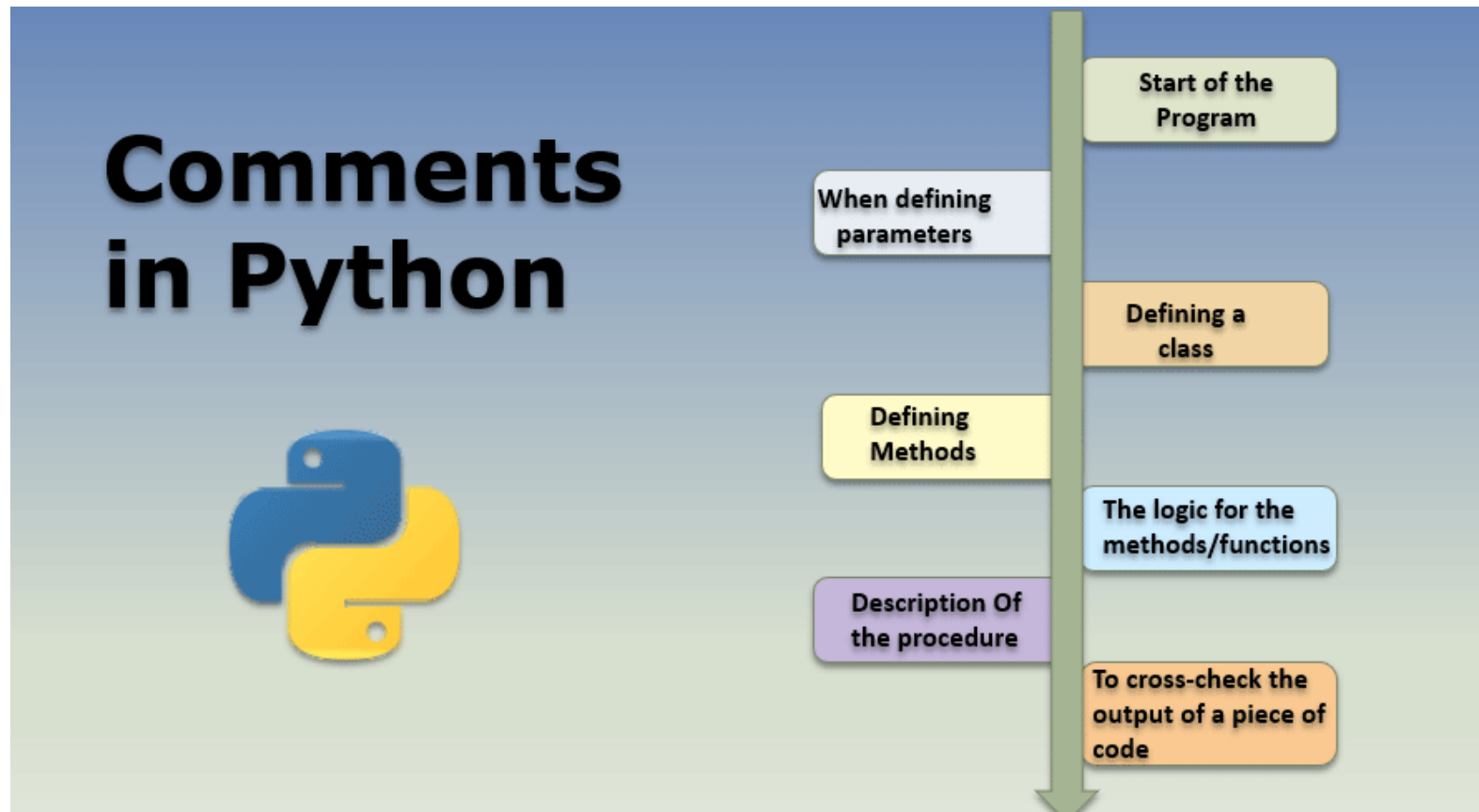
- Sets

- Dictionaries

Variables

A Python variable is a reserved memory location to store values. In other words, a variable in a python program gives data to the computer for processing.

Comments

In computer programming, a comment is a programmer-readable explanation or annotation in the source code of a computer program. They are added with the purpose of making the source code easier for humans to understand, and are generally ignored by compilers and interpreters.

Compound Data Types

Lists

- Lists are used to store multiple items in a single variable.

- Square brackets are used.

- Lists are mutable.

- Lists can contain any type of data together.

- Indexing is starting from 0.

- Lists allow negative indexing.

- Several functions are available for operations in lists.

Compound Data Types

Tuples

- Tuples are used to store multiple items in a single variable.

- Curve brackets are used.

- Tuples are not mutable.

- Tuples can contain any type of data together.

- Indexing is starting from 0.

- Tuples allow negative indexing.

- Several functions are available for operations in tuples.

Compound Data Types

Sets

- Sets are used to store multiple items in a single variable.

- Curly brackets are used.

- Sets are not mutable.

- Sets can contain any type of data together.

- No indexing in sets.

- Several functions are available for operations in sets.

Compound Data Types

Dictionary

- Dictionaries have keys and values.

- Curly brackets are used.

- Dictionaries are mutable.

- Dictionaries can contain any type of data together.

- Can access the values through keys.

- Several functions are available for operations in dictionaries.
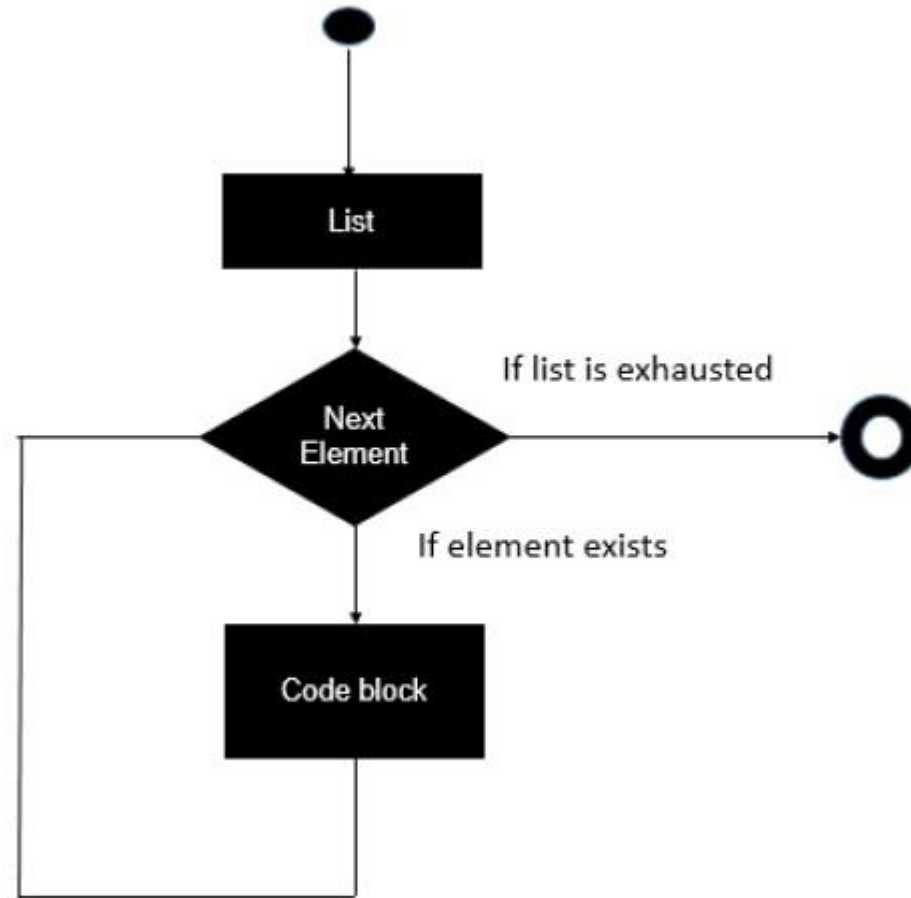
Conditions and Branching

```
if Criteria:
    Do something
```

```
if Criteria:
    Do something
else:
    Do something
```

```
if Criteria:
    Do something
elif Criteria:
    Do something
elif Criteria:
    Do something
else:
    Do something
```
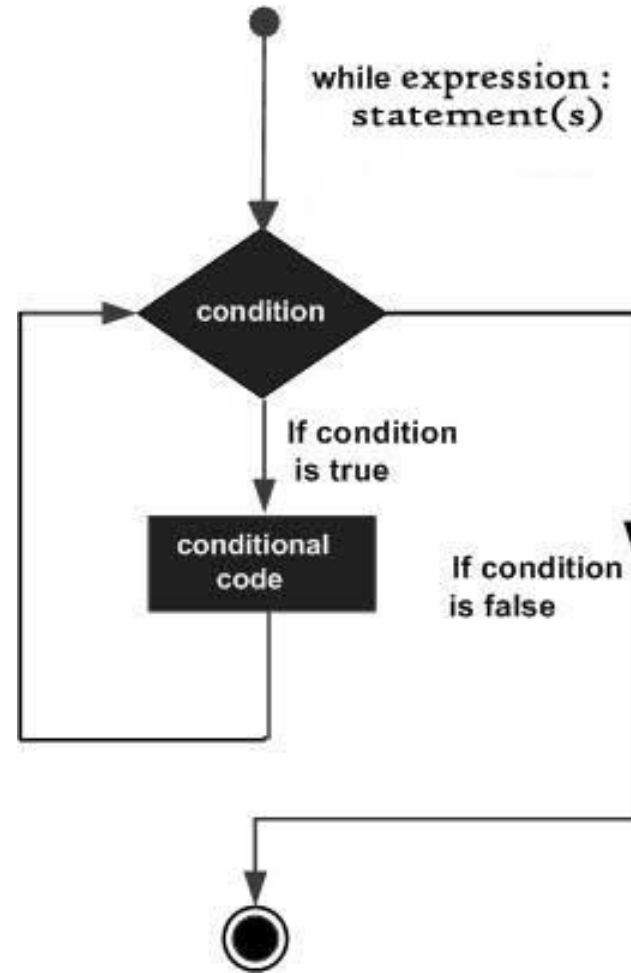
For Loops

for **iteration** in **Array**:
   Do something

For Loops

- **Break** keyword breaks the entire loop when a condition is satisfied.

- **Continue** keyword skips the iteration when a condition is satisfied.

While Loops

Python Functions

- Python functions are repeated blocks which will be used in several places in a program.

- Python functions can be created with arguments or without arguments.

- Python functions can be created with return values or without return values.