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Python Programming - 2101CS405

Lab - 10

Name: Parmar Himanshu

Roll No.: B3-341

Enrollment No.:33010101132

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 [23]: from calc import calc

coice = int(input("1.+ 2.- 3./ 4.*"))
num1 = int(input("Enter 1st Number:"))
num2 = int(input("Enter 2nd Number:"))
print(calc(num1,num2,coice))
```

```
1.+ 2.- 3./ 4.*2
Enter 1st Number:10
Enter 2nd Number:6
4
```

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

```
In [15]: import random

str = "Darshan University, Rajkot, Gujrat, India"

rand = random.randint(0,len(str))
print(str[rand])
```

r

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

```
In [18]: import random

list = [random.randint(0,10) for i in range(0,10)]

randlist = random.randint(0,len(list))
print(list[randlist])
```

[0, 10, 0, 3, 7, 1, 0, 8, 6, 8]

8

6

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

```
In [45]: 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.log2(10))
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: 3.321928094887362
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 [57]: import datetime

curedate = datetime.datetime.now()
print("Current date and time:",curedate)
print("Current Date:",curedate.date())
print("Current time:",curedate.time())
print("Current year:",curedate.year)
print("Current month:",curedate.month)
print("Current day:",curedate.day)
print("Current hour:",curedate.hour)
print("Current minute:",curedate.minute)
print("Current second:",curedate.second)
print("Current microsecond:",curedate.microsecond)
```

```
Current date and time: 2024-02-21 12:52:54.522266
Current Date: 2024-02-21
Current time: 12:52:54.522266
Current year: 2024
Current month: 2
Current day: 21
Current hour: 12
Current minute: 52
Current second: 54
Current microsecond: 522266
```

B

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

```
In [70]: import random

random.seed(10)
print("Dice Roll:",random.randint(1,6))
print("Dice Roll:",random.randint(1,6))
```

```
Dice Roll: 3
Dice Roll: 1
```

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

```
In [75]: import random

count = 0
while(True):
    if(count==3):
        break
    temp = random.randint(100,999)
    if(temp % 5 == 0):
        print(temp)
        count+=1
```

880
100
700

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

```
In [82]: import random

list = [random.randint(100009,999999) for i in range(0,100)]
ans = [list[random.randint(0,99)] for i in range(0,2)]
print("Winning tickets ( 6 digit numbers only ):",ans)
```

Winning tickets (6 digit numbers only): [342766, 342766]

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

```
In [93]: import datetime

curedate = datetime.datetime.now()
print("Current date and time:",curedate)
print("Current Date:",curedate.date())
print("Current time:",curedate.time())
```

Current date and time: 2024-02-21 13:16:02.745702
Current Date: 2024-02-21
Current time: 2024-02-14 13:16:02.745702

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

```
In [95]: from datetime import datetime , timedelta

curedate = datetime.now()
print("Current Date:",curedate.date())
print("Day a week ago:",curedate - timedelta(days=7))
```

Current Date: 2024-02-21
Day a week ago: 2024-02-14 13:17:53.186498

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

```
In [100]: import datetime

date1 = datetime.date(2024,2,21)
date2 = datetime.date(2024,2,14)

print((date1 - date2).days)
```

7

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

```
In [104]: import datetime

year = int(input('Enter a year'))
month = int(input('Enter a month'))
day = int(input('Enter a day'))
date = datetime.date(year, month, day)

print("on",date,"it was :",date.strftime("%a"))
```

```
Enter a year2024
Enter a month8
Enter a day15
on 2024-08-15 it was : Thu
```

In []: