

# Assignment 1

## Q1. Finding F from C (temp)

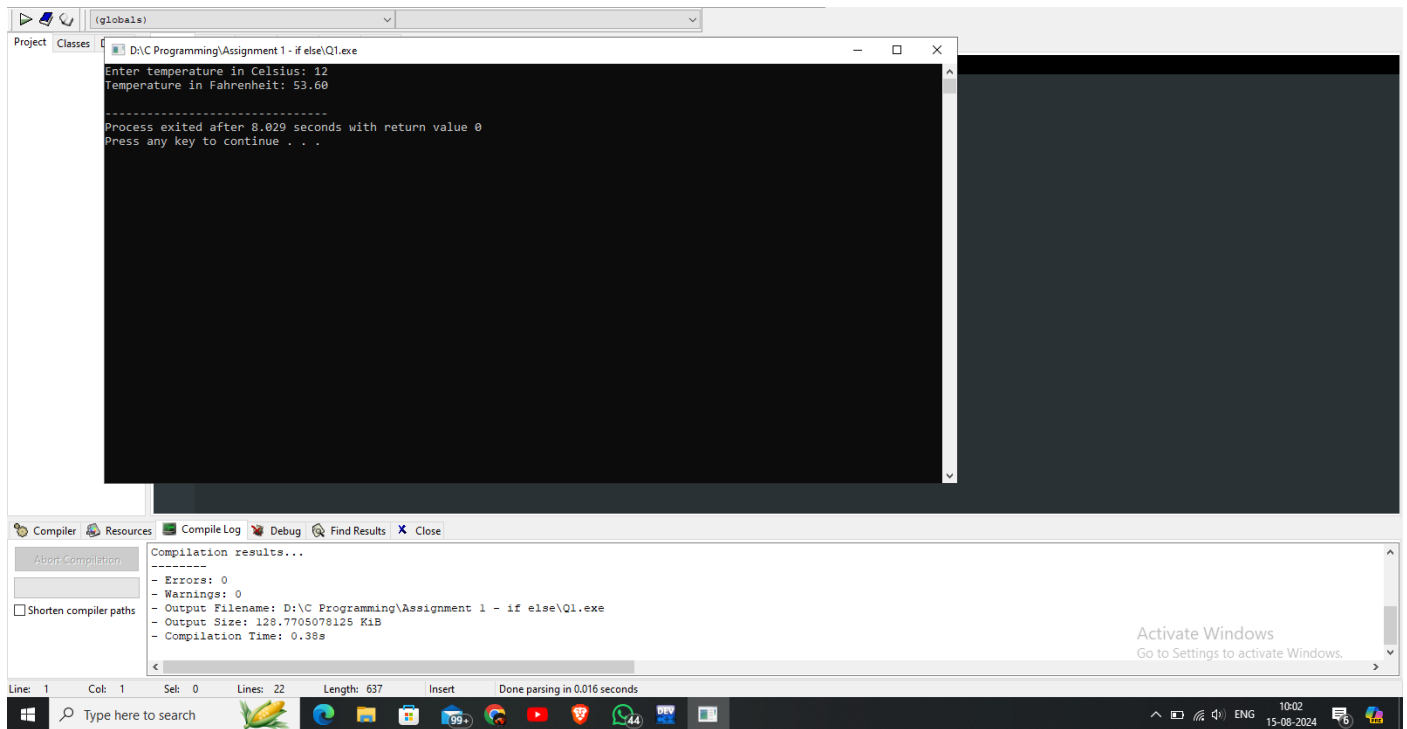
```
#include <stdio.h>

int main() {
    float celsius, fahrenheit;

    // Input: Accept temperature in Celsius from the user
    printf("Enter temperature in Celsius: ");
    scanf("%f", &celsius);

    // Convert Celsius to Fahrenheit
    if (celsius >= -273.15) { // Check if the input temperature is above absolute zero
        fahrenheit = (celsius * 9 / 5) + 32;
        printf("Temperature in Fahrenheit: %.2f\n", fahrenheit);
    } else {
        // If the temperature is below absolute zero
        printf("Invalid temperature! Below absolute zero.\n");
    }

    return 0;
}
```



## Q2. Finding area and perimeter of rectangle or circle.

```
#include <stdio.h>
```

```
#include <math.h> // For the M_PI constant if needed
```

```
int main() {
```

```
    int choice;
```

```
    float length, width, radius;
```

```
    float area, perimeter, circumference;
```

```
    // Display menu to the user
```

```
    printf("Choose the shape to calculate:\n");
```

```
    printf("1. Rectangle\n");
```

```
    printf("2. Circle\n");
```

```
    printf("Enter your choice (1 or 2): ");
```

```
    scanf("%d", &choice);
```

```

// Process based on user choice
if (choice == 1) {
    // Rectangle
    printf("Enter the length and width of the rectangle:\n");
    scanf("%f %f", &length, &width);

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

    printf("Area of the rectangle: %.2f\n", area);
    printf("Perimeter of the rectangle: %.2f\n", perimeter);
} else if (choice == 2) {
    // Circle
    printf("Enter the radius of the circle:\n");
    scanf("%f", &radius);

    area = M_PI * radius * radius;      // Use M_PI from math.h for π
    circumference = 2 * M_PI * radius;

    printf("Area of the circle: %.2f\n", area);
    printf("Circumference of the circle: %.2f\n", circumference);
} else {
    printf("Invalid choice. Please enter 1 for Rectangle or 2 for Circle.\n");
}

return 0;
}

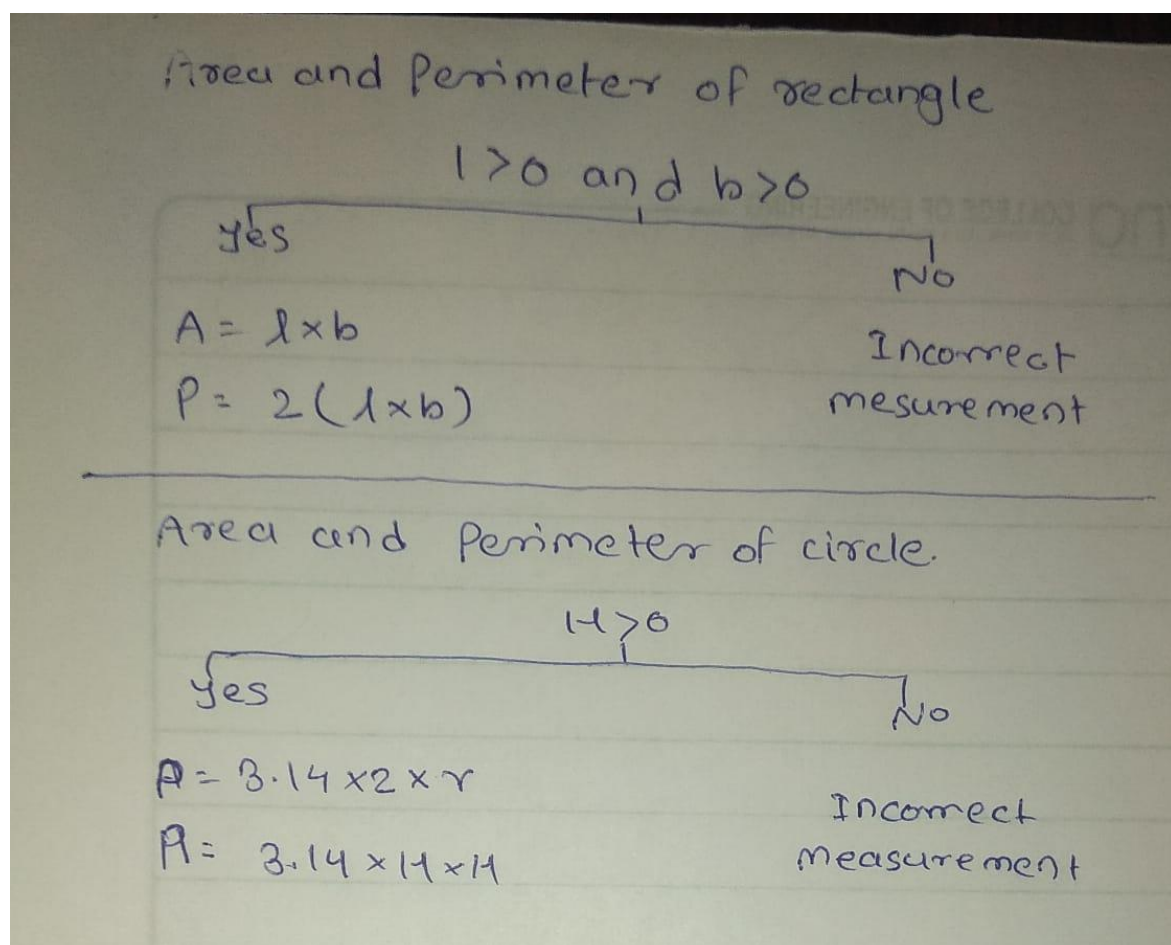
```

```
1 //Q2. Finding area and perimeter of rectangle or circle.
2
3 #include <stdio.h>
4
5 Choose the shape to calculate:
6 1. Rectangle
7 2. Circle
8 Enter your choice (1 or 2): 1
9 Enter the length and width of the rectangle:
10 15 25
11 Area of the rectangle: 375.00
12 Perimeter of the rectangle: 80.00
13
14
15
16
17
18
19
20
21
22
23
24
```

Compilation Results...

- Errors: 0
- Warnings: 0
- Output Filename: D:\C Programming\Assignment 1 - if else\Q2.exe
- Output Size: 129.2705078125 KiB
- Compilation Time: 0.27s

Line: 1 Col: 1 Sel: 0 Lines: 44 Length: 1368 Insert Done parsing in 0.016 seconds



**Q3. Accept a 3 digit number from user and find the sum of the digits and also reverse the number.**

```
#include <stdio.h>
```

```
int main() {
```

```
    int num, digit1, digit2, digit3, sum, reversedNum;
```

```
    // Accept a three-digit number from the user
```

```
    printf("Enter a three-digit number: ");
```

```
    scanf("%d", &num);
```

```
    // Check if the number is actually a three-digit number
```

```
    if (num >= 100 && num <= 999) {
```

```
        // Extract the digits of the number
```

```
        digit1 = num / 100;    // First digit
```

```
        digit2 = (num / 10) % 10; // Second digit
```

```
        digit3 = num % 10;    // Third digit
```

```
        // Calculate the sum of the digits
```

```
        sum = digit1 + digit2 + digit3;
```

```
        // Reverse the number
```

```
        reversedNum = digit3 * 100 + digit2 * 10 + digit1;
```

```
        // Display the results
```

```
        printf("Sum of the digits: %d\n", sum);
```

```
        printf("Reversed number: %d\n", reversedNum);
```

```
    } else {
```

```
        // If the number is not three digits, display an error message
```

```
        printf("Error: Please enter a three-digit number.\n");
```

```
    }
```

```
return 0;
```

```
}
```

The screenshot shows a C++ IDE with a project named "D:\C Programming\Assignment 1 - if else\Q3.exe". The main window displays the output of the program, which prompts the user to enter a three-digit number. The user has entered 456, and the program has calculated the sum of the digits as 15 and the reversed number as 654. The process exited after 4.384 seconds with a return value of 0. A secondary window titled "the number" is also visible. The bottom panel shows the compilation results, indicating that the program compiled successfully with no errors or warnings. The output filename is "D:\C Programming\Assignment 1 - if else\Q3.exe", the output size is 128.7705078125 KiB, and the compilation time is 0.31s. The status bar at the bottom shows the current line and column, and the system tray displays the date and time as 15-08-2024, 10:03.

```
Enter a three-digit number: 456
Sum of the digits: 15
Reversed number: 654

-----
Process exited after 4.384 seconds with return value 0
Press any key to continue . . .

// Display the results
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: D:\C Programming\Assignment 1 - if else\Q3.exe
- Output Size: 128.7705078125 KiB
- Compilation Time: 0.31s

Sum and Reverse of  
three digit number

$no > 99 \ \&\& \ num \leq 999$

yes	No
<pre>rev=0 sum=0 rem = quo%10; quo = quo/10; rev = (rev * 10) + rem; sum = sum + rem;</pre>	Incorrect Input value

#### Q4. heck if the given number is even or odd.

```
#include <stdio.h>
```

```
int main() {
```

```
    int number;
```

```
    // Input: Accept a number from the user
```

```
    printf("Enter an integer: ");
```

```
    scanf("%d", &number);
```

```
    // Check if the number is even or odd using the modulus operator
```

```
    if (number % 2 == 0) {
```

```
        printf("%d is even.\n", number);
```

```
    } else {
```

```
        printf("%d is odd.\n", number);
```

```
    }
```

```
    return 0;
```

```
}
```

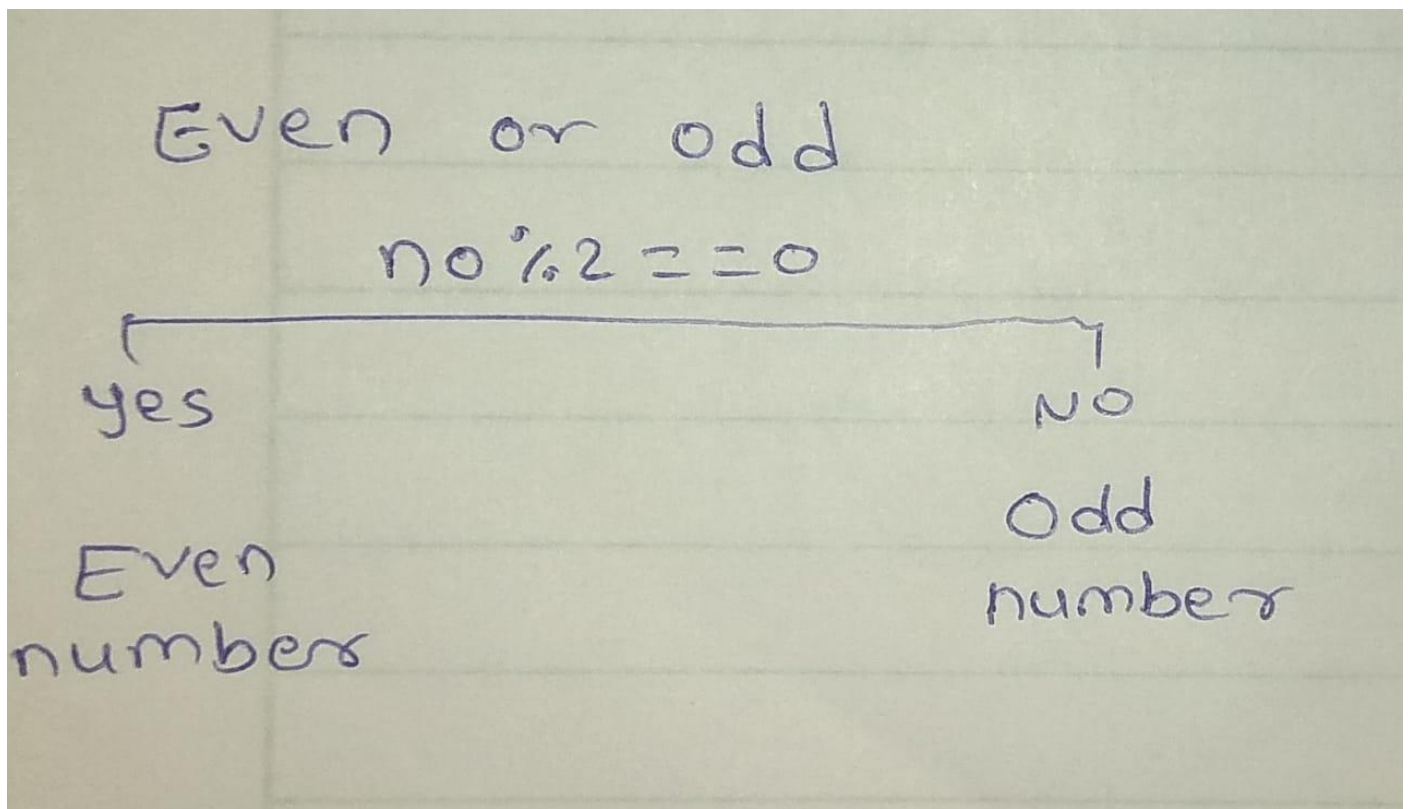
```
1 // Q4. heck if the given number is even or odd.
2 #include <stdio.h>
3
4 D:\C Programming\Assignment 1 - if else\Q4.exe
5 Enter an integer: 56
6 56 is even.
7 -----
8 Process exited after 4.755 seconds with return value 0
9 Press any key to continue . . .
10
11
12
13
14
15
16
17
18
19
```

Compilation Results...

- Errors: 0
- Warnings: 0
- Output Filename: D:\C Programming\Assignment 1 - if else\Q4.exe
- Output Size: 128.1015625 KiB
- Compilation Time: 0.28s

Activate Windows  
Go to Settings to activate Windows.

Line: 1 Col: 1 Sel: 0 Lines: 19 Length: 435 Insert Done parsing in 0.016 seconds



**Q5. Calculating total salary based on basic. If basic  $\leq 5000$  da, ta and hra will be 10%,20% and 25% respectively otherwise da, ta and hra will be 15%,25% and 30% respectively.**

```
#include <stdio.h>
```

```
int main() {
```

```
    float basic, da, ta, hra, totalSalary;
```

```
    // Input: Accept the basic salary from the user
```

```
    printf("Enter the basic salary: ");
```

```
    scanf("%f", &basic);
```

```
    // Calculate allowances based on the basic salary
```

```
    if (basic <= 5000) {
```

```
        // For basic salary <= 5000
```

```
        da = basic * 0.10; // DA = 10% of basic salary
```



```

    ta = basic * 0.20; // TA = 20% of basic salary
    hra = basic * 0.25; // HRA = 25% of basic salary
} else {
    // For basic salary > 5000
    da = basic * 0.15; // DA = 15% of basic salary
    ta = basic * 0.25; // TA = 25% of basic salary
    hra = basic * 0.30; // HRA = 30% of basic salary
}

// Calculate total salary
totalSalary = basic + da + ta + hra;

// Output: Display the calculated allowances and total salary
printf("Basic Salary: %.2f\n", basic);
printf("DA (10%% or 15%%): %.2f\n", da);
printf("TA (20%% or 25%%): %.2f\n", ta);
printf("HRA (25%% or 30%%): %.2f\n", hra);
printf("Total Salary: %.2f\n", totalSalary);

return 0;
}

```

The screenshot shows a C++ IDE with the following components:

- Console Window:** Displays the program's output for a basic salary of 4000.
 

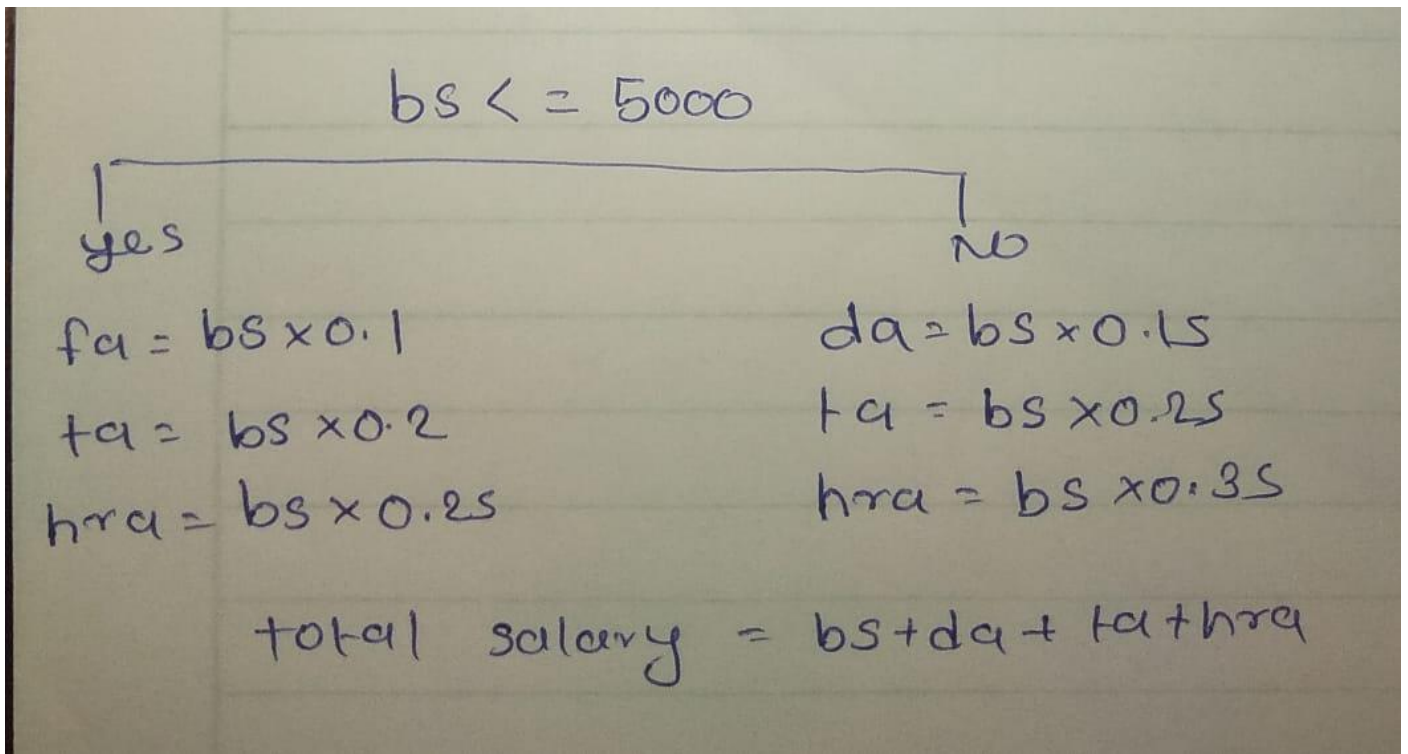
```

Enter the basic salary: 4000
Basic Salary: 4000.00
DA (10% or 15%): 400.00
TA (20% or 25%): 800.00
HRA (25% or 30%): 1000.00
Total Salary: 6200.00

Process exited after 5.18 seconds with return value 0
Press any key to continue . . .
      
```
- Compiler Window:** Shows successful compilation results.
 

```

Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: D:\C Programming\Assignment 1 - if else\Q5.exe
- Output Size: 129,101,5625 KiB
- Compilation Time: 0.27s
      
```
- IDE Interface:** Includes a Project Explorer on the left, a Solution Explorer at the top, and a status bar at the bottom showing line and column numbers.



**Q6. Write a program to check if person is eligible to marry or not (male age  $\geq 21$  and female age  $\geq 18$ ).**

```
#include <stdio.h>
```

```
int main() {
```

```
    char gender;
```

```
    int age;
```

```
    // Input: Accept gender and age from the user
```

```
    printf("Enter gender (M/F): ");
```

```
    scanf(" %c", &gender); // Note the space before %c to consume any trailing newline
```

```
    printf("Enter age: ");
```

```
    scanf("%d", &age);
```

```
    // Check eligibility based on gender and age
```

```
    if (gender == 'M' || gender == 'm') {
```

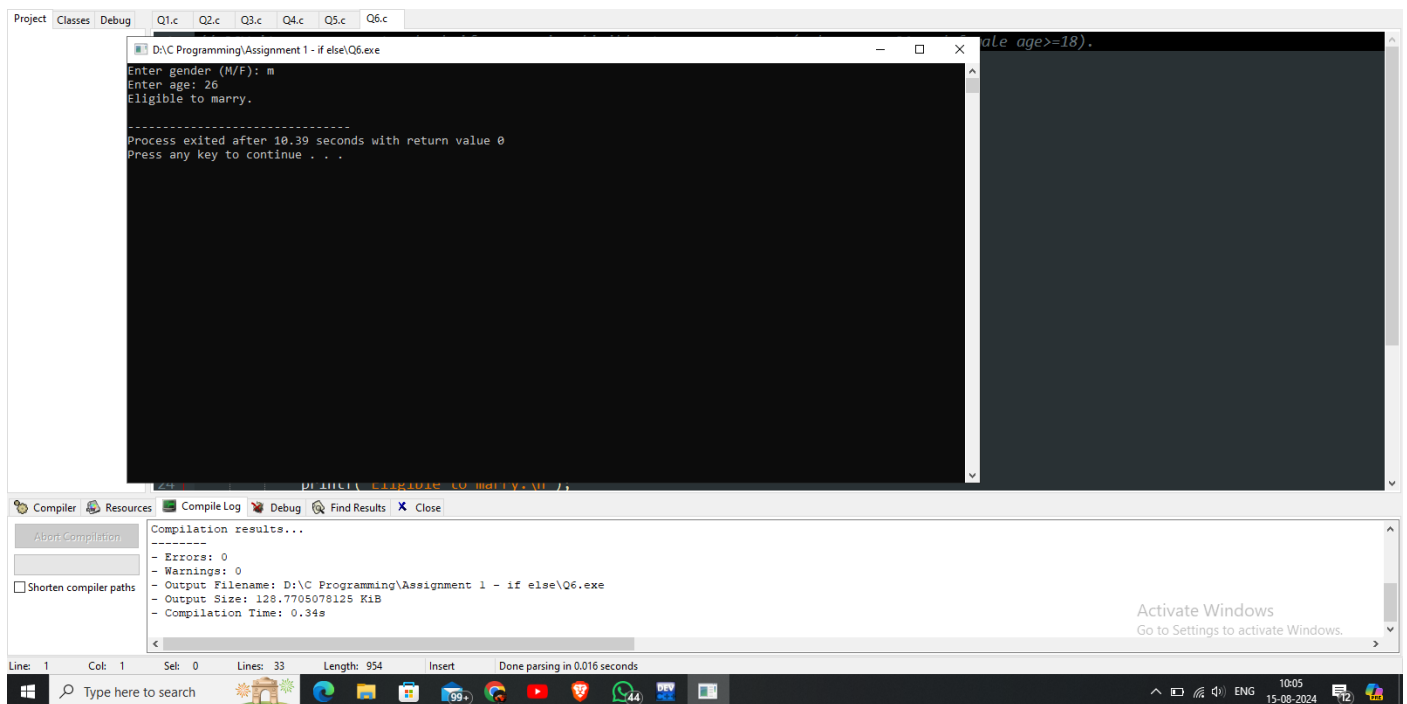
```
        if (age  $\geq$  21) {
```

```

        printf("Eligible to marry.\n");
    } else {
        printf("Not eligible to marry.\n");
    }
} else if (gender == 'F' || gender == 'f') {
    if (age >= 18) {
        printf("Eligible to marry.\n");
    } else {
        printf("Not eligible to marry.\n");
    }
} else {
    printf("Invalid gender input. Please enter M or F.\n");
}

return 0;
}

```



age, gender

gender == F

Yes

age >= 18

Yes

female  
Candidate  
eligible to  
marry

No

female  
Candidate  
not  
eligible to  
marry

No

age >= 21

Yes

male  
candidate  
eligible to  
marry

No

male  
candidate  
not eligible  
to marry.

