**Data types in python**

Every value in python has a data type .since everything is an object in python programming. data types are actually classes , and variables are instance object of these classes.

**Various data types in python**

**1. Numeric numbers**

**2. List**

**3. Tuple**

**4. Set**

**5. Range**

**6. Dictionary**

1. **Numeric data types**: python numeric data type is used to hold numeric values like

**Int** : It holds integer values and holds signed integers of non-limited length.

Example a=10 &b=-5

**Float**: it allows real numbers it contains both integer part and as well as fractional part

Example: 10.5

**complex**: I t has real Part and imaginary part

Example: 10+2j

**2. Sequence data type**

* **string**
* **list**
* **tuple**
* **set**

String

It is a sequence of characters ,python supports Unicode characters.generally strings are represented by either single or double quotes

String is immutable

S1=”python data type task”

Print(s1)

Print(type(s1)

List

Example2:user authentication

Username=input(“enter your username:”)

Password=input(“enter your password:”)

If username==”swapna” and password==”boss8055”:

Print(“login successful”)

Else:

Print(“invalid credentials”)

list

In python list simultaneously hold different type of data.it follows ordered sequence of some data written using [] and commas(,)

Example=my-list [“python”,[1’2’3],3.5,[‘a’]

Fruits=[“apple”,”banana”,pomegranate”]

**Python tuple**

Tuple is an ordered sequence of items same as list.

Tuple is immutable

Tuples are used to write protect data and are usually faster than list as it cannot change dynamically.it is defined in () where items are separated by comas

**Example**: T= (50,’learning is fun’1+3j,45.67)

Record=(“swapna”,35,”python developer”)

Print(record)

Print(type(record)

We can acess individual objects in a tuple by its index

Print(record[0])

‘swapna’

Print(record[1])

35

Print(record[2])

‘python developer’

**Python set**

Set is an unordered collection of unique items. Set is defined by values separated by comma inside braces {}.items in a set are not ordered.it does not allow duplicates.

EXAMPLE:S={10,20,30,40,”xyz”}

Example: Sales -data=[101,102,101,103]

Unique-products=set(sales-data)

**Python dictionary**

Dictionary is an unordered collection of key value pairs

It is generally used when we have a huge amount of data. dictionaries are optimized for retrieving data.we must know the key to retrieve the value.

In python,dictionaries are defined within curly braces{}with each item being a pair in the form of key:value.

Key and value can be of any type.

Example: d1={‘name’:manasvi’,’class’:9}

Print (d1)

Print (type(d1))

Output: {‘name’:’manasvi’,’class’:9}

Print d1[‘name’]

O\P:’manasvi’

Printd1[‘class’]

O\p:9

**operators**

Operators are used to perform operations on variables and values

Types of operators

* Arithmetic operators
* Logical operators
* Comparision operators
* Assignment operators
* Identity operators
* Membership operators
* Bitwise operators

**Arithemetic** **operators**: arithmetic operators are used to perform mathematical operations on numbers.

+,-,\*,/,%,\*\*,//

**Comparison** **operators**: used to compare the given two operands

<,>,<=,>=,==,!=,<>

**Logical** **operators**: used to combine two or more conditions

AND (condition is true when both conditions are true)

OR (condition is false when both conditions are false)

NOT (it gives the opposite condition of output)

**Assignment** **operators**: used to assign given value to the operand

Examples:=,+=,-=,\*=,/=,%=,\*\*=,//=

**Bitwise** **operators**: perform operations on manipulation on bits

<<,>>,&,

**Membership** **operator**:I t is used to check whether the given value is a member or not,in the given sequence. The sequence may be array or string or list or tuple

Two types

1.in

2.not in

**Identity** **operators** : identity operators are used to compare memory locations of given two objects

1.is

2.is not