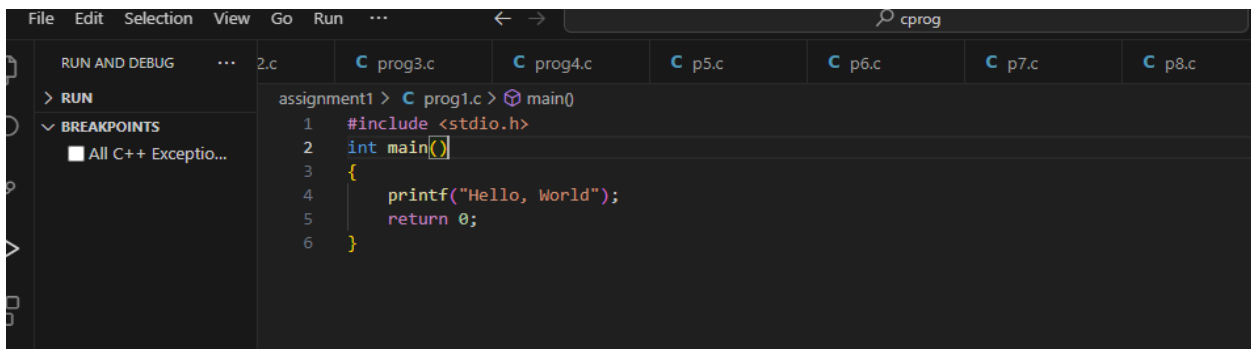


PG - DAC Sept
Logical Building & Problem Solving
Assignment - 1(Date:08/09/2023)
Name : Vrushali Sonawane
Roll NO.: 230950320086

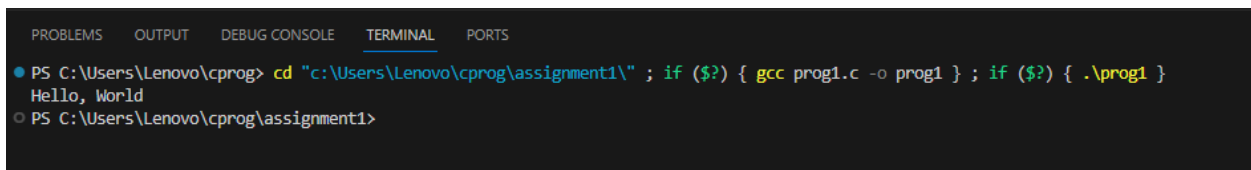
1. Write a program that prints "Hello, World!" to the console.



The screenshot shows the Visual Studio Code editor with a C program named 'prog1.c' open. The code is as follows:

```
1 #include <stdio.h>
2 int main()
3 {
4     printf("Hello, World");
5     return 0;
6 }
```

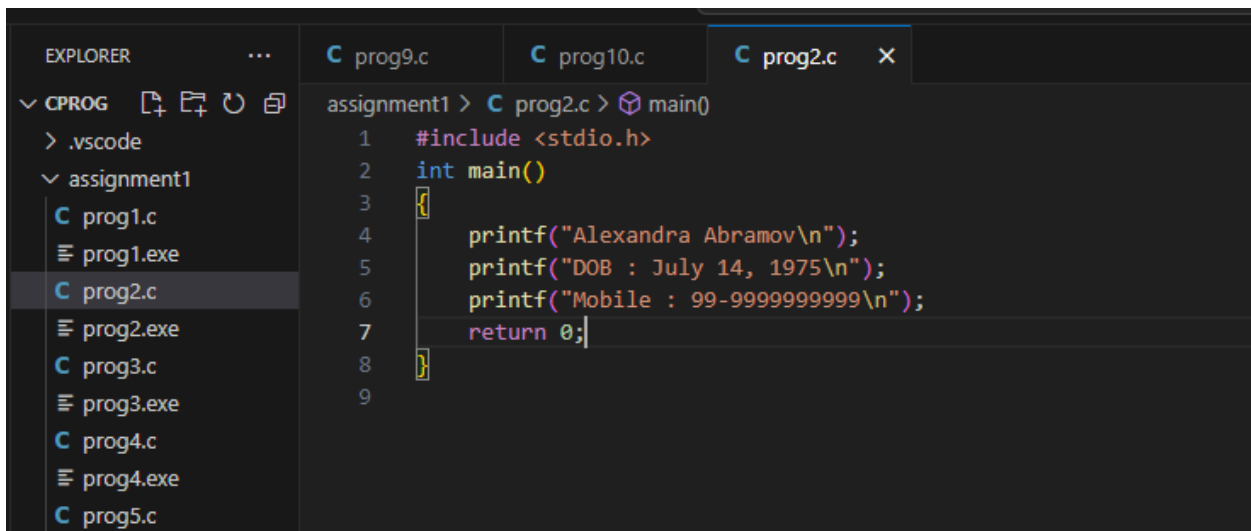
Output:



The screenshot shows the terminal window with the following commands and output:

```
PS C:\Users\Lenovo\cprog> cd "c:\Users\Lenovo\cprog\assignment1" ; if ($?) { gcc prog1.c -o prog1 } ; if ($?) { .\prog1 }
Hello, World
PS C:\Users\Lenovo\cprog\assignment1>
```

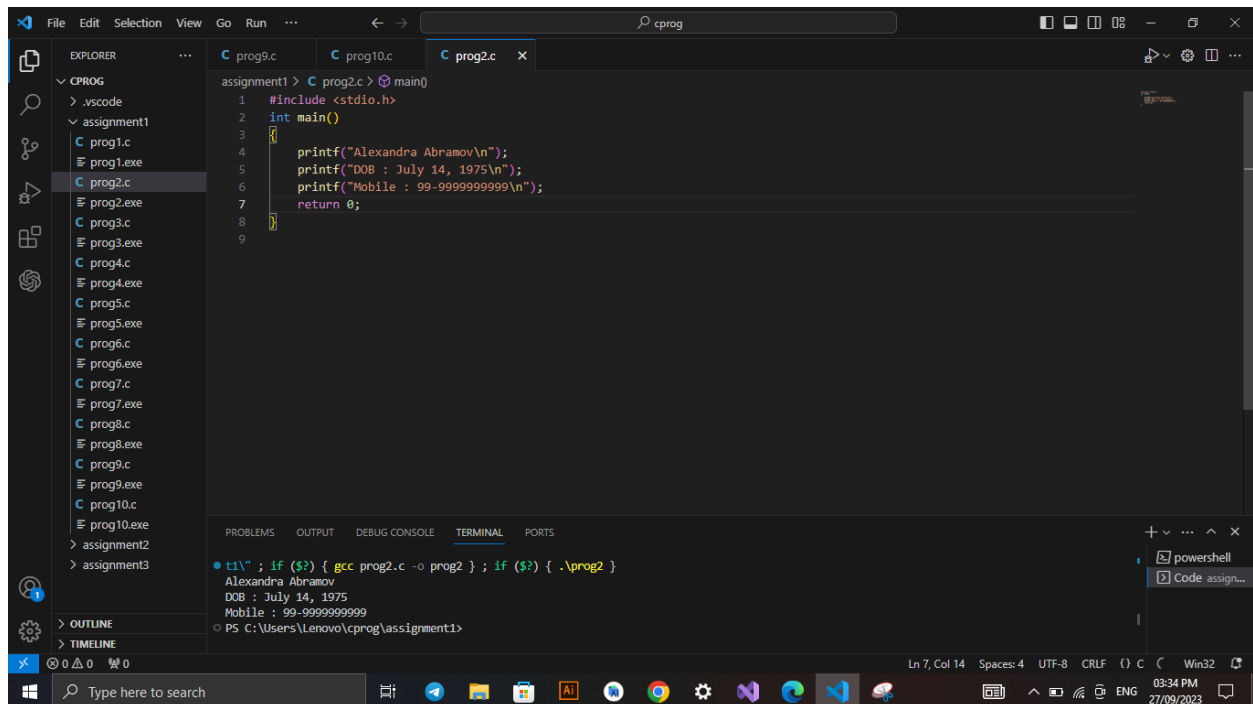
2. Write a C program to print your name, date of birth, and mobile number.
Expected Output: Name : Alexandra Abramov DOB : July 14, 1975 Mobile : 99-9999999999



The screenshot shows the Visual Studio Code editor with a C program named 'prog2.c' open. The code is as follows:

```
1 #include <stdio.h>
2 int main()
3 {
4     printf("Alexandra Abramov\n");
5     printf("DOB : July 14, 1975\n");
6     printf("Mobile : 99-9999999999\n");
7     return 0;
8 }
9
```

Output:



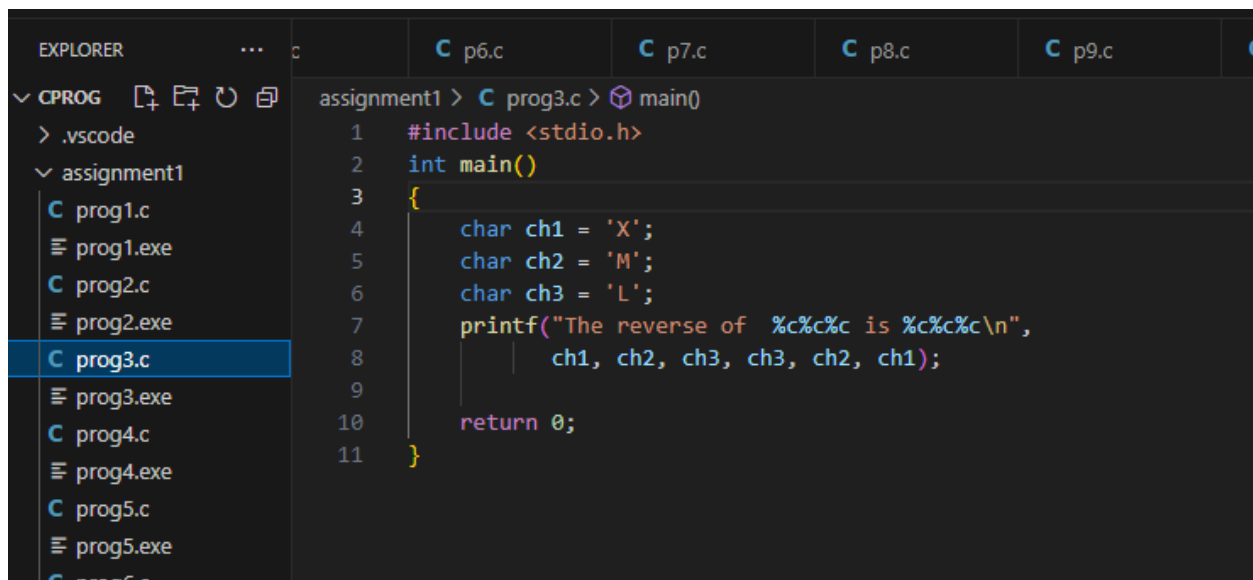
The screenshot shows the Visual Studio Code interface. The Explorer panel on the left shows a project named 'CPROG' with a subfolder 'assignment1' containing files 'prog1.c', 'prog1.exe', 'prog2.c', 'prog2.exe', 'prog3.c', 'prog3.exe', 'prog4.c', 'prog4.exe', 'prog5.c', 'prog5.exe', 'prog6.c', 'prog6.exe', 'prog7.c', 'prog7.exe', 'prog8.c', 'prog8.exe', 'prog9.c', 'prog9.exe', 'prog10.c', and 'prog10.exe'. The main editor displays 'prog2.c' with the following code:

```
1 #include <stdio.h>
2 int main()
3 {
4     printf("Alexandra Abramov\n");
5     printf("DOB : July 14, 1975\n");
6     printf("Mobile : 99-999999999\n");
7     return 0;
8 }
9
```

The TERMINAL panel at the bottom shows the command prompt output:

```
assignment1 > gcc prog2.c -o prog2 ; if ($?) { .\prog2 }
Alexandra Abramov
DOB : July 14, 1975
Mobile : 99-999999999
PS C:\Users\Lenovo\cprog\assignment1>
```

3. Write a C program to print the following characters in reverse. Test Characters: 'X', 'M', 'L' Expected Output: The reverse of XML is LMX.



The screenshot shows the Visual Studio Code interface. The Explorer panel on the left shows a project named 'CPROG' with a subfolder 'assignment1' containing files 'prog1.c', 'prog1.exe', 'prog2.c', 'prog2.exe', 'prog3.c', 'prog3.exe', 'prog4.c', 'prog4.exe', 'prog5.c', 'prog5.exe', and 'prog6.c'. The main editor displays 'prog3.c' with the following code:

```
1 #include <stdio.h>
2 int main()
3 {
4     char ch1 = 'X';
5     char ch2 = 'M';
6     char ch3 = 'L';
7     printf("The reverse of %c%c%c is %c%c%c\n",
8         ch1, ch2, ch3, ch3, ch2, ch1);
9
10    return 0;
11 }
```

Output:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Lenovo\cprog> cd "c:\Users\Lenovo\cprog\assignment1\" ; if ($?) { gcc prog3.c -o prog3 } ; if ($?) { .\prog3 }
The reverse of XML is LMX
PS C:\Users\Lenovo\cprog\assignment1>
```

4. Write a C program to compute the perimeter and area of a rectangle with a height of 7 inches and width of 5 inches. Expected Output: Perimeter of the rectangle = 24 inches Area of the rectangle = 35 square inches.

```
File Edit Selection View Go Run ... cprog
EXPLORER
  CPROG
    .vscode
    assignment1
      prog1.c
      prog1.exe
      prog2.c
      prog2.exe
      prog3.c
      prog3.exe
      prog4.c
      prog4.exe
      prog5.c
      prog5.exe
      prog6.c
  assignment1 > C prog4.c > main()
1  #include <stdio.h>
2  int main()
3  {
4      int perimtr, A, h = 7, w = 5;
5      perimtr = 2 * (h + w);
6      printf("The Perimeter of rectangle is : %d inches\n", perimtr);
7
8      A = h * w;
9      printf("The Area rectangle is : %d sq inches\n", A);
10
11     return 0;
12 }
```

Output:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
The Perimeter of rectangle is : 24 inches
The Area rectangle is : 35 sq inches
PS C:\Users\Lenovo\cprog\assignment1> cd "c:\Users\Lenovo\cprog\assignment1\" ; if ($?) { gcc prog4.c -o prog4 } ; if ($?) { .\prog4 }
The Perimeter of rectangle is : 24 inches
The Area rectangle is : 35 sq inches
PS C:\Users\Lenovo\cprog\assignment1>
```

5. Write a C program to compute the perimeter and area of a circle with a given radius. Expected Output: Perimeter of the Circle = 37.680000 inches Area of the Circle = 113.040001 square inches

The screenshot shows the Visual Studio Code interface. The Explorer pane on the left displays a project structure with a folder named 'assignment1' containing several C source files (prog1.c to prog6.c) and their corresponding executables. The main editor window shows the code for 'prog5.c'. The code includes `<stdio.h>`, defines a `main()` function, declares a `float` variable `perimtr` and an `int` variable `r`. It calculates the perimeter using the formula `2 * 3.14 * r` and prints it. Then, it calculates the area using the formula `3.14 * r * r` and prints it. The program ends with `return 0;`.

```
1 #include <stdio.h>
2 int main()
3 {
4     float perimtr, A;
5     int r = 6;
6     perimtr = 2 * 3.14 * r;
7     printf("The Perimeter of circle is : %f inches\n", perimtr);
8
9     A = 3.14 * r * r;
10    printf("The Area circle is : %f sq inches\n", A);
11
12    return 0;
13 }
```

Output:

The screenshot shows the 'TERMINAL' pane in Visual Studio Code. It displays the output of the program, which prints the perimeter and area of a circle with radius 6. The output is repeated twice, likely due to running the program multiple times. The terminal also shows the command prompt and the execution of the program using `gcc` and `./prog5`.

```
The Perimeter of circle is : 37.680000 inches
The Area circle is : 113.040001 sq inches
PS C:\Users\Lenovo\cprog\assignment1> cd "c:\Users\Lenovo\cprog\assignment1\" ; if ($?) { gcc prog5.c -o prog5 } ; if ($?) { .\prog5 }
The Perimeter of circle is : 37.680000 inches
The Area circle is : 113.040001 sq inches
PS C:\Users\Lenovo\cprog\assignment1>
```

6. Write a C program to display multiple variables. Sample Variables : a+ c, x + c,dx + x, ((int) dx) + ax, a + x, s + b, ax + b, s + c, ax + c, ax + ux Declaration : int a = 125, b = 12345; long ax = 1234567890; short s = 4043; float x = 2.13459; double dx = 1.1415927; char c = 'W'; unsigned long ux = 2541567890;

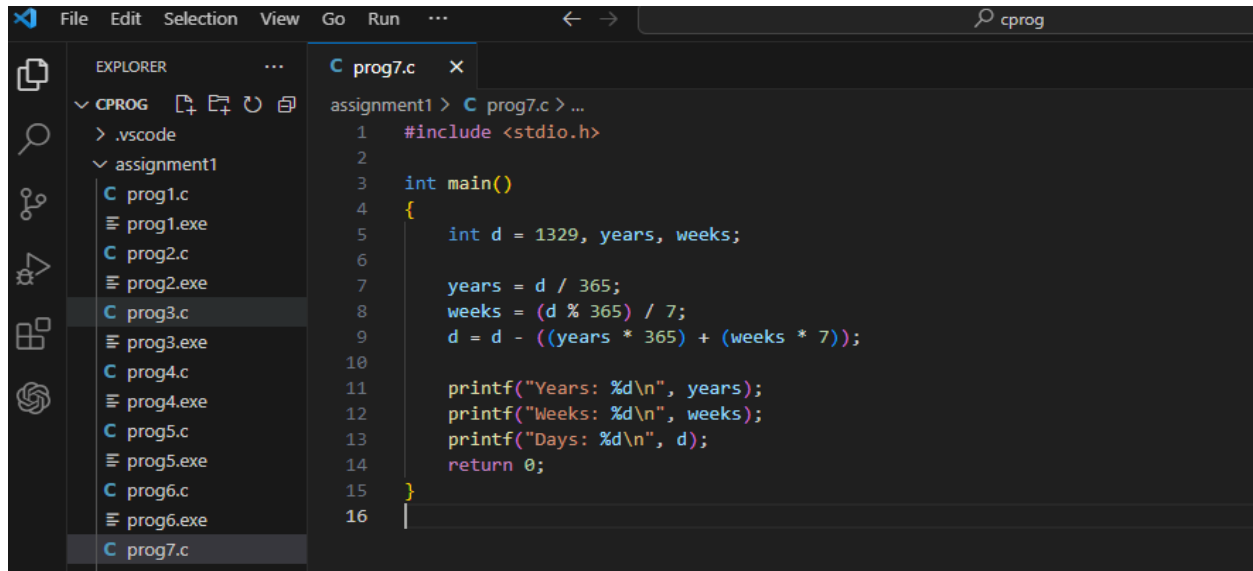
```
File Edit Selection View Go Run ... cprog
EXPLORER
  CPROG
    .vscode
    assignment1
      prog1.c
      prog1.exe
      prog2.c
      prog2.exe
      prog3.c
      prog3.exe
      prog4.c
      prog4.exe
      prog5.c
      prog5.exe
      prog6.c
      prog6.exe
      prog7.c
      prog7.exe
      prog8.c
      prog8.exe
      prog9.c
      prog9.exe
      prog10.c
  prog6.c x
  prog2.c assignment2
  prog3.c assignment2
  prog4.c as

assignment1 > C prog6.c > main()
1  #include <stdio.h>
2  int main()
3  {
4
5      int a = 125, b = 12345;
6      long ax = 1234567890;
7      short s = 4043;
8      float x = 2.13459;
9      double dx = 1.1415927;
10     char c = 'W';
11     unsigned long ux = 2541567890;
12
13     printf("a + c = %d \n", a + c);
14     printf("x + c =%f\n", x + c);
15     printf("dx + x =%f\n", dx + x);
16     printf("((int) dx) + ax = %ld\n", +((int)dx) + ax);
17     printf("a + x =%f\n", a + x);
18     printf("s + b =%d\n", s + b);
19     printf("ax + b =%hd\n", ax + b);
20     printf("s + c =%ld\n", s + c);
21     printf("ax + ux =%lu\n", ax + ux);
22     return 0;
23 }
```

Output:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Lenovo\cprog\assignment1> cd "c:\Users\Lenovo\cprog\assignment1" ; if ($?) { gcc prog6.c -o prog6 } ; if ($?) { .\prog6 }
a + c = 212
x + c =89.134590
dx + x =3.276183
((int) dx) + ax = 1234567891
a + x =127.134590
s + b =16388
ax + b =13067
s + c =4130
ax + ux =3776135780
PS C:\Users\Lenovo\cprog\assignment1> |
```

7. Write a C program to convert specified days into years, weeks and days. Note: Ignore leap year. Test Data : Number of days : 1329 Expected Output : Years: 3 Weeks: 33 Days: 3



```
1 #include <stdio.h>
2
3 int main()
4 {
5     int d = 1329, years, weeks;
6
7     years = d / 365;
8     weeks = (d % 365) / 7;
9     d = d - ((years * 365) + (weeks * 7));
10
11     printf("Years: %d\n", years);
12     printf("Weeks: %d\n", weeks);
13     printf("Days: %d\n", d);
14     return 0;
15 }
16
```

Output:



```
Weeks: 33
Days: 3
PS C:\Users\Lenovo\cprog\assignment1> cd "c:\Users\Lenovo\cprog\assignment1\" ; if ($?) { gcc prog7.c -o prog7 } ; if ($?) { .\prog7 }
Years: 3
Weeks: 33
Days: 3
PS C:\Users\Lenovo\cprog\assignment1>
```

8. Write a C program that accepts two integers from the user and calculates the sum of the two integers. Test Data : Input the first integer: 25 Input the second integer: 38 Expected Output: Sum of the above two integers = 63

```

assignment1 > C prog8.c > main()
1
2  #include <stdio.h>
3
4  int main()
5  {
6      int firstInteger, secondInteger, sum;
7
8      // Input the first integer
9      printf("Input the first integer: ");
10     scanf("%d", &firstInteger);
11
12     // Input the second integer
13     printf("Input the second integer: ");
14     scanf("%d", &secondInteger);
15
16     // Calculate the sum
17     sum = firstInteger + secondInteger;
18
19     // Display the result
20     printf("Sum of the above two integers = %d\n", sum);
21
22     return 0;
23 }

```

Output:

The screenshot shows the Visual Studio Code interface. The Explorer pane on the left shows a project structure with files like prog1.c, prog2.c, ..., prog10.c and their corresponding .exe files. The main editor displays the C program code from the previous block. The TERMINAL pane at the bottom shows the execution output:

```

Weeks: 33
Days: 3
PS C:\Users\Lenovo\cprog\assignment1> cd "c:\Users\Lenovo\cprog\assignment1\" ; if ($?) { gcc prog8.c -o prog8 } ; if ($?) { .\prog8 }
Input the first integer: 25
Input the second integer: 38
Sum of the above two integers = 63
PS C:\Users\Lenovo\cprog\assignment1>

```

9. Write a C program that accepts two integers from the user and calculates the product of the two integers. Test Data : Input the first integer: 25 Input the second integer: 15 Expected Output: Product of the above two integers = 375

```

assignment1 > C prog9.c > main()
1  #include <stdio.h>
2
3  int main()
4  {
5      int firstInteger, secondInteger, product;
6
7      // Input the first integer
8      printf("Input the first integer: ");
9      scanf("%d", &firstInteger);
10
11     // Input the second integer
12     printf("Input the second integer: ");
13     scanf("%d", &secondInteger);
14
15     // Calculate the product
16     product = firstInteger * secondInteger;
17
18     // Display the result
19     printf("Product of the above two integers = %d\n", product);
20
21     return 0;
22 }
23

```

Output:

```

assignment1 > C prog9.c > main()
1  #include <stdio.h>
2
3  int main()
4  {
5      int firstInteger, secondInteger, product;
6
7      // Input the first integer
8      printf("Input the first integer: ");
9      scanf("%d", &firstInteger);
10
11     // Input the second integer
12     printf("Input the second integer: ");
13     scanf("%d", &secondInteger);
14
15     // Calculate the product
16     product = firstInteger * secondInteger;
17
18     // Display the result
19     printf("Product of the above two integers = %d\n", product);
20
21     return 0;
22 }
23

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\Lenovo\cprog\assignment1> cd "c:\Users\Lenovo\cprog\assignment1\" ; if ($?) { gcc prog9.c -o prog9 } ; if ($?) { .\prog9 }
Input the first integer: 25
Input the second integer: 15
Product of the above two integers = 375
PS C:\Users\Lenovo\cprog\assignment1> cd "c:\Users\Lenovo\cprog\assignment1\" ; if ($?) { gcc prog10.c -o prog10 } ; if ($?) { .\prog10 }
Enter the first number: 15

```

Ln 9, Col 32 Spaces: 4 UTF-8 CRLF () C Win32 02:02 AM 27/09/2023

10. Write a program that prompts the user to enter two numbers, adds them together, and prints the result to the console.

```
assignment1 > C prog10.c > main()
1  #include <stdio.h>
2
3  int main()
4  {
5      double firstNumber, secondNumber, sum;
6
7      // Prompt the user to enter the first number
8      printf("Enter the first number: ");
9      scanf("%lf", &firstNumber);
10
11     // Prompt the user to enter the second number
12     printf("Enter the second number: ");
13     scanf("%lf", &secondNumber);
14
15     // Calculate the sum of the two numbers
16     sum = firstNumber + secondNumber;
17
18     // Print the result
19     printf("The sum of %.2lf and %.2lf is %.2lf\n", firstNumber, secondNumber, sum);
20
21     return 0;
22 }
23
```

Output:

