ASSIGNMENT 2

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REGISTRATION NUMBER: 20BCE10093

COURSE: Introduction to Problem Solving and Programming

PROFESSOR: 100064 - Kanchan Lata Kashyap (Scse)

YEAR : 1

SEMESTER : 1

QUESTION 1

If the ages of Ram, Shyam and Ajay are input through the keyboard, write a program to determine the youngest of the three.

```
r=float(input("Enter the age of Ram : "))
s=float(input("Enter the age of Shyam : "))
a=float(input("Enter the age of Ajay : "))
if (r>s):
    if (s>a):
        print(" \nAjay is the youngest\n ")
    elif (s<a):
        print(" \nShyam is the youngest\n")
elif (r<s):
    if (r>a):
        print(" \nAjay is the youngest\n")
    elif (r<a):
        print("\n Ram is the youngest\n")
```

OUTPUT SCREEN

```
Enter the age of Ram : 20
Enter the age of Shyam : 10
Enter the age of Ajay : 15

Shyam is the youngest
```

QUESTION 2

A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not.

```
n=int(input("Enter a five digit integer:"))
n1=n
f1=n%10
n=n-f1
n=n/10
f2=n%10
n=n-f2
n=n/10
f3=n%10
n=n-f3
n=n/10
f4=n%10
n=n-f4
n=n/10
revn=(n*1)+(f4*10)+(f3*100)+(f2*1000)+(f1*10000)
if (n1==revn):
    print("Palindrome number")
else:
    print("Not a palindrome")
```

OUTPUT SCREEN

```
Enter a five digit integer:12345

Not a palindrome
```

```
Enter a five digit integer:10101

Palindrome number
```

QUESTION 3

Write a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees.

```
a = float(input("\nFirst angle of a triangle : "))
b = float(input("\nSecond angle of a triangle : "))
c = float(input("\nThird angle of a triangle : "))
d=a+b+c
if (d == 180):
    print("\n\nTriangle is valid\n\n")
else:
    print("\n\nTriangle is invalid\n\n")
```

OUTPUT SCREEN

```
First angle of a triangle : 60

Second angle of a triangle : 60

Third angle of a triangle : 60


Triangle is valid
```

```
First angle of a triangle : 80

Second angle of a triangle : 90

Third angle of a triangle : 100


Triangle is invalid
```

QUESTION 4

Find the absolute value of a number entered through the keyboard.

```
a = float(input("\n\nEnter any number : "))
if (a<0):
    b=a*(-1)
    print("\nModulus value : ",b)
else:
    print("\nModulus value : ",a)
```

OUTPUT SCREEN

```
Enter any number : -2

Modulus value :  2.0
```

QUESTION 5

Given the length and breadth of a rectangle, write a program to find whether the area of the rectangle is greater than its perimeter. For example, the area of the rectangle with length = 5 and breadth = 4 is greater than its perimeter.

```
l = float(input("\nEnter the length of the rectangle :"))
b = float(input("\nEnter the breadth of the rectangle :"))
a = l*b
p = l+l+b+b
if (a>b):
    print("\nArea is greater than perimeter by ",(a-p))
else:
    print("\nPerimeter is greater than area by "(p-a))
```

OUTPUT SCREEN

```
Enter the length of the rectangle :4

Enter the breadth of the rectangle :5

Area is greater than perimeter by  2.0
```

QUESTION 6

Given the coordinates (x, y) of a centre of a circle and it's radius, write a program which will determine whether a point lies inside the circle, on the circle or outside the circle.

```
import math
x=int(input("Enter the xcoordinate of centre: "))
y=int(input("Enter the ycoordinate of centre: "))
r=int(input("Enter the radius: "))
p1=int(input("Enter the xcoordinate of a point: "))
p2=int(input("Enter the ycoordinate of a point: "))
dist = math.sqrt((p1 - x)**2 + (p2 - y)**2)
if (dist<r):
    print("Given point lies inside the circle")
elif (dist==r):
    print("Given point lies on the circle")
else:
    print("Given point lies outside the circle")
```

OUTPUT SCREEN

```
Enter the xcoordinate of centre: 0
Enter the ycoordinate of centre: 0
Enter the radius: 1
Enter the xcoordinate of a point: 1
Enter the ycoordinate of a point: 1
Given point lies outside the circle
```

QUESTION 7

Given a point (x, y), write a program to find out if it lies on the x-axis, y-axis or at the origin, viz. (0, 0).

```
x = int(input("\nEnter the x-coordinate of the point : "))
y = int(input("\nEnter the y-coordinate of the point : "))
if (x==0 and y!=0):
    print("\nThe point lies on the X-AXIS\n")
elif(x!=0 and y==0):
    print("\nThe point lies on the Y-AXIS\n")
elif(x==0 and y==0):
    print("\nThe point lies on the ORIGIN\n")
else:
    print("\nThe point lies in the X-Y PLANE\n")
```

OUTPUT SCREEN

```
Enter the x-coordinate of the point : 0

Enter the y-coordinate of the point : 1

The point lies on the X-AXIS
```

QUESTION 8

If cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss. Also determine how much profit he made or loss he incurred.

```
a=float(input("Enter cost price:"))
b=float(input("Enter selling price:"))
p=b-a
if p>0:
    print("Profit:",p)
else:
    print("Loss:",p)
```

OUTPUT SCREEN

```
Enter cost price:15
Enter selling price:20
Profit: 5.0
```

QUESTION 9

Enter any number and check whether the entered number is divisible by 7 or not?

```
a = int(input("\nEnter any number : "))
if (a%7==0):
    print("\nNumber is divisible by 7\n")
else:
    print("\nNumber is not divisible by 7\n")
```

OUTPUT SCREEN

```
Enter any number : 8

Number is not divisible by 7
```

QUESTION 10

Print all the numbers between 1 to 500 which are divisible by 7.

```
i = 1
print("\nNumbers divisible by 7 between 1 to 500 : \n")
while (i<=500):
    if(i%7==0):
        print(i)
    i=i+1
```

OUTPUT SCREEN

```
Numbers divisible by 7 between 1 to 500 :

7
14
21
28
35
42
49
56
63
70
77
84
91
98
105
112
119
126
133
140
147
154
161
168
175
182
189
196
203
210
217
224
231
238
245
252
259
266
273
280
287
294
301
308
315
322
329
336
343
350
357
364
371
378
385
392
399
406
413
420
427
434
441
448
455
462
469
476
483
490
497
```

QUESTION 11

Write a program to solve the sum of following series 1+x+x2 +x3 +……..x n.

```
x = int(input("\nEnter the value of x  : "))
n = int(input("\nEnter the value of n : "))
i=0
b=0
while (i<=n):
    b+=pow(x,i)
    i=i+1

print("\nSum of Series : ",b)
```

OUTPUT SCREEN

```
Enter the value of x  : 2

Enter the value of n : 4

Sum of Series :  31
```