Institute of Computer Technology
B. Tech. Computer Science and Engineering

Sub: ESFP – I
Course Code: 2CSE102
Practical – 15

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Class: B
Batch:14

Q.1.Problem Definition:

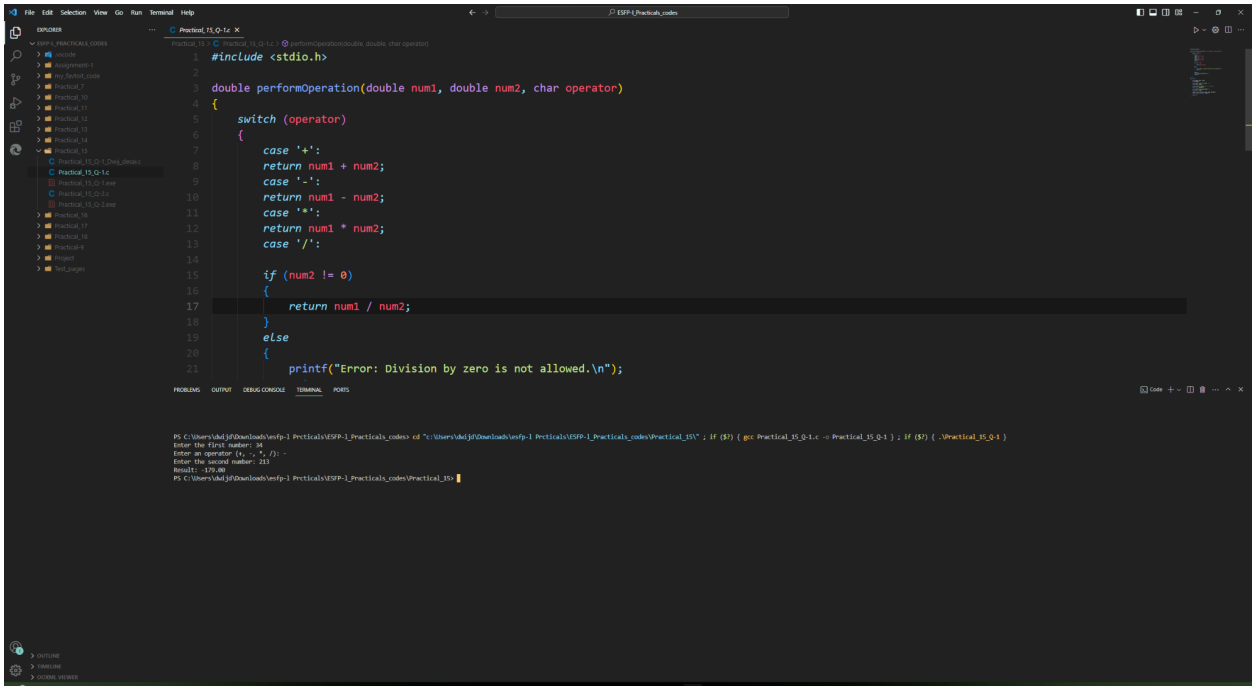
Make a program in C to accept any random two numbers from user. Find out addition, subtraction, multiplication, and division using user defined function and switch case condition.

Code:

```c
#include <stdio.h>

double performOperation(double num1, double num2, char operator)
{
    switch (operator)
    {
        case '+':
        return num1 + num2;
        case '-':
        return num1 - num2;
        case '*':
        return num1 * num2;
        case '/':

        if (num2 != 0)
        {
            return num1 / num2;
        }
        else
```

```
        {
            printf("Error: Division by zero is not allowed.\n");
            return 0;
        }

        default:
        printf("Invalid operator\n");
        return 0;

    }
}
int main()
{
    double num1, num2, result;
    char operator;

    printf("Enter the first number: ");
    scanf("%lf", &num1);

    printf("Enter an operator (+, -, *, /): ");
    scanf(" %c", &operator);

    printf("Enter the second number: ");
    scanf("%lf", &num2);

    result = performOperation(num1, num2, operator);
    printf("Result: %.2lf\n", result);

    return 0;
}
```

Output:




```
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijd\Do
Enter the first number: 34
Enter an operator (+, -, *, /): -
Enter the second number: 213
Result: -179.00
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_15>
```

Q.2.Problem Definition:

Make a program of the following using function (with or without parameter) and switch case condition

Code:

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

int factorial(int n)
{
    if (n == 0 || n == 1)
    {
        return 1;
    }
    else
```

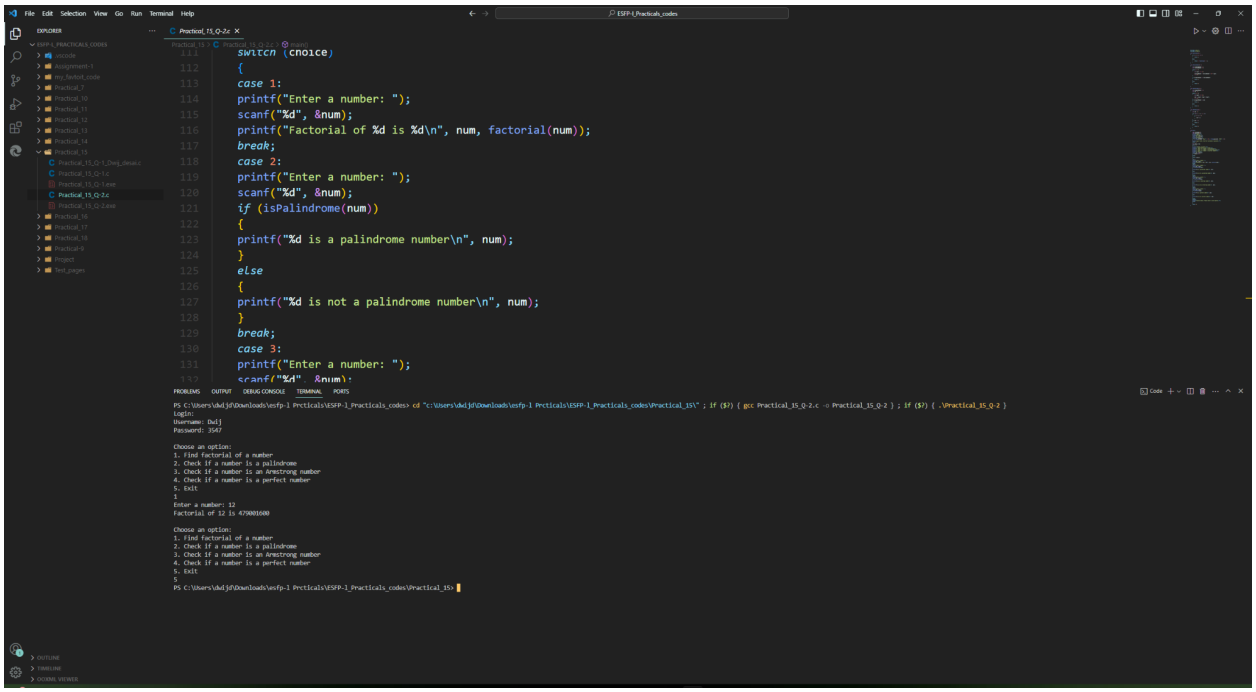
```
    {
        return n * factorial(n - 1);
    }
}

int isPalindrome(int n)
{
    int originalNumber = n;
    int reversedNumber = 0;

    while (n > 0)
    {
        int digit = n % 10;

        reversedNumber = reversedNumber * 10 + digit;
        n /= 10;
    }

    if (originalNumber == reversedNumber)
    {
        return 1;
    }
    else
    {
        return 0;
    }

}

int isArmstrong(int n)
{
    int originalNumber = n;
    int sum = 0;

    while (n > 0)
    {
        int digit = n % 10;

        sum += (digit * digit * digit);
        n /= 10;
    }
    if (originalNumber == sum)
    {
        return 1;
    }
    else
    {
```

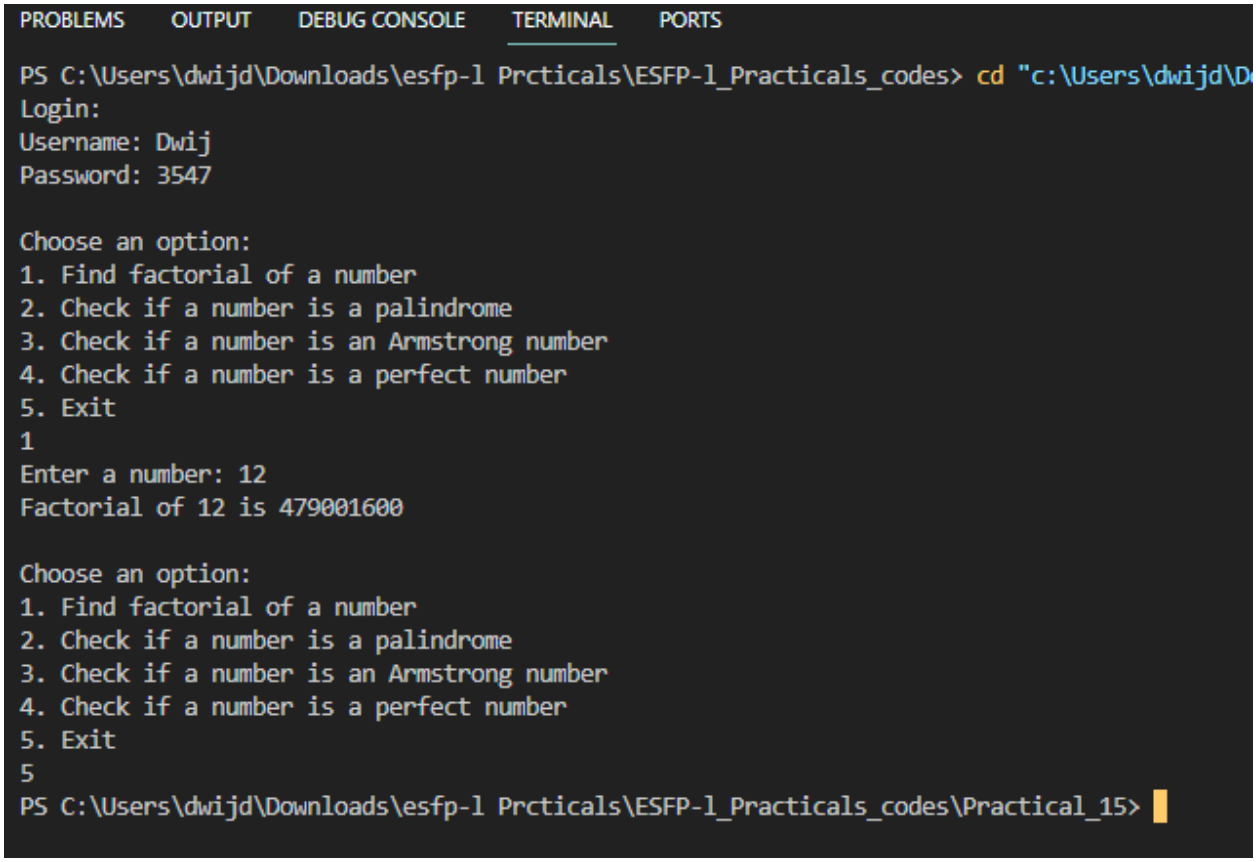
```
        return 0;
    }
}

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

    for (int i = 1; i < n; i++)
    {
        if (n % i == 0)
        {
            sum += i;
        }
    }
    if (sum == n)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}

int main()
{
    char username[20];
    char password[20];
    printf("Login:\n");
    printf("Username: ");
    scanf("%s", username);
    printf("Password: ");
    scanf("%s", password);
    if (strcmp(username, "Dwij") != 0 || strcmp(password, "3547") != 0)
    {
    printf("Login failed. Incorrect username or password.\n");
    return 1;
    }
    int choice, num;
    while (1)
    {
    printf("\nChoose an option:\n");
    printf("1. Find factorial of a number\n");
    printf("2. Check if a number is a palindrome\n");
    printf("3. Check if a number is an Armstrong number\n");
    printf("4. Check if a number is a perfect number\n");
```

```
    printf("5. Exit\n");
    scanf("%d", &choice);
    if (choice == 5)
    {
    break;
    }
    switch (choice)
    {
    case 1:
    printf("Enter a number: ");
    scanf("%d", &num);
    printf("Factorial of %d is %d\n", num, factorial(num));
    break;
    case 2:
    printf("Enter a number: ");
    scanf("%d", &num);
    if (isPalindrome(num))
    {
    printf("%d is a palindrome number\n", num);
    }
    else
    {
    printf("%d is not a palindrome number\n", num);
    }
    break;
    case 3:
    printf("Enter a number: ");
    scanf("%d", &num);
    if (isArmstrong(num))
    {
    printf("%d is an Armstrong number\n", num);
    }
    else
    {
    printf("%d is not an Armstrong number\n", num);
    }
    break;
    case 4:
    printf("Enter a number: ");
    scanf("%d", &num);
    if (isPerfect(num))
    {
    printf("%d is a perfect number\n", num);
    }
    else
    {
    printf("%d is not a perfect number\n", num);
```

```
    }
    break;
    default:
    printf("Invalid choice. Please select a valid option.\n");
    break;
    }
    }
    return 0;
}
```

Output:




PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijd\D
Login:
Username: Dwij
Password: 3547
Choose an option:
1. Find factorial of a number
2. Check if a number is a palindrome
3. Check if a number is an Armstrong number
4. Check if a number is a perfect number
5. Exit
1
Enter a number: 12
Factorial of 12 is 479001600
Choose an option:
1. Find factorial of a number
2. Check if a number is a palindrome
3. Check if a number is an Armstrong number
4. Check if a number is a perfect number
5. Exit
5
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_15>