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Python Programming - 2101CS405

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Lab - 10

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 [4]: import calculator

add = calculator.add(25,30)
sub = calculator.sub(25,30)
mul = calculator.mul(25,30)
div = calculator.div(25,30)

print(f"Addition is {add}")
print(f"Subtraction is {sub}")
print(f"Multiplication is {mul}")
print(f"Divition is {div}")
```

```
Addition is 55
Subtraction is -5
Multiplication is 750
Divition is 0.8333333333333334
```

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

```
In [2]: import random

str = input("Enter string : ")
print(f"Entered string :: {str}")

ch = random.choice(str)
print(ch)
```

Entered string is hello
o

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

```
In [5]: import random

list = ["Hello", "World", 1, 2, 3, True, False]
print(f"original list {list}")

element = random.choice(list)
print(f"random element :: {element}")
```

original list ['Hello', 'World', 1, 2, 3, True, False]
random element :: False

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

```
In [8]: import math

print(f"PI == {math.pi}")
print(f"Squire root of 4 == {math.sqrt(4)}")
print(f"Cube root of 9 == {math.cbrt(9)}")
print(f"Floor value of 20.0505 == {math.floor(20.0505)}")
print(f"Ceil value of 20.0505 == {math.ceil(20.0505)}")
print(f"Sine of 30 degree == {math.sin(30)}")
print(f"Cosine of 30 degree == {math.sin(45)}")
print(f"Tangent of 30 degree == {math.sin(60)}")
print(f"Factorial of 5 == {math.factorial(5)}")
print(f"Absolute value of -5.2 == {abs(-5.2)}")
print(f"3 power of 2 == {math.pow(2,3)}")
print(f"Log of 10 to the base 2 == {math.log2(10)}")
print(f"Natural log (Log of 10 to the base e) == {math.log(10)}")
print(f"Hyperbolic Sine of 1 == {math.sinh(1)}")
print(f"Hyperbolic Cosine of 1 == {math.cosh(1)}")
print(f"Hyperbolic Tangent of 1 == {math.tanh(1)}")
print(f"Hyperbolic Sine of 1 == {math.asin(1)}")
print(f"Hyperbolic Cosine of 1 == {math.acos(1)}")
print(f"Hyperbolic Tangent of 0 == {math.atan(0)}")
```

```
PI == 3.141592653589793
Squire root of 4 == 2.0
Cube root of 9 == 2.080083823051904
Floor value of 20.0505 == 20
Ceil value of 20.0505 == 21
Sine of 30 degree == -0.9880316240928618
Cosine of 30 degree == 0.8509035245341184
Tangent of 30 degree == -0.3048106211022167
Factorial of 5 == 120
Absolute value of -5.2 == 5.2
3 power of 2 == 8.0
Log of 10 to the base 2 == 3.321928094887362
Natural log (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
Hyperbolic Sine of 1 == 1.5707963267948966
Hyperbolic Cosine of 1 == 0.0
Hyperbolic Tangent of 0 == 0.0
```

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

```
In [27]: import datetime as dt

print(f"Current date and time == {dt.datetime.now()}")
currentDate = dt.date.today()
print(f"Current date == {currentDate}")
print(f"Current Year == {currentDate.year}")
print(f"Current Month == {currentDate.month}")
print(f"Current Day == {currentDate.day}")
currentDateTime = dt.datetime.now()
print(f"Current Hour == {currentDateTime.hour}")
print(f"Current Minute == {currentDateTime.minute}")
print(f"Current Second == {currentDateTime.second}")
print(f"Current Miliseconds == {currentDateTime.microsecond}")
```

```
Current date and time == 2024-02-27 22:03:30.905344
Current date == 2024-02-27
Current Year == 2024
Current Month == 2
Current Day == 27
Current Hour == 22
Current Minute == 3
Current Second == 30
Current Miliseconds == 905344
```

B

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

```
In [62]: import random

random.seed(5)
random.seed(2)
print(random.randint(1,6))
print(random.randint(1,6))
```

```
1
1
```

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

```
In [64]: import random

list = []

while len(list) < 3 :
    num = random.randint(100,999)
    if num % 5 == 0 :
        list.append(num)

print("Required Numbers are ",list)
```

Required Numbers are [720, 695, 840]

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

```
In [87]: import random

tickets = [''.join(random.choices('0123456789',k=6)) for i in range(100)]

winner = random.sample(tickets,2)

print(f"{winner}")
```

['597082', '300206']

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

```
In [66]: from datetime import datetime

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

Current date is :: 2024-02-27 22:12:42.913313

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

```
In [68]: from datetime import datetime,timedelta

currentDate = datetime.now()
oldDate = currentDate - timedelta(days=7)
print(f"Current date :: {currentDate}")
print(f"Date before week :: {oldDate}")
```

Current date :: 2024-02-27 22:18:31.231215
Date before week :: 2024-02-20 22:18:31.231215

06) WAP to Calculate number of days between two given

```
In [69]: import datetime

date1 = datetime.date(2023,8,10)
date2 = datetime.date(2024,8,15)

delta = date2 - date1
print(f"Difference between two dates in days :: {delta.days}")
```

Difference between two dates in days :: 371

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

```
In [80]: import datetime

current = datetime.datetime.now()
print(f"Day on {datetime.datetime.now()} is {current.strftime('%A')}")
```

Day on 2024-02-27 22:29:35.789238 is Tuesday