1.To accept an object mass in kilogram and velocity in meters per second and display its momentum. Momentum is calculated as e=mc where m is the mass of the object and c is its velocity.

In [1]:
```
mass = float(input("Enter mass in kilogram: "))
velocity = float(input("Enter velocity in meters per second: "))
momentum = mass * velocity
print(f"The momentum of the object is: {momentum}")
```

```
The momentum of the object is: 200.0
```

2.Write a python program for following conditions. If n is the single digit print square of it. If n is two digit print square root of it. If n is three digit print cube root of it.

In [3]:
```
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.")
```

```
Square root of 68: 8.25
```

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 [5]:
```
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.mo

def salary_in_dollars(salary_in_rupees, conversion_rate=87.56):
    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}")
```

```
Age: 18 years
Salary in USD: $1142.07
```

4. Print the reverse number of a given number

In [6]:
```
number = int(input("Enter a number: "))
reverse_number = int(str(number)[::-1])
print(f"Reversed number: {reverse_number}")
```

```
Reversed number: 54321
```

5. Print multiplication table of number n

In [7]:
```
n = int(input("Enter a number: "))
for i in range(1,11):
    print(f"{n} x {i} = {n*i}")
```

```
10 x 1 = 10
10 x 2 = 20
10 x 3 = 30
10 x 4 = 40
10 x 5 = 50
10 x 6 = 60
10 x 7 = 70
10 x 8 = 80
10 x 9 = 90
10 x 10 = 100
```

6.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 50 and less than 75 then the grade if 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 the grade is third division.

In [14]:
```python
def compute_grade(marks):
    if any(mark < 40 for mark in marks):  # Check if any subject has marks below 40
        return "Fail"

    aggregate = sum(marks) / len(marks)  # Calculate aggregate percentage

    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"

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

# Compute grade
grade = compute_grade(marks)

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

```
Student's Result:
Marks: [90, 90, 95, 98, 80]
Aggregate Percentage: 90.60%
Grade: Distinction
```

7.Write a the Fibonacci sequence using recursive function in Python

In [10]:
```
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=" ")
```

```
0 1 1 2 3
```