**Assignment 04 Using Type 3**

#include <stdio.h>

void armstrongInRange(int, int);

void primeInRange(int, int);

void perfectInRange(int, int);

void strongInRange(int, int);

void main()

{

    int ch = 1;

    while (ch)

    {

        int start, end;

        printf("\n What do you want to do : \n1> Armstrong Numbers in range.\n2> Prime numbers in range \n");

        printf("3> Perfect Numbers in range. \n4> Strong numbers in range \nEnter Your choice (1,2,3,4) :");

        scanf("%d", &ch);

        if (ch == 1)

        {

            printf("\n Enter The range start 3 digit  :");

            scanf("%d", &start);

            printf("\n Enter The range end 3 digit:");

            scanf("%d", &end);

            armstrongInRange(start, end);

        }

        else if (ch == 2)

        {

            printf("\n Enter The range start :");

            scanf("%d", &start);

            printf("\n Enter The range end :");

            scanf("%d", &end);

            primeInRange(start, end);

        }

        else if (ch == 3)

        {

            printf("\n Enter The range start :");

            scanf("%d", &start);

            printf("\n Enter The range end :");

            scanf("%d", &end);

            perfectInRange(start, end);

        }

        else if (ch == 4)

        {

            printf("\n Enter The range start :");

            scanf("%d", &start);

            printf("\n Enter The range end :");

            scanf("%d", &end);

            strongInRange(start, end);

        }

        else

        {

            printf("Invalid choice");

        }

    }

}

void armstrongInRange(int start, int end)

{

    for (int i = start; i <= end; i++)

    {

        int rem, armN = 0;

        // printf("\n Inside For loop \n");

        int temp = i;

        while (temp)

        {

            // printf("Inside While \n");

            // printf("Temp : %d\n", temp);

            rem = temp % 10;

            armN += rem \* rem \* rem;

            temp /= 10;

        }

        if (armN == i)

        {

            printf("\n %d is Armstrong", i);

        }

        else

        {

            continue;

        }

    }

}

void primeInRange(int start, int end)

{

    for (int i = start; i <= end; i++)

    {

        int j;

        if (i == 1 || i == 0)

        {

            continue;

        }

        for (j = 2; j <= (i / 2); j++)

        {

            if (i % j == 0)

            {

                break;

            }

        }

        if (j == (i / 2) + 1)

        {

            printf("\n %d is Prime.", i);

        }

    }

}

void perfectInRange(int start, int end)

{

    for (int i = start; i <= end; i++)

    {

        int sumOfDivisor = 0;

        for (int j = 1; j < i; j++)

        {

            if (i % j == 0)

            {

                sumOfDivisor += j;

            }

        }

        if (sumOfDivisor == i && i != 0)

        {

            printf("Number %d is perfect number \n", i);

        }

    }

}

void strongInRange(int start, int end)

{

    for (int i = start; i <= end; i++)

    {

        int sumOfFactorials = 0;

        int temp = i;

        while (temp > 0)

        {

            int digit = temp % 10;

            int factorial = 1;

            for (int j = 1; j <= digit; j++)

            {

                factorial \*= j;

            }

            sumOfFactorials += factorial;

            temp /= 10;

        }

        if (sumOfFactorials == i)

        {

            printf("Number %d is a strong number \n", i);

        }

    }

}

Output:

PS C:\Code> & 'c:\Users\bhagv\.vscode\...\TDM-GCC-64\bin\gdb.exe' '--interpreter=mi'

What do you want to do :

1> Armstrong Numbers in range.

2> Prime numbers in range

3> Perfect Numbers in range.

4> Strong numbers in range

Enter Your choice (1,2,3,4) :1

Enter The range start 3 digit :2

Enter The range end 3 digit:334

153 is Armstrong

What do you want to do :

1> Armstrong Numbers in range.

2> Prime numbers in range

3> Perfect Numbers in range.

4> Strong numbers in range

Enter Your choice (1,2,3,4) :2

Enter The range start :1

Enter The range end :99

2 is Prime.

3 is Prime.

5 is Prime.

7 is Prime.

11 is Prime.

13 is Prime.

17 is Prime.

19 is Prime.

23 is Prime.

29 is Prime.

31 is Prime.

37 is Prime.

41 is Prime.

43 is Prime.

47 is Prime.

53 is Prime.

59 is Prime.

61 is Prime.

67 is Prime.

71 is Prime.

73 is Prime.

79 is Prime.

83 is Prime.

89 is Prime.

97 is Prime.

What do you want to do :

1> Armstrong Numbers in range.

2> Prime numbers in range

3> Perfect Numbers in range.

4> Strong numbers in range

Enter Your choice (1,2,3,4) :3

Enter The range start :1

Enter The range end :999

Number 6 is perfect number

Number 28 is perfect number

Number 496 is perfect number

What do you want to do :

1> Armstrong Numbers in range.

2> Prime numbers in range

3> Perfect Numbers in range.

4> Strong numbers in range

Enter Your choice (1,2,3,4) :4

Enter The range start :1

Enter The range end :999

Number 1 is a strong number

Number 2 is a strong number

Number 145 is a strong number

What do you want to do :

1> Armstrong Numbers in range.

2> Prime numbers in range

3> Perfect Numbers in range.

4> Strong numbers in range

Enter Your choice (1,2,3,4) :0

Invalid choice

PS C:\Code>