

Assignment 01 Using Type 1

```
#include <stdio.h>
void tempConvert();
void areaAndPerimetre();
void sumOfDigitAndReverse();
void evenOdd();
void salary();
void marriageEligibility();
void circumference();
void areaofCircle();
void perimeter();
void areaofRect();

void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Enter your choice : \n");
        printf("1) Temp Convert: \n");
        printf("2) Area And Perimeter: \n");
        printf("3) Sum Of Digits and Reverse: \n");
        printf("4) Even Odd : \n");
        printf("5) Salary: \n");
        printf("6) Marriage Eligibility: \n");
        printf("0) Enter zero to exit: \n");

        scanf("%d", &ch);
        if (ch > 6 || ch <= 0)
        {
            printf("Invalid Choice !");
        }
        else if (ch == 1)
        {
            tempConvert();
        }
        else if (ch == 2)
        {
            areaAndPerimetre();
        }
        else if (ch == 3)
        {
            sumOfDigitAndReverse();
        }
        else if (ch == 4)
        {
            evenOdd();
        }
    }
}
```

```

    }
    else if (ch == 5)
    {
        salary();
    }
    else if (ch == 6)
    {
        marriageEligibility();
    }
}
}
void tempConvert()
{
    int CL = 010;
    float fr = (9.0 / 5.0) * CL + 32;
    printf("Temparature In Celcius is :%d \n", CL);
    printf("Temparature In Ferenhite is :%f", fr);
}
void areaAndPerimetere()
{
    areaofCircle();
    printf("\n");
    areaofRect();
    printf("\n");
    perimeter();
    printf("\n");
    circumference();
}
void areaofCircle()
{
    const float PI = 3.14;
    float radious = 9.0;
    float areaOfCir = PI * (radious * radious);
    printf("%f is area of circle", areaOfCir);
}
void areaofRect()
{
    int L = 15, W = 45;
    int areaOfRect = L * W;
    printf("%d is area of rect", areaOfRect);
}
void perimeter()
{
    int L = 15, W = 45;
    int areaOfRect = L * W;
    int periMeter = 2 * (L + W);
    printf("\n %d is perimeter of Reactangle. \n ", periMeter);
}

```

```

void circumference()
{
    const float PI = 3.14;
    float radius = 9.0;
    float Circumfer = 2.0 * PI * radius;
    printf("\n %f is circumference \n", Circumfer);
}

void sumOfDigitAndReverse()
{
    int num = 234;
    int sum = 0;
    int rev = 0;

    int r1 = num % 10;
    int q1 = num / 10;

    sum += r1;
    rev = (rev * 10) + r1;

    r1 = q1 % 10;
    q1 /= 10;

    rev = (rev * 10) + r1;
    sum += r1;

    r1 = q1 % 10;
    q1 /= 10;

    rev = (rev * 10) + r1;
    sum += r1;

    printf("Sum of %d digits is: %d \n Also Reverse of num: %d", num, sum,
rev);
}

void evenOdd()
{
    int num = 7;
    if (num % 2 == 0)
    {
        printf("Number is even \n");
    }
    else
    {
        printf("Number is odd \n");
    }
}

void salary()
{

```

```

float baseSalary = 7777.0, totalSalary;
float DA, TA, HRA;
if (baseSalary <= 5000)
{
    DA = 0.10 * baseSalary;
    TA = 0.20 * baseSalary;
    HRA = 0.25 * baseSalary;
}
else
{
    DA = 0.15 * baseSalary;
    TA = 0.25 * baseSalary;
    HRA = 0.30 * baseSalary;
}
totalSalary = DA + TA + HRA + baseSalary;
printf("%f is total salary.", totalSalary);
}
void marriageEligibility()
{
    int maleAge = 25, femaleAge = 29;
    char gender = 'f';

    if (gender == 'f' && femaleAge >= 18 || gender == 'm' && maleAge >= 21)
    {
        printf("Eligible to marry");
    }
    else
    {
        printf("Not Eligible to marry");
    }
}
}

```

Output :

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

Eneter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0) Enter zero to exit:

1

Temperature In Celcius is :8

Temperature In Feranhite is :46.400002

Eneter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0) Enter zero to exit:

2

254.340012 is area of circle

675 is area of rect

120 is perimeter of Reactangle.

56.520000 is circumference

Eneter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0) Enter zero to exit:

3

Sum of 234 digits is: 9

Also Reverse of num: 432

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0) Enter zero to exit:

4

Number is odd

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0) Enter zero to exit:

5

13220.900391 is total salary.

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0) Enter zero to exit:

6

Eligible to marry

Eneter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0) Enter zero to exit:

0

Inavalid Choice !

PS C:\Code>

Assignment 02 Using Type 1

```
#include <stdio.h>
void discount();
void greatestOfThree();
void UseChoice();
void discountStudent();
void calculator();
void addition();
void substraction();
void multiplication();
void division();
void evenOdd();
void salary();
void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Eneter your choice : \n");
        printf("1) Discount: \n");
        printf("2) Greatest of Three: \n");
        printf("3) calculator: \n");
        printf("4) UserChoice : \n");
        printf("5) Student Discount: \n");
```

```

        printf("Enter 0 To exit");

        scanf("%d", &ch);
        if (ch > 5 || ch < 0)
        {
            printf("Inavalid Choice !");
        }
        else if (ch == 1)
        {
            discount();
        }
        else if (ch == 2)
        {
            greatestOfThree();
        }
        else if (ch == 3)
        {
            calculator();
        }
        else if (ch == 4)
        {
            UseChoice();
        }
        else if (ch == 5)
        {
            discountStudent();
        }
        else if (ch == 0)
        {
            break;
        }
    }
}

void discount()
{
    float Op;
    printf("Enter Original Price broo:");
    scanf("%f", &Op);
    float finalPrice;
    if (Op <= 1000)
    {
        finalPrice = Op - (0.05 * Op);
        printf("%.2f is final price with 5%% discount on original price %.2f", finalPrice, Op);
    }
    else if (Op <= 5000)
    {
        finalPrice = Op - (0.10 * Op);
    }
}

```



```

        printf("%.2f is final price with 10%% discount on original price %.2f", finalPrice, Op);
    }
    else if (Op <= 10000)
    {
        finalPrice = Op - (0.20 * Op);
        printf("%.2f is final price with 20%% discount on original price %.2f ", finalPrice, Op);
    }
    else if (Op > 10000)
    {
        finalPrice = Op - (0.25 * Op);
        printf("%.2f is final price with 25%% discount on original price %.2f", finalPrice, Op);
    }
}

void greatestOfThree()
{
    int A, B, C;
    printf("Enter Three Numbers : ");
    scanf("%d%d%d", &A, &B, &C);
    printf("\n");
    printf("%d is the greatest.", A > B && A > C ? A : B > C ? B : C);
}

void calculator()
{
    printf("Enetr your Choice: \n");
    printf("A Addition \n");
    printf("S Substraction \n");
    printf("M Multiplication \n");
    printf("D Dividion \n");
    char op = getch();
    if (op == 'A')
    {
        printf("Chosen Operation is Addition.. \n ");
        addition();
    }
    else if (op == 'S')
    {
        printf("Chosen Operation is Substraction.. \n ");
        subtraction();
    }
    else if (op == 'M')
    {
        printf("Chosen Operation is Multiplication.. \n ");
        multiplication();
    }
}

```

```

        else if (op == 'D')
        {
            printf("Chosen Operation is Division.. \n ");
            division();
        }
    }
}

void addition()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    printf("\n %d is a Addition.", (A + B));
}

void division()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    if (A < B)
    {
        printf("\n %d is Division. \n", (B / A));
    }
    else
    {
        printf("\n %d is Division. \n", (A / B));
    }
}

void subtraction()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    printf("\n %d is Subtraction. \n", (B - A));
}

void multiplication()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    printf("\n %d is a Multiplication.", (A * B));
}

void UseChoice()
{ // Choice to be taken from user when learn about Scan
    printf("\n Enter Your choice \n");
    printf("\n E for EvenOdd \n");
    printf("\n S for Slary Calculation \n");
    printf("\n G for Finding greatest of three. \n");
}

```

```

char choice = getch();

if (choice == 'E')
{
    evenOdd();
}
else if (choice == 'S')
{
    printf("Salary calculation \n");

    salary();
}
else if (choice == 'G')
{
    printf("Greatest of Three Numbers \n");
    // get value of a b c from user
    printf("\n Enter 3 Numbers :");
    int A, B, C;
    scanf("%d%d%d", &A, &B, &C);

    printf("%d is the greatest.\n", A > B && A > C ? A : (B > C ? B : C));
}
}

void discountStudent()
{
    float price, finalprice;
    printf("Enter Price of the product : \n");
    scanf("%f", &price);
    printf("Are you a Student ? (Y/N) \n");
    char std = getch();
    if (std == 'Y')
    {
        if (price >= 500)
        {
            finalprice = price - (price * 0.20);
        }
        else
        {
            finalprice = price - (price * 0.10);
        }
    }
    else if (std == 'N' && price > 600)
    {
        finalprice = price - (price * 0.15);
    }
    else
    {

```

```

        finalprice = price;
    }
    printf("Final price is : %.2f", finalprice);
}

void evenOdd()
{
    int num;
    printf("Enter A number to check Even or Odd \n");
    scanf("%d", &num);
    if (num % 2 == 0)
    {
        printf("Number is Even \n");
    }
    else
    {
        printf("Number is odd.");
    }
}

void salary()
{
    float baseSalary, totalSalary;
    printf("Enter Base salary: \n");
    scanf("%f", &baseSalary);
    float DA, TA, HRA;
    if (baseSalary <= 5000)
    {
        DA = 0.10 * baseSalary;
        TA = 0.20 * baseSalary;
        HRA = 0.25 * baseSalary;
    }
    else
    {
        DA = 0.15 * baseSalary;
        TA = 0.25 * baseSalary;
        HRA = 0.30 * baseSalary;
    }

    printf("\n %.4f is Totalsalary.", DA + TA + HRA + baseSalary);
}

```

Output:

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

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit1

Enter Original Price broo:560

532.00 is final price with 5% discount on original price 560.00

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit2

Enter Three Numbers : 12

234

999

999 is the greatest.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit3

Enetr your Choice:

A Addition

S Substraction

M Multiplication

D Dividion

Chosen Operation is Addition..

Enter Two numbers : 12

33

45 is a Addition.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit4

Enter Your choice

E for EvenOdd

S for Slary Calculation

G for Finding greatest of three.

Enter A number to check Even or Odd

45

Number is odd.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit5

Enter Price of the product :

45666

Are you a Student ? (Y/N)

Final price is : 36532.80

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit0

PS C:\Code>

Assignment 03 Using Type 1

```
#include <stdio.h>
void OneToTen();
void tableOfNum();
void sumOfNumdinrange();
void isPrime();
void armstrong();
void perfect();
void factorial();
void strong();
void palindrome();
void sumOfFirstAndLastDigit();
void main()
{
    int ch = 1;
    while (ch)
    {
        printf("Eneter your choice : \n");
        printf("1) one to ten: \n");
        printf("2) Table of Num: \n");
        printf("3) Sum of nums in range : \n");
        printf("4) is prime: \n");
```

```

printf("5) Armstrong: \n");
printf("6) Perfect No: \n");
printf("7) Factorial: \n");
printf("8) Strong Num: \n");
printf("9) Palindrome: \n");
printf("10) Sum Of Frirst and Last Digit: \n");
printf(" Enter 0 to exit.\n");
scanf("%d", &ch);
if (ch > 10 || ch <= 0)
{
    printf("Inavalid Choice !");
}
else if (ch == 1)
{
    OneToTen();
}
else if (ch == 2)
{
    tableOfNum();
}
else if (ch == 3)
{
    sumOfNumdinrange();
}
else if (ch == 4)
{
    isPrime();
}
else if (ch == 5)
{
    armstrong();
}
else if (ch == 6)
{
    perfect();
}
else if (ch == 7)
{
    factorial();
}
else if (ch == 8)
{
    strong();
}
else if (ch == 9)
{
    palindrome();
}

```



```

        else if (ch == 10)
        {
            sumOfFirstAndLastDigit();
        }
    }
}

void OneToTen()
{
    int num = 1;
    while (num <= 10)
    {
        printf("%d \n", num);
        num++;
    }
    printf("%d is exit value of num.", num);
}

void tableOfNum()
{
    int num;
    printf("Enter a number. \n");
    scanf("%d", &num);
    int i = 1;
    while (i <= 10)
    {
        printf("%d * %d = %d \n", num, i, num * i);
        i++;
    }
    printf("Exit value of i = %d", i);
}

void sumOfNumdinrange()
{
    int start, end;
    printf("Enter starting range :");
    scanf("%d", &start);
    // printf("\n");
    printf("Enter Ending range : ");
    scanf("%d", &end);
    int sum = 0;
    int temp = start;

    while (temp <= end)
    {
        sum += temp;
        temp++;
    }
    printf("Sum of numbers between %d to %d is = %d", start, end, sum);
}

void isPrime()

```

```

{
    printf("Enter a number to cheack Prime or Not :");
    int num;
    scanf("%d", &num);
    int i = 2, cnt = 0;
    while (i <= num / 2)
    {
        if (num % i == 0)
        {
            cnt++;
        }
        i++;
    }
    if (cnt > 0 || num == 1)
    {
        printf("num %d is not Prime. \n", num);
    }
    else
    {
        printf("num %d is Prime. \n", num);
    }

    printf("Exit value of I is : %d", i);
}

void armstrong()
{
    int num, rem = 0;
    int armN = 0;
    printf("Enter A number to cheack armstrong. \n: ");
    scanf("%d", &num);
    int temp = num;
    while (temp)
    {
        // printf("Im stuck help me !!!!");
        rem = temp % 10;
        armN += rem * rem * rem;
        temp /= 10;
    }
    if (armN == num)
    {
        printf("Number %d is Armstrong Number.", num);
    }
    else
    {
        printf("Number %d is not Armstrong Number.", num);
    }
}

void perfect()

```

```

{
    printf("Enter A number :");
    int num, i = 1, sumOfDivisor = 0;
    scanf("%d", &num);

    while (i < num)
    {
        if (num % i == 0)
        {
            sumOfDivisor += i;
            // cnt++;
        }
        i++;
    }
    if (sumOfDivisor == num)
    {
        printf("Number %d is perfect number \n", num);
    }
    else
    {
        printf("%d is not perfect number \n", num);
    }
}

void factorial()
{
    int num;
    int Fact = 1;
    printf("Enter A number :");
    scanf("%d", &num);

    if (num < 0)
    {
        printf("Invalid number!");
    }
    else if (num > 0)
    {
        // while (num)
        // {
        //     Fact *= num;
        //     num--;
        // }

        for (int i = 2; i <= num; i++)
        {
            Fact *= i;
        }
    }
    printf("%d is factorial of entered number", Fact);
}

```

```

}
void strong()
{
    printf("Enter a number : ");
    int num;
    scanf("%d", &num);
    int temp = num;
    int FcatSum = 0;

    while (temp != 0)
    {
        int rem = temp % 10;
        int fact = 1;
        if (rem > 0)
        {
            while (rem)
            {
                fact *= rem;
                rem--;
            }
            FcatSum += fact;
            temp /= 10;
        }
        else
        {
            FcatSum += fact;
            temp /= 10;
        }
    }
    // printf("%d is factsum.", FcatSum);
    if (FcatSum == num)
    {
        printf("%d is a strong number", num);
    }
    else
    {
        printf("%d is not a strong number.", num);
    }
}

void palindrome()
{
    printf("Enter A number :");
    int num;
    scanf("%d", &num);
    int temp = num;
    int rev = 0;

    while (temp > 0)

```

```

    {
        int rem = temp % 10;
        rev = (rev * 10) + rem;
        temp /= 10;
    }
    if (rev == num)
    {
        printf("%d is a palindrome Number.", num);
    }
    else
    {
        printf("%d Is not a palindrome number", num);
    }
}
void sumOfFirstAndLastDigit()
{
    printf("Enter A number : ");
    int num;
    scanf("%d", &num);
    int lastDigit, firstDigit;

    lastDigit = num % 10;
    firstDigit = num / 10;

    while (firstDigit >= 10)
    {
        firstDigit /= 10;
    }
    int sum = firstDigit + lastDigit;
    printf("%d is sum of first and last digit of given numbr %d.", sum, num);
}

```

Output :

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

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

1

1

2

3

4

5

6

7

8

9

10

11 is exit value of num.Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

2

Enter a number.

3

$3 * 1 = 3$

$$3 * 2 = 6$$

$$3 * 3 = 9$$

$$3 * 4 = 12$$

$$3 * 5 = 15$$

$$3 * 6 = 18$$

$$3 * 7 = 21$$

$$3 * 8 = 24$$

$$3 * 9 = 27$$

$$3 * 10 = 30$$

Exit value of i = 11Enter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

4

Enter a number to cheack Prime or Not :34

num 34 is not Prime.

Exit value of l is : 18Enter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

3

Enter starting range :1

Enter Ending range : 6

Sum of numbers between 1 to 6 is = 21Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

5

Enter A number to cheack armstrong.

: 345

Number 345 is not Armstrong Number.Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

6

Enter A number :6

Number 6 is perfect number

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

7

Enter A number :5

120 is factorial of entered numberEneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

8

Enter a number : 67

67 is not a strong number.Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

9

Enter A number :121

121 is a palindrome Number.Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

10

Enter A number : 10003

4 is sum of first and last digit of given numbr 10003.Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

Enter 0 to exit.

0

Inavalid Choice !

PS C:\Code>

Assignment 04 Using Type 1

```
#include <stdio.h>
void armstrongInRange();
void primeInRange();
void perfectInRange();
void strongInRange();
void main()
{
    int ch = 1;
    while (ch)
    {
        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)
```

```

    {
        armstrongInRange();
    }
    else if (ch == 2)
    {
        primeInRange();
    }
    else if (ch == 3)
    {
        perfectInRange();
    }
    else if (ch == 4)
    {
        strongInRange();
    }
    else
    {
        printf("Invalid choice");
    }
}
}

void armstrongInRange()
{
    int start, end;
    printf("\n Enter The range start :");
    scanf("%d", &start);
    printf("\n Enter The range end :");
    scanf("%d", &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, end;
    printf("Enter The range start :");
    scanf("%d", &start);
    printf("Enter The range end :");
    scanf("%d", &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, end;
    printf("Enter The range start :");
    scanf("%d", &start);
    printf("Enter The range end :");
    scanf("%d", &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, end;
    printf("Enter The range start :");
    scanf("%d", &start);
    printf("Enter The range end :");
    scanf("%d", &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 :100

Enter The range end :999

153 is Armstrong

370 is Armstrong

371 is Armstrong

407 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 :100

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 :10000

Number 6 is perfect number

Number 28 is perfect number

Number 496 is perfect number

Number 8128 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 :10000

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>

Assignment 01 Using Type 2

```
#include <stdio.h>
float tempConvert();
void areaAndPerimetre();
void sumOfDigitAndReverse();
int evenOdd();
float salary();
void marriageEligibility();
int sumOfDigits();
int reverseNum();
float circumference();
float areaofCircle();
int perimeter();
int areaofRect();
void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Enter your choice : \n");
        printf("1) Temp Convert: \n");
        printf("2) Area And Perimeter: \n");
        printf("3) Sum Of Digits and Reverse: \n");
        printf("4) Even Odd : \n");
        printf("5) Salary: \n");
        printf("6) Marriage Eligibility: \n");
        scanf("%d", &ch);
        if (ch > 6 || ch <= 0)
        {
            printf("Invalid Choice !");
        }
        else if (ch == 1)
        {
            printf("Temperature In Fahrenheit is :%.2f", tempConvert());
        }
        else if (ch == 2)
        {
            areaAndPerimetre();
        }
        else if (ch == 3)
        {
            sumOfDigitAndReverse();
        }
        else if (ch == 4)
        {
            if (evenOdd())
            {

```

```

        printf("Number is Even \n");
    }
    else
    {
        printf("Number is odd.");
    }
}
else if (ch == 5)
{
    printf("Total Salary is : %f ", salary());
}
else if (ch == 6)
{
    marriageEligibility();
}
}
}
float tempConvert()
{
    int CL;
    printf("Enter Teparature in Celcious :");
    scanf("%d", &CL);
    float fr = (9.0 / 5.0) * CL + 32;
    printf("Temparature In Celcius is :%d \n", CL);
    return fr;
}
void areaAndPerimetere()
{
    printf("What do you want to do broooo. \n");
    int ch;
    printf("1> Area of Circle\n");
    printf("2> Area of Reactangle\n");
    printf("3> Perimeter of Circle \n");
    printf("4> Circumference of Circle\n");
    scanf("%d", &ch);
    if (ch == 0 || ch > 4 || ch < 0)
    {
        printf("Invalid Choice brooooo!!!");
    }
    else if (ch == 1)
    {
        printf("%.2f is area of Circle...! \n", areaofCircle());
    }
    else if (ch == 2)
    {
        printf("\n");
        printf("%d is area of Rectangle...! \n", areaofRect());
    }
}

```

```

else if (ch == 3)
{
    printf("\n");
    printf("%d is Perimeter of Rectangle..! \n", perimeter());
}
else if (ch == 4)
{
    printf("\n");
    printf("%.2f is Circumference of circle..! \n", circumference());
}
}
float areaofCircle()
{
    const float PI = 3.14;
    float rradius;
    printf("\n Enter Radius Of Circle : \n");
    scanf("%f", &radius);
    float areaOfCir = PI * (radius * radius);
    return areaOfCir;
}
int areaofRect()
{
    int L, W;
    printf("\n Enter Length and Width of Rectangle : \n");
    scanf("%d%d", &L, &W);
    int areaOfRect = L * W;
    return areaOfRect;
}
int perimeter()
{
    int L, W;
    printf("\n Enter Length and Width of Rectangle : \n");
    scanf("%d%d", &L, &W);
    int periMeter = 2 * (L + W);
    return periMeter;
}
float circumference()
{
    const float PI = 3.14;
    float radius;
    printf("\n Enter Radius Of Circle : \n");
    scanf("%f", &radius);
    float Circumfer = 2.0 * PI * radius;
    return Circumfer;
}
void sumOfDigitAndReverse()
{

```

```

printf("What do you Whant to do : \n");
printf("1> Sum Of Digits of number: \n");
printf("2> Reverse the number : \n");
int ch;
scanf("%d", &ch);
if (ch == 1)
{
    printf(" \n %d is Sum of digits.\n", sumOfDigits());
}
else if (ch == 2)
{
    printf(" \n %d is Reverse Number \n", reverseNum());
}
else
{
    printf("Invalid Choice brooo!! \n");
}
}
int sumOfDigits()
{
    printf("Enter a Number : \n");
    int num, sum = 0;
    scanf("%d", &num);
    for (num; num > 0; num /= 10)
    {
        sum += (num % 10);
    }
    return sum;
}
int reverseNum()
{
    printf("Enter a Number : \n");
    int num, rev = 0;
    scanf("%d", &num);
    for (num; num > 0; num /= 10)
    {
        rev = (rev * 10) + (num % 10);
    }
    return rev;
}
int evenOdd()
{
    int num;
    printf("\n Enter A Number : \n ");
    scanf("%d", &num);
    if (num % 2 == 0)
    {
        return 1;
    }
}

```

```

    }
    else
    {
        return 0;
    }
}
float salary()
{
    float baseSalary, totalSalary;
    printf("\n Enter Base Salary : \n");
    scanf("%f", &baseSalary);
    float DA, TA, HRA;
    if (baseSalary <= 5000)
    {
        DA = 0.10 * baseSalary;
        TA = 0.20 * baseSalary;
        HRA = 0.25 * baseSalary;
    }
    else
    {
        DA = 0.15 * baseSalary;
        TA = 0.25 * baseSalary;
        HRA = 0.30 * baseSalary;
    }
    totalSalary = DA + TA + HRA + baseSalary;
    return totalSalary;
}
void marriageEligibility()
{
    int maleAge, femaleAge;
    char gender;
    printf("\n Enter Your Gender (f/m): ");
    fflush(stdin);
    scanf("%c", &gender);
    if (gender == 'm')
    {
        printf("\n Enter age of male: \n");
        scanf("%d", &maleAge);
    }
    else if (gender == 'f')
    {
        printf("\n Enter age of Female: \n");
        scanf("%d", &femaleAge);
    }

    if (gender == 'f' && femaleAge >= 18 || gender == 'm' && maleAge >= 21)
    {
        printf("Eligible to marry");
    }
}

```

```

    }
    else
    {
        printf("Not Eligible to marry");
    }
}

```

Output :

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

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

1

Enter Temperature in Celsius :23

Temperature In Celsius is :23

Temperature In Fahrenheit is :73.40

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

2

What do you want to do brooo.

1> Area of Circle

2> Area of Rectangle

3> Perimeter of Circle

4> Circumference of Circle

1

Enter Radius Of Circle :

23

1661.06 is area of Circle...!

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

3

What do you Want to do :

1> Sum Of Digits of number:

2> Reverse the number :

1

Enter a Number :

123456

21 is Sum of digits.

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

4

Enter A Number :

23

Number is odd.

Enter your choice :

1) Temp Convert:

- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

5

Enter Base Salary :

12000

Total Salary is : 20400.000000

Enter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

6

Enter Your Gender (f/m): m

Enter age of male:

26

Eligible to marry

Enter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

0

Invalid Choice !

PS C:\Code>

Assignment 02 Using Type 2

```
#include <stdio.h>
void discount();
void greatestOfThree();
void calculator();
void UseChoice();
void discountStudent();
int addition();
int subtraction();
int multiplication();
float division();
int evenOdd();
float salary();

void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Enter your choice : \n");
        printf("1) Discount: \n");
        printf("2) Greatest of Three: \n");
        printf("3) calculator: \n");
        printf("4) UserChoice : \n");
        printf("5) Student Discount: \n");
        printf("Enter 0 To exit");

        scanf("%d", &ch);
        if (ch > 5 || ch < 0)
        {
            printf("Inavalid Choice !");
        }
        else if (ch == 1)
        {
            discount();
        }
        else if (ch == 2)
        {
            greatestOfThree();
        }
        else if (ch == 3)
        {
            calculator();
        }
        else if (ch == 4)
        {
            UseChoice();
        }
        else if (ch == 5)
        {
            discountStudent();
        }
        else
        {
            printf("Invalid choice");
        }
    }
}
```

```

        UseChoice();
    }
    else if (ch == 5)
    {
        discountStudent();
    }
    else if (ch == 0)
    {
        break;
    }
}
}
void discount()
{
    float Op;
    printf("Enter Original Price broo:");
    scanf("%f", &Op);
    float finalPrice;
    if (Op <= 1000)
    {
        finalPrice = Op - (0.05 * Op);
        printf("%.2f is final price with 5%% discount on original price %.2f", finalPrice, Op);
    }
    else if (Op <= 5000)
    {
        finalPrice = Op - (0.10 * Op);
        printf("%.2f is final price with 10%% discount on original price %.2f", finalPrice, Op);
    }
    else if (Op <= 10000)
    {
        finalPrice = Op - (0.20 * Op);
        printf("%.2f is final price with 20%% discount on original price %.2f ", finalPrice, Op);
    }
    else if (Op > 10000)
    {
        finalPrice = Op - (0.25 * Op);
        printf("%.2f is final price with 25%% discount on original price %.2f", finalPrice, Op);
    }
}
void greatestOfThree()
{
    int A, B, C;
    printf("Enter Three Numbers : ");
    scanf("%d%d%d", &A, &B, &C);
}

```

```

// if (A > B && A > C)
// {
//     printf("%d A is greatest.", A);
// }
// else if (B > C)
// {
//     printf("%d B is greatest.", B);
// }
// else
// {
//     printf("%d C is greatest.", C);
// }

// using Ternary operator
printf("\n");
printf("%d is the greatest.", A > B && A > C ? A : B > C ? B
                                     : C);
}
void calculator()
{
    printf("Enetr your Choice: \n");
    printf("A Addition \n");
    printf("S Substraction \n");
    printf("M Multiplication \n");
    printf("D Dividion \n");
    char op = getch();
    // printf("%c", op);

    if (op == 'A')
    {
        printf("Chosen Operation is Addition.. \n ");
        printf("%d is addition. \n", addition());
    }
    else if (op == 'S')
    {
        printf("Chosen Operation is Substraction.. \n ");
        printf("%d is Substraction.", subtraction());
    }
    else if (op == 'M')
    {
        printf("Chosen Operation is Multiplication.. \n ");
        printf("%d is Multiplication.", multiplication());
    }
    else if (op == 'D')
    {
        printf("Chosen Operation is Division.. \n ");
        printf("%.2f is result of division.", division());
    }
}

```

```

}

int addition()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    return (A + B);
}

float division()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    if (A < B)
    {
        return (B / A);
    }
    else
    {
        return (A / B);
    }
}

int substraction()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    if (A < B)
    {
        return (B - A);
    }
    else
    {
        return (A - B);
    }
}

int multiplication()
{
    printf("Enter Two numbers : ");
    int A, B;
    scanf("%d%d", &A, &B);
    return (A * B);
}

```

```

void UseChoice()
{ // Choice to be taken from user when learn about Scan
    printf("\n Enter Your choice \n");
    printf("\n E for EvenOdd \n");
    printf("\n S for Slary Calculation \n");
    printf("\n G for Finding greatest of three. \n");
    char choice = getch();

    if (choice == 'E')
    {
        if (evenOdd())
        {
            printf("Number is Even \n");
        }
        else
        {
            printf("Number is odd.");
        }
    }
    else if (choice == 'S')
    {
        printf("Salary calculation \n");

        printf("Total Salary is : %f \n", salary());
    }
    else if (choice == 'G')
    {
        printf("Gretest of Three Numbers \n");
        // get value of a b c from user
        printf("\n Enter 3 Numbers :");
        int A, B, C;
        scanf("%d%d%d", &A, &B, &C);

        printf("%d is the greatest.\n", A > B && A > C ? A : (B > C ? B : C));
    }
}

void discountStudent()
{
    float price, finalprice;
    printf("Enter Price of the product : \n");
    scanf("%f", &price);
    printf("Are you a Student ? (Y/N) \n");
    char std = getch();
    if (std == 'Y')
    {
        if (price >= 500)
        {
            finalprice = price - (price * 0.20);

```

```

    }
    else
    {

        finalprice = price - (price * 0.10);
    }
}
else if (std == 'N' && price > 600)
{
    finalprice = price - (price * 0.15);
}
else
{
    finalprice = price;
}
printf("Final price is : %.2f", finalprice);
}

int evenOdd()
{
    int num;
    printf("Enter A number to check Even or Odd \n");
    scanf("%d", &num);
    if (num % 2 == 0)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}

float salary()
{
    float baseSalary, totalSalary;
    printf("Enter Base salary: \n");
    scanf("%f", &baseSalary);
    float DA, TA, HRA;
    if (baseSalary <= 5000)
    {
        DA = 0.10 * baseSalary;
        TA = 0.20 * baseSalary;
        HRA = 0.25 * baseSalary;
    }
    else
    {
        DA = 0.15 * baseSalary;
        TA = 0.25 * baseSalary;
    }
}

```

```

        HRA = 0.30 * baseSalary;
    }
    totalSalary = DA + TA + HRA + baseSalary;
    return totalSalary;
}

```

Output :

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

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit1

Enter Original Price broo:1200

1080.00 is final price with 10% discount on original price 1200.00

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit2

Enter Three Numbers : 12

45

777

777 is the greatest.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit3

Enetr your Choice:

A Addition

S Substraction

M Multiplication

D Dividion

Chosen Operation is Addition..

Enter Two numbers :

12

22

34 is addition.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit4

Enter Your choice

E for EvenOdd

S for Slary Calculation

G for Finding greatest of three.

Enter A number to check Even or Odd

23

Number is odd.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit5

Enter Price of the product :

452

Are you a Student ? (Y/N)

Final price is : 406.80

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit0

PS C:\Code>

Assignment 03 Using Type 2

```
#include <stdio.h>
void OneToTen();
void tableOfNum();
int sumOfNumdinrange();
int isPrime();
int armstrong();
int perfect();
int factorial();
int strong();
int palindrome();
int sumOfFirstAndLastDigit();
void main()
{
    int ch = 1;
    while (ch)
    {

        printf("\n Eneter your choice : \n");
        printf("1) one to ten: \n");
        printf("2) Table of Num: \n");
        printf("3) Sum of nums in range : \n");
        printf("4) is prime: \n");
        printf("5) Armstrong: \n");
        printf("6) Perfect No: \n");
        printf("7) Factorial: \n");
        printf("8) Strong Num: \n");
        printf("9) Palindrome: \n");
        printf("10) Sum Of Frirst and Last Digit: \n");
        scanf("%d", &ch);
        if (ch > 10 || ch <= 0)
        {
            printf("Inavalid Choice !");
        }
        else if (ch == 1)
        {
            OneToTen();
        }
        else if (ch == 2)
        {
            tableOfNum();
        }
        else if (ch == 3)
        {
            printf("\n %d : is sum", sumOfNumdinrange());
        }
    }
}
```

```

        else if (ch == 4)
        {
            isPrime() ? printf("num is Prime. \n") : printf("num is not
Prime. \n");
        }
        else if (ch == 5)
        {
            (armstrong()) ? printf("Number is Armstrong Number.") :
printf("Number is not Armstrong Number.");
        }
        else if (ch == 6)
        {
            perfect() ? printf(" perfect number") : printf("not perfect
number");
        }
        else if (ch == 7)
        {
            printf("%d is factorial of entered number", factorial());
        }
        else if (ch == 8)
        {
            strong() ? printf("strong number") : printf("Not strong number");
        }
        else if (ch == 9)
        {
            palindrome() ? printf("it is Palindrome Number.") : printf("Not
palindrome Number.");
        }
        else if (ch == 10)
        {
            printf("%d is sum of first and last digit of given numbr.",
sumOfFirstAndLastDigit());
        }
    }
}
void OneToTen()
{
    int num = 1;
    while (num <= 10)
    {
        printf("%d \n", num);
        num++;
    }
    printf("%d is exit value of num.", num);
}
void tableOfNum()
{
    int num;

```

```

printf("Enter a number. \n");
scanf("%d", &num);
int i = 1;
while (i <= 10)
{
    printf("%d * %d = %d \n", num, i, num * i);
    i++;
}
printf("Exit value of i = %d", i);
}
int sumOfNumdinrange()
{
    int start, end;
    printf("Enter starting range :");
    scanf("%d", &start);
    // printf("\n");
    printf("Enter Ending range : ");
    scanf("%d", &end);
    int sum = 0;
    int temp = start;

    while (temp <= end)
    {
        sum += temp;
        temp++;
    }
    return sum;
    // printf("Sum of numbers between %d to %d is = %d", start, end, sum);
}
int isPrime()
{
    printf("Enter a number to cheack Prime or Not :");
    int num;
    scanf("%d", &num);
    int i = 2, cnt = 0;
    while (i <= num / 2)
    {
        if (num % i == 0)
        {
            return 0;
        }
        i++;
    }
    printf("Exit value of I is : %d", i);
    return 1;
}
int armstrong()
{

```

```

int num, rem = 0;
int armN = 0;
printf("Enter A 3 digit number to cheack armstrong. : ");
scanf("%d", &num);
int temp = num;
while (temp)
{
    rem = temp % 10;
    armN += rem * rem * rem;
    temp /= 10;
}
if ((armN == num))
{
    return 1;
}
else
{
    return 0;
}
}
int perfect()
{
    printf("Enter A number :");
    int num, i = 1, cnt = 0, sumOfDivisor = 0;
    scanf("%d", &num);

    while (i < num)
    {
        if (num % i == 0)
        {
            sumOfDivisor += i;
            cnt++;
        }
        i++;
    }
    if (sumOfDivisor == num)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}
int factorial()
{
    int num;
    int Fact = 1;

```

```

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

if (num < 0)
{
    printf("Invalid number!");
}
else if (num > 0)
{
    // while (num)
    // {
    //     Fact *= num;
    //     num--;
    // }

    for (int i = 2; i <= num; i++)
        Fact *= i;
}
return Fact;
}
int strong()
{
    printf("Enter a number : ");
    int num;
    scanf("%d", &num);
    int temp = num;
    int FcatSum = 0;

    while (temp != 0)
    {
        int rem = temp % 10;
        int fact = 1;
        if (rem > 0)
        {
            while (rem)
            {
                fact *= rem;
                rem--;
            }
            FcatSum += fact;
            temp /= 10;
        }
        else
        {
            FcatSum += fact;
            temp /= 10;
        }
    }
}

```

```

        // printf("%d is factsum.", FcatSum);
        if (FcatSum == num)
        {
            return 1;
        }
        else
        {
            return 0;
        }
    }
int palindrome()
{
    printf("Enter A number :");
    int num;
    scanf("%d", &num);
    int temp = num;
    int rev = 0;

    while (temp > 0)
    {
        int rem = temp % 10;
        rev = (rev * 10) + rem;
        temp /= 10;
    }
    if (rev == num)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}
int sumOfFirstAndLastDigit()
{
    printf("Enter A number : ");
    int num;
    scanf("%d", &num);
    int lastDigit, firstDigit;

    lastDigit = num % 10;
    firstDigit = num / 10;

    while (firstDigit >= 10)
    {
        firstDigit /= 10;
    }
    int sum = firstDigit + lastDigit;
}

```



```
    return sum;  
}
```

Output:

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

Enter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of First and Last Digit:

1

1

2

3

4

5

6

7

8

9

10

11 is exit value of num.

Enter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of First and Last Digit:

2

Enter a number.

23

$23 * 1 = 23$

$23 * 2 = 46$

$23 * 3 = 69$

$23 * 4 = 92$

$23 * 5 = 115$

$23 * 6 = 138$

$23 * 7 = 161$

$23 * 8 = 184$

$23 * 9 = 207$

$23 * 10 = 230$

Exit value of i = 11

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:

3

Enter starting range :1

Enter Ending range : 9

45 : is sum

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:

10) Sum Of Frirst and Last Digit:

4

Enter a number to cheack Prime or Not :34

num is not Prime.

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

5

Enter A 3 digit number to cheack armstrong. : 223

Number is not Armstrong Number.

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

6

Enter A number :345

not perfect number

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

7

Enter A number :5

120 is factorial of entered number

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

8

Enter a number : 6

Not strong number

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

9

Enter A number :141

it is Palindrome Number.

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

10

Enter A number : 3342589

12 is sum of first and last digit of given numbr.

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0

Inavalid Choice !

PS C:\Code>

Assignment 01 Using Type 3

```
#include <stdio.h>
void tempConvert(int);
void evenOdd(int);
void areaAndPerimetre();
void circumference(float);
void areaofCircle(float);
void areaofRect(int, int);
void perimeter(int, int);
void sumOfDigitAndReverse();
void sumOfDigits(int);
void reverseNum(int);

void salary(float);
void marriageEligibility();

void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Enter your choice : \n");
        printf("1) Temp Convert: \n");
        printf("2) Area And Perimeter: \n");
        printf("3) Sum Of Digits and Reverse: \n");
        printf("4) Even Odd : \n");
        printf("5) Salary: \n");
        printf("6) Marriage Eligibility: \n");

        scanf("%d", &ch);
        if (ch > 6 || ch <= 0)
        {
            printf("Invalid Choice !");
        }
        else if (ch == 1)
        {
            int cel;
            printf("Enter Temperature in Celcius.");
            scanf("%d", &cel);
            tempConvert(cel);
        }
        else if (ch == 2)
        {
            areaAndPerimetre();
        }
    }
}
```



```

    }
    else if (ch == 3)
    {
        sumOfDigitAndReverse();
    }
    else if (ch == 4)
    {
        int num;
        printf("Enter A Number : \n");
        scanf("%d", &num);
        evenOdd(num);
    }
    else if (ch == 5)
    {
        float baseSalary, totalSalary;
        printf("\n Enter Base Salary : \n");
        scanf("%f", &baseSalary);
        salary(baseSalary);
    }
    else if (ch == 6)
    {
        marriageEligibility();
    }
}

void tempConvert(int CL)
{
    float fr = (9.0 / 5.0) * CL + 32;
    printf("Temperature In fahrenheit is :%.2f \n", fr);
}

void areaAndPerimetre()
{
    printf("What do you want to do brooo. \n");
    int ch;
    printf("1> Area of Circle\n");
    printf("2> Area of Rectangle\n");
    printf("3> Perimeter of Rectangle \n");
    printf("4> Circumference of Circle\n");
    scanf("%d", &ch);
    if (ch == 0 || ch > 4 || ch < 0)
    {
        printf("Invalid Choice broooo!!!");
    }
    else if (ch == 1)
    {
        float rad;
        printf("Enter Radius of Circle");
    }
}

```

```

        scanf("%f", &rad);
        areaofCircle(rad);
    }
    else if (ch == 2)
    {
        printf("\n");
        int L, W;
        printf("\n Enter Length and Width of Reactangle : \n");
        scanf("%d%d", &L, &W);
        areaofRect(L, W);
    }
    else if (ch == 3)
    {
    }
    else if (ch == 4)
    {
        float rad;
        printf("Enter Radious of Circle");
        scanf("%f", &rad);
        circumference(rad);
    }
}

void areaofCircle(float rad)
{
    const float PI = 3.14;
    float areaOfCir = PI * (rad * rad);
    printf("\n %.2f is area of Circle. \n", areaOfCir);
}

void circumference(float rad)
{
    const float PI = 3.14;
    float Circumfer = 2.0 * PI * rad;
    printf("\n %f is circumference of the circle.", Circumfer);
}

void areaofRect(int L, int W)
{
    printf("%d is area of Rectangle: ", L * W);
}

void perimeter(int L, int W)
{
    printf("\n %d is perimeter of Rectangle. \n", (2 * (L + W)));
}

void sumOfDigitAndReverse()
{
    printf("What do you Whant to do : \n");
}

```

```

printf("1> Sum Of Digits of number: \n");
printf("2> Reverse the number : \n");
int ch, num;
scanf("%d", &ch);
printf("Enter a Number : \n");
scanf("%d", &num);
if (ch == 1)
{
    sumOfDigits(num);
}
else if (ch == 2)
{
    reverseNum(num);
}
else
{
    printf("Invalid Choice broooo!! \n");
}
}
void sumOfDigits(int num)
{
    int sum = 0;
    for (num; num > 0; num /= 10)
    {
        sum += (num % 10);
    }
    printf("\n %d is A Sum Of digits of number. \n", sum);
}
void reverseNum(int num)
{
    int rev = 0;

    for (num; num > 0; num /= 10)
    {
        rev = (rev * 10) + (num % 10);
    }
    printf("\n %d is Reverse Number. \n", rev);
}
void evenOdd(int num)
{
    if (num % 2 == 0)
    {
        printf("\n Number is Even! \n");
    }
    else
    {
        printf("\n Number is odd! \n");
    }
}

```

```

    }
}
void salary(float baseSalary)
{
    float DA, TA, HRA;
    if (baseSalary <= 5000)
    {
        DA = 0.10 * baseSalary;
        TA = 0.20 * baseSalary;
        HRA = 0.25 * baseSalary;
    }
    else
    {
        DA = 0.15 * baseSalary;
        TA = 0.25 * baseSalary;
        HRA = 0.30 * baseSalary;
    }

    printf("\n %.4f is your Total Salary \n", (DA + TA + HRA + baseSalary));
}
void marriageEligibility()
{
    int maleAge, femaleAge;
    char gender;
    printf("\n Enter Your Gender (f/m): ");
    fflush(stdin);
    scanf("%c", &gender);
    if (gender == 'm')
    {
        printf("\n Enter age of male: \n");
        scanf("%d", &maleAge);
    }
    else if (gender == 'f')
    {
        printf("\n Enter age of Female: \n");
        scanf("%d", &femaleAge);
    }

    if (gender == 'f' && femaleAge >= 18 || gender == 'm' && maleAge >= 21)
    {
        printf("Eligible to marry");
    }
    else
    {
        printf("Not Eligible to marry");
    }
}
}

```

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

Enter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

1

Enter Temperature in Celcius.23

Temperature In Fahrenheit is :73.40

Enter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

2

What do you want to do brooo.

- 1> Area of Circle
- 2> Area of Rectangle
- 3> Perimeter of Rectangle
- 4> Circumference of Circle

2

Enter Length and Width of Rectangle :

12

2

24 is area of Rectangle:

Enter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

3

What do you Whant to do :

- 1> Sum Of Digits of number:
- 2> Reverse the number :

2

Enter a Number :

987654321

123456789 is Reverse Number.

Eneter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

4

Enter A Number :

12

Number is Even!

Eneter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:

6) Marriage Eligibility:

5

Enter Base Salary :

55550

94435.0000 is your Total Salary

Eneter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

6

Enter Your Gender (f/m): f

Enter age of Female:

29

Eligible to marry

Eneter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

0

Inavalid Choice !

PS C:\Code>

Assignment 02 Using Type 3

```
#include <stdio.h>
void discount(float);
void greatestOfThree();

void calculator();
void addition(int, int);
void UseChoice();
void subtraction(int, int);
void multiplication(int, int);
void division(int, int);

void greatOfThree(int, int, int);
void discountStudent(float);
void evenOdd(int);
void salary(float);

void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Enter your choice : \n");
        printf("1) Discount: \n");
        printf("2) Greatest of Three: \n");
        printf("3) calculator: \n");
        printf("4) UserChoice : \n");
        printf("5) Student Discount: \n");
        printf("Enter 0 To exit");

        scanf("%d", &ch);
        if (ch > 5 || ch < 0)
        {
            printf("Invalid Choice !");
        }
        else if (ch == 1)
        {
            float Op;
            printf("Enter Original Price broo:");
            scanf("%f", &Op);
            discount(Op);
        }
        else if (ch == 2)
        {
            greatestOfThree();
        }
        else if (ch == 3)
```



```

        {
            calculator();
        }
        else if (ch == 4)
        {
            UseChoice();
        }
        else if (ch == 5)
        {
            float price, finalprice;
            printf("Enter Price of the product : \n");
            scanf("%f", &price);
            discountStudent(price);
        }
        else if (ch == 0)
        {
            break;
        }
    }
}

void discount(float Op)
{
    float finalPrice;
    if (Op <= 1000)
    {
        finalPrice = Op - (0.05 * Op);
        printf("%.2f is final price with 5%% discount on original price %.2f\n", finalPrice, Op);
    }
    else if (Op <= 5000)
    {
        finalPrice = Op - (0.10 * Op);
        printf("%.2f is final price with 10%% discount on original price %.2f\n", finalPrice, Op);
    }
    else if (Op <= 10000)
    {
        finalPrice = Op - (0.20 * Op);
        printf("%.2f is final price with 20%% discount on original price %.2f\n", finalPrice, Op);
    }
    else if (Op > 10000)
    {
        finalPrice = Op - (0.25 * Op);
        printf("%.2f is final price with 25%% discount on original price %.2f\n", finalPrice, Op);
    }
}

```

```

}
void greatestOfThree()
{
    int A, B, C;
    printf("Enter Three Numbers : ");
    scanf("%d%d%d", &A, &B, &C);
    printf("\n");
    printf("%d is the greatest.", A > B && A > C ? A : B > C ? B
                                                : C);
}
void calculator()
{
    printf("Enetr your Choice: \n");
    printf("A Addition \n");
    printf("S Substraction \n");
    printf("M Multiplication \n");
    printf("D Dividion \n");
    char op = getch();
    int A, B;

    if (op == 'A')
    {
        printf("Chosen Operation is Addition.. \n ");
        printf("Enter Two numbers : ");
        scanf("%d%d", &A, &B);
        addition(A, B);
    }
    else if (op == 'S')
    {
        printf("Chosen Operation is Substraction.. \n ");
        printf("Enter Two numbers : ");
        scanf("%d%d", &A, &B);
        substraction(A, B);
    }
    else if (op == 'M')
    {
        printf("Chosen Operation is Multiplication.. \n ");
        printf("Enter Two numbers : ");
        scanf("%d%d", &A, &B);
        multiplication(A, B);
    }
    else if (op == 'D')
    {
        printf("Enter Two numbers : ");
        scanf("%d%d", &A, &B);
        printf("Chosen Operation is Division.. \n ");
        division(A, B);
    }
}

```

```

}

void addition(int A, int B)
{
    printf("\n %d is a Addition.", (A + B));
}

void division(int A, int B)
{
    if (A < B)
    {
        printf("\n %d is Division. \n", (B / A));
    }
    else
    {
        printf("\n %d is Division. \n", (A / B));
    }
}

void substraction(int A, int B)
{
    printf("\n %d is Substraction. \n", (B - A));
}

void multiplication(int A, int B)
{
    printf("\n %d is a Multiplication.", (A * B));
}

void UseChoice()
{ // Choice to be taken from user when learn about Scan
    printf("\n Enter Your choice \n");
    printf("\n E for EvenOdd \n");
    printf("\n S for Slary Calculation \n");
    printf("\n G for Finding greatest of three. \n");
    char choice = getch();

    if (choice == 'E')
    {
        int num;
        printf("Enter A number to check Even or Odd \n");
        scanf("%d", &num);
        evenOdd(num);
    }
    else if (choice == 'S')
    {

```

```

        printf("Salary calculation \n");
        float baseSalary;
        printf("Enter Base salary: \n");
        scanf("%f", &baseSalary);
        salary(baseSalary);
    }
    else if (choice == 'G')
    {
        printf("Greatest of Three Numbers \n");
        // get value of a b c from user
        printf("\n Enter 3 Numbers :");
        int A, B, C;
        scanf("%d%d%d", &A, &B, &C);
        greatestOfThree(A, B, C);
    }
}

void greatOfThree(int A, int B, int C)
{
    printf("%d is the greatest.\n", A > B && A > C ? A : (B > C ? B : C));
}

void discountStudent(float price)
{
    float finalprice;
    printf("Are you a Student ? (Y/N) \n");
    char std = getch();
    if (std == 'Y')
    {
        if (price >= 500)
        {
            finalprice = price - (price * 0.20);
        }
        else
        {
            finalprice = price - (price * 0.10);
        }
    }
    else if (std == 'N' && price > 600)
    {
        finalprice = price - (price * 0.15);
    }
    else
    {
        finalprice = price;
    }
    printf("Final price is : %.2f", finalprice);
}

```

```

void evenOdd(int num)
{
    if (num % 2 == 0)
    {
        printf("Number is Even \n");
    }
    else
    {
        printf("Number is odd.");
    }
}

void salary(float baseSalary)
{
    float DA, TA, HRA;
    if (baseSalary <= 5000)
    {
        DA = 0.10 * baseSalary;
        TA = 0.20 * baseSalary;
        HRA = 0.25 * baseSalary;
    }
    else
    {
        DA = 0.15 * baseSalary;
        TA = 0.25 * baseSalary;
        HRA = 0.30 * baseSalary;
    }

    printf("\n %.4f is Totalsalary.", DA + TA + HRA + baseSalary);
}

```

Output:

```

PS C:\Code> & 'c:\Users\bhagv\.vscode\extensions\ms-vscode.cpptools-1.21.6-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-q3yo1oqb.c3r' '--stdout=Microsoft-MIEngine-Out-yqvtcxvs.3yg' '--stderr=Microsoft-MIEngine-Error-oiivdsjs.ebp' '--pid=Microsoft-MIEngine-Pid-dhbojsea.ntc' '--dbgExe=C:\TDM-GCC-64\bin\gdb.exe' '--interpreter=mi'

```

Enter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit1

Enter Original Price broo:1230

1107.00 is final price with 10% discount on original price 1230.00

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit2

Enter Three Numbers : 23

45

11

45 is the greatest.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit3

Enetr your Choice:

A Addition

S Substraction

M Multiplication

D Dividion

Chosen Operation is Addition..

Enter Two numbers : 12

34

46 is a Addition.

Eneter your choice :

1) Discount:

2) GREATEST OF THREE:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit4

Enter Your choice

E for EvenOdd

S for Slary Calculation

G for Finding greatest of three.

Enter A number to check Even or Odd

4

Number is Even

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit5

Enter Price of the product :

12334

Are you a Student ? (Y/N)

Final price is : 9867.20

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit0

PS C:\Code>

Assignment 03 Using Type 3

```
#include <stdio.h>
void OneToTen(int);
void tableOfNum(int);
void sumOfNumdinrange(int, int);
void isPrime(int);
void armstrong(int);
void perfect(int);
void factorial(int);
void strong(int);
void palindrome(int);
void sumOfFirstAndLastDigit(int);
void main()
{
    int ch = 1;
    int num = 1;
    while (ch)
    {
        printf("\n Eneter your choice : \n");
        printf("1) one to ten: \n");
        printf("2) Table of Num: \n");
        printf("3) Sum of nums in range : \n");
        printf("4) is prime: \n");
        printf("5) Armstrong: \n");
        printf("6) Perfect No: \n");
        printf("7) Factorial: \n");
        printf("8) Strong Num: \n");
        printf("9) Palindrome: \n");
        printf("10) Sum Of Frirst and Last Digit: \n");
        printf("0) Exit : \n");
        scanf("%d", &ch);
        if (ch > 10 || ch <= 0)
        {
            printf("Inavalid Choice !");
        }
        else if (ch == 1)
        {
            OneToTen(num);
        }
        else if (ch == 2)
        {
            printf("Enter a number. \n");
            scanf("%d", &num);
            tableOfNum(num);
        }
    }
}
```

```

else if (ch == 3)
{
    int start, end;
    printf("Enter starting range :");
    scanf("%d", &start);
    // printf("\n");
    printf("Enter Ending range : ");
    scanf("%d", &end);
    sumOfNumdinrange(start, end);
}
else if (ch == 4)
{
    printf("Enter a number to cheack Prime or Not :");
    scanf("%d", &num);
    isPrime(num);
}
else if (ch == 5)
{
    printf("Enter A number to cheack armstrong. : ");
    scanf("%d", &num);
    armstrong(num);
}
else if (ch == 6)
{
    printf("Enter A number :");
    scanf("%d", &num);
    perfect(num);
}
else if (ch == 7)
{
    printf("Enter A number :");
    scanf("%d", &num);
    factorial(num);
}
else if (ch == 8)
{
    printf("Enter a number : ");
    scanf("%d", &num);
    strong(num);
}
else if (ch == 9)
{
    printf("Enter a number : ");
    scanf("%d", &num);
    palindrome(num);
}
else if (ch == 10)
{

```

```

        printf("Enter A number : ");
        scanf("%d", &num);
        sumOfFirstAndLastDigit(num);
    }
}

void OneToTen(num)
{
    while (num <= 10)
    {
        printf("%d \n", num);
        num++;
    }
    printf("%d is exit value of num.", num);
}

void tableOfNum(int num)
{
    int i = 1;
    while (i <= 10)
    {
        printf("%d * %d = %d \n", num, i, num * i);
        i++;
    }
    printf("Exit value of i = %d", i);
}

void sumOfNumdinrange(int start, int end)
{
    int sum = 0;
    int temp = start;

    while (temp <= end)
    {
        sum += temp;
        temp++;
    }
    printf("Sum of numbers between %d to %d is = %d", start, end, sum);
}

void isPrime(int num)
{
    int i = 2, cnt = 0;
    while (i <= num / 2)
    {
        if (num % i == 0)
        {
            cnt = 1;

```

```

        break;
    }
    i++;
}
(cnt > 0 || num == 1) ? printf("num %d is not Prime. \n", num) :
printf("num %d is Prime. \n", num);

printf("Exit value of I is : %d", i);
}
void armstrong(int num)
{
    int rem = 0;
    int armN = 0;
    int temp = num;
    while (temp)
    {
        rem = temp % 10;
        armN += rem * rem * rem;
        temp /= 10;
    }
    if (armN == num)
    {
        printf("Number %d is Armstrong Number.", num);
    }
    else
    {
        printf("Number %d is not Armstrong Number.", num);
    }
}
void perfect(int num)
{
    int i = 1, cnt = 0, sumOfDivisor = 0;
    while (i < num)
    {
        if (num % i == 0)
        {
            sumOfDivisor += i;
            cnt++;
        }
        i++;
    }
    (sumOfDivisor == num) ? printf("Number %d is perfect number", num) :
printf("%d is not perfect number", num);
}
void factorial(int num)
{
    int Fact = 1;

```

```

    if (num < 0)
    {
        printf("Invalid number!");
    }
    else if (num > 0)
    {
        // while (num)
        // {
        //     Fact *= num;
        //     num--;
        // }

        for (int i = 2; i <= num; i++)
            Fact *= i;
    }
    printf("%d is factorial of entered number", Fact);
}
void strong(int num)
{
    int temp = num;
    int FcatSum = 0;

    while (temp != 0)
    {
        int rem = temp % 10;
        int fact = 1;
        if (rem > 0)
        {
            while (rem)
            {
                fact *= rem;
                rem--;
            }
            FcatSum += fact;
            temp /= 10;
        }
        else
        {
            FcatSum += fact;
            temp /= 10;
        }
    }
    // printf("%d is factsum.", FcatSum);
    if (FcatSum == num)
    {
        printf("%d is a strong number", num);
    }
}

```

```

    else
    {
        printf("%d is not a strong number.", num);
    }
}
void palindrome(int num)
{
    int temp = num;
    int rev = 0;
    while (temp)
    {
        // printf("\n %d temp ", temp);
        int rem = temp % 10;
        rev = (rev * 10) + rem;
        temp /= 10;
    }
    (rev == num) ? printf("%d is a palindrome Number.", num) : printf("%d Is
not a palindrome number", num);
}
void sumOfFirstAndLastDigit(int num)
{
    int lastDigit, firstDigit;
    lastDigit = num % 10;
    firstDigit = num / 10;

    while (firstDigit >= 10)
    {
        firstDigit /= 10;
    }
    int sum = firstDigit + lastDigit;
    printf("%d is sum of first and last digit of given numbr %d.", sum, num);
}

```

Output:

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

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:

- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

1

1

2

3

4

5

6

7

8

9

10

11 is exit value of num.

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

2

Enter a number.

23

$23 * 1 = 23$

$23 * 2 = 46$

$23 * 3 = 69$

$23 * 4 = 92$

$23 * 5 = 115$

$23 * 6 = 138$

$23 * 7 = 161$

$23 * 8 = 184$

$23 * 9 = 207$

$23 * 10 = 230$

Exit value of i = 11

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

3

Enter starting range :1

Enter Ending range : 6

Sum of numbers between 1 to 6 is = 21

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

4

Enter a number to cheack Prime or Not :33

num 33 is not Prime.

Exit value of l is : 3

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

5

Enter A number to cheack armstrong. : 213

Number 213 is not Armstrong Number.

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

6

Enter A number :6

Number 6 is perfect number

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

7

Enter A number :5

120 is factorial of entered number

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

8

Enter a number : 6

6 is not a strong number.

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

9

Enter a number : 121

121 is a palindrome Number.

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

10

Enter A number : 123

4 is sum of first and last digit of given numbr 123.

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

0

Inavalid Choice !

PS C:\Code>

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("\n3> 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>

Assignment 01 Type 4

```
#include <stdio.h>
float tempConvert(int);
int evenOdd(int);
void areaAndPerimetre();
float circumference(float);
```

```

float areaofCircle(int);
int perimeter(int, int);
int areaofRect(int, int);
void sumOfDigitAndReverse();
int sumOfDigits(int);
int reverseNum(int);

float salary(float);
int marriageEligibility(int, char);
void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Enter your choice : \n");
        printf("1) Temp Convert: \n");
        printf("2) Area And Perimeter: \n");
        printf("3) Sum Of Digits and Reverse: \n");
        printf("4) Even Odd : \n");
        printf("5) Salary: \n");
        printf("6) Marriage Eligibility: \n");

        scanf("%d", &ch);
        if (ch > 6 || ch <= 0)
        {
            printf("Inavalid Choice !");
        }
        else if (ch == 1)
        {
            int cel;
            printf("Enter Teperature in Celcius.");
            scanf("%d", &cel);
            printf("Temparature In Ferenhite is :%.2f", tempConvert(cel));
        }
        else if (ch == 2)
        {
            areaAndPerimetre();
        }
        else if (ch == 3)
        {
            sumOfDigitAndReverse();
        }
        else if (ch == 4)
        {
            int num;
            printf("Enter A Number : \n");
            scanf("%d", &num);
            evenOdd(num);
        }
    }
}

```

```

        (evenOdd(num)) ? printf("Number is Even \n") : printf("Number is
odd. \n");
    }
    else if (ch == 5)
    {
        float baseSalary;
        printf("\n Enter Base Salary : \n");
        scanf("%f", &baseSalary);
        printf("Total Salary is : %f ", salary(baseSalary));
    }
    else if (ch == 6)
    {
        int age;
        char gender;
        printf("\n Enter Your Gender (f/m): ");
        fflush(stdin);
        scanf("%c", &gender);
        printf("\n Enter age of Person: \n");
        scanf("%d", &age);
        (marriageEligibility(age, gender)) ? printf("Eligible to marry") :
printf("Not Eligible to marry");
    }
}
}
float tempConvert(int CL)
{
    float fr = (9.0 / 5.0) * CL + 32;
    printf("Temparature In Celcius is :%d \n", CL);
    return fr;
}
void areaAndPerimetere()
{
    printf("What do you want to do broooo. \n");
    int ch;
    printf("1> Area of Circle\n");
    printf("2> Area of Reactangle\n");
    printf("3> Perimeter of Circle \n");
    printf("4> Circumference of Circle\n");
    scanf("%d", &ch);
    int L, W;
    float rad;
    if (ch == 0 || ch > 4 || ch < 0)
    {
        printf("Invalid Choice brooooo!!!");
    }
    else if (ch == 1)
    {
        printf("Enter Radious of Circle");
    }
}

```

```

        scanf("%f", &rad);
        printf("%.2f is area of Circle...! \n", areaofCircle(rad));
    }
    else if (ch == 2)
    {
        printf("\n Enter Length and Width of Reactangle : \n");
        scanf("%d%d", &L, &W);
        printf("\n");
        printf("%d is area of Rectangle...! \n", areaofRect(L, W));
    }
    else if (ch == 3)
    {
        printf("\n Enter Length and Width of Reactangle : \n");
        scanf("%d%d", &L, &W);
        printf("\n");
        printf("%d is Perimeter of Rectangle..! \n", perimeter(L, W));
    }
    else if (ch == 4)
    {
        printf("Enter Radious of Circle");
        scanf("%f", &rad);
        printf("\n");
        printf("%.2f is Circumference of circle..! \n", circumference(rad));
    }
}

float areaofCircle(int radius)
{
    const float PI = 3.14;
    float areaOfCir = PI * (radius * radius);
    return areaOfCir;
}

int areaofRect(int L, int W)
{
    int areaOfRect = L * W;
    return areaOfRect;
}

int perimeter(int L, int W)
{
    int periMeter = 2 * (L + W);
    return periMeter;
}

float circumference(float radius)
{
    const float PI = 3.14;
    float Circumfer = 2.0 * PI * radius;
    return Circumfer;
}

```

```

void sumOfDigitAndReverse()
{
    printf("What do you Whant to do : \n");
    printf("1> Sum Of Digits of number: \n");
    printf("2> Reverse the number : \n");
    int ch;
    scanf("%d", &ch);
    int num;
    if (ch == 1)
    {
        printf("Enter a Number : \n");
        scanf("%d", &num);
        printf(" \n %d is Sum of digits.\n", sumOfDigits(num));
    }
    else if (ch == 2)
    {
        printf("Enter a Number : \n");
        scanf("%d", &num);
        printf(" \n %d is Reverse Number \n", reverseNum(num));
    }
    else
    {
        printf("Invalid Choice brooo!! \n");
    }
}

int sumOfDigits(int num)
{
    int sum = 0;
    for (num; num > 0; num /= 10)
    {
        sum += (num % 10);
    }
    return sum;
}

int reverseNum(int num)
{
    int rev = 0;
    for (num; num > 0; num /= 10)
    {
        rev = (rev * 10) + (num % 10);
    }
    return rev;
}

int evenOdd(int num)
{
    if (num % 2 == 0)
    {

```

```

        return 1;
    }
    else
    {
        return 0;
    }
}
float salary(float baseSalary)
{
    float totalSalary;
    float DA, TA, HRA;
    if (baseSalary <= 5000)
    {
        DA = 0.10 * baseSalary;
        TA = 0.20 * baseSalary;
        HRA = 0.25 * baseSalary;
    }
    else
    {
        DA = 0.15 * baseSalary;
        TA = 0.25 * baseSalary;
        HRA = 0.30 * baseSalary;
    }
    totalSalary = DA + TA + HRA + baseSalary;
    return totalSalary;
}
int marriageEligibility(int age, char gender)
{
    return ((gender == 'f' && age >= 18 || gender == 'm' && age >= 21) ? 1 :
0);
}

```

Output:

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

Enter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:

6) Marriage Eligibility:

1

Enter Teperature in Celcious.45

Temparature In Celcius is :45

Temparature In Feranhite is :113.00

Eneter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

2

What do you want to do brooo.

1> Area of Circle

2> Area of Reactangle

3> Perimeter of Circle

4> Circumference of Circle

1

Enter Radious of Circle22

1519.76 is area of Circle...!

Eneter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

3

What do you Want to do :

1> Sum Of Digits of number:

2> Reverse the number :

1

Enter a Number :

34

7 is Sum of digits.

Enter your choice :

1) Temp Convert:

2) Area And Perimeter:

3) Sum Of Digits and Reverse:

4) Even Odd :

5) Salary:

6) Marriage Eligibility:

4

Enter A Number :

322

Number is Even

Enter your choice :

- 1) Temp Convert:
 - 2) Area And Perimeter:
 - 3) Sum Of Digits and Reverse:
 - 4) Even Odd :
 - 5) Salary:
 - 6) Marriage Eligibility:
- 5

Enter Base Salary :

34225

Total Salary is : 58182.500000

Eneter your choice :

- 1) Temp Convert:
 - 2) Area And Perimeter:
 - 3) Sum Of Digits and Reverse:
 - 4) Even Odd :
 - 5) Salary:
 - 6) Marriage Eligibility:
- 6

Enter Your Gender (f/m): f

Enter age of Person:

45

Eligible to marry

Eneter your choice :

- 1) Temp Convert:
- 2) Area And Perimeter:
- 3) Sum Of Digits and Reverse:
- 4) Even Odd :
- 5) Salary:
- 6) Marriage Eligibility:

0

Inavalid Choice !

PS C:\Code>

Assignment 02 Using Type 4

```
#include <stdio.h>
float discount(float);
int greatestOfThree(int, int, int);
void calculator();
int addition(int, int);
void UseChoice();
int subtraction(int, int);
int multiplication(int, int);
int division(int, int);

int greatOfThree(int, int, int);
float discountStudent(float, char);
void evenOdd(int);
void salary(float);

void main()
{
    int ch = 1;
    while (ch)
    {
        printf("\n Eneter your choice : \n");
        printf("1) Discount: \n");
        printf("2) Greatest of Three: \n");
        printf("3) calculator: \n");
        printf("4) UserChoice : \n");
        printf("5) Student Discount: \n");
```

```

printf("Enter 0 To exit");

scanf("%d", &ch);
if (ch > 5 || ch < 0)
{
    printf("Inavalid Choice !");
}
else if (ch == 1)
{
    float Op;
    printf("Enter Original Price broo:");
    scanf("%f", &Op);
    printf("%.4f is final Price \n ", discount(Op));
}
else if (ch == 2)
{
    printf("Gretest of Three Numbers \n");
    // get value of a b c from user
    printf("\n Enter 3 Numbers :");
    int A, B, C;
    scanf("%d%d%d", &A, &B, &C);

    printf("%d is greatest. \n", greatestOfThree(A, B, C));
}
else if (ch == 3)
{
    calculator();
}
else if (ch == 4)
{
    UseChoice();
}
else if (ch == 5)
{
    float price, finalprice;
    printf("Enter Price of the product : \n");
    scanf("%f", &price);
    printf("Are you a Student ? (Y/N) \n");
    char std = getch();
    printf("%.2f is Final Price. \n", discountStudent(price, std));
}
else if (ch == 0)
{
    break;
}
}
}

float discount(float Op)

```

```

{

    float finalPrice;
    if (Op <= 1000)
    {
        finalPrice = Op - (0.05 * Op);
        return finalPrice;
    }
    else if (Op <= 5000)
    {
        finalPrice = Op - (0.10 * Op);
        return finalPrice;
    }
    else if (Op <= 10000)
    {
        finalPrice = Op - (0.20 * Op);
        return finalPrice;
    }
    else if (Op > 10000)
    {
        finalPrice = Op - (0.25 * Op);
        return finalPrice;
    }
}

int greatestOfThree(int A, int B, int C)
{

    return A > B && A > C ? A : B > C ? B
        : C;
}

void calculator()
{
    printf("Enetr your Choice: \n");
    printf("A Addition \n");
    printf("S Substraction \n");
    printf("M Multiplication \n");
    printf("D Dividion \n");
    char op = getch();
    int A, B;

    if (op == 'A')
    {
        printf("Chosen Operation is Addition.. \n ");
        printf("Enter Two numbers : ");
        scanf("%d%d", &A, &B);
        printf("%d is Addition.", addition(A, B));
    }
    else if (op == 'S')

```

```

{
    printf("Chosen Operation is Substraction.. \n ");
    printf("Enter Two numbers : ");
    scanf("%d%d", &A, &B);
    printf("%d is Substraction.", subtraction(A, B));
}
else if (op == 'M')
{
    printf("Chosen Operation is Multiplication.. \n ");
    printf("Enter Two numbers : ");
    scanf("%d%d", &A, &B);
    printf("%d is Multiplication ", multiplication(A, B));
}
else if (op == 'D')
{
    printf("Enter Two numbers : ");
    scanf("%d%d", &A, &B);
    printf("Chosen Operation is Division.. \n ");
    printf("%d is Division \n", division(A, B));
}
}

int addition(int A, int B)
{
    return (A + B);
}

int division(int A, int B)
{
    if (A == 0 || B == 0)
    {
        printf("Divide by zero exception !!!");
        return 0;
    }
    else if (A < B)
    {
        return (B / A);
    }
    else
    {
        return (A / B);
    }
}

int subtraction(int A, int B)
{

```

```

        return (B - A);
    }

int multiplication(int A, int B)
{
    return (A * B);
}

void UseChoice()
{ // Choice to be taken from user when learn about Scan
    printf("\n Enter Your choice \n");
    printf("\n E for EvenOdd \n");
    printf("\n S for Slary Calculation \n");
    printf("\n G for Finding greatest of three. \n");
    char choice = getch();

    if (choice == 'E')
    {
        int num;
        printf("Enter A number to check Even or Odd \n");
        scanf("%d", &num);
        evenOdd(num);
    }
    else if (choice == 'S')
    {
        printf("Salary calculation \n");
        float baseSalary;
        printf("Enter Base salary: \n");
        scanf("%f", &baseSalary);
        salary(baseSalary);
    }
    else if (choice == 'G')
    {
        printf("Gretest of Three Numbers \n");
        // get value of a b c from user
        printf("\n Enter 3 Numbers :");
        int A, B, C;
        scanf("%d%d%d", &A, &B, &C);

        printf("%d is greatest. \n", greatestOfThree(A, B, C));
    }
}

float discountStudent(float price, char std)
{
    float finalprice;
    if (std == 'Y')
    {

```



```

        if (price >= 500)
        {
            finalprice = price - (price * 0.20);
        }
        else
        {

            finalprice = price - (price * 0.10);
        }
    }
    else if (std == 'N' && price > 600)
    {
        finalprice = price - (price * 0.15);
    }
    else
    {
        finalprice = price;
    }
    return (finalprice);
}

```

```

void evenOdd(int num)
{

    if (num % 2 == 0)
    {
        printf("Number is Even \n");
    }
    else
    {
        printf("Number is odd.");
    }
}

```

```

void salary(float baseSalary)
{
    float DA, TA, HRA;
    if (baseSalary <= 5000)
    {
        DA = 0.10 * baseSalary;
        TA = 0.20 * baseSalary;
        HRA = 0.25 * baseSalary;
    }
    else
    {
        DA = 0.15 * baseSalary;
        TA = 0.25 * baseSalary;
        HRA = 0.30 * baseSalary;
    }
}

```

```

    }

    printf("\n %.4f is Totalsalary.", DA + TA + HRA + baseSalary);
}

```

Output:

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

Eneter your choice :

1) Discount:

2) GREATEST OF THREE:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit1

Enter Original Price broo:1800

1620.0000 is final Price

Eneter your choice :

1) Discount:

2) GREATEST OF THREE:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit2

Gretest of Three Numbers

Enter 3 Numbers :67

89

09

89 is greatest.

Enter your choice :

- 1) Discount:
- 2) Greatest of Three:
- 3) calculator:
- 4) UserChoice :
- 5) Student Discount:

Enter 0 To exit3

Enter your Choice:

A Addition

S Substraction

M Multiplication

D Dividion

Chosen Operation is Addition..

Enter Two numbers :

45

667

712 is Addition.

Enter your choice :

- 1) Discount:
- 2) Greatest of Three:
- 3) calculator:
- 4) UserChoice :
- 5) Student Discount:

Enter 0 To exit4

Enter Your choice

E for EvenOdd

S for Slary Calculation

G for Finding greatest of three.

Enter A number to check Even or Odd

44

Number is Even

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit5

Enter Price of the product :

1400

Are you a Student ? (Y/N)

1190.00 is Final Price.

Eneter your choice :

1) Discount:

2) Greatest of Three:

3) calculator:

4) UserChoice :

5) Student Discount:

Enter 0 To exit0

PS C:\Code>

Assignment 03 Type 4

```
#include <stdio.h>
void OneToTen(int);
void tableOfNum(int);
int sumOfNumdinrange(int, int);
int isPrime(int);
int armstrong(int);
int perfect(int);
int factorial(int);
int strong(int);
int palindrome(int);
int sumOfFirstAndLastDigit(int);
int power(int, int);
int getCount(int);
void main()
{
    int ch = 1;
    int num = 1;
    while (ch)
    {

        printf("\n Eneter your choice : \n");
        printf("1) one to ten: \n");
        printf("2) Table of Num: \n");
        printf("3) Sum of nums in range : \n");
        printf("4) is prime: \n");
        printf("5) Armstrong: \n");
        printf("6) Perfect No: \n");
        printf("7) Factorial: \n");
        printf("8) Strong Num: \n");
        printf("9) Palindrome: \n");
        printf("10) Sum Of Frirst and Last Digit: \n");
        printf("0) Exit : \n");
```

```

scanf("%d", &ch);
if (ch > 10 || ch <= 0)
{
    printf("Inavalid Choice !");
}
else if (ch == 1)
{
    OneToTen(num);
}
else if (ch == 2)
{
    printf("Enter a number. \n");
    scanf("%d", &num);
    tableOfNum(num);
}
else if (ch == 3)
{
    int start, end;
    printf("Enter starting range :");
    scanf("%d", &start);
    // printf("\n");
    printf("Enter Ending range : ");
    scanf("%d", &end);
    printf("\n %d is sum", sumOfNumdinrange(start, end));
}
else if (ch == 4)
{
    printf("Enter a number to cheack Prime or Not :");
    scanf("%d", &num);
    isPrime(num) ? printf("num %d is Prime. \n", num) : printf("num
%d is not Prime. \n", num);
}
else if (ch == 5)
{
    printf("Enter A number to cheack armstrong. : ");
    scanf("%d", &num);
    armstrong(num) ? printf("Number %d is Armstrong Number.", num) :
printf("Number %d is NOT Armstrong Number.", num);
}
else if (ch == 6)
{
    printf("Enter A number :");
    scanf("%d", &num);
    perfect(num) ? printf("Number %d is perfect number", num) :
printf("%d is not perfect number", num);
}
else if (ch == 7)
{

```

```

        printf("Enter A number :");
        scanf("%d", &num);
        printf("%d is factorial of entered number", factorial(num));
    }
    else if (ch == 8)
    {
        printf("Enter a number : ");
        scanf("%d", &num);
        strong(num) ? printf("%d is a strong number", num) : printf("%d is
Not strong number", num);
    }
    else if (ch == 9)
    {
        printf("Enter a number : ");
        scanf("%d", &num);
        palindrome(num) ? printf("%d is a palindrome Number.", num) :
printf("%d Is not a palindrome number", num);
    }
    else if (ch == 10)
    {
        printf("Enter A number : ");
        scanf("%d", &num);
        printf("%d is sum of first and last digit of given numbr %d.",
sumOfFirstAndLastDigit(num), num);
    }
}
}
void OneToTen(num)
{
    while (num <= 10)
    {
        printf("%d \n", num);
        num++;
    }
    printf("%d is exit value of num.", num);
}
void tableOfNum(int num)
{
    int i = 1;
    while (i <= 10)
    {
        printf("%d * %d = %d \n", num, i, num * i);
        i++;
    }
    printf("Exit value of i = %d", i);
}
int sumOfNumdinrange(int start, int end)

```

```

{

    int sum = 0;
    int temp = start;

    while (temp <= end)
    {
        sum += temp;
        temp++;
    }
    return sum;
}

int isPrime(int num)
{
    int i = 2, cnt = 0;
    while (i <= num / 2)
    {
        if (num % i == 0)
        {
            return 0;
        }
        i++;
    }
    return 1;
}

int armstrong(int num)
{
    int rem = 0;
    int armN = 0;
    int temp = num;
    int cnt = getCount(temp);
    // printf("\n couynt = %d", cnt);

    while (temp)
    {
        rem = temp % 10;
        armN += power(rem, cnt);
        temp /= 10;
    }
    if (armN == num)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}
}

```



```

int power(int b, int e)
{
    // printf("\n Inside Power");
    while (e)
    {
        // printf("\n %d= b inside powr while", b);
        b *= b;
        e--;
    }
    return b;
}

int getCount(int num)
{
    // printf("\n Inmside Getcount");
    int count = 0;
    while (num)
    {
        count++;
        num /= 10;
    }
    return count;
}

int perfect(int num)
{
    int i = 1, cnt = 0, sumOfDivisor = 0;
    while (i < num)
    {
        if (num % i == 0)
        {
            sumOfDivisor += i;
            cnt++;
        }
        i++;
    }
    return (sumOfDivisor == num);
}

int factorial(int num)
{
    int Fact = 1;
    if (num < 0)
    {
        printf("Invalid number!");
    }
    else if (num > 0)
    {
        // while (num)
        // {

```

```

        //      Fact *= num;
        //      num--;
        // }

        for (int i = 2; i <= num; i++)
            Fact *= i;
    }
    return Fact;
}

int strong(int num)
{
    int temp = num;
    int FcatSum = 0;

    while (temp != 0)
    {
        int rem = temp % 10;
        int fact = 1;
        if (rem > 0)
        {
            while (rem)
            {
                fact *= rem;
                rem--;
            }
            FcatSum += fact;
            temp /= 10;
        }
        else
        {
            FcatSum += fact;
            temp /= 10;
        }
    }
    // printf("%d is factsum.", FcatSum);
    if (FcatSum == num)
    {
        return 1;
    }
    else
    {
        return 0;
        // printf("%d is not a strong number.", num);
    }
}

int palindrome(int num)
{

```

```

    int temp = num;
    int rev = 0;
    while (temp > 0)
    {
        int rem = temp % 10;
        rev = (rev * 10) + rem;
        temp /= 10;
    }
    return (rev == num);
}
int sumOfFirstAndLastDigit(int num)
{
    int lastDigit, firstDigit;
    lastDigit = num % 10;
    firstDigit = num / 10;

    while (firstDigit >= 10)
    {
        firstDigit /= 10;
    }
    return (firstDigit + lastDigit);
}

```

Output :

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

Enter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of First and Last Digit:

0) Exit :

1

1

2

3

4

5

6

7

8

9

10

11 is exit value of num.

Enter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of First and Last Digit:

0) Exit :

2

Enter a number.

3

$$3 * 1 = 3$$

$$3 * 2 = 6$$

$$3 * 3 = 9$$

$$3 * 4 = 12$$

$$3 * 5 = 15$$

$$3 * 6 = 18$$

$$3 * 7 = 21$$

$$3 * 8 = 24$$

$$3 * 9 = 27$$

$$3 * 10 = 30$$

Exit value of i = 11

Enter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of First and Last Digit:

0) Exit :

3

Enter starting range :4

Enter Ending range : 44

984 is sum

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

5

Enter A number to cheack armstrong. : 6

Number 6 is NOT Armstrong Number.

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

5

Enter A number to cheack armstrong. : 555

Number 555 is NOT Armstrong Number.

Eneter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of Frirst and Last Digit:

0) Exit :

6

Enter A number :6

Number 6 is perfect number

Eneter your choice :

1) one to ten:

2) Table of Num:

- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

7

Enter A number :6

720 is factorial of entered number

Eneter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of Frirst and Last Digit:
- 0) Exit :

8

Enter a number : 6

6 is Not strong number

Enter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:
- 9) Palindrome:
- 10) Sum Of First and Last Digit:
- 0) Exit :

9

Enter a number : 212

2

212 is a palindrome Number.

Enter your choice :

- 1) one to ten:
- 2) Table of Num:
- 3) Sum of nums in range :
- 4) is prime:
- 5) Armstrong:
- 6) Perfect No:
- 7) Factorial:
- 8) Strong Num:

9) Palindrome:

10) Sum Of First and Last Digit:

0) Exit :

10

Enter A number : 122

3 is sum of first and last digit of given number 122.

Enter your choice :

1) one to ten:

2) Table of Num:

3) Sum of nums in range :

4) is prime:

5) Armstrong:

6) Perfect No:

7) Factorial:

8) Strong Num:

9) Palindrome:

10) Sum Of First and Last Digit:

0) Exit :

0

Invalid Choice !

PS C:\Code>