

Experiment 1: Input

Part 1:

Branch: Computer

Year: 2025

Sem: 4

Name: Mohd Qayam

UIN: 231P038

Roll No.: 02

```
print("*****")
print("Simple Calculator")
print("Mohd Qayam")
print("*****")
```

while True:

```
    print("MAIN MENU")
    print("1. Addition")
    print("2. Subtraction")
    print("3. Multiplication")
    print("4. Division")
    print("5. Modulus")
    print("6. Power")
    print("7. Floor Division")
    print("8. Exit")
    ch = int(input("Enter your choice: "))
    if not 0 < ch < 9:
        print("Invalid Choice\n")
    else:
        if ch == 8:
            exit()
        num1 = int(input("Enter First Number: "))
        num2 = int(input("Enter Second Number: "))
        if ch == 1:
            res = num1 + num2
        elif ch == 2:
            res = num1 - num2
        elif ch == 3:
            res = num1 * num2
        elif ch == 4:
            res = num1 / num2
        elif ch == 5:
            res = num1 % num2
        elif ch == 6:
            res = num1 ** num2
        elif ch == 7:
            res = num1 // num2
        print("Result: ", res)
```

Part 2:

Branch: Computer

Year: 2025

Sem: 4

Name: Mohd Qayam

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Roll No.: 02

```
print("*****")
print("List Operation")
print("Mohd Qayam")
print("*****")
```

while True:

```
    print("\n1. Create a list")
    print("2. Display list")
    print("3. Find length of list")
    print("4. Check Element is in List or Not using control statements")
    print("5. Concatenating Lists in Python")
    print("6. Replacing List Element with new one in Python")
    print("7. Deleting Element from List in Python")
    print("8. Create Nested Lists and display elements of nested list")
    print("9. Exit")
    choice = int(input("Enter your choice: "))
```

```
    if not choice in range(1,10):
        print("Invalid choice")
        continue
```

```
    if choice == 1:
        list1 = []
        n = int(input("Enter number of elements: "))
        for i in range(n):
            ele = input("Enter element: ")
            list1.append(ele)
        print("List created successfully")
    elif choice == 2:
        print("List: ", list1)
    elif choice == 3:
        print("Length of list: ", len(list1))
    elif choice == 4:
        ele = input("Enter element to check: ")
        if ele in list1:
            print("Element is in list")
        else:
            print("Element is not in list")
```

```

elif choice == 5:
    list2 = [1, 2, 3]
    list3 = [4, 5, 6]
    list4 = list2 + list3
    print("The two lists are: ", list2, "and", list3)
    print("Concatenated list: ", list4)
elif choice == 6:
    list1 = [1, 2, 3, 4, 5]
    print("Original list: ", list1)
    a = int(input("Enter new element: "))
    i = int(input("Enter index of the element to replace: "))
    if i < len(list1):
        list1[i] = a
        print("Modified list: ", list1)
    else:
        print("Invalid index")
elif choice == 7:
    list1 = [1, 2, 3, 4, 5]
    print("Original list: ", list1)
    i = int(input("Enter index of the element to delete: "))
    if i < len(list1):
        del list1[i]
        print("Modified list: ", list1)
    else:
        print("Invalid index")
elif choice == 8:
    n = int(input("Enter number of rows: "))
    m = int(input("Enter number of columns: "))
    list1 = []
    for i in range(n):
        row = []
        for j in range(m):
            row.append(int(input("Enter element: ")))
        list1.append(row)
    print("Nested list: ", list1)
elif choice == 9:
    break

```

Part 3:

```

# Branch: Computer
# Year: 2025
# Sem: 4
# Name: Mohd Qayam
# UIN: 231P038
# Roll No.: 02

```

```

print("*****")

```

```

print("Tuple Operation")
print("Mohd Qayam")
print("*****")

while True:
    print("1. Create tuple")
    print("2. Display tuple")
    print("3. Sort the tuple")
    print("4. Reverse the tuple")
    print("5. Replicate the Tuple")
    print("6. Find the sum of elements of a Tuple")
    print("7. Display frequency of an element using count method")
    print("8. Exit")
    ch = int(input("Enter your choice: "))
    if ch == 1:
        t = tuple(input("Enter elements of tuple: ").split())
        print("Tuple created successfully")
    elif ch == 2:
        print("Tuple:", t)
    elif ch == 3:
        t = sorted(t)
        print("Sorted tuple:", t)
    elif ch == 4:
        t = t[::-1]
        print("Reversed tuple:", t)
    elif ch == 5:
        n = int(input("Enter number of times to replicate: "))
        t = t * n
        print("Replicated tuple:", t)
    elif ch == 6:
        print("Sum of elements of tuple:", sum(t))
    elif ch == 7:
        e = input("Enter element to find frequency: ")
        print("Frequency of", e, "is", t.count(e))
    elif ch == 8:
        break

```

Part 4:

```

# Branch: Computer
# Year: 2025
# Sem: 4
# Name: Mohd Qayam
# UIN: 231P038
# Roll No.: 02

```

```

print("*****")
print("Set Operation")
print("Mohd Qayam")

```

```

print("*****")

while True:
    print("1. Create set")
    print("2. Union, intersection, difference, symmetric difference")
    print("3. Change set")
    print("4. Remove elements from a set")
    print("5. Use pop and clear")
    print("6. Exit")
    ch = int(input("Enter your choice: "))
    if not ch in range(1,7):
        print("Invalid choice")
        continue
    if ch == 1:
        s = set()
        n = int(input("Enter the number of elements: "))
        for i in range(n):
            s.add(int(input("Enter element: ")))
        print("Set:", s)
    elif ch == 2:
        s1 = set()
        s2 = set()
        n1 = int(input("Enter the number of elements in set 1: "))
        for i in range(n1):
            s1.add(int(input("Enter element: ")))
        n2 = int(input("Enter the number of elements in set 2: "))
        for i in range(n2):
            s2.add(int(input("Enter element: ")))
        print("Set 1:", s1)
        print("Set 2:", s2)
        print("Union:", s1.union(s2))
        print("Intersection:", s1.intersection(s2))
        print("Difference:", s1.difference(s2))
        print("Symmetric difference:", s1.symmetric_difference(s2))
    elif ch == 3:
        s = set()
        n = int(input("Enter the number of elements: "))
        for i in range(n):
            s.add(int(input("Enter element: ")))
        print("Set Now is:", s)
    elif ch == 4:
        s = set()
        n = int(input("Enter the number of elements: "))
        for i in range(n):
            s.add(int(input("Enter element: ")))
        print("Set is:", s)
        a = int(input("Enter the element to be removed: "))
        s.remove(a)

```

```

        print("Set after removing element:", s)
    elif ch == 5:
        s = set()
        n = int(input("Enter the number of elements: "))
        for i in range(n):
            s.add(int(input("Enter element: ")))
        print("Set is:", s)
        popped = s.pop()
        print("Popped element is:", popped)
        s.clear()
        print("Set after clearing:", s)
    elif ch == 6:
        break

```

Part 5:

```

# Branch: Computer
# Year: 2025
# Sem: 4
# Name: Mohd Qayam
# UIN: 231P038
# Roll No.: 02

```

```

print("*****")
print("Dictionary Operation")
print("Mohd Qayam")
print("*****")

```

while True:

```

    print("\n1. Create Dictionary")
    print("2. Iterate values from a dictionary")
    print("3. Update value of any key")
    print("4. Add a new key value pair in a dictionary")
    print("5. Delete key value pair from a dictionary")
    print("6. Set default value and display")
    print("7. Exit")
    ch = int(input("Enter your choice: "))
    if not ch in range(1,8):
        print("Invalid choice")
        continue
    if ch == 1:
        print("Creating Dictionary")
        d = {}
        n = int(input("Enter number of elements: "))
        for i in range(n):
            key = input("Enter key: ")
            value = input("Enter value: ")
            d[key] = value
        print("Dictionary created successfully")

```

```

elif ch == 2:
    print("Iterating values from a dictionary")
    for key in d:
        print(key, ":", d[key])
elif ch == 3:
    print("Updating value of any key")
    key = input("Enter key: ")
    value = input("Enter value: ")
    d[key] = value
    print("Value updated successfully")
elif ch == 4:
    print("Adding a new key value pair in a dictionary")
    key = input("Enter key: ")
    value = input("Enter value: ")
    d[key] = value
    print("Key value pair added successfully")
elif ch == 5:
    print("Deleting key value pair from a dictionary")
    key = input("Enter key: ")
    del d[key]
    print("Key value pair deleted successfully")
elif ch == 6:
    key = input("Enter key: ")
    value = input("Enter value: ")
    d.setdefault(key, value)
    print("Default value set successfully")
elif ch == 7:
    break

```

Part 6:

Write a program in python to compute factorial of a number.

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```

print("*****")
print("Factorial")
print("Mohd Qayam")
print("*****")

```

```

def factorial(n):

```

```

    if n == 0:
        return 1
    else:
        return n * factorial(n-1)

num = int(input("Enter a number: "))
print("Factorial of", num, "is", factorial(num))

```

Part 7:

Write a program in python to display the following pattern.

#

#

#

#

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```

print("*****")
print("Pattern")
print("Mohd Qayam")
print("*****")

```

```

n = int(input("Enter size of triangle: "))
for i in range(1,n+1):
    for j in range(i):
        print("#",end=" ")
    print()

```



```

-----
MAIN MENU
1. Addition          1. Create a list
2. Subtraction       2. Display list
3. Multiplication    3. Find length of list
4. Division          4. Check Element is in List or Not using control statements
5. Modulus           5. Concatenating Lists in Python
6. Power             6. Replacing List Element with new one in Python
7. Floor Division    7. Deleting Element from List in Python
8. Exit              8. Create Nested Lists and display elements of nested list
Enter your choice: 1 9. Exit
Enter First Number: 1 Enter your choice: 1
Enter Second Number: 1 Enter number of elements: 3
Result: 2             Enter element: 1
MAIN MENU             Enter element: 2
1. Addition           Enter element: 3
2. Subtraction        List created successfully
3. Multiplication
4. Division           1. Create a list
5. Modulus            2. Display list
6. Power              3. Find length of list
7. Floor Division     4. Check Element is in List or Not using control statements
8. Exit               5. Concatenating Lists in Python
Enter your choice: 2 6. Replacing List Element with new one in Python
Enter First Number: 1 7. Deleting Element from List in Python
Enter Second Number: 1 8. Create Nested Lists and display elements of nested list
Result: 0             9. Exit
MAIN MENU             Enter your choice: 2
1. Addition           List: ['1', '2', '3']
2. Subtraction
3. Multiplication
4. Division           1. Create a list
5. Modulus            2. Display list
6. Power              3. Find length of list
7. Floor Division     4. Check Element is in List or Not using control statements
8. Exit               5. Concatenating Lists in Python
Enter your choice: 8 6. Replacing List Element with new one in Python
7. Deleting Element from List in Python
8. Create Nested Lists and display elements of nested list
9. Exit
-----

```

```

1. Create tuple
2. Display tuple
3. Sort the tuple
4. Reverse the tuple
5. Replicate the Tuple
6. Find the sum of elements of a Tuple
7. Display frequency of an element using count method
8. Exit
Enter your choice: 1
Enter elements of tuple: 3
Tuple created successfully
1. Create tuple
2. Display tuple
3. Sort the tuple
4. Reverse the tuple
5. Replicate the Tuple
6. Find the sum of elements of a Tuple
7. Display frequency of an element using count method
8. Exit
Enter your choice: 2
Tuple: ('3',)
1. Create tuple
2. Display tuple
3. Sort the tuple
4. Reverse the tuple
5. Replicate the Tuple
6. Find the sum of elements of a Tuple
7. Display frequency of an element using count method
8. Exit
Enter your choice: 8

```

```

-----
1. Create set
2. Union, intersection, difference, symmetric difference
3. Change set
4. Remove elements from a set
5. Use pop and clear
6. Exit
Enter your choice: 1
Enter the number of elements: 3
Enter element: 1
Enter element: 2
Enter element: 3
Set: {1, 2, 3}
1. Create set
2. Union, intersection, difference, symmetric difference
3. Change set
4. Remove elements from a set
5. Use pop and clear
6. Exit
Enter your choice: 2
Enter the number of elements in set 1: 1
Enter element: 1
Enter the number of elements in set 2: 2
Enter element: 2
Enter element: 3
Set 1: {1}
Set 2: {2, 3}
Union: {1, 2, 3}
Intersection: set()
Difference: {1}
Symmetric difference: {1, 2, 3}
1. Create set
2. Union, intersection, difference, symmetric difference
3. Change set
4. Remove elements from a set
5. Use pop and clear
6. Exit
Enter your choice: 6

```

1. Create Dictionary
2. Iterate values from a dictionary
3. Update value of any key
4. Add a new key value pair in a dictionary
5. Delete key value pair from a dictionary
6. Set default value and display
7. Exit

Enter your choice: 1

Creating Dictionary

Enter number of elements: 3

Enter key: 1

Enter value: a

Enter key: 2

Enter value: b

Enter key: 3

Enter value: c

Dictionary created successfully

1. Create Dictionary
2. Iterate values from a dictionary
3. Update value of any key
4. Add a new key value pair in a dictionary
5. Delete key value pair from a dictionary
6. Set default value and display
7. Exit

Enter your choice: 2

Iterating values from a dictionary

1 : a

2 : b

3 : c

Enter a number: 13

Factorial of 13 is 6227020800

Pattern

Adyan Shaikh

Enter size of triangle: 5

#

#

#

#

#