Centre for Development of Advanced Computing Hyderabad

PG - DAC Sept 2023

Logical Building & Problem Solving
Assignment - 1 (Date:08/09/2023)

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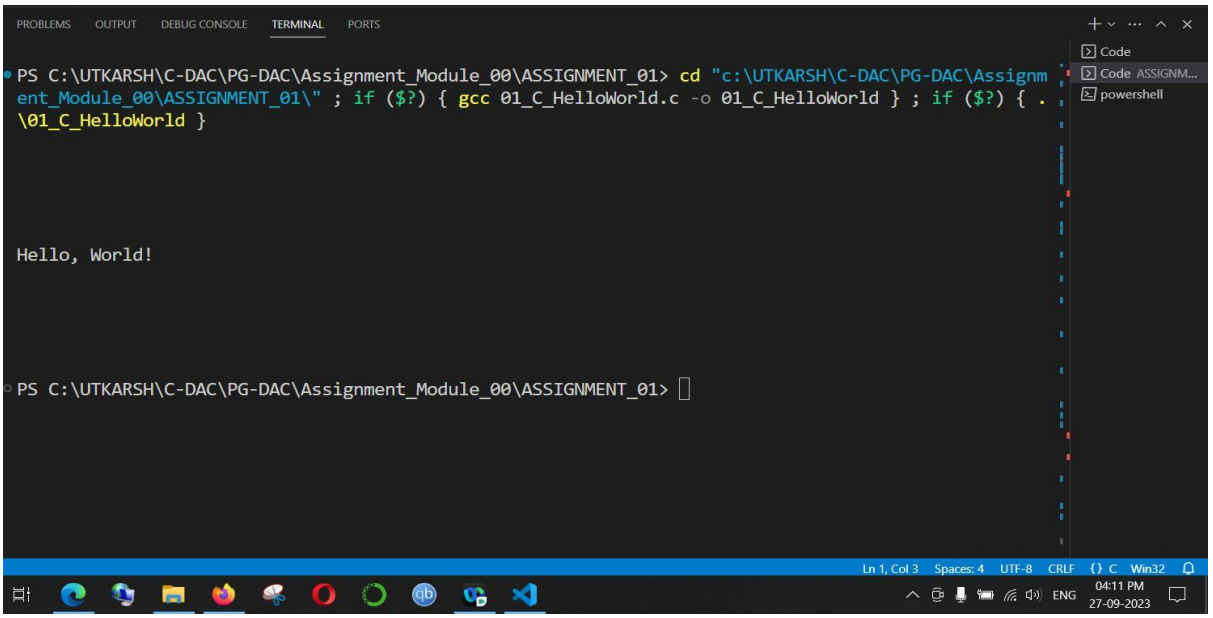
COURSE- PG-DAC Sept 2023

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

Source Code-

```c
#include <stdio.h>

int main() {
    printf("\n\n\n\nHello, World!\n\n\n\n\n\n");    // Print "Hello, World!"
    return 0;
}
```

Output-



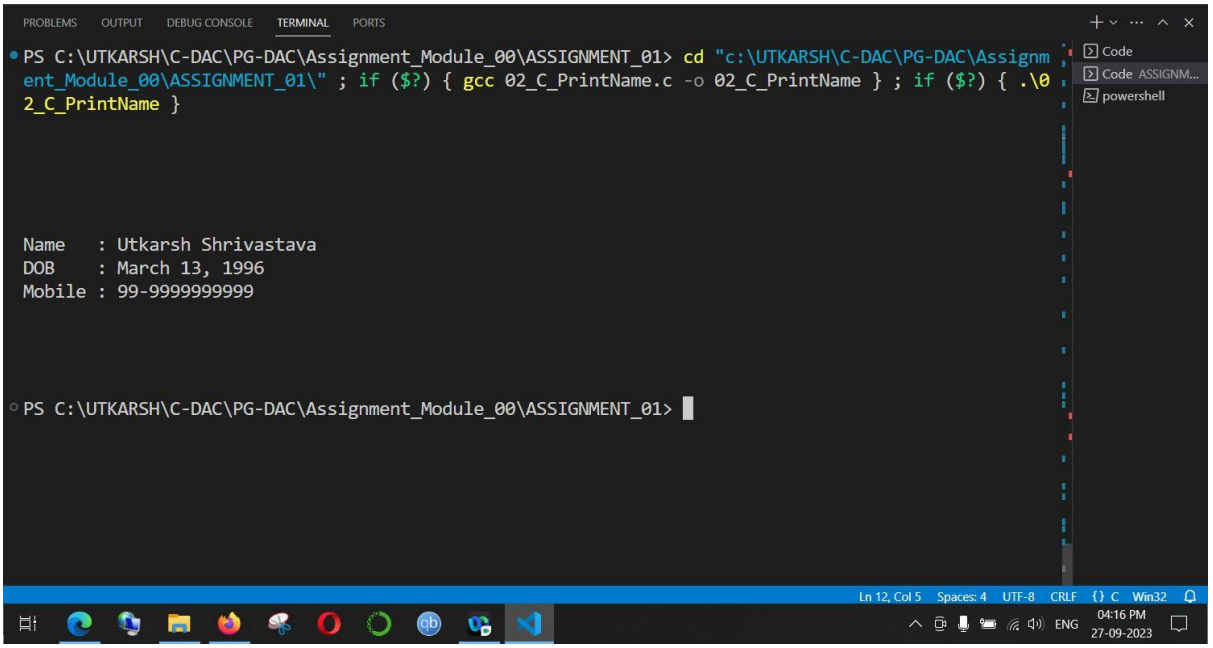
2. Write a C program to print your name, date of birth, and mobile number.
Expected Output:

Name : Alexandra Abramov
DOB : July 14, 1975
Mobile : 99-9999999999

Source Code:

```c
#include <stdio.h>

int main() {
    printf("\n\n\n\n\n");

    // Print name, date of birth, and mobile number
    printf("Name   : Utkarsh Shrivastava\n");
    printf("DOB    : March 13, 1996\n");
    printf("Mobile : 99-9999999999");
    printf("\n\n\n\n\n");

    return 0;
}
```

Output-



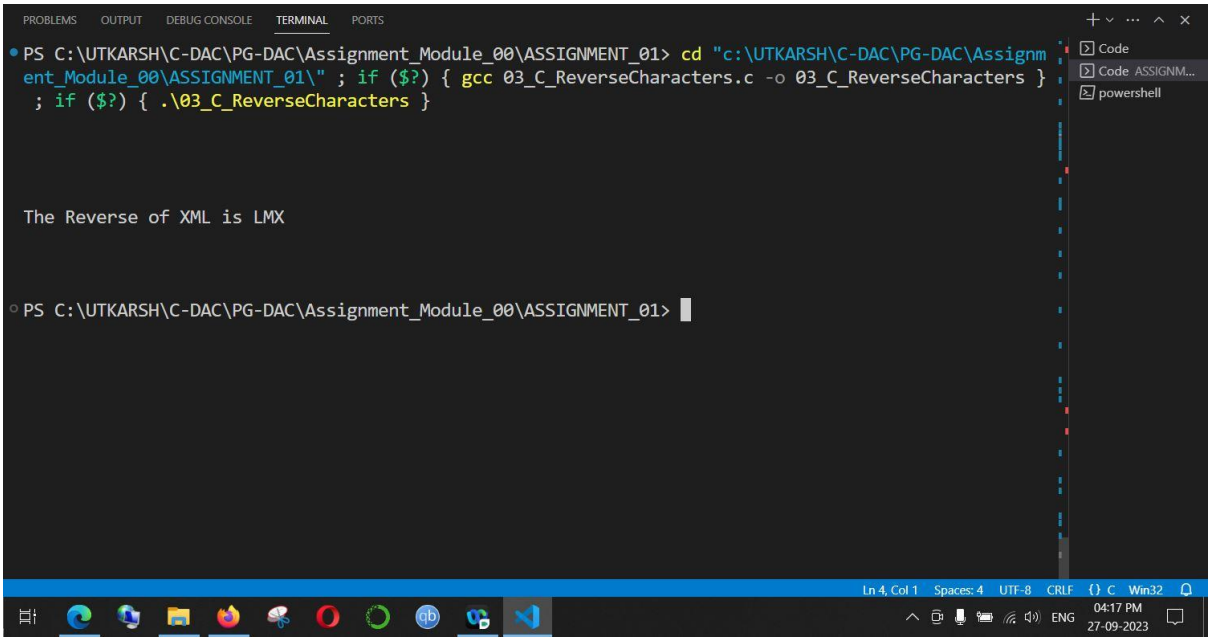
3. Write a C program to print the following characters in reverse.

Test Characters: 'X', 'M', 'L'
Expected Output: The reverse of f XML is LMX

Source Code:

```c
#include <stdio.h>

int main() {
    // Define and print characters in reverse

    char testCharacters[] = {'X', 'M', 'L'};
    printf("\n\n\n\nThe Reverse of XML is ");
    for (int i = 2; i >= 0; i--) {
        printf("%c", testCharacters[i]);
    }
    printf("\n\n\n\n");
    return 0;
}
```

Output-



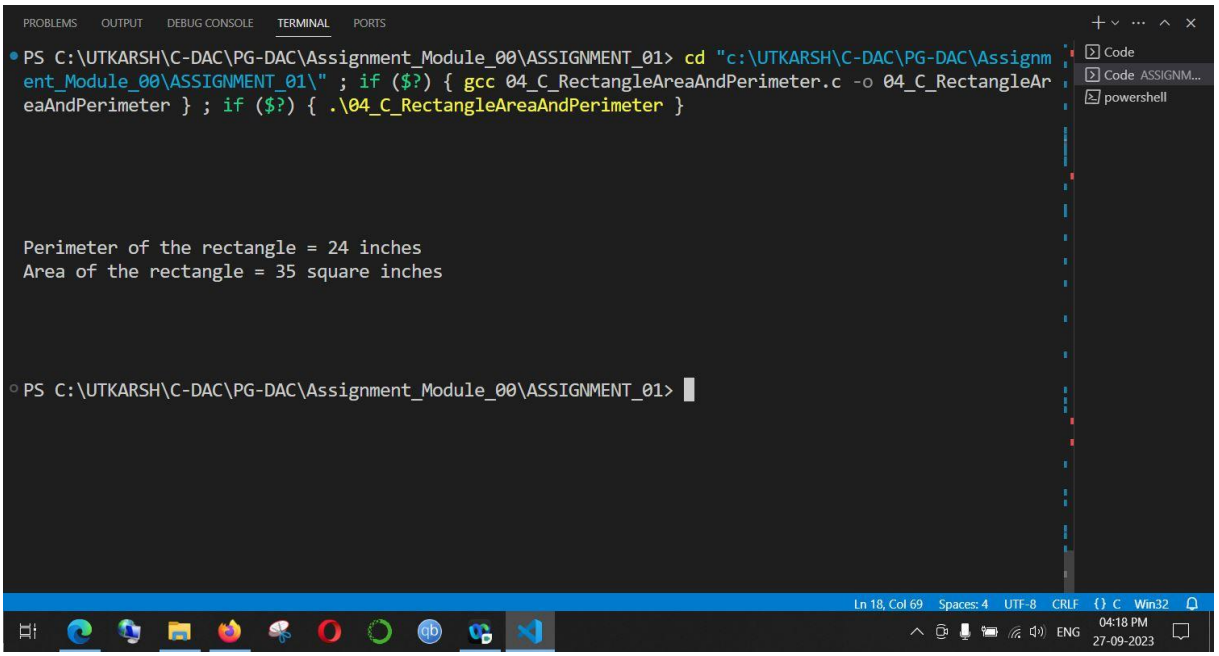
4. Write a C program to compute the perimeter and area of a rectangle with a height of 7 inches and width of 5 inches.

Expected Output:
Perimeter of the rectangle = 24 inches
Area of the rectangle = 35 square inc

Source Code:

```c
#include <stdio.h>
int main() {
    // Define variables for height, width, area, and perimeter
    int height = 7, width = 5, area, perimeter;
    area = height * width;     // Calculate area r
    perimeter = 2 * (height + width);// Calculate perimeter
    // Print results
    printf("\n\n\n\n\nPerimeter of the rectangle = %d inches\n", perimeter);
    printf("Area of the rectangle = %d square inches\n\n\n\n\n", area);
        return 0;
}
```

Output-



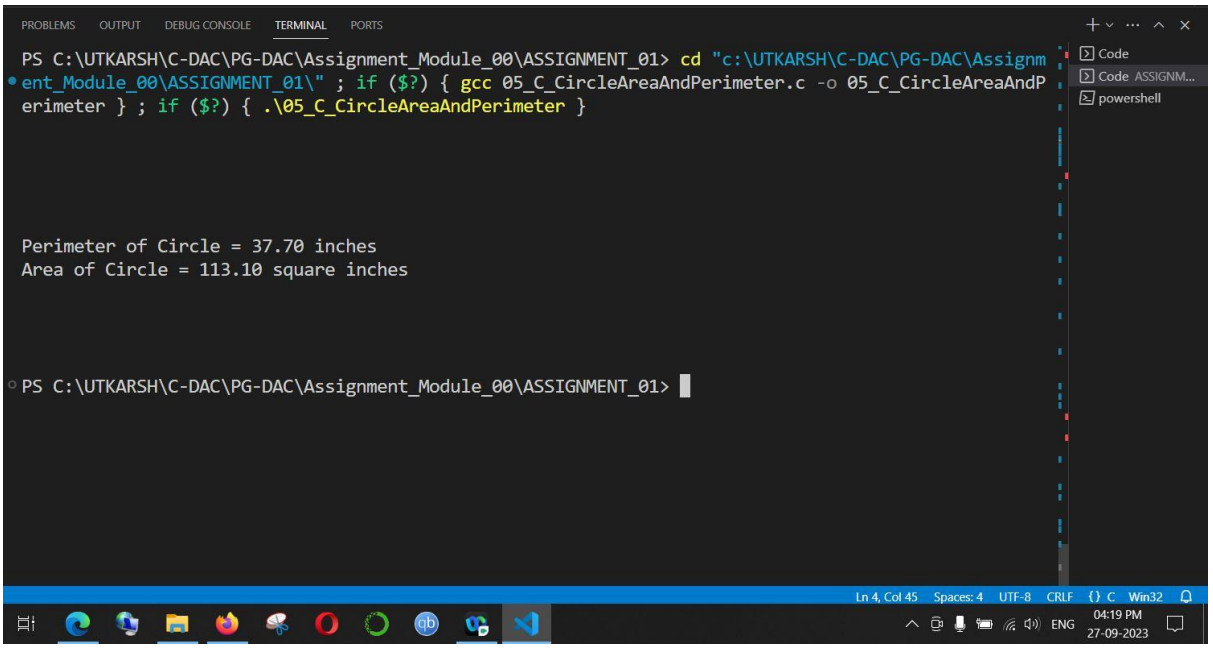
5. Write a C program to compute the perimeter and area of a circle with a given radius.

Expected Output:
Perimeter of the Circle = 37.680000 inches
Area of the Circle = 113.040001 sq inches

Source Code:

```c
#include <stdio.h>

int main() {
    // Define variables for radius, area, and perimeter
    int radius = 6;
    double area, perimeter;
    double pi = 3.14159265359;

    area = pi * radius * radius; // Calculate area
    perimeter = 2 * pi * radius; // Calculate perimeter

    // Print results with two decimal places
    printf("\n\n\n\n\nPerimeter of Circle = %.2lf inches\n", perimeter);
    printf("Area of Circle = %.2lf square inches\n\n\n\n\n", area);
    return 0;
}
```

Output-


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01> cd "c:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01\" ; if ($?) { gcc 05_C_CircleAreaAndPerimeter.c -o 05_C_CircleAreaAndPerimeter } ; if ($?) { .\05_C_CircleAreaAndPerimeter }
Perimeter of Circle = 37.70 inches
Area of Circle = 113.10 square inches
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01>
Code
Code ASSIGNM...
powershell
Ln 4, Col 45
Spaces: 4
UTF-8
CRLF
{} C
Win32
ENG
04:19 PM
27-09-2023

6. Write a C program to display multiple variables. Sample Variables :

Sample Variables:

a + c, x + c, dx + x, ((int) dx) + ax, a + x, s + b, ax + b, s + c, ax + c, ax + ux

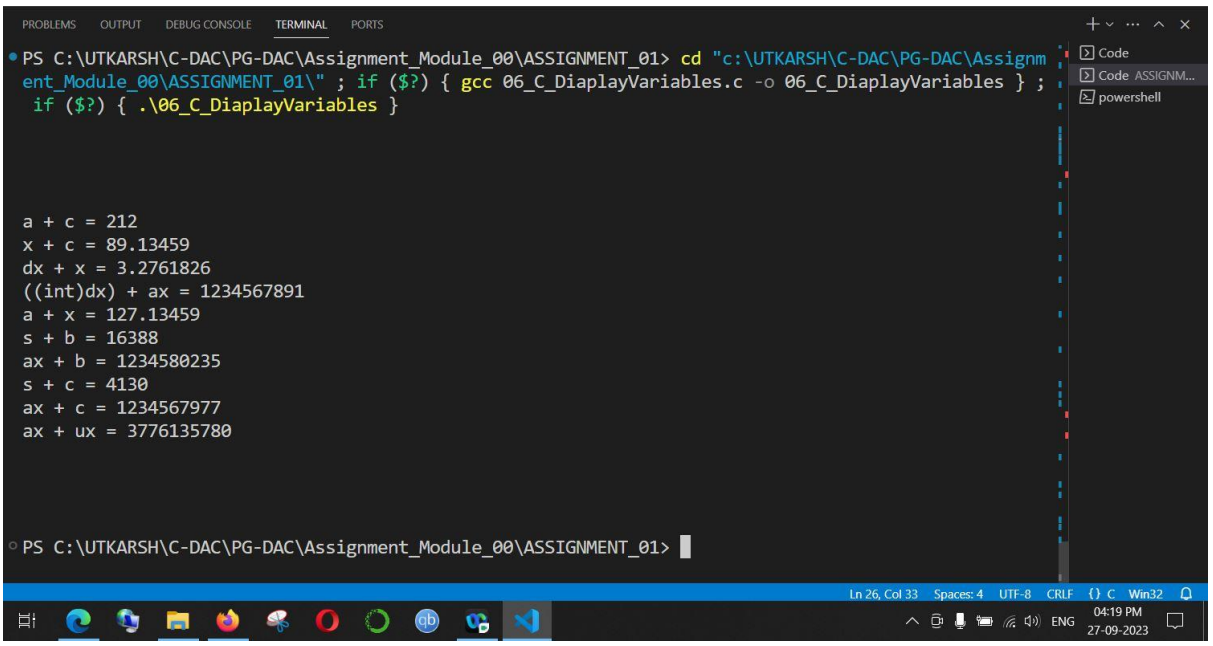
Declaration:

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;

Source Code:

```c
#include <stdio.h>
int main() {
    // Declare and initialize variables
    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;
        // Display results
    printf("\n\n\n\na + c = %d\n", a + c);
    printf("x + c = %.5f\n", x + c);
    printf("dx + x = %.7lf\n", dx + x);
    printf("((int)dx) + ax = %d\n", ((int)dx) + ax);
    printf("a + x = %.5f\n", a + x);
    printf("s + b = %d\n", s + b);
    printf("ax + b = %ld\n", ax + b);
    printf("s + c = %d\n", s + c);
    printf("ax + c = %ld\n", ax + c);
    printf("ax + ux = %lu\n\n\n\n\n\n", ax + ux);
    return 0; }
```

OUTPUT:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01> cd "c:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01\" ; if ($?) { gcc 06_C_DiaplayVariables.c -o 06_C_DiaplayVariables } ; if ($?) { .\06_C_DiaplayVariables }
a + c = 212
x + c = 89.13459
dx + x = 3.2761826
((int)dx) + ax = 1234567891
a + x = 127.13459
s + b = 16388
ax + b = 1234580235
s + c = 4130
ax + c = 1234567977
ax + ux = 3776135780
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01>
Code
Code ASSIGNM...
powershell
Ln 26, Col 33
Spaces: 4
UTF-8
CRLF
{} C
Win32
ENG
04:19 PM
27-09-2023

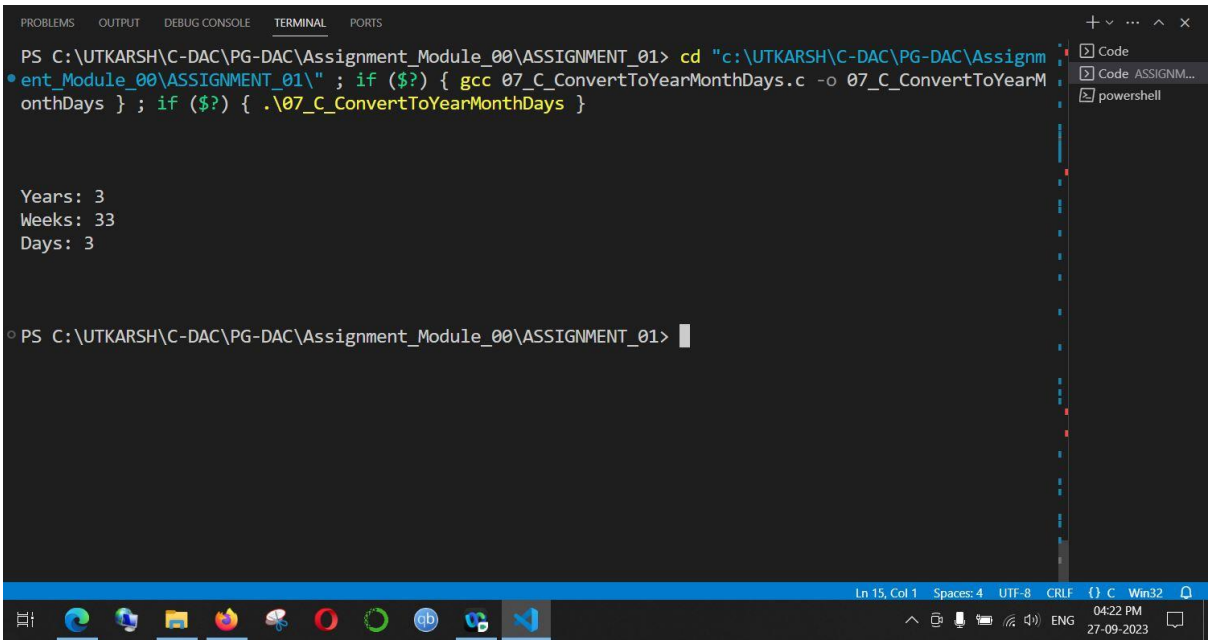
7. Write a C program to convert specified days into years, weeks and days. Note: Ignore leap year.

Test Data :
Number of days : 1329
Expected Output :
Years: 3
Weeks: 33
Days: 3

Source Code:

```c
#include <stdio.h>

int main() {
    // Declare variables
    int enter_days = 1329;
    int years, weeks, days;

    // Calculate years, weeks, and days
    years = enter_days / 365;
    int remaining_days = enter_days - (years * 365);
    weeks = remaining_days / 7;
    days = remaining_days % 7;

    // Display results
    printf("\n\n\nYears: %d\n", years);
    printf("Weeks: %d\n", weeks);
    printf("Days: %d\n\n\n\n", days);

    return 0;
}
```

OUTPUT:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01> cd "c:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01\" ; if ($?) { gcc 07_C_ConvertToYearMonthDays.c -o 07_C_ConvertToYearMonthDays } ; if ($?) { .\07_C_ConvertToYearMonthDays }
Years: 3
Weeks: 33
Days: 3
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01>
Code
Code ASSIGNM...
powershell
Ln 15, Col 1
Spaces: 4
UTF-8
CRLF
{} C
Win32
ENG
04:22 PM
27-09-2023

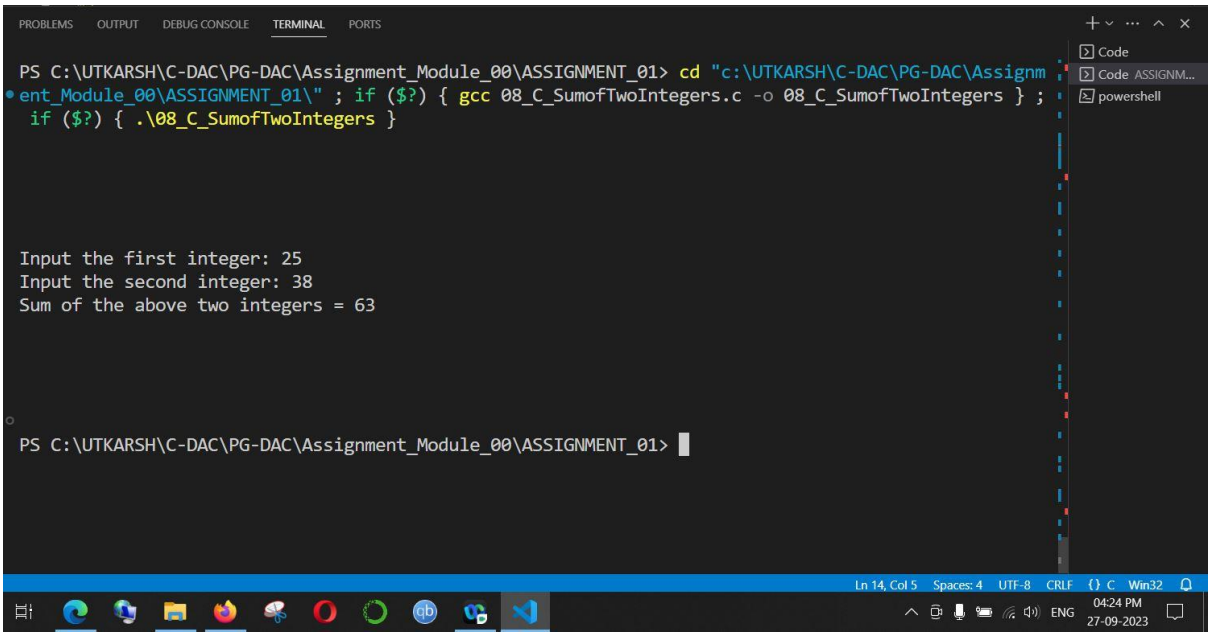
8. Write a C program that accepts two integers from the user and calculates the sum of the two integers.

Test Data :
Input the first integer: 25
Input the second integer: 38
Expected Output:
Sum of the above two integers = 63

Source Code:

```c
#include <stdio.h>

int main() {
    // Declare variables
    int a, b, sum;
    // Prompt for input
    printf("\n\n\n\n\n");

    printf("Input the first integer: ");
    scanf("%d", &a);
    printf("Input the second integer: ");
    scanf("%d", &b);

    // Calculate sum
    sum = a + b;

    // Display result
    printf("Sum of the above two integers = %d\n", sum);
    printf("\n\n\n\n\n");

    return 0;
}
```

OUTPUT:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01> cd "c:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01\" ; if ($?) { gcc 08_C_SumofTwoIntegers.c -o 08_C_SumofTwoIntegers } ; if ($?) { .\08_C_SumofTwoIntegers }
Input the first integer: 25
Input the second integer: 38
Sum of the above two integers = 63
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01>
Code
Code ASSIGNM...
powershell
Ln 14, Col 5
Spaces: 4
UTF-8
CRLF
{} C
Win32
ENG
04:24 PM
27-09-2023

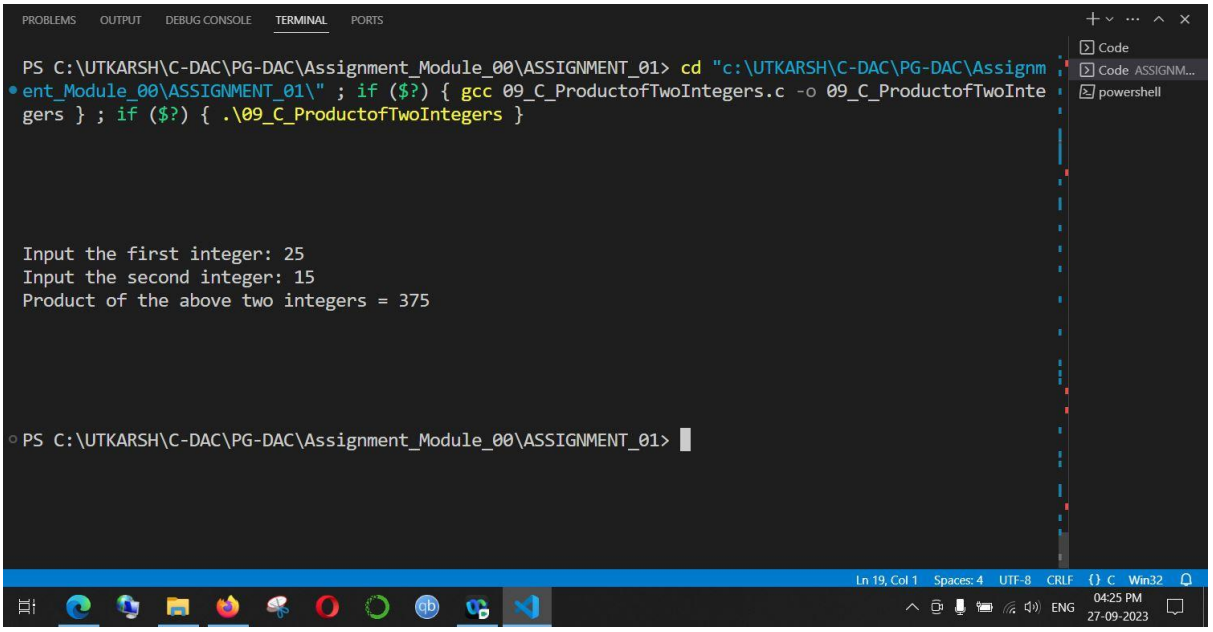
9. Write a C program that accepts two integers from the user and calculates the product of the two integers.

Test Data :
Input the first integer: 25
Input the second integer: 15
Expected Output:
Product of the above two integers = 375

Source Code:

```c
#include <stdio.h>

int main() {
    // Declare variables
    int a, b, product;
    printf("\n\n\n\n\n");
    // Prompt for input
    printf("Input the first integer: ");
    scanf("%d", &a);
    printf("Input the second integer: ");
    scanf("%d", &b);

    // Calculate product
    product = a * b;

    // Display result
    printf("Product of the above two integers = %d\n",
product);
    printf("\n\n\n\n\n");

    return 0;
}
```

OUTPUT:

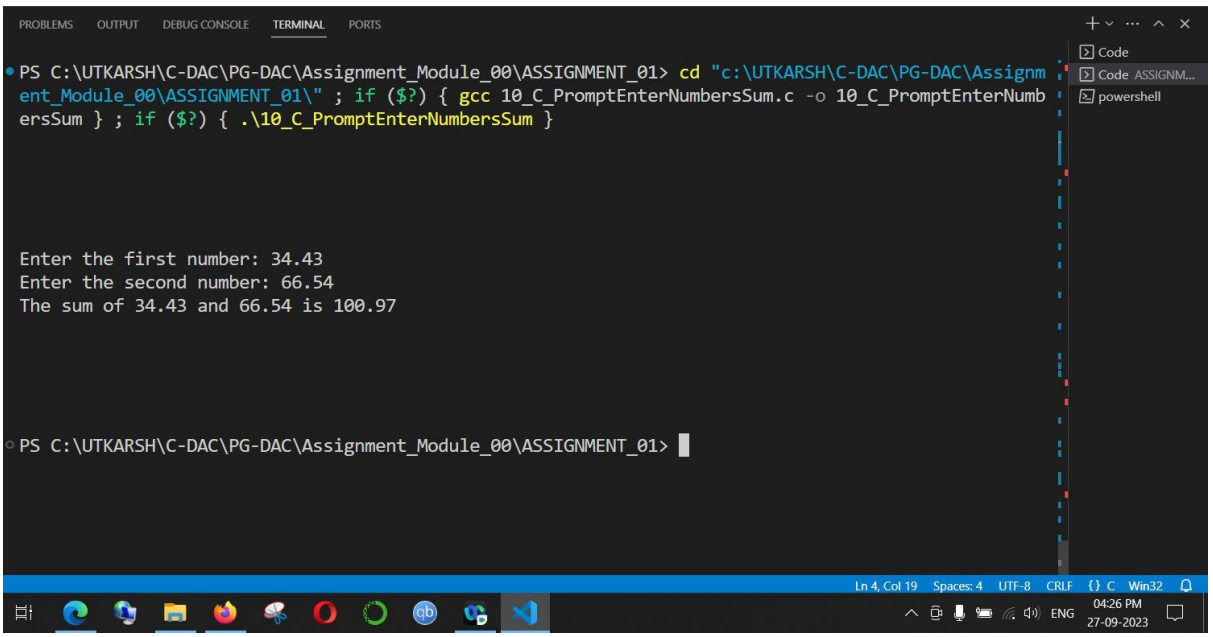


10. Write a program that prompts the user to enter two numbers, adds them together, and prints the result to the console

Source Code:

```c
#include <stdio.h>

int main() {
    // Declare variables
    double num1, num2, sum;
    printf("\n\n\n\n\n");

    // Prompt for input
    printf("Enter the first number: ");
    scanf("%lf", &num1);
    printf("Enter the second number: ");
    scanf("%lf", &num2);

    // Calculate sum
    sum = num1 + num2;

    // Display result
    printf("The sum of %.2lf and %.2lf is %.2lf\n", num1,
num2, sum);
    printf("\n\n\n\n\n");

    return 0;
}
```

OUTPUT:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01> cd "c:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01\" ; if ($?) { gcc 10_C_PromptEnterNumbersSum.c -o 10_C_PromptEnterNumbersSum } ; if ($?) { .\10_C_PromptEnterNumbersSum }
Enter the first number: 34.43
Enter the second number: 66.54
The sum of 34.43 and 66.54 is 100.97
PS C:\UTKARSH\C-DAC\PG-DAC\Assignment_Module_00\ASSIGNMENT_01>
Code
Code ASSIGNM...
powershell
Ln 4, Col 19
Spaces: 4
UTF-8
CRLF
{} C
Win32
ENG
04:26 PM
27-09-2023