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Python Programming - 2101CS405

Lab - 10

Name : Krish Gohel

Roll No. : 108

Enr No. : 22010101060

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 [1]: import calculator as calc

x = int(input("x:"))
y = int(input("y:"))

calc.calc(x,y, '*')
```

```
x:4
y:5
20
```

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

```
In [1]: import random  
  
x= input("x:")  
print(random.choice(x))
```

```
x:krish  
s
```

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

```
In [12]: import random  
x = [1,9,5,4,6,7,10]  
print(random.choice(x))
```

```
1
```

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

```
In [48]: 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 degree : ",math.sin(math.radians(30)))
print("cos of 45 degree : ",math.cos(math.radians(45)))
print("tan of 60 degree : ",math.tan(math.radians(60)))
print("Floor of 2.5 : ", math.floor(2.5))
print("Ceiling of 2.5 :",math.ceil(2.5))
print("Factorial of 5:",math.factorial(5))
print("Abs value of -5 : ",math.fabs(-5))
print("2 raised to power 3 : ",math.pow(2,3))
print("Log 10 to base 2 : ",math.log2(10))
print("natural log 10: ",math.log(10))
print("Hyperbolic sin 1 :",math.sinh(1))
print("Hyperbolic cos 1 :",math.cosh(1))
print("Hyperbolic tan 1 :",math.tanh(1))
print("Inverse Hyperbolic sin 1 :",math.asinh(1))
print("Inverse Hyperbolic cos 1 : ",math.acosh(1))
print("Inverse Hyperbolic tan 0 : ",math.atanh(0))
```

```
value of pi :  3.141592653589793
Value of e : 2.718281828459045
square root of 10 :  3.1622776601683795
sine of 30 degree :  0.49999999999999994
cos of 45 degree :  0.7071067811865476
tan of 60 degree :  1.7320508075688767
Floor of 2.5 :  2
Ceiling of 2.5 :  3
Factorial of 5: 120
Abs value of -5 :  5.0
2 raised to power 3 :  8.0
Log 10 to base 2 :  3.321928094887362
natural log 10:  2.302585092994046
Hyperbolic sin 1 : 1.1752011936438014
Hyperbolic cos 1 : 1.5430806348152437
Hyperbolic tan 1 : 0.7615941559557649
Inverse Hyperbolic sin 1 : 0.881373587019543
Inverse Hyperbolic cos 1 :  0.0
Inverse Hyperbolic tan 0 :  0.0
```

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

```
In [98]: import datetime as dt

print("current date & time : ",dt.datetime.now())
print("current date:",dt.datetime.now().strftime('%D'))
print("current time:",dt.datetime.now().strftime('%T'))
print("current year:",dt.datetime.now().strftime('%Y'))
print("current month:",dt.datetime.now().strftime('%m'))
print("current day:",dt.datetime.now().strftime('%d'))
print("current hour:",dt.datetime.now().strftime('%H'))
print("current minite:",dt.datetime.now().strftime('%M'))
print("current second:",dt.datetime.now().strftime('%S'))
print("current microsecond:",dt.datetime.now().strftime('%f'))
print("current Timezone:",dt.timezone(dt.timedelta()))
print("current Timestamp:",dt.datetime.timestamp(dt.datetime.now()))
print("current utc date:",dt.datetime.now().utcnw())
print("current specific format:",dt.datetime.now().strftime('%d-%m-%y %X'))
print("current specific timezone:",dt.datetime.now().strftime('%d-%m-%y %X %z'))
print("current specific format:",dt.datetime.now().strftime('%a, %d %b %Y %X U'))
```

```
current date & time : 2024-02-21 09:03:56.608593
current date: 02/21/24
current time: 09:03:56
current year: 2024
current month: 02
current day: 21
current hour: 09
current minite: 03
current second: 56
current microsecond: 609738
current Timezone: UTC
current Timestamp: 1708486436.609738
current utc date: 2024-02-21 03:33:56.609738
current specific format: 21-02-24 09:03:56
current specific timezone: 21-02-24 09:03:56
current specific format: Wed, 21 Feb 2024 09:03:56 UTC+5:30
```

B

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

```
In [150]: import random

dice = [1,2,3,4,5,6]
random.seed(2)
print(random.choice(dice))
```

1

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

```
In [161]: import random

b = []

for i in range(100,1000):
    if(i%5 == 0):
        b.append(i)

print(random.choice(b))
print(random.randrange(100,999,5))
print(random.randrange(100,999,5))
print(random.choice(b))
```

875

370

875

145

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

```
In [167]: import random

b = []

for i in range(1000,5000):
    b.append(i)

print("two lucky winner is :")
for i in range(1,3):
    print("Ticket No.",random.choice(b))
```

two lucky winner is :

Ticket No. 4523

Ticket No. 3085

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

```
In [168]: import datetime as dt

print(dt.datetime.now())

2024-02-21 09:20:23.994852
```

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

```
In [179]: import datetime as dt

current_date = dt.datetime.now().strftime('%d')
print("date after the week is",current_date)
print("date before the week is ",int(current_date) - 7)

date after the week is 21
date before the week is 14
```

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

```
In [27]: from datetime import datetime

# Input dates
date1 = input("Enter the first date (YYYY-MM-DD): ")
date2 = input("Enter the second date (YYYY-MM-DD): ")

# Convert the date strings to datetime objects
date1_obj = datetime.strptime(date1, "%Y-%m-%d")
date2_obj = datetime.strptime(date2, "%Y-%m-%d")

# Calculate the difference between the two dates
delta = date2_obj - date1_obj

# Print the number of days
print("Number of days between", date1, "and", date2, ":", abs(delta.days))

Enter the first date (YYYY-MM-DD): 2005-03-17
Enter the second date (YYYY-MM-DD): 2024-02-21
Number of days between 2005-03-17 and 2024-02-21 : 6915
```

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

```
In [30]: import datetime as dt  
  
x = dt.datetime.now()  
  
print(x.strftime('%A'))
```

Wednesday