EXPERIMENT2: OPERATORS

Q1. Write a C program to calculate the area and perimeter of a rectangle based on its length and width.

Aim

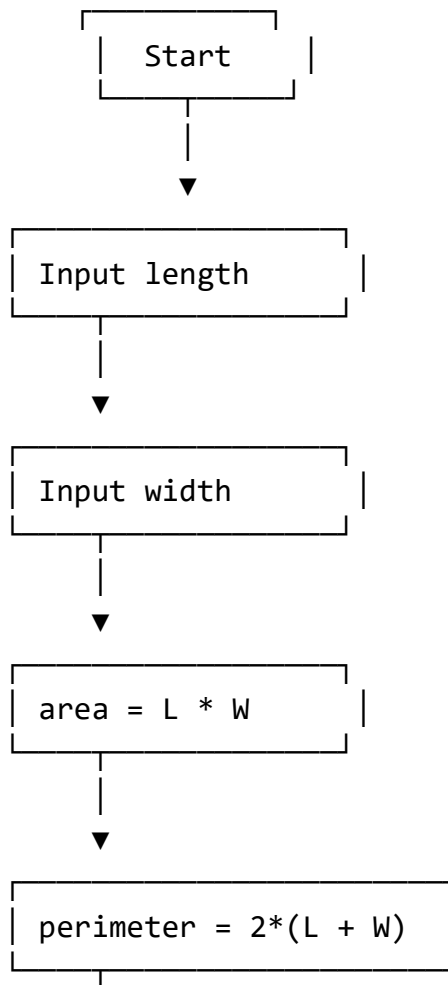To calculate the **area** and **perimeter** of a rectangle using user-input length and width.

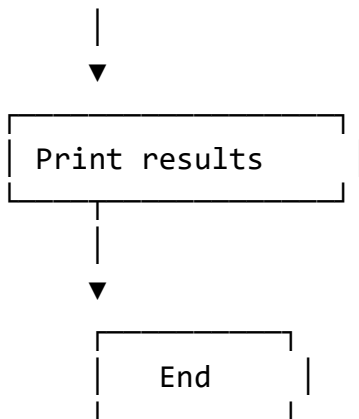### Algorithm

1. Start
2. Declare variables: length, width, area, perimeter
3. Ask the user for length
4. Ask the user for width
5. Compute area = length × width
6. Compute perimeter = 2 × (length + width)
7. Display area and perimeter
8. End

Pseudocode

```
BEGIN
  INPUT length
  INPUT width
  area = length * width
  perimeter = 2 * (length + width)
  PRINT area
  PRINT perimeter
END
```

Flowchart

```
        ┌─────────────┐
        │   Start      │
        └─────────────┘
               │
               ▼
    ┌─────────────────┐
    │ Input length     │
    └─────────────────┘
           │
           ▼
    ┌─────────────────┐
    │ Input width      │
    └─────────────────┘
           │
           ▼
    ┌─────────────────┐
    │ area = L * W     │
    └─────────────────┘
           │
           ▼
    ┌───────────────────────┐
    │ perimeter = 2*(L + W)  │
    └───────────────────────┘
           │
```

```
              |
              ▼
    ┌─────────────────────┐
    │  Print results    │ │
    └─────────────────────┘
              |
              ▼
        ┌───────────────┐
        │     End     │ │
        └───────────────┘
```

C Program

```c
#include <stdio.h>

int main() {
    float length, width, area, perimeter;

    printf("Enter length of rectangle: ");
    scanf("%f", &length);

    printf("Enter width of rectangle: ");
    scanf("%f", &width);

    area = length * width;
    perimeter = 2 * (length + width);

    printf("Area = %.2f\n", area);
    printf("Perimeter = %.2f\n", perimeter);

    return 0;
}
```

Output

```
PS C:\Users\ASUS\Desktop\C Exp> gcc exp2.1.c
PS C:\Users\ASUS\Desktop\C Exp> ./a.exe
Enter length of the rectangle: 4
Enter width of the rectangle: 5

Area of Rectangle = 20.00
Perimeter of Rectangle = 18.00
PS C:\Users\ASUS\Desktop\C Exp>
```

Conclusion

The program correctly calculates and displays the area and perimeter of a rectangle using arithmetic operators.

Q2. Write a C program to convert temperature from Celsius to Fahrenheit using the formula F = (C × 9/5) + 32

Aim

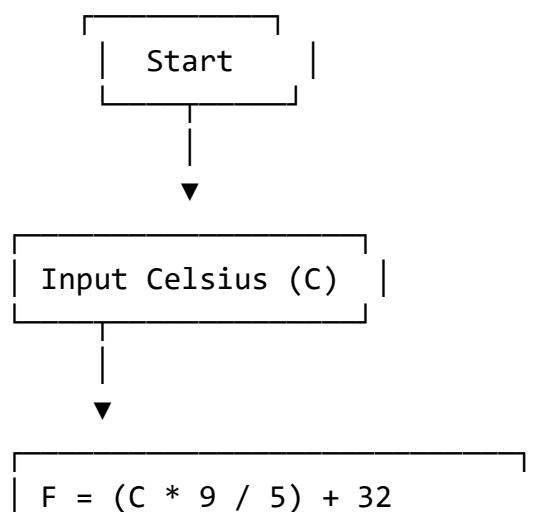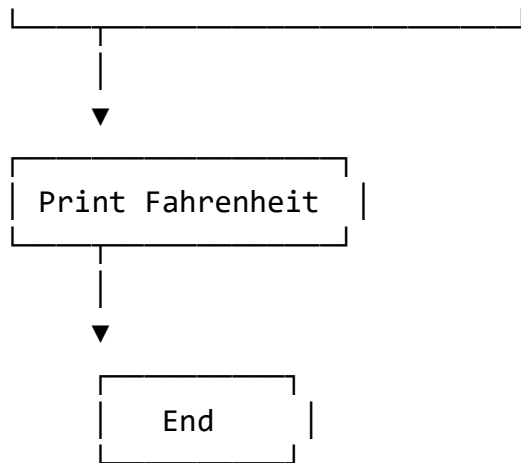To convert temperature from **Celsius** to **Fahrenheit** using arithmetic operators.

Algorithm

1. Start
2. Declare variables: Celsius, Fahrenheit
3. Input Celsius
4. Calculate Fahrenheit = (C × 9/5) + 32
5. Display Fahrenheit value
6. End

Pseudocode

```
BEGIN
  INPUT C
  F = (C * 9 / 5) + 32
  PRINT F
END
```

Flowchart

```
        ┌───────────┐
        │   Start   │
        └───────────┘
              │
              ▼
  ┌───────────────────────┐
  │ Input Celsius (C)     │
  └───────────────────────┘
              │
              ▼
  ┌─────────────────────────────┐
  │ F = (C * 9 / 5) + 32        │
```

```
└────────────────────────────────┐
                │
                ▼
┌──────────────────────────┐
│  Print Fahrenheit     │
└──────────────────────────┘
                │
                ▼
        ┌──────────────────┐
        │      End         │
        └──────────────────┘
```

C Program

```c
#include <stdio.h>

int main() {
    float celsius, fahrenheit;

    printf("Enter temperature in Celsius: ");
    scanf("%f", &celsius);

    fahrenheit = (celsius * 9 / 5) + 32;

    printf("Temperature in Fahrenheit = %.2f\n", fahrenheit);

    return 0;
}
```

Output

```
PS C:\Users\ASUS\Desktop\C Exp> gcc exp2.2.c
PS C:\Users\ASUS\Desktop\C Exp> ./a.exe
Enter temperature in Celsius: 100
Temperature in Fahrenheit: 212.00
PS C:\Users\ASUS\Desktop\C Exp>
```

Conclusion

The program successfully converts temperature from Celsius to Fahrenheit using the appropriate arithmetic formula.

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