



Python Programming - 2301CS404

Lab - 11

Modules

01) WAP to create Calculator module which defines functions like add, sub, mul and div.

Create another .py file that uses the functions available in Calculator module.

```
In [1]: import Calculator
n1 = int(input("Enter the First Number : "))
n2 = int(input("Enter the Second Number : "))

print(f"{n1} + {n2} = {Calculator.add(n1,n2)}")
print(f"{n1} - {n2} = {Calculator.sub(n1,n2)}")
print(f"{n1} * {n2} = {Calculator.mul(n1,n2)}")
print(f"{n1} / {n2} = {Calculator.div(n1,n2)}")
```

```
10 + 5 = 15
10 - 5 = 5
10 * 5 = 50
10 / 5 = 2.0
```

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

```
In [3]: import random
s = input("Enter String : ")
ch = random.choice(s)
print(ch)
```

i

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

```
In [7]: l = [1,2,3,4,5,6,7,8,9,10]
n = random.choice(l)
```

```
print(n)
```

2

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

```
In [22]: import random

def roll_dice():
    random.seed(1)
    return random.randint(1,6)

print(roll_dice())
print(roll_dice())
print(roll_dice())
```

2

2

2

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

```
In [27]: import random
for i in range(1,4):
    n = random.randrange(100,999,5)
    print(n)
```

730

675

700

06) WAP to generate 100 random lottery tickets and pick two lucky tickets from it and announce them as Winner and Runner up respectively.

```
In [42]: import random
l = [i for i in range(1,101)]

print(f"Winner is : {random.choice(l)}")
print(f"Runner up is : {random.choice(l)}")
```

Winner is : 49

Runner up is : 88

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

```
In [46]: import datetime

print(f"Current Time : {datetime.datetime.now()}")
```

Current Time : 2025-02-10 13:03:56.890116

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

```
In [48]: import datetime

d = datetime.datetime.now()
df = d - datetime.timedelta(days=7)
print(df)
```

2025-02-03 13:10:03.039109

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

```
In [53]: s1 = input("Enter the Date (dd-mm-yyyy) : ")
s2 = input("Enter the Date (dd-mm-yyyy) : ")

d1 = datetime.datetime.strptime(s1, "%d-%m-%Y")
d2 = datetime.datetime.strptime(s2, "%d-%m-%Y")

print(abs(d1-d2).days)
```

6889

10) WAP to Find the day of the week of a given date.(i.e. wether it is sunday/monday/tuesday/etc.)

```
In [56]: s = input("Enter the Date (dd-mm-yyyy) : ")
d = datetime.datetime.strptime(s, "%d-%m-%Y")

s = d.strftime("%A")
print(s)
```

Monday

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

```
In [57]: import datetime

# Get the current date and time
current_datetime = datetime.datetime.now()
print("Current Date and Time:", current_datetime)

# Get the current date
current_date = datetime.date.today()
print("Current Date:", current_date)

# Create a specific date
specific_date = datetime.date(2025, 2, 10)
print("Specific Date:", specific_date)

# Get individual components
print("Year:", current_date.year)
print("Month:", current_date.month)
print("Day:", current_date.day)

# Time delta example (difference between dates)
delta = datetime.timedelta(days=10)
future_date = current_date + delta
print("Date after 10 days:", future_date)
```

```

# Formatting date and time
formatted_datetime = current_datetime.strftime("%Y-%m-%d %H:%M:%S")
print("Formatted Date and Time:", formatted_datetime)

# Parsing a date string
date_string = "2025-02-10 15:30:00"
parsed_date = datetime.datetime.strptime(date_string, "%Y-%m-%d %H:%M:%S")
print("Parsed Date and Time:", parsed_date)

```

Current Date and Time: 2025-02-10 13:30:23.860156

Current Date: 2025-02-10

Specific Date: 2025-02-10

Year: 2025

Month: 2

Day: 10

Date after 10 days: 2025-02-20

Formatted Date and Time: 2025-02-10 13:30:23

Parsed Date and Time: 2025-02-10 15:30:00

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

```

In [58]: import math

# Square root
num = 16
print("Square root of", num, "is", math.sqrt(num))

# Factorial
num = 5
print("Factorial of", num, "is", math.factorial(num))

# Power
base = 2
exp = 3
print(base, "raised to the power of", exp, "is", math.pow(base, exp))

# Trigonometric functions
angle = math.radians(30) # Convert degrees to radians
print("Sine of 30 degrees:", math.sin(angle))
print("Cosine of 30 degrees:", math.cos(angle))
print("Tangent of 30 degrees:", math.tan(angle))

# Logarithm
num = 100
print("Natural logarithm of", num, "is", math.log(num))
print("Base-10 logarithm of", num, "is", math.log10(num))

# Constants
print("Value of Pi:", math.pi)
print("Value of Euler's number (e):", math.e)

```

```
Square root of 16 is 4.0
Factorial of 5 is 120
2 raised to the power of 3 is 8.0
Sine of 30 degrees: 0.49999999999999994
Cosine of 30 degrees: 0.8660254037844387
Tangent of 30 degrees: 0.5773502691896257
Natural logarithm of 100 is 4.605170185988092
Base-10 logarithm of 100 is 2.0
Value of Pi: 3.141592653589793
Value of Euler's number (e): 2.718281828459045
```

In []: