**Data Structure:** Data Structures can be defined as a representation of data along with its operations. It is a wary of organizing and storing data in a computer system so that it can be used efficiently.

**Types of Data Structures:**

Data Structures are primarily divided into two classes, primitive and non-primitive.

**Primitive types** – Primitive Data Structure: Include all the fundamental data structure that can be directly manipulated by machine level instructions. Ex: Integers, Float, Strings, Boolean.

**Non-primitive type**-Non-primitive data structures: Are derived from one or more primitive data structures. It is a set of homogeneous or heterogeneous data elements.

Non- primitive data structures are further categorized into two types

Linear

Non-Linear

**Linear:** In linear data structures, all the data structures, all the data elements are arranged in a linear or sequential fashion. Eg: arrays, stacks, queues, linked list etc.

**Non linear:** In non-linear data structures, there is no definite order or sequence in which data elements are are arranged. Non linear data structure can arrange data element in a hierarchical fashion. Eg: trees,graphs, etc.

Built-in data structures

Lists

Tuples

Dictionaries

Sets

**1.a.Algorithm**

Step1: Read in9oteger x

Step2: Print value of x

Step3: Print type of x

Step4: Read float x

Step5: Print value of x

Step6: Print type of x

Step7: Read string x

Step8: Print value of x

Step9: Print type of x

Step10: Read boolean x

Step11: Print value of x

Step12: Print type of x

**1.b.Algorithm**

Step1: Read List x

Step2: Print values in list

Step3: Print type of x

Step4: Read Tupple x

Step5: Print values in tuple

Step6: Print type of x

Step7: Read Dictionaries x

Step8: Print values in dictionaries

Step9: Print type of x

Step10: Read Set x

Step11: Print values in set

Step12: Print type of x

**Problem Definition: Python program to Use and demonstrate basic data structures.**

**#Expt no: 1.a. Program to use and demonstrate basic data structures**

x=20 #int

print(x)

print(type(x))

x=20.5 #float

print(x)

print(type(x))

x=”KLSVPP” #String

print(x)

print(type(x))

x=True #Boolean

print(x)

print(type(x))

**Output:**

20

<class 'int'>

20.5

<class 'float'>

KLSVPP

<class 'str'>

True

<class 'bool'>

**#Expt no: 1.b. Program to demonstrate built in data structures**

x= [“One”, “Two”, “Three”] #List

print(x)

print(type(x))

x= (“VPP”, “GCC”, “GIT”) #Tupple

print(x)

print(type(x))

x= {“name” : ”aparajita”, “age” : ”11months”} #Dictionaries

print(x)

print(type(x))

x= {1,2,3,4,5} #Set

print(x)

print(type(x))

**Output:**

['One', 'Two', 'Three']

<class 'list'>

('VPP', 'GCC', 'GIT')

<class 'tuple'>

{'name': 'aparajita', 'age': '11months'}

<class 'dict'>

{1, 2, 3, 4, 5}

<class 'set'>