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Ds lab-01

In [ ]:
```
# task one is for reading already done!!
```

Task-02

In [5]:
```
a = int(input("Enter the value of a:: "))
b = int(input("Enter the value of b:: "))
c = int(input("Enter the value of c:: "))

# calculating D = b^2-4ac

D = (b**2) - 4*a*c

if (D > 0):
    # calculate x1 = -b + ((b**2) - 4*a*c)**0.5
    x1 = -b + ((b**2) - 4*a*c)**0.5
    # calculate x2 = -b - ((b**2) - 4*a*c)**0.5
    x2 = -b - ((b**2) - 4*a*c)**0.5


    print(f"The value of x1 is {x1} and x2 is {x2}")

# If D  is zero

elif (D > 0):
    # calculate -b/2a
    print("The one real root value is:: ", -b/(2*a))

# if D is negative

else:
    print("Only complex roots")
```

```
Enter the value of a:: 1
Enter the value of b:: 6
Enter the value of c:: 2
The value of x1 is -0.7084973778708186 and x2 is -11.291502622129181
```

Task 3

In [7]:
```
def smaller(x, s, n):
    count = 0
    for i in range(s):
        if x[i] < n:
            count += 1
    return count

x = [13, 56, 21, 45, 20, 43, 12, 43, 6]

val1 = smaller(x, 9, 21)
val2 = smaller(x, 9, 20)
```

In [8]:
```
print(val1)
print(val2)
```

```
4
3
```

Task 4

In [10]:
```
l = [12,24,35,24,88,120,155,88,120,155]

l2 = set(l)   # set only contains unique values

print(list(l2))
```

```
[35, 12, 155, 24, 88, 120]
```

In [12]:
```
l1 = [1,3,6,78,35,55]
l2 = [12,24,35,24,88,120,155]

union = set(l1) & set(l2)

print(list(union))
```

```
[35]
```

Task 5

In [13]:
```
weight = int(input("Enter Your weight: "))
height = int(input("Enter Your height: "))

BMI = weight / (height**2)

print(f"Your body mass index(BMI) is {BMI}")
```

```
Enter Your weight: 65
Enter Your height: 5
Your body mass index(BMI) is 2.6
```

Task 6

In [14]:
```
growth_multiplier = 1.3
initial_sales = 1000000

# Calculate sales after 7 years
years = 7
sales = initial_sales * (growth_multiplier ** years)

# Print the result
print(f"Sales after {years} years: ${sales}")
```

```
Sales after 7 years: $6274851.700000002
```

Task 7

In [15]:
```
# Input your weight in kilograms
weight_kg = float(input("Enter your weight in kilograms: "))

pounds = weight_kg * 2.2
stone = pounds / 14

print(f"Your weight in stone is: {stone}")
```

```
Enter your weight in kilograms: 65
Your weight in stone is: 10.214285714285714
```

Task 8

In [17]:
```
room = ["hall", "kitchen", "bedroom"]
areas = [11.3, 6, 12.5]

room_areas = zip(room, areas)
print(list(room_areas))
```

```
[('hall', 11.3), ('kitchen', 6), ('bedroom', 12.5)]
```

Task 9

In [22]:
```
student1 = {"name": "Alice", "scores": [3.5, 3.6, 3.7, 3.8, 3.9, 4.0]}
student2 = {"name": "Bob", "scores": [3.0, 3.1, 3.2, 3.3, 3.4, 3.5]}
student3 = {"name": "Charlie", "scores": [3.7, 3.8, 3.9, 4.0, 4.0, 4.0]}

students = [student1, student2, student3]

for student in students:
    name = student["name"]
    scores = student["scores"]
    print(f"Student {name}'s GPA scores: {scores}")
```

```
Student Alice's GPA scores: [3.5, 3.6, 3.7, 3.8, 3.9, 4.0]
Student Bob's GPA scores: [3.0, 3.1, 3.2, 3.3, 3.4, 3.5]
Student Charlie's GPA scores: [3.7, 3.8, 3.9, 4.0, 4.0, 4.0]
```

In [ ]:
```
```