Darshan UNIVERSITY
योगः कर्मसु कौशलम्

Python Programming - 2101CS405

Lab - 10

In [ ]:
```
Name :- Vora Yagnik
Enrollment No :- 23010101661
```

Modules

A

01) WAP to create Calculator module which defines functions like add, sub,mul and div. create another file that uses the Calculator module.

In [2]:
```python
import Calculator as cl

a = int(input("Enter First number : "))
b = int(input("Enter Second number : "))
op = input("Enter operation : ")

cl.calc(a,b,op)
```
```
Enter First number :  20
Enter Second number :  10
Enter operation :  -
```
Out[2]: 10

02) WAP to Pick a random character from a given String.

In [14]:
```python
import random as Random
str = "yagnik"
# str = input("Enter a string : ")
```

```
r = Random.random()
print(str[int(r*10)%len(str)])
```

n

03) WAP to Pick a random element from a given list.

In [30]:
```
import random as Random
list = [1,2,3,4,5,6,7,8,9,10]
r = Random.random()
print(list[int(r*10)%len(list)])
```

4

04) WAP to demonstrate the use of the math module.

In [3]:
```
import math
print("Value of pi: ",math.pi)
print("Value of e: ",math.e)
print("Square root of 10: ",math.sqrt(10))
print("Sine of 30 degrees: ",math.sin(math.radians(30)))
print("Cosine of 45 degrees: ",math.cos(math.radians(45)))
print("Tangent of 60 degrees: ",math.tan(math.radians(60)))
print("Floor of 2.5: ",math.floor(2.5))
print("Ceiling of 3.2: ",math.ceil(3.2))
print("Factorial of 5: ",math.factorial(5))
print("Absolute value of -5: ",math.fabs(-5))
print("2 raised to the power of 3: ",math.pow(2,3))
print("Logarithm of 10 to the base 2: ",math.log(10,2))
print("Natural logarithm of 10 (log of 10 to the base e): ",math.log(10))
print("Hyperbolic sine of 1: ",math.sinh(1))
print("Hyperbolic cosine of 1: ",math.cosh(1))
print("Hyperbolic tangent of 1: ",math.tanh(1))
print("Inverse hyperbolic sine of 1: ",math.asinh(1))
print("Inverse hyperbolic cosine of 1: ",math.acosh(1))
print("Inverse hyperbolic tangent of 0: ",math.atanh(0))
```

```
Value of pi:  3.141592653589793
Value of e:  2.718281828459045
Square root of 10:  3.1622776601683795
Sine of 30 degrees:  0.49999999999999994
Cosine of 45 degrees:  0.7071067811865476
Tangent of 60 degrees:  1.7320508075688767
Floor of 2.5:  2
Ceiling of 3.2:  4
Factorial of 5:  120
Absolute value of -5:  5.0
2 raised to the power of 3:  8.0
Logarithm of 10 to the base 2:  3.3219280948873626
Natural logarithm of 10 (log of 10 to the base e):  2.302585092994046
Hyperbolic sine of 1:  1.1752011936438014
Hyperbolic cosine of 1:  1.5430806348152437
Hyperbolic tangent of 1:  0.7615941559557649
Inverse hyperbolic sine of 1:  0.881373587019543
Inverse hyperbolic cosine of 1:  0.0
Inverse hyperbolic tangent of 0:  0.0
```

05) WAP to demonstrate the use of date time module.

In [8]:
```python
import datetime as dt
print("Current date and time: ",dt.datetime.now())
print("Current date: ",dt.date.today())
print("Current time: ",dt.datetime.now())
print("Current year: ",dt.date.today().year)
print("Current month: ",dt.date.today().month)
print("Current day: ",dt.date.today().day)
print("Current hour: ",dt.datetime.now().hour)
print("Current minute: ",dt.datetime.now().minute)
print("Current second: ",dt.datetime.now().second)
print("Current microsecond: ",dt.datetime.now().microsecond)
```

```
Current date and time:  2024-04-10 21:06:26.454087
Current date:  2024-04-10
Current time:  2024-04-10 21:06:26.458084
Current year:  2024
Current month:  4
Current day:  10
Current hour:  21
Current minute:  6
Current second:  26
Current microsecond:  460095
```

B

01) WAP to Roll dice in such a way that every time you get the same number.

In [19]:
```python
import random
```

```
random.seed(0)
result = random.randint(1, 6)
print("Rolling the dice...")
print("Dice result:",result)
```

```
Rolling the dice...
Dice result: 4
```

02) WAP to generate 3 random integers between 100 and 999 which is divisible by 5.

In [36]:
```
import random

for i in range (1,4):
    print(i,"- Number :-",random.randint(20, 199) * 5 )
```

```
1 - Number :- 115
2 - Number :- 215
3 - Number :- 610
```

03) WAP to generate 100 random lottery tickets and pick two lucky tickets from it as a winner.

In [41]:
```
import random

lottery_ticket = [random.randint(10000,99999) for _ in range(100)]

lucky_ticket = random.sample(lottery_ticket, 2)
print("Tickets :- ",lottery_ticket)
print("Lucky tickets :- ",lucky_ticket)
```

```
Tickets :-  [43617, 37162, 94016, 15518, 38297, 91712, 29182, 23714, 35948, 70084, 5
9549, 57401, 81616, 29835, 23729, 88150, 73950, 29451, 83912, 63203, 93671, 99119, 6
5474, 78318, 74933, 99039, 52265, 75331, 75358, 93239, 97827, 36475, 81147, 89923, 3
8675, 11272, 54593, 51714, 52182, 14648, 78826, 29446, 43670, 88982, 30434, 59676, 8
6408, 48585, 71660, 18697, 21094, 77702, 15166, 18697, 39503, 27104, 15325, 49380, 1
2003, 68797, 53331, 31061, 29506, 95994, 70389, 58669, 76191, 60099, 79442, 75854, 1
4406, 85218, 21881, 98941, 77895, 88661, 20008, 65884, 37014, 47966, 80178, 88461, 6
4767, 73204, 60930, 89617, 86859, 40614, 12684, 96112, 10031, 33851, 49641, 76434, 8
4745, 43352, 53605, 18601, 74685, 44341]
Lucky tickets :-  [52182, 74685]
```

04) WAP to print current date and time in Python.

In [43]:
```
import datetime as dt

print("Current Date And Time :-", dt.datetime.now())
```

```
Current Date And Time :- 2024-04-10 21:40:56.513469
```

05) Subtract a week (7 days) from a given date in Python.

```
In [52]:  from datetime import datetime, timedelta

          date = '20-03-2024'
          date_obj = datetime.strptime(date, '%d-%m-%Y')
          n_date_obj = date_obj - timedelta(days=7)
          new_date = n_date_obj.strftime('%d-%m-%Y')
          print("Given date:", date)
          print("New date:", new_date)
```

```
Given date: 20-03-2024
New date: 13-03-2024
```

06) WAP to Calculate number of days between two given dates.

```
In [64]:  import datetime as dt

          start = '15-03-2023'
          end = '22-03-2023'

          start_date = dt.datetime.strptime(start, '%d-%m-%Y')
          end_date = dt.datetime.strptime(end, '%d-%m-%Y')
          delta = end_date - start_date
          num_days = delta.days
          print("Number of days between", start, "and", end, ":", num_days)
```

```
Number of days between 15-03-2023 and 22-03-2023 : 7
```

07) WAP to Find the day of the week of a given date.

```
In [76]:  import datetime as dt

          date = '22-03-2023'
          date_obj = dt.datetime.strptime(date,'%d-%m-%Y')
          day = date_obj.weekday()
          days = ["Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday", "Sunday
          day = days[day]
          print("Given date:", date)
          print("Day of the week:", day)
```

```
Given date: 22-03-2023
Day of the week: Wednesday
```