GROUP B
PDS Assignment No.- 02

PDS Group A - Assignment No (2)

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AIM -

(a) Write a program that prompts the user to input the radius of circle and outputs the area and circumference of the circle.

(b) Write a program that asks user input the length of sides of the triangle and print the area. Suppose a, b and c denotes lengths of the side of a triangle then the area of triangle can be calculated using the formula.

Theory →

python programming language →

- python is commonly used for developing websites and software, task automation, data analysis, and data visualization. Since it's relatively easy to learn in comparison with the other programming languages.
- python has been adopted by many non-programmers such as accountants, for variety of every day tasks, like organizing finances.

Libraries and packages in the python →

- Packages are a collection of related modules that aim to achieve a common goal.
- finally, the python standard library is a collection of packages and modules that can be used access built in functionality.
- We can import any necessary modules into our python script without any issues.

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Installation →

— Mac, Linux, windows users can install Numpy via pip command.

```
pip install numpy.
```

Arrays in Numpy →

Numpy's main object is the homogeneous multidimentional array.

— It is stable of elements, all the of same types, indexed by a tuple of positive integers.

— In numpy dimentions are called as axes. The number of axes is called 'Rank'.

— Numpy's array class is called ndarray. It is also known by the alias array.

Power Function.

— The power function in python can be used when one needs to derive the power of variable x with respect to variable y in python programming language.

— In particular situation, when user includes a third variable that is z into the equation, the the power function returns x to the power of Y, modulus of z.

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Program code:

```
import numpy as np
print("_____SCOB86_Rudraksh Karpe_____")
arr1 = np.array([[1,2,3],[4,5,6]])
arr2 = np.array([[8,9,10],[1,2,1]])
if (arr1.shape !=arr2.shape):
   print ("Error: Given arrays are of not same size")
else:
   print ("Exponential of 2nd on 1st array is:\n", arr1**arr2)
import numpy as np
arr1 =np.array([[1, 2, 3],[4, 5, 6]])
arr2 =np.array([[11, 12, 13],[2, 2, 2]])
if (arr1.shape !=arr2.shape):
   print ("Error: Given arrays are of not same size")
else:
   print (" Exponential of 2nd on 1st array is using built in function:\n",
np.power(arr1,arr2))
```

Output:

```
_____SCOB86_Rudraksh Karpe_____
Exponential of 2nd on 1st array is:
 [[    1   512 59049]
 [    4    25     6]]
 Exponential of 2nd on 1st array is using built in function:
 [[      1    4096 1594323]
 [     16      25      36]]
```

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