

1.6. Program to display the appropriate message as per the color of the signal at the road crossing

```
signal = input("Enter the color of the signal (RED/YELLOW/GREEN):")
signal = signal.strip().upper()

if signal == "RED":
    print("Stop")
elif signal == "YELLOW":
    print("Stay")
elif signal == "GREEN":
    print("Go")
else:
    print("Invalid signal color")
```

1.7. Program to create a simple calculator performing four basic operations (+, -, /, *)

```
def calculator():
    num1 = float(input("Enter the first number: "))
    num2 = float(input("Enter the second number: "))
    operation = input("Enter the operation (+, -, /, *): ").strip()

    if operation == '+':
        print(f"The result is: {num1 + num2}")
    elif operation == '-':
        print(f"The result is: {num1 - num2}")
    elif operation == '*':
        print(f"The result is: {num1 * num2}")
    elif operation == '/':
        if num2 != 0:
            print(f"The result is: {num1 / num2}")
        else:
            print("Error: Division by zero is not allowed")
    else:
        print("Invalid operation")

calculator()
```

1.8. Program to find the larger of three pre-specified numbers using ternary operators

```
a, b, c = 10, 20, 15 # Example numbers

largest = a if (a > b and a > c) else (b if b > c else c)
print(f"The largest number is: {largest}")
```

1.9. Program to find the factors of a whole number using a while loop

```
number = int(input("Enter a whole number: "))
i = 1

print(f"Factors of {number} are:")
while i <= number:
    if number % i == 0:
        print(i)
    i += 1
```

1.10. Program to find the sum of all positive numbers entered by the user, stopping when a negative number is entered

```
total = 0

while True:
    num = int(input("Enter a number (negative to stop): "))
    if num < 0:
        break
    total += num

print(f"The sum of all positive numbers entered is: {total}")
```

1.11. Program to find prime numbers between 2 to 100 using nested for loops

```
print("Prime numbers between 2 and 100 are:")

for num in range(2, 101):
    is_prime = True
```

```
for i in range(2, int(num**0.5) + 1):
    if num % i == 0:
        is_prime = False
        break
if is_prime:
    print(num)
```