

NAME: Hamood Ahmed

SECTION: A

CLASS: Software Engineering

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~~Lecture 2-3~~ ASSIGNMENT NO. 4

Q-1 Collect information about 5 different libraries we use with Python in Advance Programming?

Ans The 5 different libraries we use with Python in Advanced Programming are:

1- Numpy

2- Scipy

3- Scikit-Learn

4- Theano

5- Tensor Flow

1- NUMPY:

Numpy is a very popular Python library for large multi-dimensional arrays and matrix processing with the help of a large collection of high-level mathematical functions.

2- SCIPY:

Scipy is a very large popular library among Machine learning enthusiasts as it contains different modules for optimization, linear algebra, integration and statistics. The Scipy is one of the core packages that make up the scipy stack.

3- Scikit Learn:

Skikit-learn is one of the most

30-10-19.

Popular ML Libraries for classical ML algorithms. It is built on top of two basic Python libraries, viz, Numpy and Scipy. Scikit learn supports most of the supervised and unsupervised learning algorithms.

4- Theano:

Theano is a popular Python library that is used to define, evaluate and optimize mathematical expressions involving multi-dimensional arrays in an efficient manner. It is achieved by optimizing the utilization of CPU and GPU.

5- Tensor Flow:

Tensor Flow is a very popular open-source library for high performance numerical computation developed by the Google Brain Team in Google. As the name suggests, Tensorflow is a framework that involves defining and running computations involving tensors.

Q-2 What is pip-command? When and Where to ~~de to~~ do we use it?

Ans. The pip command is a tool for

30-10-19.

installing and managing Python Packages, such as those found in the Python Package Index.

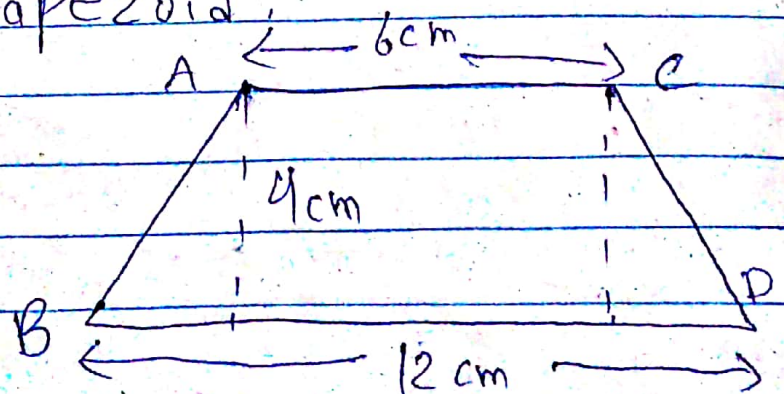
We use the pip command for installing additional Packages not included with the standard python distribution.

We use mostly in Python Package Index (PyPI).

Q-3 Can you write an algorithm for finding area of Trapezoid?

The basic steps to write an algorithm for the area of the Trapezoid are:

- 1- Add Together the lengths of the bases. The bases are the 2 sides of the trapezoid that are parallel with one another.
- 2- Measure the height of the trapezoid.
- 3- Multiply the total base length and the height together.
- 4- Multiply the products by $\frac{1}{2}$ to find the Area of the Trapezoid.



30-10-19.

$$\text{Area} = \frac{1}{2} (\text{base 1} + \text{base 2}) \times \text{height}$$
$$= \frac{1}{2} (6 + 12) \times 4$$

$$= \frac{1}{2} (18) \times 4 = 9 \times 4 = 36 \text{ cm}^2$$

Q-4. What do you understand by data types. How are they helpful in programming?

Ans. The data type defines with which operations can safely be performed to create, transform or use and use the variable in another computation. They are helpful in program because when a programming language requires a variable to only be used in ways that respect its data type, that language is said to be strongly typed.

Q-5. Consider you are opening a bank account, for this you need some data to submit a bank. Write each data with its data Type. by writing a small program?

30-10-19.

```
1 print("Welcome Sir to HBL ")
2 print("Required Information for opening
  an Bank Account ")
3 name = input("Enter your name: ")
4 Age = input("Enter your Age ")
5 phone_no = input("Enter your phone number:")
6 Address_1 = input("Enter your Address ")
7 city = input("Enter the name of your city")
8 postal_code = input("Enter the postal code
  of your city ")
9 account_details = input("Enter recieving
  amount type in ")
10 money_details = input("Exact money
  deposit in account ")
11 print(name)
12 print(Age)
13 print(phone_no)
14 print(Address_1)
15 print(city)
16 print(Postal_code)
17 print(account_details)
18 print(money_details)
```


30-10-19.

Output

Welcome Sir to HBL

Required Information for opening an Bank Account

Enter Your Name: Hamood Ahmed

Enter Your Age: 22

Enter Your Phone Number: 0312-1146529

Enter Your Address: North Nazimabad Block A.

Enter the name of your city Karachi

Enter the postal code of your city 74800.

Enter receiving amount type in credit and debit.

The receiving amount in debit and card is 10,000 PKR/=.