COURSE OUTCOME 3

DATE : 05/11/2024

1. **Work with built-in packages**.

BUILT-IN PACKAGES IN PYTHON

Python comes with a comprehensive standard library that includes a wide range of built-in packages and modules. These modules provide functionality for tasks ranging from file I/O to web development. Here are some commonly used built-in packages in Python:

1. os : Operating system interface, provides a way of using operating system-dependent functionality like reading or writing to the file system.
   import os
2. sys : Provides access to some variables used or maintained by the interpreter and to functions that interact strongly with the interpreter.
   import sys
3. math : Mathematical functions such as basic arithmetic operations, logarithms, trigonometric functions, etc.
   import math
4. datetime : Date and time handling.
   import datetime
5. json : JSON encoder and decoder.
   import json
6. urllib : URL handling modules, including parsing, quoting, and fetching.
   from urllib import request, parse
7. random : Generate pseudo-random numbers.
   import random
8. re : Regular expression operations.
   import re
9. collections : Implements specialized container datatypes.
   from collections import Counter, defaultdict
10. sqlite3 : SQLite database interface.
    import sqlite3
11. csv : CSV file reading and writing.
    import csv
12. gzip : Support for gzip files.
    import gzip
13. socket : Low-level networking interface.
    import socket
14. argparse : Command-line argument parsing.
    import argparse.

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2. **Create a package graphics with modules rectangle, circle and sub-package 3D-graphics with modules cuboid and sphere. Include methods to find area and perimeter of respective figures in each module. Write programs that finds area and perimeter of figures by different importing statements. (Include selective import of modules and import * statements)**

File Path : Home > co3-2.py

Home > graphics > threed

- Circle
- Rectangle
- cuboid
- sphere

PROGRAM

1. co3-2.py

```
from graphics import rectangle,circle
from graphics.threed import cuboid,sphere

#rect
l=int(input("Enter Length of Rectangle : "))
b=int(input("Enter Breadth of Rectangle : "))
print("Area of Rectangle : ",rectangle.area(l,b))
print("Perimeter of Rectanlge : ",rectangle.perimeter(l,b),"\n")

#circle
r=int(input("Enter Radius : "))
print("Area of Circle : ",round(circle.area(r),2))
print("Perimeter of Circle : ",round(circle.perimeter(r),2),"\n")

#cuboid
x=int(input("Enter Length of Cuboid : "))
y=int(input("Enter Breadth of Cuboid : "))
z=int(input("Enter Height of Cuboid : "))
print("Surface Area of Cuboid : ",cuboid.surf(x,y,z))
print("Volume of Cuboid : ",cuboid.vol(x,y,z),"\n")


#sphere
s=int(input("Enter Radius : "))
print("Surface Area of Sphere : ",round(sphere.surf(s),2))
print("Volume of Sphere : ",round(sphere.vol(s),2),"\n")
```

2. graphics/circle.py

```
#package for area and perimeter of circle
import math
def area(r):
        return math.pi*r*r
def perimeter(r):
        return 2*math.pi*r
```

3. graphics/rectange.py

```
#package for area and perimeter of rectangle
def area(l,b):
        return l*b

def perimeter(l,b):
        return 2*(l+b)
```

4. graphics/threed/cuboid.py

```
#package for area and perimeter of cuboid
def surf(l,b,h):
        return 2*(l*b+b*h+l*h)

def vol(l,b,h):
        return l*b*h
```

5. graphics/threed/sphere.py

```
#package for area and perimeter of sphere
import math
def surf(r):
        return 4*(math.pi*r*r)
```

```
def vol(r):
        return (4/3)*(math.pi*r*r*r)
```

OUTPUT

```
Enter Length of Rectangle : 4
Enter Breadth of Rectangle : 3
Area of Rectangle : 12
Perimeter of Rectangle : 14

Enter Radius of Circle : 4
Area of Circle : 50.24
Perimeter of Circle : 31.4

Enter Length of Cuboid : 4
Enter Breadth of Cuboid : 3
Enter Height of Cuboid : 3
Surface Area of Cuboid : 66
Volume of Cuboid : 36

Enter Radius of Sphere : 4
Surface Area of Sphere : 201.06
Volume of Sphere : 268.06
```