Project Assignment Report

Only for course Teacher						
		Needs Improvement	**Developing**	**Sufficient**	**Above Average**	**Total Mark**
Allocate mark & Percentage		**25%**	**50%**	**75%**	**100%**	
Creativity	**1**					
Content Development	**2**					
Problem solving	**1**					
Organization and Formatting	**1**					
					Total obtained mark	
Comments						

Semester: Fall 2023

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Batch: 39

Section: A

Course Code: SE133

Course Name: Software Development Capstone Project

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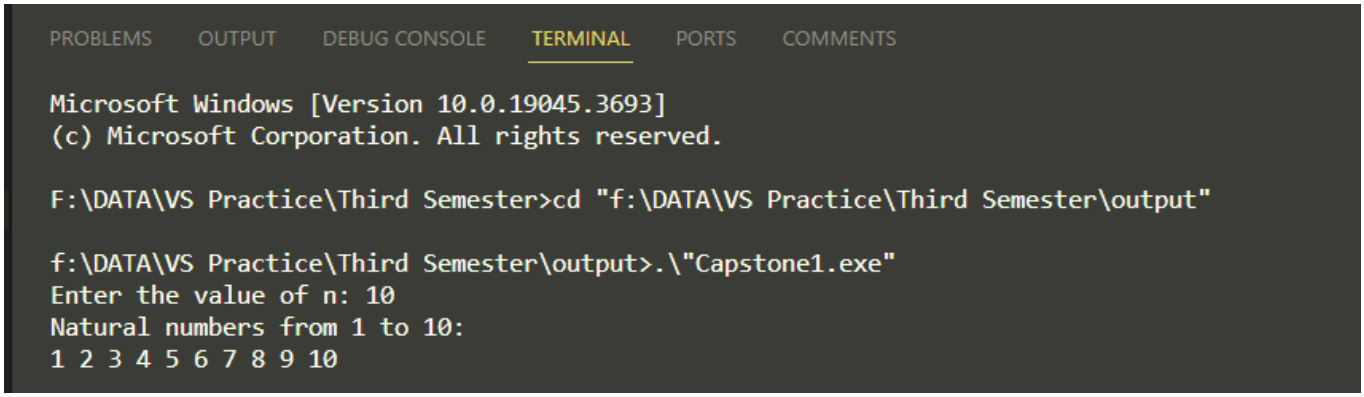
Designation: Assistant Professor, Department of Software Engineering

Submission Date:

Part A:

1. Print all natural numbers from 1 to n

```
#include <stdio.h>
int main() {
    int n;
    // Input the value of n
    printf("Enter the value of n: ");
    scanf("%d", &n);
    // Check if n is non-negative
    if (n < 1) {
        printf("Please enter a positive integer.\n");
    } else {
        // Use a loop to print natural numbers from 1 to n
        printf("Natural numbers from 1 to %d:\n", n);
        for (int i = 1; i <= n; i++) {
            printf("%d ", i);
        }
        printf("\n");
    }
    return 0;
}
```



2. Print sum of even numbers between 1 to n.

```
#include <stdio.h>
int main() {
    int n;
    int sum = 0
    // Input the value of n
```

```
    printf("Enter the value of n: ");
    scanf("%d", &n);
    // Check if n is non-negative
    if (n < 1) {
        printf("Please enter a positive integer.\n");
    } else {
        // Calculate and print the sum of even numbers from 1 to n
        printf("Sum of even numbers from 1 to %d:\n", n);
        for (int i = 1; i <= n; i++) {
            if (i % 2 == 0) {
                sum += i; // Add even numbers to the sum
            }
        }
        printf("%d\n", sum);
    }
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the value of n: 20
Sum of even numbers from 1 to 20:
110
```

3. Print sum of even numbers in given range.

```
#include <stdio.h>
int main()
{
    int start, end;
    int sum = 0;
    // Input the range [start, end]
    printf("Enter the starting value: ");
    scanf("%d", &start);
    printf("Enter the ending value: ");
```

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

    // Check if start and end are valid
    if (start > end)
    {
        printf("Invalid range. Starting value should be less than or equal to the ending value.\n");
    }
    else
    {
        // Calculate and print the sum of even numbers in the given range
        printf("Sum of even numbers in the range [%d, %d]:\n", start, end);
        for (int i = start; i <= end; i++)
        {
            if (i % 2 == 0)
            {
                sum += i; // Add even numbers to the sum
            }
        }
        printf("%d\n", sum);
    }
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the starting value: 5
Enter the ending value: 25
Sum of even numbers in the range [5, 25]:
150
```
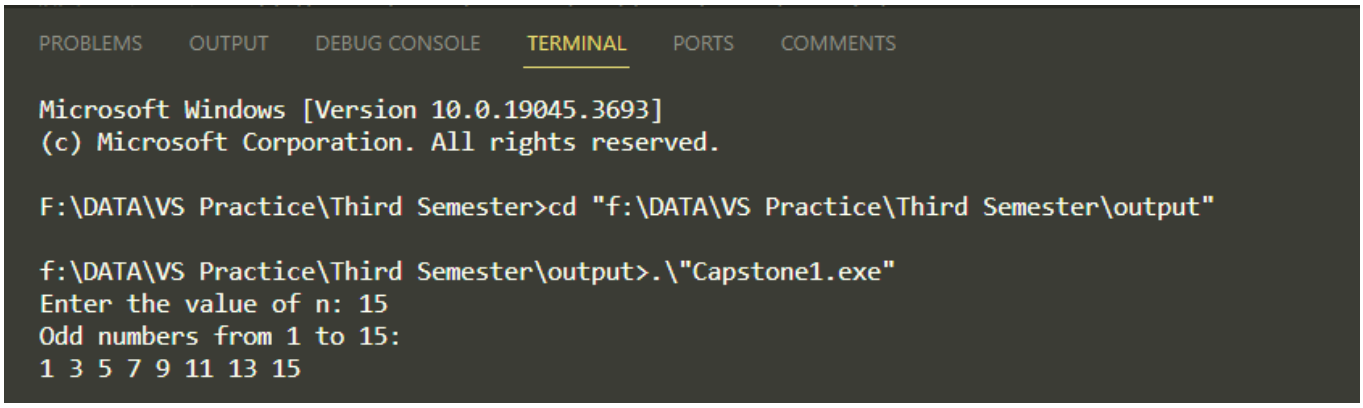

4. Print all odd numbers from 1 to n.

```
#include <stdio.h>
int main() {
    int n;
```

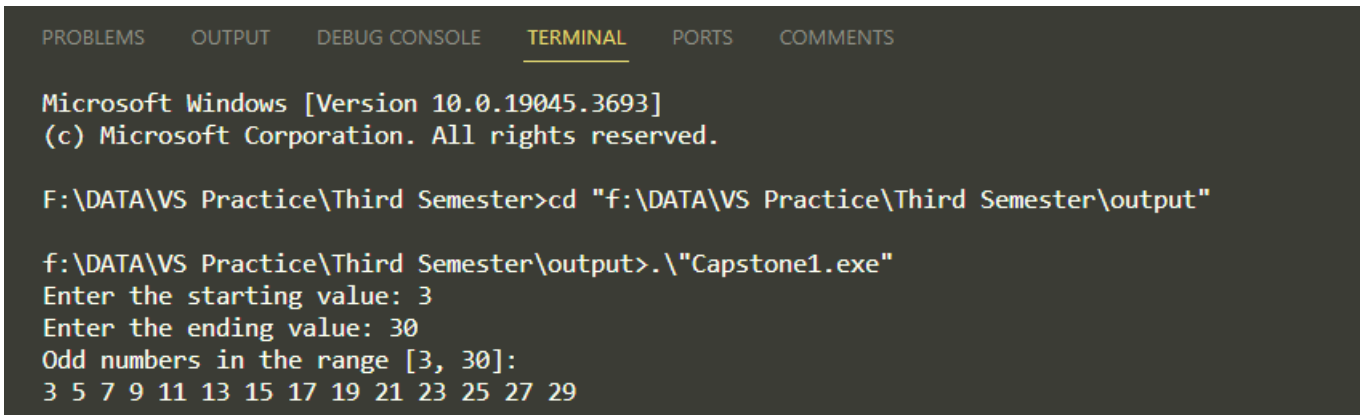
```
// Input the value of n
    printf("Enter the value of n: ");
    scanf("%d", &n);
    // Check if n is non-negative
    if (n < 1) {
        printf("Please enter a positive integer.\n");
    } else {
        // Use a loop to print odd numbers from 1 to n
        printf("Odd numbers from 1 to %d:\n", n);
        for (int i = 1; i <= n; i += 2) {
            printf("%d ", i);
        }
        printf("\n");
    }
    return 0;
}
```



5. Print odd numbers in given range.

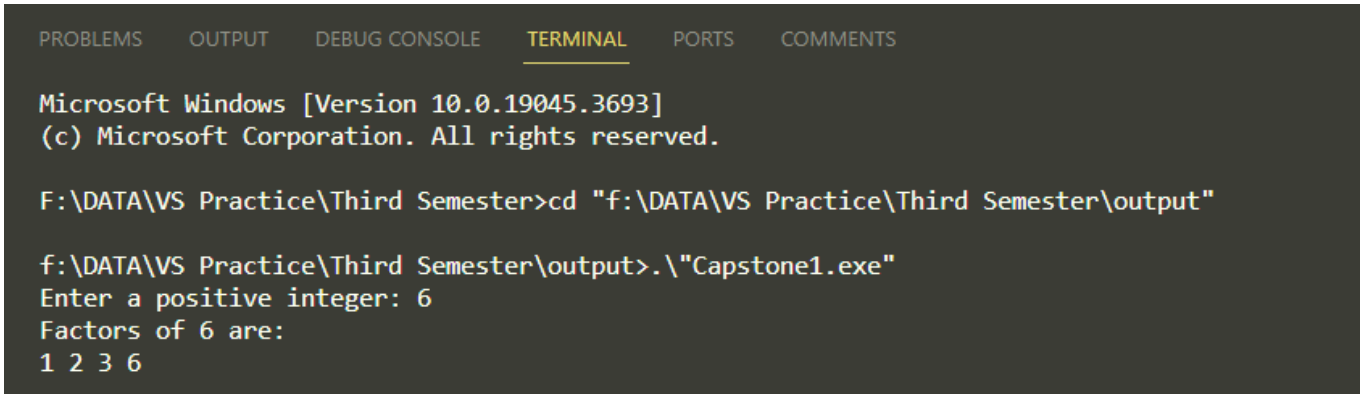
```
#include <stdio.h>
int main()
{
    int start, end;
    // Input the range [start, end]
    printf("Enter the starting value: ");
```

```
    scanf("%d", &start);
    printf("Enter the ending value: ");
    scanf("%d", &end);
    // Check if start and end are valid
    if (start > end)
    {
        printf("Invalid range. Starting value should be less than or equal to the ending value.\n");
    }
    else
    {
        // Print odd numbers in the given range
        printf("Odd numbers in the range [%d, %d]:\n", start, end);
        for (int i = start; i <= end; i++)
        {
            if (i % 2 != 0)
            {
                printf("%d ", i); // Print odd numbers
            }
        }
        printf("\n");
    }
    return 0;
}
```



6. Print all factors of a number.

```
#include <stdio.h>
int main() {
    int number;
    // Input the number for which you want to find factors
    printf("Enter a positive integer: ");
    scanf("%d", &number);
    // Check if the number is positive
    if (number <= 0) {
        printf("Please enter a positive integer.\n");
    } else {
        printf("Factors of %d are:\n", number);
        // Iterate from 1 to the number and check for factors
        for (int i = 1; i <= number; i++) {
            if (number % i == 0) {
                printf("%d ", i); // i is a factor of the number
            }
        }
        printf("\n");
    }
    return 0;
}
```



7. Print sum of odd numbers from 1 to n.

```
#include <stdio.h>
int main()
{
   int n;
   int sum = 0;
   // Input the value of n
   printf("Enter the value of n: ");
   scanf("%d", &n);
   // Check if n is non-negative
   if (n < 1)
   {
      printf("Please enter a positive integer.\n");
   }
   else{
      // Calculate and print the sum of odd numbers from 1 to n
      printf("Sum of odd numbers from 1 to %d:\n", n);
      for (int i = 1; i <= n; i++)
      {
         if (i % 2 != 0)
         {
            sum += i; // Add odd numbers to the sum
         }
      }
      printf("%d\n", sum);
   }
   return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the value of n: 20
Sum of odd numbers from 1 to 20:
100
```

8. Print sum of odd numbers from in given range.

```
#include <stdio.h>

int main() {
    int start, end;
    int sum = 0;
    // Input the range [start, end]
    printf("Enter the starting value: ");
    scanf("%d", &start);
    printf("Enter the ending value: ");
    scanf("%d", &end);
    // Check if start and end are valid
    if (start > end) {
        printf("Invalid range. Starting value should be less than or equal to the ending value.\n");
    } else {
        // Calculate and print the sum of odd numbers in the given range
        printf("Sum of odd numbers in the range [%d, %d]:\n", start, end);
        for (int i = start; i <= end; i++) {
            if (i % 2 != 0) {
                sum += i; // Add odd numbers to the sum
            }
        }
        printf("%d\n", sum);
    }
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the starting value: 1
Enter the ending value: 30
Sum of odd numbers in the range [1, 30]:
225
```

9. Base salary of a person is 50000.and he also get 40% bonus of house rent and 15% bonus of other.print gross salary.

```
#include <stdio.h>

int main() {
    double baseSalary = 50000.0; // Base salary
    double houseRentBonus = 0.40; // 40% bonus for house rent
    double otherBonus = 0.15; // 15% bonus for other

    // Calculate bonuses
    double houseRentAmount = baseSalary * houseRentBonus;
    double otherAmount = baseSalary * otherBonus;

    // Calculate gross salary
    double grossSalary = baseSalary + houseRentAmount + otherAmount;

    // Print the gross salary
    printf("Base Salary: $%.2f\n", baseSalary);
    printf("House Rent Bonus: $%.2f\n", houseRentAmount);
    printf("Other Bonus: $%.2f\n", otherAmount);
    printf("Gross Salary: $%.2f\n", grossSalary);

    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Base Salary: 50000.00
House Rent Bonus: 20000.00
Other Bonus: 7500.00
Gross Salary: 77500.00
```

10. Write a program in C to display the cube of the number up to given an integer.

```
#include <stdio.h>

int main()
{
    int n;

    // Input the value of n
    printf("Enter an integer (n): ");
    scanf("%d", &n);

    // Check if n is non-negative
    if (n < 0)
    {
        printf("Please enter a non-negative integer.\n");
    }
    else
```

```
    {
        printf("Cubes of numbers from 1 to %d:\n", n);

        // Calculate and print cubes of numbers from 1 to n
        for (int i = 1; i <= n; i++)
        {
            int cube = i * i * i;
            printf("%d^3 = %d\n", i, cube);
        }
    }

    return 0;
}
```

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter an integer (n): 6
Cubes of numbers from 1 to 6:
1^3 = 1
2^3 = 8
3^3 = 27
4^3 = 64
5^3 = 125
6^3 = 216
```

11. Write a program in C to display the n terms of odd natural number and their sum.

```
#include <stdio.h>

int main() {
    int n;
    int sum = 0;

    // Input the number of terms (n)
    printf("Enter the number of terms (n): ");
    scanf("%d", &n);

    // Check if n is non-negative
    if (n < 1) {
        printf("Please enter a positive integer.\n");
    } else {
        printf("First %d odd natural numbers and their sum:\n", n);

        // Calculate and print odd natural numbers and their sum
        for (int i = 1; i <= n; i++) {
            int oddNumber = 2 * i - 1; // Formula for the ith odd natural number
            printf("%d ", oddNumber);
            sum += oddNumber;
        }

        printf("\nSum of the first %d odd natural numbers: %d\n", n, sum);
    }
```

```
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the number of terms (n): 20
First 20 odd natural numbers and their sum:
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39
Sum of the first 20 odd natural numbers: 400
```

12. Write a program in C to display the pattern like right angle triangle with a number.

The pattern like:

```
*
**
***
****
```

```
#include <stdio.h>

int main() {
    int n;

    // Input the number of rows (n)
    printf("Enter the number of rows: ");
    scanf("%d", &n);
    // Check if n is non-negative
    if (n < 1) {
        printf("Please enter a positive integer.\n");
    } else {
        printf("Pattern with asterisks:\n");
        // Loop to print the right-angled triangle pattern
        for (int i = 1; i <= n; i++) {
            // Inner loop to print the asterisks on each row
            for (int j = 1; j <= i; j++) {
                printf("*");
            }
            printf("\n"); // Move to the next line after each row
        }
    }
    return 0;
```

}

13. Write a program in C to make such a pattern like right angle triangle with number increased by 1

The pattern like :

1
2 3
4 5 6
7 8 9 10

```
#include <stdio.h>
int main() {
    int n;
    int currentNumber = 1;

    // Input the number of rows (n)
    printf("Enter the number of rows: ");
    scanf("%d", &n);

    // Check if n is non-negative
    if (n < 1) {
        printf("Please enter a positive integer.\n");
    } else {
        printf("Pattern with numbers increased by 1:\n");

        // Loop to print the right-angled triangle pattern
        for (int i = 1; i <= n; i++) {
            // Inner loop to print the numbers on each row
            for (int j = 1; j <= i; j++) {
                printf("%d ", currentNumber);
                currentNumber++;
            }
            printf("\n"); // Move to the next line after each row
```

```
        }
    }
    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the number of rows: 4
Pattern with numbers increased by 1:
1
2 3
4 5 6
7 8 9 10
```

14. Write a program in C to display the pattern like a diamond.

```
*
***
*****
*******
*********
*******
*****
***
*
```

```
#include <stdio.h>
int main() {
    int n;
    // Input the number of rows (odd)
    printf("Enter the number of rows (odd): ");
    scanf("%d", &n);

    // Check if n is odd
    if (n % 2 == 0) {
        printf("Please enter an odd number for a symmetric diamond pattern.\n");
        return 1; // Exit with an error code
    }
    // Display the diamond pattern
    printf("Diamond pattern:\n");
    // Upper half of the diamond
    for (int i = 1; i <= n; i += 2) {
```

```
        for (int j = 0; j < (n - i) / 2; ++j) {
            printf("");
        }
        for (int j = 0; j < i; ++j) {
            printf("*");
        }
        printf("\n");
    }
    // Lower half of the diamond
    for (int i = n - 2; i >= 1; i -= 2) {
        for (int j = 0; j < (n - i) / 2; ++j) {
            printf("");
        }
        for (int j = 0; j < i; ++j) {
            printf("*");
        }
        printf("\n");
    }
    return 0;
}
```

```
PROBLEMS 2   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the number of rows (odd): 9
Diamond pattern:
*
***
*****
*******
*********
*******
*****
***
*
```

15. Write a C Program to display the pattern like pyramid using the alphabet.

A
A B A
A B C B A
A B C D C B A

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

```
int main () {
 int n;
 printf ("Enter the number of rows for the pyramid: ");
 scanf ("%d", &n);

 for (int i = 1; i <= n; i++) {
    // Print spaces before the first alphabet
    for (int j = 1; j <= n - i; j++) {
       printf ("");
    }

    // Print the alphabets in ascending order
    for (char ch = 'A'; ch <= 'A' + i - 1; ch++) {
       printf ("%c ", ch);
    }

    // Print the alphabets in descending order
    for (char ch = 'A' + i - 2; ch >= 'A'; ch--) {
       printf ("%c ", ch);
    }

    printf("\n");
 }

 return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the number of rows for the pyramid: 4
A
A B A
A B C B A
A B C D C B A
```

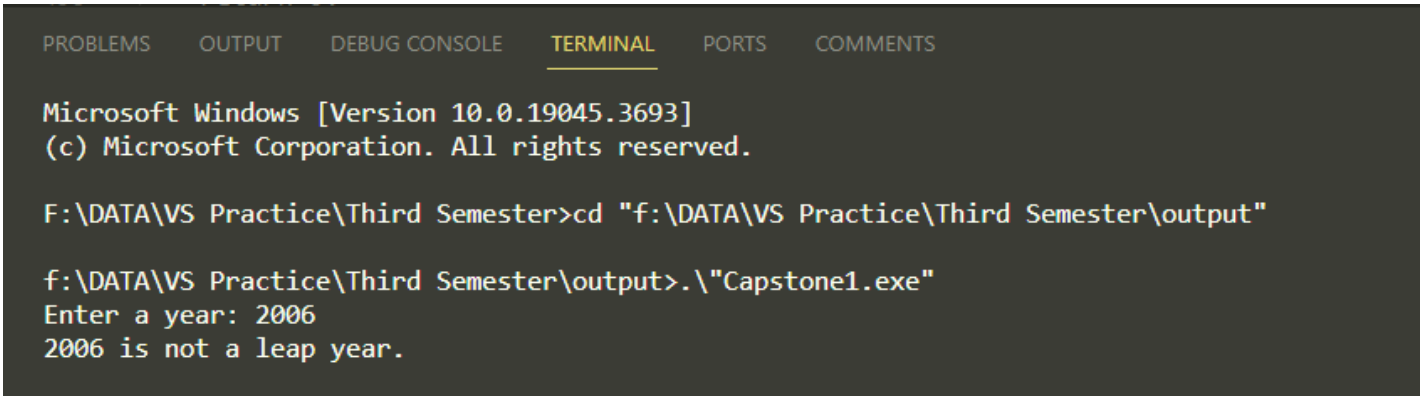
16. Write a C program to find whether a given year is a leap year or not.

include <stdio.h>

int main() {

 int year;

```
    // Input the year from the user
    printf("Enter a year: ");
    scanf("%d", &year);
    // Check if the year is a leap year
    if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
        printf("%d is a leap year.\n", year);
    } else {
        printf("%d is not a leap year.\n", year);
    }
    return 0;
}
```



17. Write a C program to find the largest of three numbers.

```
#include <stdio.h>

int main() {
    double num1, num2, num3;

    // Input three numbers from the user
    printf("Enter three numbers: ");
    scanf("%lf %lf %lf", &num1, &num2, &num3);

    // Compare the numbers to find the largest
    if (num1 >= num2 && num1 >= num3) {
        printf("%.2lf is the largest number.\n", num1);
    } else if (num2 >= num1 && num2 >= num3) {
        printf("%.2lf is the largest number.\n", num2);
    } else {
        printf("%.2lf is the largest number.\n", num3);
    }

    return 0;
```

}

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter three numbers: 10
1253
143234
143234.00 is the largest number.
```
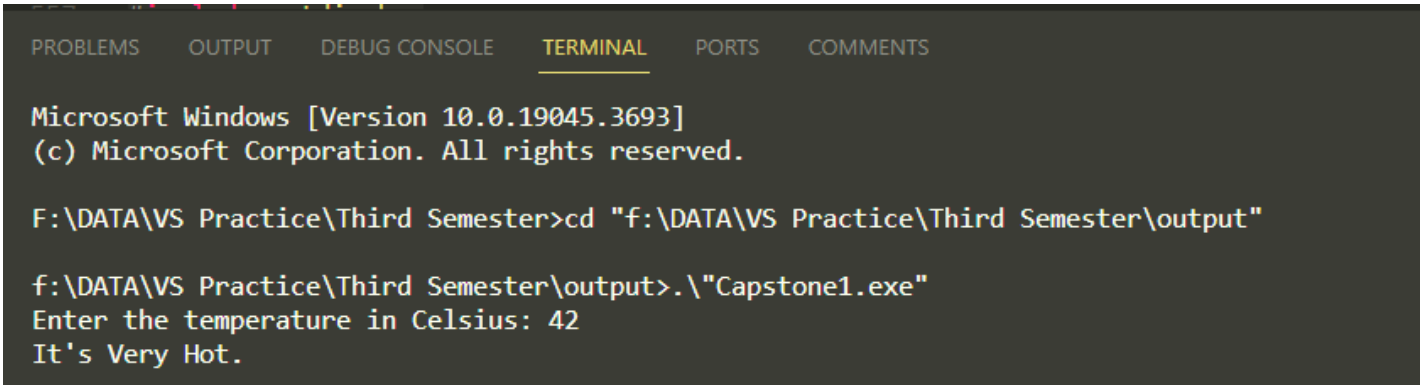

18. Write a C program to read temperature in centigrade and display a suitable message according to temperature state below.

Temp < 0 then Freezing weather
Temp 0-10 then Very Cold weather
Temp 10-20 then Cold weather
Temp 20-30 then Normal in Temp
Temp 30-40 then Its Hot
Temp >=40 then Its Very Hot
Test Data:
42
Expected Output:
It's very hot.

```
#include <stdio.h>

int main() {
    float temperature;

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

    // Check the temperature and display a suitable message
    if (temperature < 0) {
        printf("Freezing weather.\n");
    } else if (temperature >= 0 && temperature <= 10) {
        printf("Very Cold weather.\n");
    } else if (temperature > 10 && temperature <= 20) {
        printf("Cold weather.\n");
    } else if (temperature > 20 && temperature <= 30) {
        printf("Normal in Temp.\n");
    } else if (temperature > 30 && temperature <= 40) {
        printf("It's Hot.\n");
    } else {
        printf("It's Very Hot.\n");
    }

    return 0;
```

}



19. Write a C program to check whether a triangle can be formed by the given value for the angles.

include <stdio.h>

```
int main() {
    float angle1, angle2, angle3;
    // Input the three angles of the triangle
    printf("Enter the three angles of the triangle (in degrees): ");
    scanf("%f %f %f", &angle1, &angle2, &angle3);

    // Check if each angle is greater than 0 degrees
    if (angle1 <= 0 || angle2 <= 0 || angle3 <= 0) {
        printf("Each angle must be greater than 0 degrees. Triangle cannot be formed.\n");
    }
    // Check the triangle inequality theorem
    else if (angle1 + angle2 + angle3 == 180) {
        printf("These angles can form a triangle.\n");
    } else {
        printf("These angles cannot form a triangle.\n");
    }
    return 0;
```

}

```
PROBLEMS 1  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter the three angles of the triangle (in degrees): 30
60
180
These angles cannot form a triangle.
```

20. Write a C program to check whether a character is an alphabet, digit or special character.

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

int main() {
    char ch;
    // Input a character from the user
    printf("Enter a character: ");
    scanf(" %c", &ch);

    // Check if the character is an alphabet
    if (isalpha(ch)) {
        printf("%c is an alphabet.\n", ch);
    }
    // Check if the character is a digit
    else if (isdigit(ch)) {
        printf("%c is a digit.\n", ch);
    }
    // Check if the character is a special character
    else {
        printf("%c is a special character.\n", ch);
    }

    return 0;
}
```

```
PROBLEMS 1  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone1.exe"
Enter a character: $
$ is a special character.
```
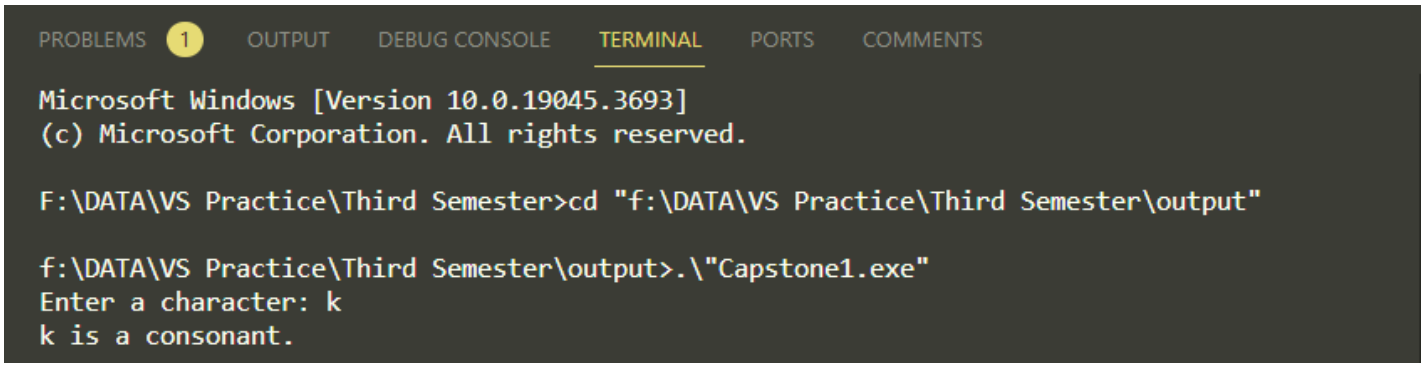

21. Write a C program to check whether an alphabet is a vowel or consonant.

```
#include <stdio.h>
int main() {
    char ch;
    // Input a character from the user
    printf("Enter a character: ");
    scanf(" %c", &ch); // Note the space before %c to consume any previous newline character.
    // Check if it's a vowel or a consonant
    if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
        // Check if it's a lowercase vowel
        if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
            ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U') {
            printf("%c is a vowel.\n", ch);
        } else {
            printf("%c is a consonant.\n", ch);
        }
    } else {
        printf("%c is not an alphabet letter.\n", ch);}
    return 0;}
```



22. Write a program in C to read any day number in integer and display day name in the word.

```
#include <stdio.h>
int main() {
    int dayNumber;
    // Prompt the user to enter a day number
    printf("Enter a day number (1-7): ");
    scanf("%d", &dayNumber);
    // Check if the entered day number is within the valid range
    if (dayNumber >= 1 && dayNumber <= 7) {
        // Use a switch statement to display the corresponding day name
        switch (dayNumber) {
            case 1:
```

```
            printf("Sunday\n");
            break;
        case 2:
            printf("Monday\n");
            break;
        case 3:
            printf("Tuesday\n");
            break;
        case 4:
            printf("Wednesday\n");
            break;
        case 5:
            printf("Thursday\n");
            break;
        case 6:
            printf("Friday\n");
            break;
        case 7:
            printf("Saturday\n");
            break;
    }
  } else {
    // Display an error message if the input is not within the valid range
    printf("Invalid day number. Please enter a number between 1 and 7.\n");
  }
  return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter a day number (1-7): 6
Friday
```
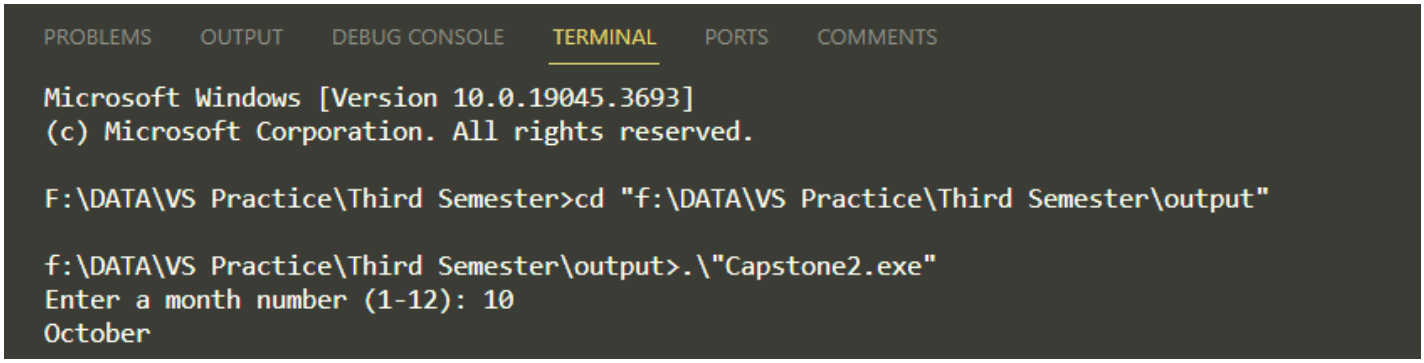

23. Write a program in C to read any Month Number in integer and display Month name in the word.

```
#include <stdio.h>
int main() {
  int monthNumber;
  // Prompt the user to enter a month number
  printf("Enter a month number (1-12): ");
  scanf("%d", &monthNumber);
  // Check if the entered month number is within the valid range
  if (monthNumber >= 1 && monthNumber <= 12) {
    // Use a switch statement to display the corresponding month name
    switch (monthNumber) {
```

```
        case 1:
            printf("January\n");
            break;
        case 2:
            printf("February\n");
            break;
        case 3:
            printf("March\n");
            break;
        case 4:
            printf("April\n");
            break;
        case 5:
            printf("May\n");
            break;
        case 6:
            printf("June\n");
            break;
        case 7:
            printf("July\n");
            break;
        case 8:
            printf("August\n");
            break;
        case 9:
            printf("September\n");
            break;
        case 10:
            printf("October\n");
            break;
        case 11:
            printf("November\n");
            break;
        case 12:
            printf("December\n");
            break;
    }
} else {
    // Display an error message if the input is not within the valid range
    printf("Invalid month number. Please enter a number between 1 and 12.\n");
}
return 0;
```

}



24. Write a program in C to read any Month Number in integer and display the number of days for this month.

```
#include <stdio.h>
int main() {
    int monthNumber;
    // Prompt the user to enter a month number
    printf("Enter a month number (1-12): ");
    scanf("%d", &monthNumber);
    // Check if the entered month number is within the valid range
    if (monthNumber >= 1 && monthNumber <= 12) {
        int daysInMonth;
        // Determine the number of days in the month based on the month number
        switch (monthNumber) {
            case 1:  // January
            case 3:  // March
            case 5:  // May
            case 7:  // July
            case 8:  // August
            case 10: // October
            case 12: // December
                daysInMonth = 31;
                break;
            case 4:  // April
            case 6:  // June
            case 9:  // September
            case 11: // November
                daysInMonth = 30;
                break;
            case 2:  // February
                daysInMonth = 28; // Assuming a non-leap year by default
                break;
        }
        printf("Number of days in the selected month: %d\n", daysInMonth);
    } else {
        // Display an error message if the input is not within the valid range
```

```
        printf("Invalid month number. Please enter a number between 1 and 12.\n");
    }
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter a month number (1-12): 7
Number of days in the selected month: 31
```

25. Write a program that converts Centigrade to Kelvin.

```
#include <stdio.h>
int main() {
    double celsius, kelvin;
    // Prompt the user to enter temperature in Celsius
    printf("Enter temperature in Celsius: ");
    scanf("%lf", &celsius);
    // Convert Celsius to Kelvin
    kelvin = celsius + 273;
    // Display the result
    printf("%.2lf Celsius is equal to %.2lf Kelvin.\n", celsius, kelvin);
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter temperature in Celsius: 37.9
37.90 Celsius is equal to 310.90 Kelvin.
```

Part B

1. Write a C program to print your name, date of birth. and mobile number.

```
#include <stdio.h>

int main() {
    char name[100];
    char dob[20];
    char mobile[15];

    printf("Enter your name: ");
    gets(name);

    printf("Enter your date of birth: ");
    gets(dob);

    printf("Enter your mobile number: ");
    gets(mobile);

    printf("Name: %s\n", name);
    printf("Date of Birth: %s\n", dob);
    printf("Mobile Number: %s\n", mobile);

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter your name: Mahinur Rahman Nifad
Enter your date of birth: 2nd Jyly 2001
Enter your mobile number: 01628511429
Name: Mahinur Rahman Nifad
Date of Birth: 2nd Jyly 2001
Mobile Number: 01628511429
```

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

```
#include <stdio.h>

int main() {
    char characters[] = {'X', 'M', 'L'};
    int length = sizeof(characters) / sizeof(characters[0]);

    printf("Original characters: ");
    for (int i = 0; i < length; i++) {
        printf("%c", characters[i]);
    }
```

```
    printf("\n");
    printf("The reverse of XML is ");
    for (int i = length - 1; i >= 0; i--) {
        printf("%c", characters[i]);
    }
    printf("\n");
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Original characters: XML
The reverse of XML is LMX
```

3. Write a C program to convert specified days into years, weeks and days.

```
#include <stdio.h>

int main()
{
    int days;
    int years, weeks, remainingDays;
    // Prompt the user to enter the number of days
    printf("Enter the number of days: ");
    scanf("%d", &days);
    // Calculate years, weeks, and remaining days
    years = days / 365;
    days %= 365;
    weeks = days / 7;
    remainingDays = days % 7;
    // Display the result
    printf("Years: %d\n", years);
    printf("Weeks: %d\n", weeks);
    printf("Days: %d\n", remainingDays);

    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the number of days: 31
Years: 0
Weeks: 4
Days: 3
```

4. Write a C program to calculate the distance between the two points.

```
#include <stdio.h>
#include <math.h>
int main() {
    double x1, y1, x2, y2, distance;
    printf("Enter the coordinates of the first point (x1 y1): ");
    scanf("%lf %lf", &x1, &y1);

    printf("Enter the coordinates of the second point (x2 y2): ");
    scanf("%lf %lf", &x2, &y2);

    // Calculate the distance using the distance formula
    distance = sqrt((x2 - x1) * (x2 - x1) + (y2 - y1) * (y2 - y1));

    printf("The distance between (%.2lf, %.2lf) and (%.2lf, %.2lf) is %.2lf\n", x1, y1, x2, y2, distance);

    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the coordinates of the first point (x1 y1): 4 4
Enter the coordinates of the second point (x2 y2): 6 3
The distance between (4.00, 4.00) and (6.00, 3.00) is 2.24
```

5. Write a C program to calculate the value of S where S = 1 + 1/2 + 1/3 + … + 1/50.

```
#include <stdio.h>

int main() {
    double S = 0.0;

    for (int i = 1; i <= 50; ++i) {
        S += 1.0 / i;
    }
    printf("The value of S is: %lf\n", S);
    return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
The value of S is: 4.499205
```
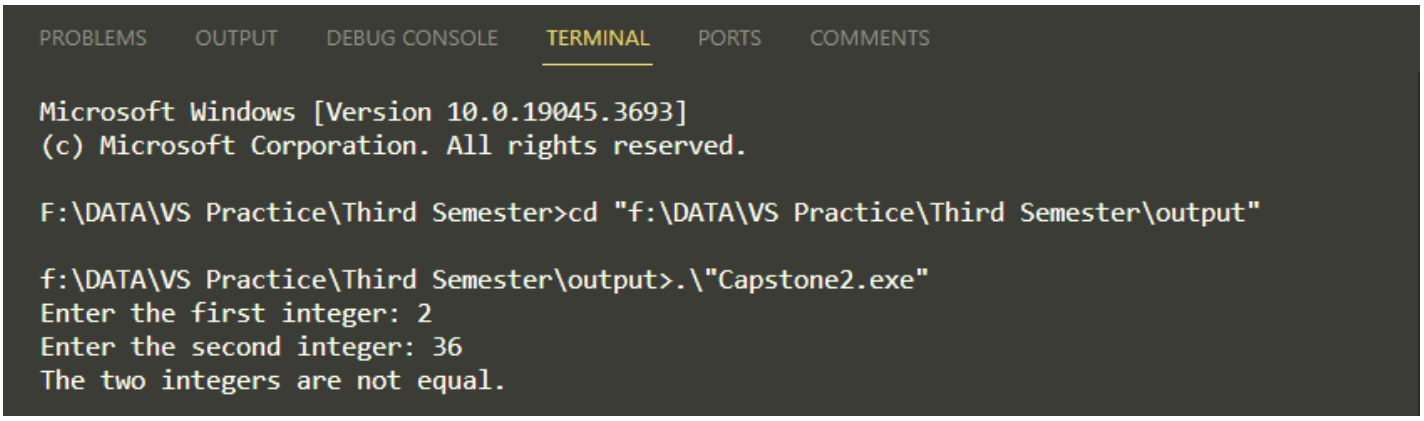

6. Write a C program to accept two integers and check whether they are equal or not.

```
#include <stdio.h>

int main() {
    int num1, num2;

    printf("Enter the first integer: ");
    scanf("%d", &num1);

    printf("Enter the second integer: ");
    scanf("%d", &num2);

    if (num1 == num2) {
        printf("The two integers are equal.\n");
    } else {
        printf("The two integers are not equal.\n");
    }

    return 0;
}
```



7. Write a C program to check whether a given number is positive or negative.

```
#include <stdio.h>

int main() {
    int number;

    printf("Enter a number: ");
    scanf("%d", &number);

    if (number > 0) {
        printf("The number is positive.\n");
    } else if (number < 0) {
        printf("The number is negative.\n");
    } else {
        printf("The number is zero.\n");
    }

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS                Code

Microsoft Windows [Version 10.0.19045.3693]
(c) Microsoft Corporation. All rights reserved.

F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\" && gcc Capstone2.c -o Capstone2 &&
 "f:\DATA\VS Practice\Third Semester\"Capstone2
Enter a number: 102
The number is positive.
```

8. Write a C program that calculates the volume of a sphere.

```
#include <stdio.h>

int main() {
    double radius, volume;
    const double pi = 3.14159265; // Define the value of pi
    printf("Enter the radius of the sphere: ");
    scanf("%lf", &radius);

    // Calculate the volume of the sphere
    volume = (4.0 / 3.0) * pi * radius * radius * radius;

    printf("The volume of the sphere with radius %.2lf is %.2lf cubic units.\n", radius, volume);

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the radius of the sphere: 6.3
The volume of the sphere with radius 6.30 is 1047.39 cubic units.
```

9. Write a C program to find the third angle of a triangle if two angles are given.

```
#include <stdio.h>
int main() {
   double angle1, angle2, angle3;

   printf("Enter the first angle (in degrees): ");
   scanf("%lf", &angle1);
   printf("Enter the second angle (in degrees): ");
   scanf("%lf", &angle2);
   // Check if the sum of angles is greater than 180
   if (angle1 + angle2 > 180) {
      printf("These angles do not form a valid triangle because the sum is greater than 180 degrees.\n");
   } else {
      // Calculate the third angle
      angle3 = 180.0 - (angle1 + angle2);
      printf("The third angle is %.2lf degrees.\n", angle3);
   }
   return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the first angle (in degrees): 57
Enter the second angle (in degrees): 33
The third angle is 90.00 degrees.
```

10. Write a C program to convert height feet to centimeter

```
#include <stdio.h>
   int main() {
   double heightFeet, heightCentimeters;
   // Prompt the user for input
   printf("Enter height in feet: ");
   scanf("%lf", &heightFeet);
   // Convert feet to centimeters
   heightCentimeters = heightFeet * 30.48;
   // Display the result
   printf("%.2lf feet is equal to %.2lf centimeters.\n", heightFeet, heightCentimeters);

   return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter height in feet: 5.7
5.70 feet is equal to 173.74 centimeters.
```

11. Write a C program to perform addition, subtraction, multiplication and division of two numbers if they are even.

```
#include <stdio.h>

int main()
{
    int num1, num2;

    // Input the two numbers
    printf("Enter the first number: ");
    scanf("%d", &num1);
    printf("Enter the second number: ");
    scanf("%d", &num2);

    // Check if both numbers are even
    if (num1 % 2 == 0 && num2 % 2 == 0)
    {
        int sum = num1 + num2;
        int diff = num1 - num2;
        int product = num1 * num2;

        // Check if the second number is not zero before division
        if (num2 != 0)
        {
            float division = (float)num1 / num2;
            printf("Sum: %d\n", sum);
            printf("Difference: %d\n", diff);
            printf("Product: %d\n", product);
            printf("Division: %.2f\n", division);
        }
        else
        {
            printf("Division by zero is not allowed.\n");
        }
    }
    else
    {
        printf("Both numbers should be even for operations.\n");
    }

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the first number: 24
Enter the second number: 96
Sum: 120
Difference: -72
Product: 2304
Division: 0.25
```

12. Write a C program to calculate the average of two number if they are odd

```
#include <stdio.h>
int main () {
   int num1, num2;
   float average;
   // Input the two numbers
   printf("Enter the first number: ");
   scanf("%d", &num1);
   printf("Enter the second number: ");
   scanf("%d", &num2);

   // Check if both numbers are odd
   if (num1 % 2 != 0 && num2 % 2 != 0) {
      // Calculate the average
      average = (float)(num1 + num2) / 2;
      printf("Average of %d and %d is %.2f\n", num1, num2, average);
   } else {
      printf("Both numbers should be odd for calculating the average.\n");
   }
   return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the first number: 23
Enter the second number: 121
Average of 23 and 121 is 72.00
```

13. i. Write a C program to calculate the division of two number if they are negative

```c
#include <stdio.h>

int main() {
    int num1, num2;
    float result;

    // Input the two numbers
    printf("Enter the first number: ");
    scanf("%d", &num1);
    printf("Enter the second number: ");
    scanf("%d", &num2);

    // Check if both numbers are negative
    if (num1 < 0 && num2 < 0) {
        // Check if the second number is not zero before division
        if (num2 != 0) {
            result = (float)num1 / num2;
            printf("Division of %d by %d is %.2f\n", num1, num2, result);
        } else {
            printf("Division by zero is not allowed.\n");
        }
    } else {
        printf("Both numbers should be negative for division.\n");
    }

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the first number: -256
Enter the second number: -63
Division of -256 by -63 is 4.06
```

13.ii. Input the height and base of a triangle from console and calculate the area of the triangle.

```
#include <stdio.h>

int main() {
   float height, base, area;

   // Input the height and base from the console
   printf("Enter the height of the triangle: ");
   scanf("%f", &height);
   printf("Enter the base of the triangle: ");
   scanf("%f", &base);

   // Calculate the area of the triangle
   area = (0.5) * base * height;

   // Check if the entered values are non-negative
   if (height >= 0 && base >= 0) {
      printf("The area of the triangle is: %.2f\n", area);
   } else {
      printf("Please enter non-negative values for height and base.\n");
   }

   return 0;
}
```

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the height of the triangle: 9
Enter the base of the triangle: 2
The area of the triangle is: 9.00
```

14. Input two number from console and multiply them if 1st number less than 2nd number.

```
#include <stdio.h>
int main() {
    double num1, num2, result;
    // Input two numbers from the console
    printf("Enter the first number: ");
    scanf("%lf", &num1);
    printf("Enter the second number: ");
    scanf("%lf", &num2);

    // Check if the first number is less than the second number
    if (num1 < num2) {
        result = num1 * num2;
        printf("Multiplication result: %.2lf\n", result);
    } else {
        printf("The first number is not less than the second number, so no multiplication is performed.\n");
    }
    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter the first number: 56
Enter the second number: 33
The first number is not less than the second number, so no multiplication is performed.
```

15. Input a number from console and print if the number less than 20 and greater than 5.

```
#include <stdio.h>
int main() {
    int number;
    // Input from the user
    printf("Enter a number: ");
    scanf("%d", &number);
    // Check if the number is between 5 and 20
    if (number > 5 && number < 20) {
        printf("The number is greater than 5 and less than 20.\n");
    } else {
        printf("The number is not within the specified range.\n");
    }
    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter a number: 17
The number is greater than 5 and less than 20.
```

16. Input character from console and print x^2+4y+c.

```
#include <stdio.h>
  int main() {
   double x, y, c, result;

   // Input values for x, y, and c
   printf("Enter a value for x: ");
   scanf("%lf", &x);
   printf("Enter a value for y: ");
   scanf("%lf", &y);
   printf("Enter a value for c: ");
   scanf("%lf", &c);

   // Calculate the expression x^2 + 4y + c
   result = x * x + 4 * y + c;

   // Print the result
   printf("Result of x^2 + 4y + c = %.2lf\n", result);

   return 0;
}
```

```
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter a value for x: 52
Enter a value for y: 6
Enter a value for c: 29
Result of x^2 + 4y + c = 2757.00
```
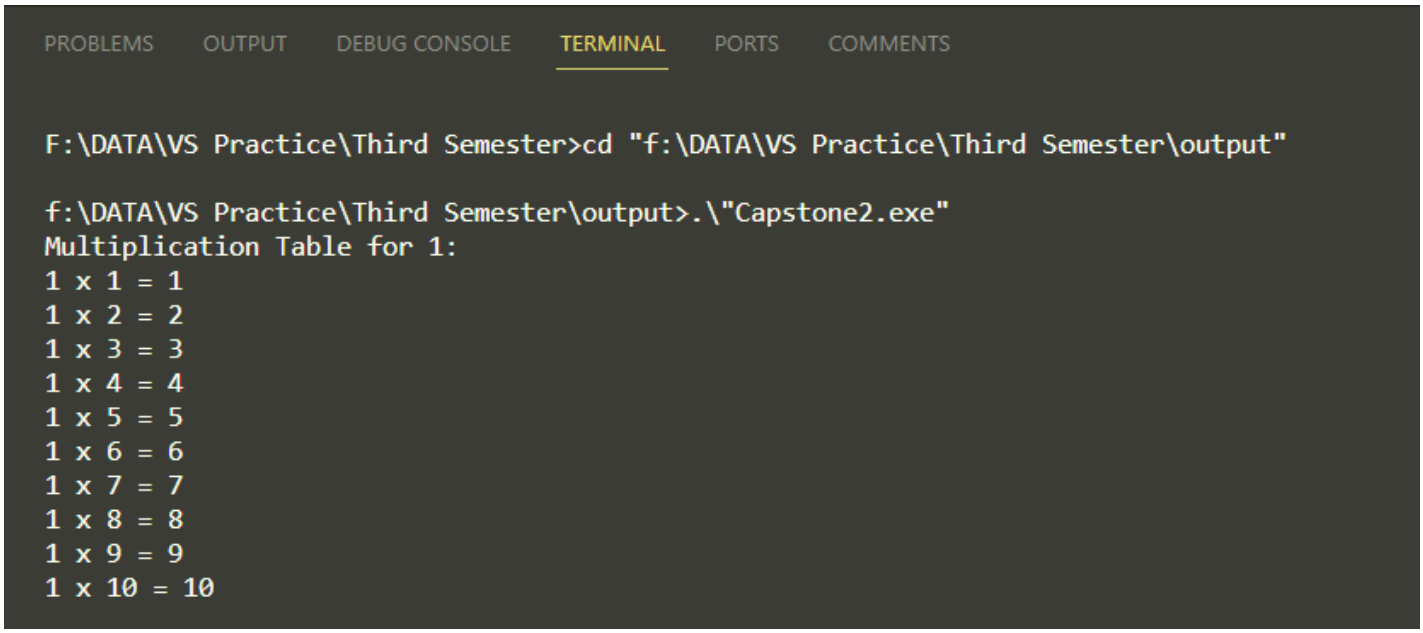

17. Make A multiplication table for 1.

```
#include <stdio.h>
int main() {
   printf("Multiplication Table for 1:\n");
   for (int i = 1; i <= 10; i++) {
      printf("1 x %d = %d\n", i, 1 * i);
   }
   return 0;
}
```



18. Make A multiplication table for 1 To 10

```
#include <stdio.h>
int main() {
   int i, j;
   // Generate multiplication table for numbers 1 to 10
   for (i = 1; i <= 10; ++i) {
      printf("Multiplication table for %d:\n", i);
      for (j = 1; j <= 10; ++j) {
         printf("%d * %d = %d\n", i, j, i * j);
      }
      printf("\n"); // Separate each table with a newline
   }
   return 0;
}
```

```
 Multiplication table for 1:
 1 * 1 = 1
 1 * 2 = 2
 1 * 3 = 3
 1 * 4 = 4
 1 * 5 = 5
 1 * 6 = 6
 1 * 7 = 7
 1 * 8 = 8
 1 * 9 = 9
 1 * 10 = 10
Multiplication table for 2:
2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10
2 * 6 = 12
2 * 7 = 14
2 * 8 = 16
2 * 9 = 18
2 * 10 = 20

Multiplication table for 3:
3 * 1 = 3
3 * 2 = 6
3 * 3 = 9
3 * 4 = 12
3 * 5 = 15
3 * 6 = 18
3 * 7 = 21
3 * 8 = 24
3 * 9 = 27
3 * 10 = 30
```

```
Multiplication table for 4:
4 * 1 = 4
4 * 2 = 8
4 * 3 = 12
4 * 4 = 16
4 * 5 = 20
4 * 6 = 24
4 * 7 = 28
4 * 8 = 32
4 * 9 = 36
4 * 10 = 40

Multiplication table for 5:
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
 Multiplication table for 6:
 6 * 1 = 6
 6 * 2 = 12
 6 * 3 = 18
 6 * 4 = 24
 6 * 5 = 30
 6 * 6 = 36
 6 * 7 = 42
 6 * 8 = 48
 6 * 9 = 54
 6 * 10 = 60

 Multiplication table for 7:
 7 * 1 = 7
 7 * 2 = 14
 7 * 3 = 21
 7 * 4 = 28
 7 * 5 = 35
 7 * 6 = 42
 7 * 7 = 49
 7 * 8 = 56
 7 * 9 = 63
 7 * 10 = 70
```

```
Multiplication table for 8:
8 * 1 = 8
8 * 2 = 16
8 * 3 = 24
8 * 4 = 32
8 * 5 = 40
8 * 6 = 48
8 * 7 = 56
8 * 8 = 64
8 * 9 = 72
8 * 10 = 80

Multiplication table for 9:
9 * 1 = 9
9 * 2 = 18
9 * 3 = 27
9 * 4 = 36
9 * 5 = 45
9 * 6 = 54
9 * 7 = 63
9 * 8 = 72
9 * 9 = 81
9 * 10 = 90

Multiplication table for 10:
10 * 1 = 10
10 * 2 = 20
10 * 3 = 30
10 * 4 = 40
10 * 5 = 50
10 * 6 = 60
10 * 7 = 70
10 * 8 = 80
10 * 9 = 90
10 * 10 = 100
```

19. Print the numbers between 100 to 200 which are completely divisible by 3 and 5.

```
#include <stdio.h>
int main() {
   printf("Numbers between 100 and 200 divisible by 3 and 5:\n");

   for (int num = 100; num <= 200; num++) {
      if (num % 3 == 0 && num % 5 == 0) {
         printf("%d\n", num);
      }
   }
   return 0;
}
```

```
F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Numbers between 100 and 200 divisible by 3 and 5:
105
120
135
150
165
180
195
```

20. Find summation and average of all the numbers which are completely divisible by 3, 5 and 12 between 10 – 500. [Like 60 is divisible by all of those].

```
#include <stdio.h>

int main() {
    int sum = 0;   // Variable to store the sum of numbers
    int count = 0; // Variable to count the numbers
    float average; // Variable to store the average

    printf("Numbers between 10 and 500 divisible by 3, 5, and 12:\n");

    for (int num = 10; num <= 500; num++) {
        if (num % 3 == 0 && num % 5 == 0 && num % 12 == 0) {
            printf("%d\n", num);
            sum += num;   // Add the number to the sum
            count++;      // Increment the count
        }
    }

    // Calculate the average
    if (count > 0) {
        average = (float)sum / count;
        printf("\nSum of numbers: %d\n", sum);
        printf("Average of numbers: %.2f\n", average);
    } else {
        printf("\nNo numbers found in the specified range that are divisible by 3, 5, and 12.\n");
    }

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

Microsoft Windows [Version 10.0.19045.3693]
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Numbers between 10 and 500 divisible by 3, 5, and 12:
60
120
180
240
300
360
420
480

Sum of numbers: 2160
Average of numbers: 270.00
```
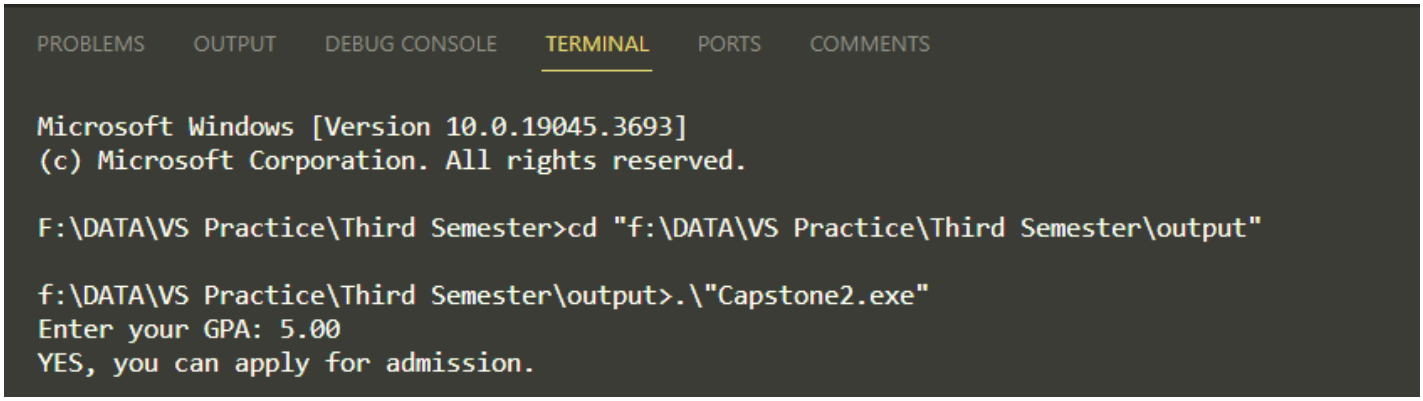

21. Suppose you are going to apply for admission in a college. If you got GPA 5 in SSC exam then you can apply for that college. Now give your GPA as input from the keyboard and print "YES" if you can apply otherwise print "NO".

```
#include <stdio.h>
int main() {
   float gpa;
   // Input GPA from the keyboard
   printf("Enter your GPA: ");
   scanf("%f", &gpa);
   // Check if the GPA is 5
   if (gpa == 5.0) {
      printf("YES, you can apply for admission.\n");
   } else {
      printf("NO, you cannot apply for admission.\n");
   }
   return 0;
}
```



22. You are going to open a bank account. If your age is greater than 18 then you can open an account. Get your age by input and print "Yes" if you can open an account otherwise print "No".

```
#include <stdio.h>
int main() {
   int age;
    // Input your age from the keyboard
   printf("Enter your age: ");
   scanf("%d", &age);

   // Check if your age is greater than 18
   if (age > 18) {
      printf("Yes, you can open a bank account.\n");
   } else {
      printf("No, you cannot open a bank account.\n");
   }
   return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

Microsoft Windows [Version 10.0.19045.3693]
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Enter your age: 23
Yes, you can open a bank account.
```

23. Write a program to display “A” to “Z” using loop.

```
#include <stdio.h>
  int main() {
   char letter = 'A'; // Initialize letter to 'A'
   printf("Uppercase Alphabets from A to Z:\n");
   while (letter <= 'Z') {
      printf("%c ", letter);
      letter++; // Increment letter to move to the next character
   }
   printf("\n");
   return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

Microsoft Windows [Version 10.0.19045.3693]
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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Uppercase Alphabets from A to Z:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
```

24. Write a program to produce the following output using loop

1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36

```
#include <stdio.h>
int main() {
    int n = 1;

    printf("Output pattern:\n");

    for (int i = 1; i <= 6; i++) {
        for (int j = 1; j <= i; j++) {
            printf("%d ", n * j);
        }
        n++;
        printf("\n");
    }

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

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F:\DATA\VS Practice\Third Semester>cd "f:\DATA\VS Practice\Third Semester\output"

f:\DATA\VS Practice\Third Semester\output>.\"Capstone2.exe"
Output pattern:
1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36
```

25. Write a program which will display all the prime numbers between 0 to N(N will be given by the user).

If user gives N = 20, your code will print the following output- 2 3 5 7 11 13 17 19.

```
#include <stdio.h>
#include <stdbool.h>
// Function to check if a number is prime
bool isPrime(int num) {
    if (num <= 1) {
        return false;
    }
    for (int i = 2; i * i <= num; i++) {
```

```
        if (num % i == 0) {
            return false;
        }
    }
    return true;
}

int main() {
    int N;

    // Input N from the user
    printf("Enter a positive integer N: ");
    scanf("%d", &N);

    printf("Prime numbers between 0 and %d:\n", N);

    // Iterate from 2 to N and check for prime numbers
    for (int i = 2; i <= N; i++) {
        if (isPrime(i)) {
            printf("%d ", i);
        }
    }

    printf("\n");

    return 0;
}
```