Source Code:

```python
num1 = float(input("Enter num1: "))
num2 = float(input("Enter num2: "))
charecter = input("Enter +, -, *, /, %: ")
press = input("Enter =: ")

# Performing the operation when the '=' is pressed
if press == '=':
    if charecter == '+':
        print(f"{num1} + {num2} = {num1 + num2}")
    elif charecter == '-':
        print(f"{num1} - {num2} = {num1 - num2}")
    elif charecter == '*':
        print(f"{num1} * {num2} = {num1 * num2}")
    elif charecter == '/':
        if num2 != 0:
            print(f"{num1} / {num2} = {num1 / num2}")
        else:
            print("Division by zero is not allowed.")
    elif charecter == '%':
        print(f"{num1} % {num2} = {int(num1) % int(num2)}")
    else:
        print("Invalid operator")
```

Output:

```
Enter num1:  6
Enter num2:  3
Enter +, -, *, /, %:  *
Enter =:  =

6.0 * 3.0 = 18.0
```

Source Code:

```python
n = int(input("Enter number: "))
# Initializing a vector with 2*n elements
vec = [0] * (2 * n)

print("Enter numbers:")
for i in range(2 * n):
    vec[i] = float(input())

# Taking the operator input
ch = input("Enter operator (+, -, *, /): ")

# Performing operations based on the input operator
if ch == '+':
    for i in range(0, 2 * n, 2):
        print(f"{vec[i]} + {vec[i+1]} = {vec[i] + vec[i+1]}")
elif ch == '-':
    for i in range(0, 2 * n, 2):
        print(f"{vec[i]} - {vec[i+1]} = {vec[i] - vec[i+1]}")
elif ch == '*':
    for i in range(0, 2 * n, 2):
        print(f"{vec[i]} * {vec[i+1]} = {vec[i] * vec[i+1]}")
elif ch == '/':
    for i in range(0, 2 * n, 2):
        if vec[i+1] != 0:
            print(f"{vec[i]} / {vec[i+1]} = {vec[i] / vec[i+1]}")
        else:
            print(f"Division by zero is not allowed for {vec[i]} / {vec[i+1]}")
else:
    print("Invalid operator")
```

Output:

```
Enter number:  3
Enter numbers:

4
 5
 6
 7
 8
 9
Enter operator (+, -, *, /):  +

4.0 + 5.0 = 9.0
6.0 + 7.0 = 13.0
8.0 + 9.0 = 17.0
```

Source Code:

```
number = int(input("Enter a number to find factorial: "))

fact = 1
j = 1

# Calculating factorial with detailed output per iteration
for i in range(number, 0, -1):
    print(f"Factorial in iteration {j} is: {fact} * {i} = {fact}")
    fact = fact * i
    j += 1

# Printing the final factorial result
print(f"\n{number}! = {fact}")
```

Output:

Enter a number to find factorial: 10

Factorial in iteration 1 is: 1 * 10 = 1
Factorial in iteration 2 is: 10 * 9 = 10
Factorial in iteration 3 is: 90 * 8 = 90
Factorial in iteration 4 is: 720 * 7 = 720
Factorial in iteration 5 is: 5040 * 6 = 5040
Factorial in iteration 6 is: 30240 * 5 = 30240
Factorial in iteration 7 is: 151200 * 4 = 151200
Factorial in iteration 8 is: 604800 * 3 = 604800
Factorial in iteration 9 is: 1814400 * 2 = 1814400
Factorial in iteration 10 is: 3628800 * 1 = 3628800

10! = 3628800

Source Code:

```
num = int(input("Enter a number: "))

# Calculating factorial using a for loop
fact = 1
for i in range(1, num + 1):
    fact *= i
print(f"Factorial using for loop: {fact}")

# Calculating factorial using a while loop
fact = 1
i = 1
while i <= num:
    fact *= i
    i += 1
print(f"Factorial using while loop: {fact}")
```

Output:

```
Enter a number:  6

Factorial using for loop: 720
Factorial using while loop: 720
```

Source Code:

```python
def sum_array(arr1):
    i = 0
    total_sum = 0
    while i < len(arr1):
        total_sum += arr1[i]
        i += 1
    print(f"Sum: {total_sum}")
def avg_array(arr1):
    i = 0
    total_sum = 0
    while i < len(arr1):
        total_sum += arr1[i]
        i += 1
    print(f"Average: {total_sum / len(arr1)}")

# Main program
def main():
    n = int(input("Enter array size: "))
    arr = []

    print("Enter array elements: ")
    for i in range(n):
        arr.append(int(input()))  # Adding elements to the array

    print()
    sum_array(arr)  # Calling sum function
    print()
    avg_array(arr)  # Calling average function

if __name__ == "__main__":
    main()
```

Output:
Enter array size: 5
Enter array elements:

2
 3
 5
 6
 7

Sum: 23

Average: 4.6

Source Code:

```python
import os
class ExistClass:
    @staticmethod
    def get_department_name():
        print("Information and Communication Engineering")
def main():
    try:
        if 'ExistClass' in globals():
            print("Class Found inside module.\n---------")
        else:
            raise ImportError("ClassNotFoundException")
    except ImportError:
        print("ClassNotFoundException")

    print("EOF exception for output")
    try:
        with open('input.txt', 'rb') as f:
            while True:
                try:
                    ch = f.read(1)  # Reading one byte at a time
                    if not ch:  # If end of file is reached, break the loop
                        break
                    print(ch.decode(), end='')  # Decoding and printing the byte as a character
                except EOFError:
                    print("\nEnd of file reached")
                    break
    except FileNotFoundError:
        print("File not found: input.txt")
    except Exception as e:
        print(f"An error occurred: {e}")

if __name__ == "__main__":
    main()
```

Output:

```
EOF exception for output
Department Name: Information and Communication Engineering.
Process finished with exit code 0
```

Source Code:

```
import sys
sys.stdin = open('input.txt', 'r')
sys.stdout = open('output.txt', 'w')

# Read the number of test cases
testcase = int(input())
v = []

# Reading input pairs and storing in a list
for _ in range(testcase):
    Num1, Num2 = map(int, input().split())
    v.append(Num1)
    v.append(Num2)

# Performing operations and writing results to output.txt
print(f"Sum of Two numbers: {v[0] + v[1]}")
print(f"Subtraction of Two numbers: {v[2] - v[3]}")
print(f"Multiplication of Two numbers: {v[4] * v[5]}")
print(f"Division of Two numbers: {v[6] // v[7]}")  #
```

Output:

```
3
5 3
10 7
6 2

Sum of Two number : 8
Subtraction of Two number: 3
Multiplication of Two number: 42
Division of Two number : 3
```