

1.To Accept an object mass in kg and velocity in m/s and display its momentum . Momentum is calculated as $p=mv$ where m is the mass of object and v is its velocity.

```
In [3]: mass = float(input("Enter mass in kg : "))
velocity = float(input("Enter velocity in m/s : "))
momentum = mass*velocity
print(f"The momentum of object is : {momentum}")
```

```
Enter mass in kg : 20
Enter velocity in m/s : 20.50
The momentum of object is : 410.0
```

2.Write a python program for following conditions . 1)If n is single digit printf= square of it . 2)If n is two digit print square root of it . 3) If n is three digit print cube root of it .

```
In [8]: import math
n = int(input("Enter a number : "))
if 0 <= n < 10:
    print(f"Square of {n}: {n**2}")
elif 10 <= n < 100:
    print(f"Square root of {n}: {math.sqrt(n):.2f}")
elif 100<=n<1000:
    print(f"Cube root of {n}: {n**(1/3):.2f}")
else:
    print("Please Enter a number between 0 and 999.")
```

```
Enter a number : 20000
Please Enter a number between 0 and 999.
```

3.Read the birth date and salary in rupees of employees. Perform data transformation for birthdate to age and also salary which is in rupees to salary in dollars using functions.

```
In [13]: from datetime import datetime
def calculate_age(birthdate):
    today = datetime.now()
    birthdate = datetime.strptime(birthdate, "%Y-%m-%d")
    return today.year - birthdate.year - ((today.month, today.day) < (birthdate.month, birthdate.day))
def salary_in_dollars(salary_in_rupees, conversion_rate=82.5):
    return salary_in_rupees / conversion_rate
birthdate = input("Enter birthdate (YYYY-MM-DD): ")
salary = float(input("Enter salary in rupees: "))
age = calculate_age(birthdate)
salary_usd = salary_in_dollars(salary)
print(f"Age: {age} years")
print(f"Salary in USD: ${salary_usd:.2f}")
```

```
Enter birthdate (YYYY-MM-DD): 2006-11-29
Enter salary in rupees: 1000000
Age: 18 years
Salary in USD: $12121.21
```

4. Print the reverse number of given number.

```
In [15]: number = int(input("Enter a number : "))
reverse_number = int(str(number)[::-1])
print(f"Reversed number : {reverse_number}")
```

```
Enter a number : 123456789
Reversed number : 987654321
```

5. Print multiplication table of number n .

```
In [17]: n=int(input("Enter a number : "))
for i in range(1,11):
    print(f"{n} x {i} = {n*i}")
```

```
Enter a number : 9
9 x 1 = 9
9 x 2 = 18
9 x 3 = 27
9 x 4 = 36
9 x 5 = 45
9 x 6 = 54
9 x 7 = 63
9 x 8 = 72
9 x 9 = 81
9 x 10 = 90
```

LAB ASSIGNMENT

1 To accept students five courses marks and compute his /her result . Student is passing if he/she scores marks equal to and above 40 in each course . If student scores aggregate greater than 75 percentage , then the grade is distinction . If aggregate is greater than or equal to 60 and less than 75 then the grade is first division . if aggregate is greater than or equal 50 and less than 60 , then the grade is second division . if aggregate is greater than or equal 40 and less than 50, then grade is third division

```
In [22]: def compute_grade(marks):
        if any(mark < 40 for mark in marks):
            return "Fail"

        aggregate = sum(marks) / len(marks)

        if aggregate > 75:
            return "Distinction"
        elif 60 <= aggregate <= 75:
            return "First Division"
        elif 50 <= aggregate < 60:
            return "Second Division"
        elif 40 <= aggregate < 50:
            return "Third Division"
        else:
            return "Fail"

marks = []
for i in range(5):
    mark = int(input(f"Enter marks for subject {i+1}: "))
    marks.append(mark)

grade = compute_grade(marks)

print("\nStudent's Result:")
print(f"Marks: {marks}")
print(f"Aggregate Percentage: {sum(marks)/5:.2f}%")
print(f"Grade: {grade}")
```

```
Enter marks for subject 1: 68
Enter marks for subject 2: 34
Enter marks for subject 3: 87
Enter marks for subject 4: 43
Enter marks for subject 5: 98
```

```
Student's Result:
Marks: [68, 34, 87, 43, 98]
Aggregate Percentage: 66.00%
Grade: Fail
```

2 Write a fibonacci sequence using recursive function in python .

```
In [19]: def fibonacci(n):  
         if n <= 1:  
             return n  
         return fibonacci(n-1) + fibonacci(n-2)  
terms = int(input("Enter the number of terms:"))  
for i in range(terms):  
    print(fibonacci(i),end=" ")
```

Enter the number of terms:7
0 1 1 2 3 5 8

In []: