

**Roll no: 29**

**MCA: 1**

**Semester: 1**

**Subject: Introduction Of Python Programming**

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**// 1. display difference between dates .**

```
from datetime import date
d1 = date(2005,5,5)
d2 = date(2023, 9, 11)
diff = d2 - d1
print(f"Difference is:",diff.days)
```

**Output:**

Difference is: 6703

**// 2. display time since epoch in hours and minutes.**

```
import time

sse = time.time()
totalseconds = int(sse)
hours = totalseconds // 3600
minutes = (totalseconds % 3600) // 60
print(f"Time since epoch: {hours} hours, {minutes} minutes")
```

**Output:**

Time since epoch: 488343 hours, 9 minutes

**// 3. display your age in years ,month and days.**

```
from datetime import datetime
from dateutil.relativedelta import relativedelta
d1 = datetime(2023, 5, 10)
```

```
d2 = datetime(2025, 7, 20)
rd = relativedelta(d2, d1)
print(f"{rd.years} years, {rd.months} months, {rd.days} days")
```

**Output:**

2 years, 2 months, 10 days

**// 4. display trigonometric table of sin,cos and tan from datetime**

```
import math
angles = [0, 30, 45, 60, 90]
print("Angle | sin | cos | tan")
print("-----")
for a in angles:
    rad = math.radians(a)
    s = math.sin(rad)
    c = math.cos(rad)
    if abs(c) < 1e-9:
        t = "undef"
    else:
        t = round(math.tan(rad), 4)
    print(f"{a:>5}° | {round(s,4):>7} | {round(c,4):>7} | {t:>7}")
```

**Output:**

Angle	sin	cos	tan
0°	0.0	1.0	0.0
30°	0.5	0.866	0.5774
45°	0.7071	0.7071	1.0
60°	0.866	0.5	1.7321
90°	1.0	0.0	undef

**// 5. Generate 10 random numbers.**

```
import random
```

```
for i in range (1,10):
```

```
randomnumbers=random.randint(1,100)
print(randomnumbers)
```

**Output:**

```
77
75
56
69
99
27
87
82
40
```

**// 6. Authentication: Ask username, password and compare.**

```
cusername = "abc456"
cpassword = "acad256"
username = input("Enter username: ")
password = input("Enter password: ")
if username == cusername and password == cpassword:
    print("Login")
else:
    print("Failed.")
```

**Output:**

```
Enter username: abc456
Enter password: acad256
Login
```

```
Enter username: cadv546
Enter password: dvdsa562
Failed
```

### **// 7. Authentication:Ask Username,password and compare with encryption.**

```
from cryptography.fernet import Fernet
key=Fernet.generate_key()
cipher=Fernet(key)
cusername='user123'
cpassword='pass123'.encode()
epassword=cipher.encrypt(cpassword)
username=input("Enter your username: ")
password=input("Enter your password: ").encode()
if(username==cusername and password==cipher.decrypt(epassword)):
    print('Authentication Successful!')
else:
    print('Authentication Failed!')
```

#### **Output:**

```
Enter your username: abc123
Enter your password: pass123
Authentication Successful!
```

### **// 8. Authentication:Ask Username,password and compare with hashing.**

```
import hashlib
def hash_password(password):
    hashlib.sha1(password.encode()).hexdigest()
susername = "user1"
spassword_hash = hash_password("abc123")
input_username = input("Enter username: ")
input_password = input("Enter password: ")
input_password_hash = hash_password(input_password)
if input_username == susername and input_password_hash == spassword_hash:
    print("Authentication successful!")
else:
    print("Authentication failed!")
```

**Output:**

Enter username: user1

Enter password: abc123

Authentication successful!

**// 9. Convert string “Hello\$World” into Base64.**

```
import base64
txt = "Hello$World"
txt_bytes = txt.encode("utf-8")
print(txt_bytes)
base64_bytes = base64.b64encode(txt_bytes)
print(base64_bytes)
base64_string = base64_bytes.decode("utf-8")
print(base64_string)
```

**Output:**

b'Hello\$World'

b'SGVsbG8kV29ybGQ='

SGVsbG8kV29ybGQ=

**// 10. Code for String Manipulation .**

```
s = input("Enter a string to reverse: ")
reversed_s = s[::-1]
print("Reversed (slice):", reversed_s)

reverse = ""

for i in range(len(s) - 1, -1, -1):
    reverse += s[i]

print("Reversed (loop index):", reverse)

reverse2 = ""
```

```
for ch in s:
    reverse2 = ch + reverse2
print("Reversed (prepend):", reverse2)

reversed_list = [ s[i] for i in range(len(s) - 1, -1, -1) ]
reverse3 = "".join(reversed_list)
print("Reversed (list comprehension):", reverse3)
```

**Output:**

Enter a string to reverse: uday

Reversed (slice): yadu

Reversed (loop index): yadu

Reversed (prepend): yadu

Reversed (list comprehension): yadu