Assignment 5

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Function Type 1:

Q)Convert Ferenhit into Celcius

```c
#include<stdio.h>
void ferenhitToCelcius();

int main(){
    printf("Start\n");
    ferenhitToCelcius();
    printf("End\n");
    return 0;
}

void ferenhitToCelcius(){
    float F;
    printf("Enter temperature Value in ferenhit\n");
    scanf("%f", &F);
    printf("%.2f ferenhit = %.2f celsius\n", F, ((F-32) * 5/9));
    // f-32 ** 5/9
}
```

Q)Find Area And perimeter of rectangle and circle

```c
#include<stdio.h>
void findAreaOfRect();
void findAreaOfCircle();

void findAreaOfRect(){
    int length;
    int breadth;

    printf("Enter Length and breadth\n");
    scanf("%d %d", &length, &breadth);
    printf("Area of rectangle is %d\n", length*breadth);
    printf("perimeter of rectangle is %d\n", 2 * (length+breadth));

}

void findAreaOfCircle(){
    float radius;
    printf("Enter radius value: ");
    scanf("%f", &radius);
    printf("Area of circle is %.2f\n", 3.14 * radius * radius);
    printf("perimeter of circle is %.2f\n", 2 * 3.14 * radius);
```

```
}

int main(){
    printf("Start\n");
    findAreaOfRect();
    findAreaOfCircle();
    printf("End\n");
    return 0;
}
```

Q)Find sum of digits of number and reverse

```
// find sum of 3 digit num and reverse it
#include<stdio.h>
void findSumOfDigits();

int main(){
    printf("Start\n");
    sumOfDigits();
    printf("End\n");
    return 0;
}

void sumOfDigits(){
    int temp = 123;
    int num = temp;
    int r1 = num %10; //3
    num = num /10; //12
    int r2 = num %10;
    int r3 = num /10;
    printf("Sum of %d is %d\n", temp, r1+r2+r3);
    printf("Reverse num of %d is %d\n", temp, (r1*100)+(r2*10)+r3);
}
```

Q)Find Even or Odd

```
#include <stdio.h>
void checkEvenOdd();
int main()
{
    printf("Start\n");
    checkEvenOdd();
    printf("End\n");
    return 0;
}

void checkEvenOdd()
{
    int num;
```

```
    printf("Enter a number: ");
    scanf("%d", &num);
    num % 2 ? printf("%d is odd num\n", num) : printf("%d is even num\n",
num);
}
```

Q)Find Salary after calculating da,ta, hra

```
#include<stdio.h>
// if basic <= 5000 da,ta, hra -> 10%,20,30
// otherwise 15,25,30
void calSalary();
int main(){
    printf("Start\n");
    calSalary();
    printf("End\n");
    return 0;
}

void calSalary(){
    float basic;
    printf("Enter Basic of Salary\n");
    scanf("%f", &basic);
    float salary;
    if(basic <=5000){
        salary = basic + (basic * 10)/100 + (basic * 20)/100 + (basic*30)/100;
    }
    else
        salary = basic + (basic * 15)/100 + (basic * 25)/100 + (basic*30)/100;

    printf("Salary is %.2f\n", salary);
}
```

Q) Swap two Variables

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

void swapToNum();

int main(){

    printf("Start\n");
    swapToNum();
    printf("End\n");
    return 0;
}

void swapToNum(){
    int a =2, b = 3, temp;
    // ---before swapping----
```

```
    printf("---before swapping----\n");
    printf("a=%d, b=%d\n",a,b);

    //---after swapping----
    temp = a;
    a = b;
    b = temp;
    printf("---after swapping----\n");
    printf("a=%d, b=%d\n",a,b);
}
```

Q) Find driver eligibility

```
#include<stdio.h>
#include<conio.h>
//age must be greater than 40
//d exp > 10
//12th marks > 60

void checkDriverEligibility();

int main(){

    printf("Start\n");
    checkDriverEligibility();
    printf("End\n");
    return 0;
}

void checkDriverEligibility(){
    int age,exp,marks;
    printf("Enter Age: ");
    scanf("%d", &age);
    printf("Enter Exp: ");
    scanf("%d", &exp);
    printf("Enter Marks: ");
    scanf("%d", &marks);

    (age >40 && exp > 10 && marks > 60) ? printf("Driver is eligible")
:printf("Driver is NOT eligible");
}
```

Q)Discount on price

```
#include<stdio.h>

void calNetPrice();

int main(){
```

```
    printf("Start\n");
    calNetPrice();
    printf("End\n");
    return 0;
}

void calNetPrice(){
    int price, discount;
    printf("Enter price:\n");
    scanf("%d", &price);
    printf("Enter discount percentage Example: 20\n");
    scanf("%d", &discount);
    printf("Your net price to be paid is:  %d\n", price -
((price*discount)/100));
}
```

Q) Find Greatest of 3 using nested if

```
#include<stdio.h>
void findGreatest();

int main(){
    printf("Start\n");
    findGreatest();
    printf("End\n");
    return 0;
}

void findGreatest(){
    int a,b,c;
    printf("Enter the value of a: ");
    scanf("%d",&a);
    printf("Enter the value of b: ");
    scanf("%d",&b);
    printf("Enter the value of c: ");
    scanf("%d",&c);

    if(a>b){
        if (a>c)
        {
            printf("A is Greatest of three.\n");
        }
        else
        {
            printf("C is Greatest of three.\n");
        }

    } else {
        if(b>c){
            printf("B is Greatest of three.\n");
        }
```

```
        else {
            printf("C is Greatest of three.\n");
        }
    }
}
```

Q) Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desired operations.

```
#include <stdio.h>

// for type 1, there ain't return type or parameter , so use of type 1
function just increase repeatation, instead of reusing the code

void showChoices();

int main()
{
    printf("Start\n");
    showChoices();
    printf("End\n");

    return 0;
}

void showChoices(){
    int num1, num2;
    char operator;
    printf("Enter the value of number 1: ");
    scanf("%d", &num1);
    printf("Enter the value of number 2: ");
    scanf("%d", &num2);

    printf("------Enter your choice :------\n");
    printf("For Addition enter '+'\n");
    printf("For Subtraction enter '-'\n");
    printf("For Multiplication enter '*'\n");
    printf("For Divivsion enter '/'\n");
    printf("For Modulo enter '%'\n");

    fflush(stdin);
    scanf("%c", &operator);

    if (operator== '+')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 + num2);
    }
    else if (operator== '-')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 - num2);
    }
    else if (operator== '*')
```

```
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 * num2);
    }
    else if (operator== '/')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 / num2);
    }
    else if (operator== '%')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 % num2);
    }
}
```

Q) Display a menu to the user (like 1.Even Odd 2. Basic salary etc), ask the user to enter his choice, then based on that perform the desired operations.

```
#include <stdio.h>

void checkEvenOdd();
void calculateSalary();

int main()
{
    int choiceNum;
    printf("----Choices-----\n");
    printf("Enter 1 for calculate Even odd\n");
    printf("Enter 2 for calculate Salary\n");
    scanf("%d", &choiceNum);

    if (choiceNum == 1)
    {
        checkEvenOdd();
    }
    else
    {
        calculateSalary();
    }

    return 0;
}

void checkEvenOdd()
{
    int num;
    printf("Enter number to check weather number is even or odd.\n");
    scanf("%d", &num);
    num % 2 ? printf("%d is Odd Number\n", num) : printf("%d is Even
number\n", num);
}

void calculateSalary()
{
```

```
    float basic;
    printf("Enter Basic salary\n");
    scanf("%f", &basic);
    float salary;
    if (basic <= 5000)
    {
        salary = basic + (basic * 10) / 100 + (basic * 20) / 100 + (basic *
30) / 100;
    }
    else
        salary = basic + (basic * 15) / 100 + (basic * 25) / 100 + (basic *
30) / 100;

    printf("Salary is %.2f\n", salary);
}
```

Q) Accept the price from user. Ask the user if he is a student (user may say yes or no). If he is a student and he has purchased more than 500 than discount is 20% otherwise discount is 10%. But if he is not a student then if he has purchased more than 600 discount is 15% otherwise there is not discount.

```
#include <stdio.h>

void calSalary();

int main()
{
    printf("Start\n");
    calSalary();
    printf("End\n");
    return 0;
}

void calSalary() {
    char isStudent;
    float price;
    int discount;
    printf("\nEnter price: ");
    scanf("%f", &price);

    printf("If your are student than press 'Y', else press 'N'\n");
    fflush(stdin);
    scanf("%c", &isStudent);

    // check validation
    if(isStudent=='y' || isStudent=='Y'){
        discount = price > 500 ? 20 : 10;
    }
    else if(isStudent=='n' || isStudent=='N'){
        discount = price > 600 ? 15 : 0;
    }
    else{
        printf("Invalid choice for student elligibility\n");
```

```
    }

    printf("You got %d\% Discount\n", discount);
    printf("You have to pay %.2f rs.\n", price - (price * discount) / 100);
}
```

Q)Print 1 to 10

```
#include<stdio.h>

void print1To10();

int main(){
    printf("Start\n");
    print1To10();
    printf("End\n");
    return 0;
}

void print1To10(){
    // int i=1;
    // while(i<11){
    //     printf("%d\n", i);
    //     i++;
    // }

    for (int i = 1; i < 11; i++)
    {
        printf("%d\n", i);
    }
}
```

Q) Print table for the given number.

```
#include <stdio.h>

void printTable();

int main()
{
    printf("Start\n");
    printTable();
    printf("End\n");
    return 0;
}

void printTable() {
    int n, i = 1;
    printf("Enter Any Number u want to print table of\n");
    scanf("%d", &n);
```

```c
    // while (i < 11)
    // {
    //     printf("%d x %d = %d\n", n, i, n * i);
    //     i++;
    // }
    for (int i = 1; i <= 10; i++)
    {
        printf("%d x %d = %d\n", n, i, n * i);
    }
}
```

Q)Check Prime number

```c
#include <stdio.h>

void checkPrime();

int main()
{
    printf("Start\n");
    checkPrime();
    printf("End\n");

    return 0;
}

void checkPrime(){
    int num, isPrime = 1;
    printf("Enter number u want to check prime of\n");
    scanf("%d", &num);

    for (int i = 2; i*i <= num; i++)
    {
        if (num % i == 0)
        {
            isPrime = 0;
            break;
        }
    }

    if (isPrime)
        printf("%d is a Prime Number\n", num);
    else
        printf("%d is NOT a Prime Number\n", num);
}
```

Q)Check Armstrong Number

```c
#include <stdio.h>
#include <math.h>
// if 123 is num, and 1^3 + 2^3 + 3^3 = 123, then its armstrong num
```

```c
//example 153 = 1 + 125+ 27 is armstrong num
//1634 = 1^4 + 6^4 + 3^4 + 4^4

void checkArmStrong();

int main()
{
    printf("Start\n");
    checkArmStrong();
    printf("End\n");
    return 0;
}

void checkArmStrong(){

    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

    int temp = num, sum = 0, count =0;

    //find length of number to find exponent
    while(temp>0){
        count++;
        temp /= 10;
    }
    printf("Count = %d\n", count);

    //temp becomes 0, so ressign for further use
    temp = num;
    while (temp > 0)
    {
        int rem = temp % 10;
        //cal power of rem
        int power = 1, tempCount = count;
        // while(tempCount--){
        //     power *= rem;
        // }
        for (int i = 1; i <= tempCount; i++)
        {
            power *= rem;
        }

        printf("Power = %d\n", power);
        sum += power;
        temp /= 10;
    }

    sum == num ? printf("%d is an armstrong number\n", num) : printf("%d is
not An Armstrong number\n", num);
}
```

Q)Perfect Number

```c
#include<stdio.h>
//number can be called perfect if, sum of its divisors is same as number
itself
//ex: 6 because 1 + 2 + 3 = 6
//28 beacuse, 1 +2 + 4 + 7 + 14 =28

int checkPerfectNum();

int main(){
    printf("Start\n");
    checkPerfectNum();
    printf("End\n");
    return 0;
}

int checkPerfectNum(){
    int num;
    printf("Enter a num:\n");
    scanf("%d", &num);

    int temp = num, sum =0;
    for (int i = 1; i <= temp/2; i++)
    {
        if(num%i==0) sum += i;
    }

    if(temp==sum) printf("%d is a Perfect number\n", num);
    else printf("%s is not a Perfect num\n", num);
}
```

Q)Find Factorial

```c
#include<stdio.h>

void findFactorial();

int main(){
    printf("Start\n");
    findFactorial();
    printf("End\n");
    return 0;
}

void findFactorial() {
    int num, fact = 1;
    printf("Enter a number:\n");
    scanf("%d", &num);
    int temp =num;
```

```
    for(int i=num; i>0;i--){
        fact *= i;
    }
    printf("%d! = %d\n",temp, fact);
    // return fact;
}
```

Q)Strong Number

```
#include <stdio.h>
// num is called strong if its sum of its digit's factorial is same as num
// ex: 145, 1! + 4!+ 5! = 145

void checkStrongNum();

int main()
{
    printf("Start\n");
    checkStrongNum();
    printf("End\n");
    return 0;
}

void checkStrongNum() {
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

    int temp = num, rem, sum = 0;
    while (temp > 0)
    {
        rem = temp % 10;

        //--------Factorial Calculation-------
        // find factorial of rem
        int factorial = 1;
        while (rem > 0)
        {
            factorial *= rem;
            rem--;
        }

        // add factorial of rem to sum
        sum += factorial;

        // continue
        temp /= 10;
    }

    // return sum==num;
```

```
    if (sum == num)
        printf("%d is a Strong Number\n", num);
    else
        printf("%d is NOT a Strong Number\n", num);
}
```

Q) Palindrome

```
#include <stdio.h>
// 121, 1331, 12321

void checkPalindrome();

int main()
{
    printf("Start\n");
    checkPalindrome();
    printf("End\n");
    return 0;
}

void checkPalindrome() {
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

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

    // return num==rev;
    if (num == rev)
        printf("%d is a Palindrome number\n", num);
    else
        printf("%d is NOT a Palindrome number\n", num);
}
```

Q)Add first dig and last dig of a num and show summation

```
#include<stdio.h>
#include<math.h>
//add first and and last digit of given num

void findFirstNLastDigSum();

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

```
    findFirstNLastDigSum();
    printf("End\n");
    return 0;
}

void findFirstNLastDigSum(){
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

    int temp = num, lastDigit, firstDigit, lengthOfNum=0;
    lastDigit = temp%10;

    //logic 1 for find 1st digit of num
    // while(temp>0){
    //     lengthOfNum++;
    //     temp /= 10;
    // }
    // //reassign temp to num
    // temp = num;
    // firstDigit = temp / pow(10,lengthOfNum-1);

    //logic 2 for find 1st digit of num
    while (temp>0)
    {
        // if(temp/10==0){
        //     firstDigit =temp;
        //     break;
        // }
        firstDigit = temp%10;
        temp /= 10;
    }

    // return firstDigit + lastDigit;
    printf("Sum of first digit(%d) + last Digit(%d) = %d\n", firstDigit,
lastDigit, firstDigit+lastDigit);
}
```

Q)Print Armstrong number in range 1 to n

```
#include <stdio.h>
#include <math.h>
// if 123 is num, and 1^3 + 2^3 + 3^3 = 123, then its armstrong num
// example 153 = 1 + 125+ 27 is armstrong num
// 1634 = 1^4 + 6^4 + 3^4 + 4^4


void printArmstrongNum();

int main()
{
```

```
    printf("Start\n");
    printArmstrongNum();
    printf("End\n");
    return 0;
}

void printArmstrongNum()
{
    int num;
    printf("Enter a number upto which u want to armstrong nums:\n");
    scanf("%d", &num);

    for (int i = 1; i <= num; i++)
    {
        int temp = i, sum = 0, count = 0;

        // find length of number to find exponent
        while (temp > 0)
        {
            count++;
            temp /= 10;
        }

        // temp becomes 0, so ressign for further use
        temp = i;
        while (temp > 0)
        {
            int rem = temp % 10;
            // cal power of rem
            int power = 1, exponent = count;
            while (exponent--)
            {
                power *= rem;
            }
            sum += power;
            temp /= 10;
        }
        sum == i &&printf("%d ", i);
    }
}
```

Q)Check Prime number in Range

```
#include <stdio.h>
void checkPrime()
{
    int num, isPrime = 1, j;
    printf("Enter number upto which u want to check prime of\n");
    scanf("%d", &num);

    for (j = 1; j <= num; j++)
```

```
    {
        int isPrime;
        for (int i = 2; i * i <= j; i++)
        {
            isPrime = 1;
            if (j % i == 0)
            {
                isPrime = 0;
                break;
            }
        }
        if (isPrime)
        {
            printf("%d ", j);
        }
    }
}

int main()
{
    checkPrime();
    return 0;
}
```

Q)Check Perfect num in range

```
#include <stdio.h>
// number can be called perfect if, sum of its divisors is same as number
itself
//number itself excluded...!
// ex: 6 because 1 + 2 + 3 = 6
// 28 beacuse, 1 +2 + 4 + 7 + 14 =28

void checkPerfect()
{
    int num, j, sum = 0;
    printf("Upto which range u want to check perfect num: ");
    scanf("%d", &num);

    for (j = 1; j <= num; j++)
    {
        sum = 0;
        for (int i = 1; i < j; i++)
        {
            if (j % i == 0)
                sum += i;
        }
        if (j == sum)
            printf("%d ", j);
    }
}
```

```c
int main()
{
    checkPerfect();
    return 0;
}
```

Q) Check Strong number in range 1 to n

```c
#include <stdio.h>
// num is called strong if its sum of its digit's factorial is same as num
// ex: 145, 1! + 4!+ 5! = 145

void checkStrong()
{
    int num, i, temp, rem, sum;
    printf("Enter a number:\n");
    scanf("%d", &num);

    for (i = 1; i <= num; i++)
    {
        temp = i;
        sum = 0;
        while (temp > 0)
        {
            rem = temp % 10;

            //--------Factorial Part-------
            // find factorial of rem
            int factorial = 1;
            while (rem > 0)
            {
                factorial *= rem;
                rem--;
            }
            // add factorial of rem to sum
            sum += factorial;

            // continue
            temp /= 10;
        }

        if (sum == i)
            printf("%d ", i);
    }
}

int main()
{
    checkStrong();
    return 0;
```

```
}
```

Q)Print Fibonacci upto n number

```c
#include<stdio.h>
//0 1 1 2 3 5 8 13 21 34 55

void printFibonacciInRange();

int main(){
    printf("Start\n");
    printFibonacciInRange();
    printf("End\n");

    return 0;
}

void printFibonacciInRange() {
    int num, first =0, second = 1, next = 0;
    printf("Enter a number upto which u want to print fibonacci series\n");
    scanf("%d", &num);

    while (next<=num)
    {
        printf("%d ", next);
        first = second;
        second = next;
        next = first + second;
    }
}
```

Function Type 2:

Q)Convert Ferenhit to Celcius

```c
#include<stdio.h>
float ferenhitToCelcius();

int main(){
    printf("Start\n");
    float res = ferenhitToCelcius();
    printf("%.2f celsius\n", res);
    printf("End\n");
    return 0;
}

float ferenhitToCelcius(){
    float F;
```

```
    printf("Enter temperature Value in ferenhit\n");
    scanf("%f", &F);
    return ((F-32) * 5/9);
    // f-32 ** 5/9
}
```

Q)Find Area And perimeter of rectangle and circle

```
#include<stdio.h>
int findAreaOfRect();
float findAreaOfCircle();

int findAreaOfRect(){
    int length;
    int breadth;

    printf("Enter Length and breadth for finding Area of rectangle\n");
    scanf("%d %d", &length, &breadth);
    return length*breadth;
    // printf("Area of rectangle is %d\n", length*breadth);
    // printf("perimeter of rectangle is %d\n", 2 * (length+breadth));

}
int findPerimeterOfRect(){
    int length;
    int breadth;

    printf("Enter Length and breadth for finding Perimeter of rectangle\n");
    scanf("%d %d", &length, &breadth);
    return 2 * (length+breadth);
    // printf("perimeter of rectangle is %d\n", 2 * (length+breadth));

}

float findAreaOfCircle(){
    float radius;
    printf("Enter radius value for finding Area of circle\n");
    scanf("%f", &radius);
    return 3.14 * radius * radius;
    // printf("Area of circle is %.2f\n", 3.14 * radius * radius);
}

float findPerimeterOfCircle(){
    float radius;
    printf("Enter radius value for finding Perimeter of circle\n");
    scanf("%f", &radius);
    return 2 * 3.14 * radius;
    // printf("perimeter of circle is %.2f\n", 2 * 3.14 * radius);
}

int main(){
    printf("Start\n");
    int areaRect = findAreaOfRect();
```

```
    printf("Area of rectangle is %d\n", areaRect);
    int periRect = findPerimeterOfRect();
    printf("Perimeter of rectangle is %d\n", periRect);
    float areaCircle = findAreaOfCircle();
    printf("Area of circle is %.2f\n", areaCircle);
    float periCircle = findPerimeterOfCircle();
    printf("Perimeter of circle is %0.2f\n", periCircle);
    printf("End\n");
    return 0;
}
```

Q)Find sum of digits of number and reverse

```
// find sum of 3 digit num and reverse it
#include<stdio.h>
int findSumOfDigits();
int findReverse();

int main(){
    printf("Start\n");
    printf("Sum is %d\n", findSumOfDigits());
    printf("Reverse is %d\n", findReverse());
    printf("End\n");
    return 0;
}

int findSumOfDigits(){
    int num;
    printf("Enter a 3 digit number to find sum of digit: \n");
    scanf("%d", &num);
    int r1 = num %10; //3
    num = num /10; //12
    int r2 = num %10;
    int r3 = num /10;
    // printf("Sum of %d is %d\n", temp, r1+r2+r3);
    return r1+r2+r3;
    // printf("Reverse num of %d is %d\n", temp, (r1*100)+(r2*10)+r3);
}

int findReverse(){
    int num;
    printf("Enter a 3 digit number to find reverse of number: \n");
    scanf("%d", &num);
    int r1 = num %10; //3
    num = num /10; //12
    int r2 = num %10;
    int r3 = num /10;
    // printf("Sum of %d is %d\n", temp, r1+r2+r3);
    return (r1*100)+(r2*10)+r3;
    // printf("Reverse num of %d is %d\n", temp, (r1*100)+(r2*10)+r3);
}
```

Q)Find Even or Odd

```c
#include <stdio.h>
int checkEvenOdd();
int main()
{
    printf("Start\n");
    checkEvenOdd() ? printf("Even Number\n") : printf("Odd Number\n");
    printf("End\n");
    return 0;
}

int checkEvenOdd()
{
    int num;
    printf("Enter a number: ");
    scanf("%d", &num);
    // num % 2 ? printf("%d is odd num\n", num) : printf("%d is even num\n",
num);
    return !num%2;
}
```

Q)Find Salary after calculating da,ta, hra

```c
#include<stdio.h>
// if basic <= 5000 da,ta, hra -> 10%,20,30
// otherwise 15,25,30
float calSalary();
int main(){
    printf("Start\n");
    printf("Salaray is %.2f\n",calSalary());
    printf("End\n");
    return 0;
}

float calSalary(){
    float basic;
    printf("Enter Basic of Salary\n");
    scanf("%f", &basic);
    float salary;
    if(basic <=5000){
        salary = basic + (basic * 10)/100 + (basic * 20)/100 + (basic*30)/100;
    }
    else
        salary = basic + (basic * 15)/100 + (basic * 25)/100 + (basic*30)/100;

    // printf("Salary is %.2f\n", salary);
    return salary;
}
```

Q) Find driver eligibility

```c
#include<stdio.h>
#include<conio.h>
//age must be greater than 40
//d exp > 10
//12th marks > 60

int checkDriverEligibility();

int main(){

    printf("Start\n");
    checkDriverEligibility() ? printf("Driver is Eligible\n") : printf("Driver
is Not Eligible\n");
    printf("End\n");
    return 0;
}

int checkDriverEligibility(){
    int age,exp,marks;
    printf("Enter Age: ");
    scanf("%d", &age);
    printf("Enter Exp: ");
    scanf("%d", &exp);
    printf("Enter Marks: ");
    scanf("%d", &marks);

    // (age >40 && exp > 10 && marks > 60) ? printf("Driver is eligible")
:printf("Driver is NOT eligible");
    if(age >40 && exp > 10 && marks > 60){
        return 1;
    }
    return 0;
}
```

Q)Discount on price

```c
#include<stdio.h>

int calNetPrice();

int main(){
    printf("Start\n");
    printf("Your net price to be paid is:  %d\n", calNetPrice());
    printf("End\n");
    return 0;
}

int calNetPrice(){
    int price, discount;
```

```
    printf("Enter price:\n");
    scanf("%d", &price);
    printf("Enter discount percentage Example: 20\n");
    scanf("%d", &discount);
    // printf("Your net price to be paid is:  %d\n", price -
((price*discount)/100));
    return price - (price*discount)/100;
}
```

Q) Find Greatest of 3 using nested if

```
#include<stdio.h>
int findGreatest();

int main(){
    printf("Start\n");
    printf("%d is greatest\n",findGreatest());
    printf("End\n");
    return 0;
}

int findGreatest(){
    int a,b,c;
    printf("Enter the value of a: ");
    scanf("%d",&a);
    printf("Enter the value of b: ");
    scanf("%d",&b);
    printf("Enter the value of c: ");
    scanf("%d",&c);

    if(a>b){
        if (a>c)
        {
            // printf("A is Greatest of three.\n");
            return a;
        }
        else
        {
            // printf("C is Greatest of three.\n");
            return c;
        }

    } else {
        if(b>c){
            // printf("B is Greatest of three.\n");
            return b;
        }
        else {
            // printf("C is Greatest of three.\n");
            return c;
        }
```

```
    }
}
```

Q) Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desired operations.

```c
#include <stdio.h>

// for type 2, there ain't return type, so we can not send any value to function for process, so again we have to take input again and again, doesn't make sense, it'll increase repeatation

int showChoices();

int main()
{
    printf("Start\n");
    printf("Answer is %d\n", showChoices());
    printf("End\n");

    return 0;
}

int showChoices(){
    int num1, num2;
    char operator;
    printf("Enter the value of number 1: ");
    scanf("%d", &num1);
    printf("Enter the value of number 2: ");
    scanf("%d", &num2);

    printf("------Enter your choice :------\n");
    printf("For Addition enter '+'\n");
    printf("For Subtraction enter '-'\n");
    printf("For Multiplication enter '*'\n");
    printf("For Divivsion enter '/'\n");
    printf("For Modulo enter '%'\n");

    fflush(stdin);
    scanf("%c", &operator);

    if (operator== '+')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 + num2);
        return num1+num2;
    }
    else if (operator== '-')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 - num2);
        return num1-num2;
    }
```

```
    else if (operator== '*')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 * num2);
        return num1*num2;
    }
    else if (operator== '/')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 / num2);
        return num1 / num2;
    }
    else if (operator== '%')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 % num2);
        return num1 % num2;
    }
}
```

Q) Display a menu to the user (like 1.Even Odd 2. Basic salary etc), ask the user to enter his choice, then based on that perform the desired operations.

```
#include <stdio.h>

int checkEvenOdd();
float calculateSalary();

int main()
{
    int choiceNum;
    printf("----Choices-----\n");
    printf("Enter 1 for calculate Even odd\n");
    printf("Enter 2 for calculate Salary\n");
    scanf("%d", &choiceNum);

    if (choiceNum == 1)
    {
        checkEvenOdd() ? printf("EVEN number\n") : printf("ODD number\n");
    }
    else
    {
        printf("Salary is %.2f\n",calculateSalary());
    }

    return 0;
}

int checkEvenOdd()
{
    int num;
    printf("Enter number to check weather number is even or odd.\n");
    scanf("%d", &num);
```

```
    // num % 2 ? printf("%d is Odd Number\n", num) : printf("%d is Even
number\n", num);
    return !num%2;
}

float calculateSalary()
{
    float basic;
    printf("Enter Basic salary\n");
    scanf("%f", &basic);
    float salary;
    if (basic <= 5000)
    {
        salary = basic + (basic * 10) / 100 + (basic * 20) / 100 + (basic *
30) / 100;
    }
    else
        salary = basic + (basic * 15) / 100 + (basic * 25) / 100 + (basic *
30) / 100;

    // printf("Salary is %.2f\n", salary);
    return salary;
}
```

Q) Accept the price from user. Ask the user if he is a student (user may say yes or no). If he is a student and he has purchased more than 500 than discount is 20% otherwise discount is 10%. But if he is not a student then if he has purchased more than 600 discount is 15% otherwise there is not discount.

```
#include <stdio.h>

int checkIsStudent();

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

    float price;
    int discount;
    printf("\nEnter price: ");
    scanf("%f", &price);

    // check validation
    if (checkIsStudent())
    {
        discount = price > 500 ? 20 : 10;
    }
    else
    {
        discount = price > 600 ? 15 : 0;
    }
```

```
    printf("You got %d\% Discount\n", discount);
    printf("You have to pay %.2f rs.\n", price - (price * discount) / 100);
    printf("End\n");
    return 0;
}

int checkIsStudent()
{
    char checkStudent;
    printf("If your are student than press 'Y', else press 'N'\n");
    fflush(stdin);
    scanf("%c", &checkStudent);

    if (checkStudent == 'y' || checkStudent == 'Y')
    {
        return 1;
    }
    else if (checkStudent == 'n' || checkStudent == 'N')
    {
        return 0;
    }
    printf("Invalid choice for student elligibility\n");
    return 0;
}
```

Q)Print 1 to 10

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

--------#########---------

NO Change in code at all compare to type 1 function, as there nothing to
return, we are printing only.

--------#########------------


*/
void print1To10();

int main(){
    printf("Start\n");
    print1To10();
    printf("End\n");
    return 0;
}

void print1To10(){
    // int i=1;
```

```
    // while(i<11){
    //     printf("%d\n", i);
    //     i++;
    // }

    for (int i = 1; i < 11; i++)
    {
        printf("%d\n", i);
    }
}
```

Q) Print table for the given number.

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

--------#########---------

NO Change in code at all compare to type 1 function, as there nothing to
return, we are printing only.

--------#########------------


*/

void printTable();

int main()
{
    printf("Start\n");
    printTable();
    printf("End\n");
    return 0;
}

void printTable() {
    int n, i = 1;
    printf("Enter Any Number u want to print table of\n");
    scanf("%d", &n);

    // while (i < 11)
    // {
    //     printf("%d x %d = %d\n", n, i, n * i);
    //     i++;
    // }
    for (int i = 1; i <= 10; i++)
    {
        printf("%d x %d = %d\n", n, i, n * i);
    }
}
```

Q)Check Prime number

```c
#include <stdio.h>

int checkPrime();

int main()
{
    printf("Start\n");
    checkPrime() ? printf("Num is Prime Number\n"): printf("Num is NOT a Prime Number\n");
    printf("End\n");

    return 0;
}

int checkPrime(){
    int num;
    printf("Enter number u want to check prime of\n");
    scanf("%d", &num);

    for (int i = 2; i*i <= num; i++)
    {
        if (num % i == 0)
        {
            return 0;
        }
    }
    return 1;
}
```

Q)Check Armstrong Number

```c
#include <stdio.h>
#include <math.h>
// if 123 is num, and 1^3 + 2^3 + 3^3 = 123, then its armstrong num
//example 153 = 1 + 125+ 27 is armstrong num
//1634 = 1^4 + 6^4 + 3^4 + 4^4

int checkArmStrong();

int main()
{
    printf("Start\n");
    checkArmStrong() ? printf("Number is Armstrong\n") : printf("Number is Not an Armstrong\n");
    printf("End\n");
    return 0;
}
```

```c
int checkArmStrong(){

    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

    int temp = num, sum = 0, count =0;

    //find length of number to find exponent
    while(temp>0){
        count++;
        temp /= 10;
    }
    printf("Count = %d\n", count);

    //temp becomes 0, so ressign for further use
    temp = num;
    while (temp > 0)
    {
        int rem = temp % 10;
        //cal power of rem
        int power = 1, tempCount = count;
        // while(tempCount--){
        //     power *= rem;
        // }
        for (int i = 1; i <= tempCount; i++)
        {
            power *= rem;
        }

        printf("Power = %d\n", power);
        sum += power;
        temp /= 10;
    }

    return sum == num;
}
```

Q)Perfect Number

```c
#include<stdio.h>
//number can be called perfect if, sum of its divisors is same as number
itself
//ex: 6 because 1 + 2 + 3 = 6
//28 beacuse, 1 +2 + 4 + 7 + 14 =28

int checkPerfectNum();

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

```
    checkPerfectNum() ? printf("Num is a Perfect number\n"):printf("Num is NOT
a Perfect number\n") ;
    printf("End\n");
    return 0;
}

int checkPerfectNum(){
    int num;
    printf("Enter a num:\n");
    scanf("%d", &num);

    int temp = num, sum =0;
    for (int i = 1; i <= temp/2; i++)
    {
        if(num%i==0) sum += i;
    }

    return temp==sum;
    // if(temp==sum) printf("%d is a Perfect number\n", num);
    // else printf("%s is not a Perfect num\n", num);
}
```

Q)Find Factorial

```
#include<stdio.h>

int findFactorial();

int main(){
    printf("Start\n");
    printf("Answer is %d\n", findFactorial());
    printf("End\n");
    return 0;
}

int findFactorial() {
    int num, fact = 1;
    printf("Enter a number:\n");
    scanf("%d", &num);
    int temp =num;

    for(int i=num; i>0;i--){
        fact *= i;
    }
    // printf("%d! = %d",temp, fact);
    return fact;
}
```

Q)Strong Number

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

```c
// num is called strong if its sum of its digit's factorial is same as num
// ex: 145, 1! + 4!+ 5! = 145

int checkStrongNum();

int main()
{
    printf("Start\n");
    checkStrongNum() ? printf("Num is Strong Num\n") : printf("Num is NOT a
Strong Num\n");
    printf("End\n");
    return 0;
}

int checkStrongNum() {
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

    int temp = num, rem, sum = 0;
    while (temp > 0)
    {
        rem = temp % 10;

        //--------Factorial Calculation-------
        // find factorial of rem
        int factorial = 1;
        while (rem > 0)
        {
            factorial *= rem;
            rem--;
        }

        // add factorial of rem to sum
        sum += factorial;

        // continue
        temp /= 10;
    }

    return sum==num;
    // if (sum == num)
    //     printf("%d is a Strong Number\n", num);
    // else
    //     printf("%d is NOT a Strong Number\n", num);
}
```

Q) Palindrome

```c
#include <stdio.h>
// 121, 1331, 12321
```

```c
int checkPalindrome();

int main()
{
    printf("Start\n");
    checkPalindrome() ? printf("Num is Palindrome\n") : printf("Num is NOT
Palindrome\n");
    printf("End\n");
    return 0;
}

int checkPalindrome() {
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

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

    return num==rev;
    // if (num == rev)
    //     printf("%d is a Palindrome number\n", num);
    // else
    //     printf("%d is NOT a Palindrome number\n", num);
}
```

Q)Add first dig and last dig of a num and show summation

```c
#include<stdio.h>
#include<math.h>
//add first and and last digit of given num

int findFirstNLastDigSum();

int main(){
    printf("Start\n");
    printf("Sum of first and last digit of number is %d\n",
findFirstNLastDigSum());
    printf("End\n");
    return 0;
}

int findFirstNLastDigSum(){
    int num;
    printf("Enter a number:\n");
```

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

    int temp = num, lastDigit, firstDigit, lengthOfNum=0;
    lastDigit = temp%10;

    //logic 1 for find 1st digit of num
    // while(temp>0){
    //     lengthOfNum++;
    //     temp /= 10;
    // }
    // //reassign temp to num
    // temp = num;
    // firstDigit = temp / pow(10,lengthOfNum-1);

    //logic 2 for find 1st digit of num
    while (temp>0)
    {
        // if(temp/10==0){
        //     firstDigit =temp;
        //     break;
        // }
        firstDigit = temp%10;
        temp /= 10;
    }

    return firstDigit + lastDigit;
    // printf("Sum of first digit(%d) + last Digit(%d) = %d", firstDigit,
lastDigit, firstDigit+lastDigit);
}
```

Function Type 3:

Q) Convert Ferenhit into Celcius

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

int main(){
    float F;
    printf("Enter temperature Value in ferenhit\n");
    scanf("%f", &F);
    ferenhitToCelcius(F);
    return 0;
}

void ferenhitToCelcius(float F){
    // return ((F-32) * 5/9);
    printf("%0.2f Ferenhit = %.2f degree celsius\n",F, ((F-32) * 5/9));
    // f-32 ** 5/9
}
```

Q)Find Area And perimeter of rectangle and circle

```c
#include<stdio.h>
void findAreaNPerimeterOfRect(int, int);
void findAreaNPerimeterOfCircle(float);

void findAreaNPerimeterOfRect(int length, int breadth){
    printf("Area of rectangle is %d\n", length*breadth);
    printf("perimeter of rectangle is %d\n", 2 * (length+breadth));
    // return length*breadth;
}

void findAreaNPerimeterOfCircle(float radius){
    // return 2 * 3.14 * radius;
    printf("Area of circle is %.2f\n", 3.14 * radius * radius);
    printf("perimeter of circle is %.2f\n", 2 * 3.14 * radius);
}

int main(){
    int length, breadth;
    printf("Enter Length and breadth for finding Area of rectangle\n");
    scanf("%d %d", &length, &breadth);
    findAreaNPerimeterOfRect(length, breadth);
    float radius;
    printf("Enter radius value for finding Perimeter of circle\n");
    scanf("%f", &radius);
    findAreaNPerimeterOfCircle(radius);
    return 0;
}
```

Q)Find sum of digits of number and reverse

```c
// find sum of 3 digit num and reverse it
#include<stdio.h>
void findSumOfDigits(int);
void findReverse(int, int,int,int);

int main(){
    int num;
    printf("Enter a 3 digit number to find sum of digit: \n");
    scanf("%d", &num);
    findSumOfDigits(num);
    return 0;
}

void findSumOfDigits(int num){
    int temp = num;
```

```
    int r1 = num %10; //3
    num = num /10; //12
    int r2 = num %10;
    int r3 = num /10;
    printf("Sum of %d is %d\n", temp, r1+r2+r3);
    findReverse(r1,r2,r3, num);
    // return r1+r2+r3;
    // printf("Reverse num of %d is %d\n", temp, (r1*100)+(r2*10)+r3);
}

void findReverse(int r1, int r2, int r3, int num){
    // printf("Sum of %d is %d\n", temp, r1+r2+r3);
    // return (r1*100)+(r2*10)+r3;
    printf("Reverse num of %d is %d\n", num, (r1*100)+(r2*10)+r3);
}
```

Q)Find Even or Odd

```
#include <stdio.h>
void checkEvenOdd(int);
int main()
{
    int num;
    printf("Enter Number:\n");
    scanf("%d", &num);
    // checkEvenOdd() ? printf("Even Number\n") : printf("Odd Number\n");
    checkEvenOdd(num);
    return 0;
}

void checkEvenOdd(int num)
{
    num % 2 ? printf("%d is odd num\n", num) : printf("%d is even num\n",
num);
    // return !num%2;2
}
```

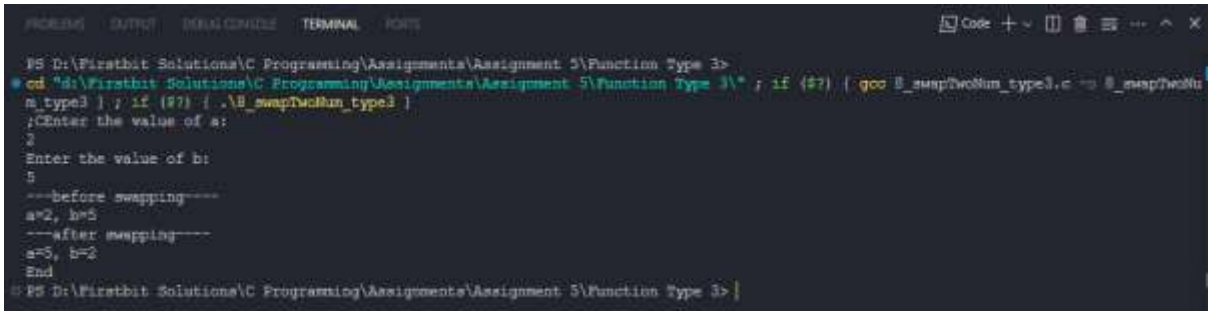
Q)Find Salary after calculating da,ta, hra

```
#include<stdio.h>
// if basic <= 5000 da,ta, hra -> 10%,20,30
// otherwise 15,25,30
void calSalary(float);
int main(){
    float basic;
    printf("Enter Basic of Salary\n");
    scanf("%f", &basic);
    // printf("Salaray is %.2f\n",calSalary());
```

```
    calSalary(basic);
    printf("End\n");
    return 0;
}

void calSalary(float basic){
    float salary;
    if(basic <=5000){
        salary = basic + (basic * 10)/100 + (basic * 20)/100 + (basic*30)/100;
    }
    else
        salary = basic + (basic * 15)/100 + (basic * 25)/100 + (basic*30)/100;

    printf("Salary is %.2f\n", salary);
    // return salary;
}
```

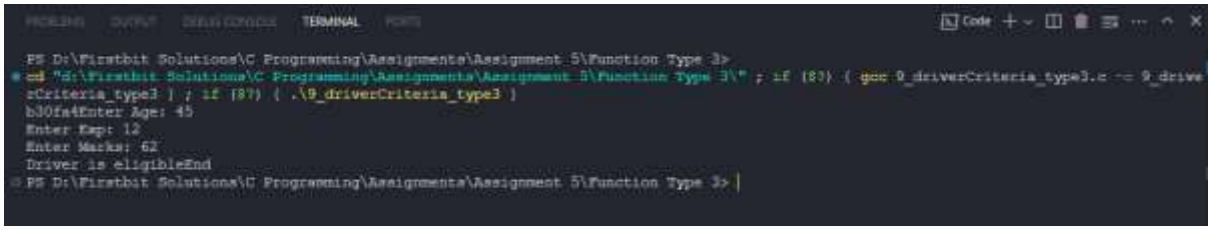
Q) Swap two Variables

```
#include<stdio.h>

void swapToNum(int, int);

int main(){
    int a,b;
    printf("Enter the value of a:\n");
    scanf("%d", &a);
    printf("Enter the value of b:\n");
    scanf("%d", &b);
    swapToNum(a,b);
    printf("End\n");
    return 0;
}

void swapToNum(int a, int b){
    // ---before swapping----
    printf("---before swapping----\n");
    printf("a=%d, b=%d\n",a,b);

    //---after swapping----
    int temp = a;
    a = b;
    b = temp;
    printf("---after swapping----\n");
    printf("a=%d, b=%d\n",a,b);
}
```



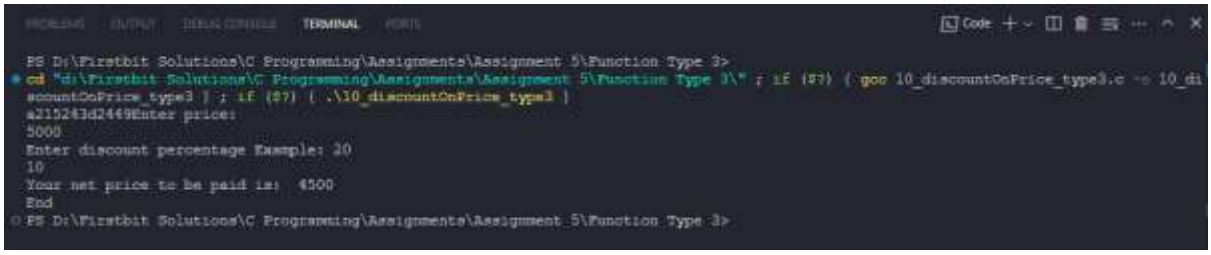
Q) Find driver eligibility

```c
#include<stdio.h>
//age must be greater than 40
//d exp > 10
//12th marks > 60

void checkDriverEligibility(int, int, int);

int main(){
    int age,exp,marks;
    printf("Enter Age: ");
    scanf("%d", &age);
    printf("Enter Exp: ");
    scanf("%d", &exp);
    printf("Enter Marks: ");
    scanf("%d", &marks);

    checkDriverEligibility(age, exp, marks);
    // checkDriverEligibility() ? printf("Driver is Eligible\n") :
printf("Driver is Not Eligible\n");
    printf("End\n");
    return 0;
}

void checkDriverEligibility(int age, int exp, int marks){


    (age >40 && exp > 10 && marks > 60) ? printf("Driver is eligible")
:printf("Driver is NOT eligible");
    // if(age >40 && exp > 10 && marks > 60){
    //     return 1;
    // }
    // return 0;
}
```



Q)Discount on price

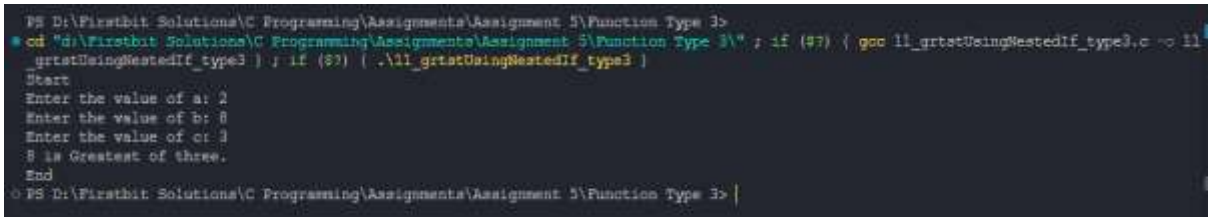
```c
#include<stdio.h>

void calNetPrice(int, int);

int main(){
    int price, discount;
    printf("Enter price:\n");
    scanf("%d", &price);
    printf("Enter discount percentage Example: 20\n");
    scanf("%d", &discount);
    // printf("Your net price to be paid is:  %d\n", calNetPrice());
    calNetPrice(price, discount);
    printf("End\n");
    return 0;
}

void calNetPrice(int price, int discount){
    printf("Your net price to be paid is:  %d\n", price -
((price*discount)/100));
    // return price - (price*discount)/100;
}
```



Q) Find Greatest of 3 using nested if

```c
#include<stdio.h>
void findGreatest(int, int, int);

int main(){
    printf("Start\n");
    int a,b,c;
```

```c
    printf("Enter the value of a: ");
    scanf("%d",&a);
    printf("Enter the value of b: ");
    scanf("%d",&b);
    printf("Enter the value of c: ");
    scanf("%d",&c);
    findGreatest(a,b,c);
    // printf("%d is greatest\n",findGreatest(a,b,c));
    printf("End\n");
    return 0;
}

void findGreatest(int a, int b,int c){
    int greatest;
    if(a>b){
        if (a>c)
        {
            // printf("A is Greatest of three.\n");
            greatest = a;
            // return a;
        }
        else
        {
            // printf("C is Greatest of three.\n");
            greatest = c;
            // return c;
        }

    } else {
        if(b>c){
            // printf("B is Greatest of three.\n");
            // return b;
            greatest = b;
        }
        else {
            // printf("C is Greatest of three.\n");
            // return c;
            greatest = c;
        }
    }
    printf("%d is Greatest of three.\n", greatest);
}
```



Q) Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desired operations.

```c
#include <stdio.h>

// for type 2, there ain't return type, so we can not send any value to function for process, so again we have to take input again and again, doesn't make sense, it'll increase repeatation

void showChoices(int, int ,char);

int main()
{
    printf("Start\n");
    int num1, num2;
    char operator;
    printf("Enter the value of number 1: ");
    scanf("%d", &num1);
    printf("Enter the value of number 2: ");
    scanf("%d", &num2);

    printf("------Enter your choice :------\n");
    printf("For Addition enter '+'\n");
    printf("For Subtraction enter '-'\n");
    printf("For Multiplication enter '*'\n");
    printf("For Divivsion enter '/'\n");
    printf("For Modulo enter '%'\n");

    fflush(stdin);
    scanf("%c", &operator);
    // printf("Answer is %d\n", showChoices());
    showChoices(num1, num2, operator);
    printf("End\n");

    return 0;
}

void showChoices(int num1, int num2, char operator){

    if (operator== '+')
    {
```

```
        printf("%d %c %d = %d\n", num1, operator, num2, num1 + num2);
        // return num1+num2;
    }
    else if (operator== '-')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 - num2);
        // return num1-num2;
    }
    else if (operator== '*')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 * num2);
        // return num1*num2;
    }
    else if (operator== '/')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 / num2);
        // return num1 / num2;
    }
    else if (operator== '%')
    {
        printf("%d %c %d = %d\n", num1, operator, num2, num1 % num2);
        // return num1 % num2;
    }
}
```

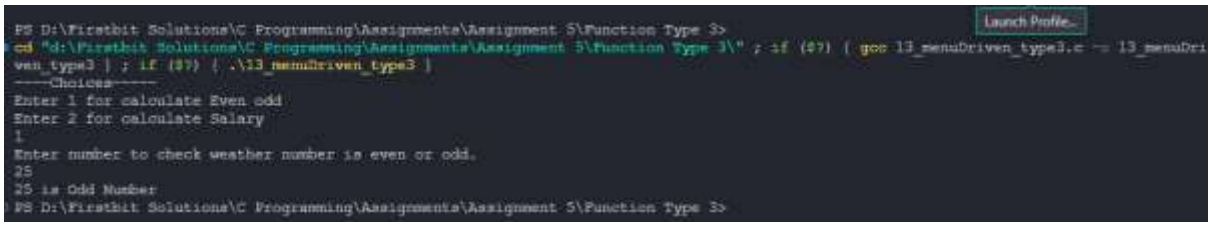
```
Start
Enter the value of number 1: 10
Enter the value of number 2: 20
------Enter your choice :------
For Addition enter '+'
For Subtraction enter '-'
For Multiplication enter '*'
For Division enter '/'
For Modulo enter '%'
+
10 + 20 = 30
End
```

Q) Display a menu to the user (like 1.Even Odd 2. Basic salary etc), ask the user to enter his choice, then based on that perform the desired operations.

```
#include <stdio.h>

void checkEvenOdd(int);
void calculateSalary(float);

int main()
{
    int choiceNum;
    printf("----Choices-----\n");
    printf("Enter 1 for calculate Even odd\n");
    printf("Enter 2 for calculate Salary\n");
    scanf("%d", &choiceNum);
```

```c
    if (choiceNum == 1)
    {
        // checkEvenOdd() ? printf("EVEN number\n") : printf("ODD
number\n");
        int num;
        printf("Enter number to check weather number is even or odd.\n");
        scanf("%d", &num);
        checkEvenOdd(num);
    }
    else if (choiceNum == 2)
    {
        // printf("Salary is %.2f\n",calculateSalary());
        float basic;
        printf("Enter Basic salary\n");
        scanf("%f", &basic);
        calculateSalary(basic);
    }
    else
    {
        printf("Invalid Choice\n");
    }

    return 0;
}

void checkEvenOdd(int num)
{

    num % 2 ? printf("%d is Odd Number\n", num) : printf("%d is Even
number\n", num);
    // return !num%2;
}

void calculateSalary(float basic)
{

    float salary;
    if (basic <= 5000)
    {
        salary = basic + (basic * 10) / 100 + (basic * 20) / 100 + (basic
* 30) / 100;
    }
    else
        salary = basic + (basic * 15) / 100 + (basic * 25) / 100 + (basic
* 30) / 100;

    printf("Salary is %.2f\n", salary);
```

```
    // return salary;
}
```



Q) Accept the price from user. Ask the user if he is a student (user may say yes or no). If he is a student and he has purchased more than 500 than discount is 20% otherwise discount is 10%. But if he is not a student then if he has purchased more than 600 discount is 15% otherwise there is not discount.

```c
#include <stdio.h>

void checkIsStudent(char, float);

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

    float price;
    int discount;
    printf("\nEnter price: ");
    scanf("%f", &price);

    char checkStudent;
    printf("If your are student than press 'Y', else press 'N'\n");
    fflush(stdin);
    scanf("%c", &checkStudent);

    checkIsStudent(checkStudent, price);

    // printf("You got %d\% Discount\n", discount);
    // printf("You have to pay %.2f rs.\n", price - (price * discount) /
100);
    printf("End\n");
    return 0;
}

void checkIsStudent(char checkStudent, float price)
{
    int discount;
    if (checkStudent == 'y' || checkStudent == 'Y')
    {
```

```
        discount = price > 500 ? 20 : 10;
        // return 1;
    }
    else if (checkStudent == 'n' || checkStudent == 'N')
    {
        discount = price > 600 ? 15 : 0;
        // return 0;
    }
    else
        printf("Invalid choice for student elligibility\n");

    printf("You got %d\% Discount\n", discount);
    printf("You have to pay %.2f rs.\n", price - (price * discount) /
100);
    // return 0;
}
```

```
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 3>
cd "d:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 3\"
udentDiscount_type3 } ; if ($?) { .\14_studentDiscount_type3 }
Start

Enter price: 600
If your are student than press 'Y', else press 'N'
y
You got 20% Discount
You have to pay 480.00 rs.
End
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 3>
```

Q)Print 1 to 10

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

--------#########---------

NO Change in code at all compare to type 1 function, as there nothing to
return and no parameter, we are printing only.

--------#########------------


*/
void print1To10();

int main(){
    printf("Start\n");
    print1To10();
    printf("End\n");
```

```
    return 0;
}

void print1To10(){
    for (int i = 1; i < 11; i++)
    {
        printf("%d\n", i);
    }
}
```

Q) Print table for the given number.

```
#include <stdio.h>

void printTable(int);

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

    int n;
    printf("Enter Any Number u want to print table of\n");
    scanf("%d", &n);
    printTable(n);
    printf("End\n");
    return 0;
}

void printTable(int n) {

    for (int i = 1; i <= 10; i++)
    {
        printf("%d x %d = %d\n", n, i, n * i);
    }
}
```

Q)Sum of number in given range

```
#include<stdio.h>
void sumInRange(int, int);
int main(){
    int lower, upper;
    printf("Enter Lower limit and Upper limit of Range\n");
    scanf("%d %d", &lower, &upper);
```

```
    sumInRange(lower, upper);
    return 0;
}

void sumInRange(int lower, int upper){
    int sum=0;
    for (int i = lower; i <= upper; i++)
    {
        sum += i;
    }
    printf("Sum of Num from %d to %d is %d", lower, upper, sum);
}
```

Q)Check Prime Number

```
#include <stdio.h>

void checkPrime(int);

int main()
{
    printf("Start\n");
    // checkPrime() ? printf("Num is Prime Number\n"): printf("Num is NOT
a Prime Number\n");
    int num;
    printf("Enter number u want to check prime of\n");
    scanf("%d", &num);
    checkPrime(num);
    printf("End\n");

    return 0;
}

void checkPrime(int num){
```

```
    int isPrime = 1;
    for (int i = 2; i*i <= num; i++)
    {
        if (num % i == 0)
        {
            isPrime = 0;
        }
    }
    isPrime ? printf("Num is Prime Number\n"): printf("Num is NOT a Prime
Number\n");
}
```

Q)Check Armstrong Number

```
#include <stdio.h>
#include <math.h>
// if 123 is num, and 1^3 + 2^3 + 3^3 = 123, then its armstrong num
//example 153 = 1 + 125+ 27 is armstrong num
//1634 = 1^4 + 6^4 + 3^4 + 4^4

void checkArmStrong(int);

int main()
{
    printf("Start\n");
    // checkArmStrong() ? printf("Number is Armstrong\n") : printf("Number
is Not an Armstrong\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    checkArmStrong(num);
    printf("End\n");
    return 0;
}

void checkArmStrong(int num){
```

```
    int temp = num, sum = 0, count =0;

    //find length of number to find exponent
    while(temp>0){
        count++;
        temp /= 10;
    }
    printf("Count = %d\n", count);

    //temp becomes 0, so ressign for further use
    temp = num;
    while (temp > 0)
    {
        int rem = temp % 10;
        //cal power of rem
        int power = 1, tempCount = count;
        for (int i = 1; i <= tempCount; i++)
        {
            power *= rem;
        }

        // printf("Power = %d\n", power);
        sum += power;
        temp /= 10;
    }

    sum == num ? printf("Number is Armstrong\n") : printf("Number is Not
an Armstrong\n");
    // return sum == num;
}
```

Q)Perfect Number

```
#include<stdio.h>
//number can be called perfect if, sum of its divisors is same as number
itself
//ex: 6 because 1 + 2 + 3 = 6
//28 beacuse, 1 +2 + 4 + 7 + 14 =28
```

```c
void checkPerfectNum(int);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a num:\n");
    scanf("%d", &num);
    // checkPerfectNum() ? printf("Num is a Perfect number\n"):printf("Num is NOT a Perfect number\n") ;
    checkPerfectNum(num);
    printf("End\n");
    return 0;
}

void checkPerfectNum(int num){

    int temp = num, sum =0;
    for (int i = 1; i <= temp/2; i++)
    {
        if(num%i==0) sum += i;
    }

    // return temp==sum;
    if(temp==sum) printf("%d is a Perfect number\n", num);
    else printf("%s is not a Perfect num\n", num);
}
```

Q)Find Factorial

```c
#include<stdio.h>

void findFactorial(int);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    // printf("Answer is %d\n", findFactorial());
```

```
    findFactorial(num);
    printf("End\n");
    return 0;
}

void findFactorial(int num) {
    int temp =num, fact =1;

    for(int i=num; i>0;i--){
        fact *= i;
    }
    printf("%d! = %d\n",temp, fact);
    // return fact;
}
```

Q)Strong Number

```
#include <stdio.h>
// num is called strong if its sum of its digit's factorial is same as num
// ex: 145, 1! + 4!+ 5! = 145

int checkStrongNum();

int main()
{
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    // checkStrongNum() ? printf("Num is Strong Num\n") : printf("Num is
NOT a Strong Num\n");
    checkStrongNum(num);
    printf("End\n");
    return 0;
}

int checkStrongNum(int num) {
    int temp = num, rem, sum = 0;
    while (temp > 0)
    {
        rem = temp % 10;

        //--------Factorial Calculation-------
        // find factorial of rem
        int factorial = 1;
```

```
        while (rem > 0)
        {
            factorial *= rem;
            rem--;
        }

        // add factorial of rem to sum
        sum += factorial;

        // continue
        temp /= 10;
    }

    // return sum==num;
    if (sum == num)
        printf("%d is a Strong Number\n", num);
    else
        printf("%d is NOT a Strong Number\n", num);
}
```

Q) Palindrome

```
#include <stdio.h>
// 121, 1331, 12321

void checkPalindrome(int);

int main()
{
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    checkPalindrome(num);
    printf("End\n");
    return 0;
}

void checkPalindrome(int num) {
    int temp = num, rem, rev = 0;
    while (temp > 0)
    {
        rem = temp % 10;
        rev = rev * 10 + rem;
        temp /= 10;
    }
    if (num == rev)
        printf("%d is a Palindrome number\n", num);
```

```
    else
        printf("%d is NOT a Palindrome number\n", num);
}
```

Q)Add first dig and last dig of a num and show summation

```
#include<stdio.h>
#include<math.h>
//add first and and last digit of given num

void findFirstNLastDigSum(int);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    // printf("Sum of first and last digit of number is %d\n",
findFirstNLastDigSum());
    findFirstNLastDigSum(num);
    printf("End\n");
    return 0;
}

void findFirstNLastDigSum(int num){
    int temp = num, lastDigit, firstDigit, lengthOfNum=0;
    lastDigit = temp%10;

    //logic 2 for find 1st digit of num
    while (temp>0)
    {
        firstDigit = temp%10;
        temp /= 10;
    }

    // return firstDigit + lastDigit;
    printf("Sum of first digit(%d) + last Digit(%d) = %d\n", firstDigit,
lastDigit, firstDigit+lastDigit);
}
```

Q)Print Armstrong number in range 1 to n

```
#include <stdio.h>
#include <math.h>
// if 123 is num, and 1^3 + 2^3 + 3^3 = 123, then its armstrong num
// example 153 = 1 + 125+ 27 is armstrong num
// 1634 = 1^4 + 6^4 + 3^4 + 4^4
```

```c
void printArmstrongNum();

int main()
{
    printf("Start\n");
    int num;
    printf("Enter a number upto which u want to armstrong nums:\n");
    scanf("%d", &num);
    for (int i = 1; i <= num; i++)
    {
    printArmstrongNum(i);
    }
    printf("End\n");
    return 0;
}

void printArmstrongNum(int i)
{
        int temp = i, sum = 0, count = 0;

        // find length of number to find exponent
        while (temp > 0)
        {
            count++;
            temp /= 10;
        }

        // temp becomes 0, so ressign for further use
        temp = i;
        while (temp > 0)
        {
            int rem = temp % 10;
            // cal power of rem
            int power = 1, exponent = count;
            while (exponent--)
            {
                power *= rem;
            }
            sum += power;
            temp /= 10;
        }
        sum == i && printf("%d ", i);
}
```

Q)Check Prime number in Range

```c
#include <stdio.h>
void checkPrime(int num)
```

```
{
    int isPrime;
    for (int i = 2; i * i <= num; i++)
    {
        isPrime = 1;
        if (num % i == 0)
        {
            isPrime = 0;
            break;
        }
    }
    if (isPrime)
    {
        printf("%d ", num);
    }
}

int main()
{
    int num, isPrime = 1, j;
    printf("Enter number upto which u want to check prime of\n");
    scanf("%d", &num);
    for (int i = 1; i <= num; i++)
    {
        checkPrime(i);
    }
    return 0;
}
```

Q)Check Perfect num in range

```
#include <stdio.h>
// number can be called perfect if, sum of its divisors is same as number
itself
// ex: 6 because 1 + 2 + 3 = 6
// 28 beacuse, 1 +2 + 4 + 7 + 14 =28

void checkPerfect(int num)
{
    int sum = 0;
    for (int i = 1; i < num ; i++)
    {
        if(num%i ==0) sum += i;
    }


    if (num == sum)
        printf("%d ", num);
```

```
}

int main()
{
    int num;
    printf("Upto which range u want to check perfect num: ");
    scanf("%d", &num);

    for (int i = 1; i <= num; i++)
    {
        checkPerfect(i);
    }

    return 0;
}
```

Q) Check Strong number in range 1 to n

```
#include<stdio.h>
//num is called strong if its sum of its digit's factorial is same as num
//ex: 145, 1! + 4!+ 5! = 145

//not optimized as in will open and close function stack frame multiple
time

void checkStrong(int num){
    int temp = num, rem, sum=0;
    while(temp>0){
        rem = temp%10;

        //--------Factorial Part-------
        //find factorial of rem
        int factorial=1;
        while(rem>0){
            factorial *= rem;
            rem--;
        }
        //add factorial of rem to sum
        sum += factorial;

        //continue
        temp /= 10;
    }

    if(sum==num) printf("%d ", num);
}

int main(){
```

```
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

    for (int i = 1; i <= num; i++)
    {
        checkStrong(i);
    }
    return 0;
}
```

Q)Print Fibonacci upto n number

```
#include<stdio.h>
//0 1 1 2 3 5 8 13 21 34 55

void printFibonacciInRange(int);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a number upto which u want to print fibonacci
series\n");
    scanf("%d", &num);

    printFibonacciInRange(num);
    printf("End\n");

    return 0;
}

void printFibonacciInRange(int num) {
    int first =0, second = 1, next = 0;

    while (next<=num)
    {
        printf("%d ", next);
        first = second;
        second = next;
        next = first + second;
    }
}
```

Function Type 4:

Q)Convert Ferenhit into Celcius

```c
#include<stdio.h>
float ferenhitToCelcius(float);

int main(){
    float F;
    printf("Enter temperature Value in ferenhit\n");
    scanf("%f", &F);
    printf("%0.2f Ferenhit = %.2f degree celsius\n",F,
ferenhitToCelcius(F));
    return 0;
}

float ferenhitToCelcius(float F){
    return ((F-32) * 5/9);
    // f-32 ** 5/9
}
```

Q)Find Area And perimeter of rectangle and circle

```c
#include<stdio.h>
int findAreaOfRect(int, int);
int findPerimeterOfRect(int, int);
float findAreaOfCircle(float);
float findPerimeterOfCircle(float);

int findAreaOfRect(int length, int breadth){
    return length*breadth;
}
int findPerimeterOfRect(int length, int breadth){
    return 2 * (length+breadth);
}

float findAreaOfCircle(float radius){
    return 3.14 * radius * radius;
}
float findPerimeterOfCircle(float radius){
    return 2 * 3.14 * radius;
}

int main(){
    int length, breadth;
    printf("Enter Length and breadth for finding Area of
rectangle\n");
    scanf("%d %d", &length, &breadth);
```

```
    //function call
    printf("Area of rectangle is %d\n", findAreaOfRect(length,
breadth));
    printf("perimeter of rectangle is %d\n",
findPerimeterOfRect(length,breadth));

    float radius;
    printf("Enter radius value for finding Perimeter of circle\n");
    scanf("%f", &radius);

    //function call
    printf("Area of circle is %.2f\n", 3.14 * radius * radius);
    printf("perimeter of circle is %.2f\n", 2 * 3.14 * radius);
    return 0;
}
```

Q)Find sum of digits of number and reverse

```
// find sum of 3 digit num and reverse it
#include<stdio.h>
int findSumOfDigits(int);
int findReverse(int);

int main(){
    int num;
    printf("Enter a 3 digit number to find sum of digit: \n");
    scanf("%d", &num);
    printf("Sum of %d is %d\n", num,findSumOfDigits(num));
    printf("Reverse num of %d is %d\n", num, findReverse(num));
    return 0;
}

int findSumOfDigits(int num){
    int temp = num;
    int r1 = num %10; //3
    num = num /10; //12
    int r2 = num %10;
    int r3 = num /10;
    // printf("Sum of %d is %d\n", temp, r1+r2+r3);
    return r1+r2+r3;
    // printf("Reverse num of %d is %d\n", temp,
(r1*100)+(r2*10)+r3);
}
```

```c
int findReverse(int num){
    int temp = num;
    int r1 = num %10; //3
    num = num /10; //12
    int r2 = num %10;
    int r3 = num /10;
    // printf("Sum of %d is %d\n", temp, r1+r2+r3);
    return (r1*100)+(r2*10)+r3;
    // printf("Reverse num of %d is %d\n", num,
(r1*100)+(r2*10)+r3);
}
```

Q)Find Even or Odd

```c
#include <stdio.h>
int checkEvenOdd(int);
int main()
{
    int num;
    printf("Enter Number:\n");
    scanf("%d", &num);
    // checkEvenOdd() ? printf("Even Number\n") : printf("Odd
Number\n");
    checkEvenOdd(num) ? printf("%d is Even num\n", num) : printf("%d
is odd num\n", num);
    return 0;
}

int checkEvenOdd(int num)
{
    // num % 2 ? printf("%d is odd num\n", num) : printf("%d is even
num\n", num);
    return !num%2;
}
```

Q)Find Salary after calculating da,ta, hra

```c
#include<stdio.h>
// if basic <= 5000 da,ta, hra -> 10%,20,30
// otherwise 15,25,30
float calSalary(float);
int main(){
    float basic;
```

```
    printf("Enter Basic of Salary\n");
    scanf("%f", &basic);
    printf("Salaray is %.2f rs.\n",calSalary(basic));
    // calSalary(basic);
    printf("End\n");
    return 0;
}

float calSalary(float basic){
    float salary;
    if(basic <=5000){
        salary = basic + (basic * 10)/100 + (basic * 20)/100 +
(basic*30)/100;
    }
    else
        salary = basic + (basic * 15)/100 + (basic * 25)/100 +
(basic*30)/100;

    // printf("Salary is %.2f\n", salary);
    return salary;
}
```

Q) Write a program to check if person is eligible to marry or not (male age >=21 and female age>=18).

```
#include <stdio.h>
float gstBill(float);
int main()
{
    float amount;
    printf("Enter bill Amount\n");
    scanf("%f", &amount);
    printf("Total amount to be paid --> %.2f\n", gstBill(amount));
    // gstBill(amount);
    return 0;
}

float gstBill(float amount)
{
    return amount + (amount * 18) / 100;
}
```

Q)Driver Criteria

```c
#include<stdio.h>
//age must be greater than 40
//d exp > 10
//12th marks > 60

int checkDriverEligibility(int, int, int);

int main(){
    int age,exp,marks;
    printf("Enter Age: ");
    scanf("%d", &age);
    printf("Enter Exp: ");
    scanf("%d", &exp);
    printf("Enter Marks: ");
    scanf("%d", &marks);

    // checkDriverEligibility(age, exp, marks);
    checkDriverEligibility(age, exp, marks) ? printf("Driver is
Eligible\n") : printf("Driver is Not Eligible\n");
    printf("End\n");
    return 0;
}

int checkDriverEligibility(int age, int exp, int marks){


    // (age >40 && exp > 10 && marks > 60) ? printf("Driver is
eligible") :printf("Driver is NOT eligible");
    if(age >40 && exp > 10 && marks > 60){
        return 1;
    }
    return 0;
```

```
}
```

```
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
cd "d:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4\" ; if ($?) { gcc 9_driverCriteria_type4.c -o 9_drive
rCriteria_type4 } ; if ($?) { .\9_driverCriteria_type4 }
62fd50Enter Age: 40
Enter Exp: 12
Enter Marks: 62
Driver is Not Eligible
End
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
```

Q)Price after discount

```c
#include<stdio.h>

int calNetPrice(int, int);

int main(){
    int price, discount;
    printf("Enter price:\n");
    scanf("%d", &price);
    printf("Enter discount percentage Example: 20\n");
    scanf("%d", &discount);
    printf("Your net price to be paid is:  %d\n", calNetPrice(price,
discount));
    // calNetPrice(price, discount);
    printf("End\n");
    return 0;
}

int calNetPrice(int price, int discount){
    // printf("Your net price to be paid is:  %d\n", price -
((price*discount)/100));
    return price - (price*discount)/100;
}
```

```
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
cd "d:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4\" ; if ($?) { gcc 10_discountOnPrice_type4.c -o 10_di
scountOnPrice_type4 } ; if ($?) { .\10_discountOnPrice_type4 }
49edf67f2844Enter price:
1000
Enter discount percentage Example: 20
20
Your net price to be paid is:  800
End
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
```

Q)Find greatest of 3 numbers using nested if

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

```c
int findGreatest(int, int, int);

int main(){
    printf("Start\n");
    int a,b,c;
    printf("Enter the value of a: ");
    scanf("%d",&a);
    printf("Enter the value of b: ");
    scanf("%d",&b);
    printf("Enter the value of c: ");
    scanf("%d",&c);
    // findGreatest(a,b,c);
    printf("%d is greatest\n",findGreatest(a,b,c));
    printf("End\n");
    return 0;
}

int findGreatest(int a, int b,int c){
    // int greatest;
    if(a>b){
        if (a>c)
        {
            // printf("A is Greatest of three.\n");
            // greatest = a;
            return a;
        }
        else
        {
            // printf("C is Greatest of three.\n");
            // greatest = c;
            return c;
        }

    } else {
        if(b>c){
            // printf("B is Greatest of three.\n");
            return b;
            // greatest = b;
        }
        else {
            // printf("C is Greatest of three.\n");
            return c;
            // greatest = c;
        }
```

```
    }
    // printf("%d is Greatest of three.\n", greatest);
}
```

```
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
cd "d:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4\" ; if ($?) { gcc 11_grtstUsingNestedIf_type4.c -o 11
_grtstUsingNestedIf_type4 } ; if ($?) { .\11_grtstUsingNestedIf_type4 }
Start
Enter the value of a: 15
Enter the value of b: 20
Enter the value of c: 10
20 is greatest
End
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
```

Q) Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desired operations.

```
#include <stdio.h>

// for type 2, there ain't return type, so we can not send any value
to function for process, so again we have to take input again and
again, doesn't make sense, it'll increase repeatation

int showChoices(int, int ,char);

int main()
{
    printf("Start\n");
    int num1, num2;
    char operator;
    printf("Enter the value of number 1: ");
    scanf("%d", &num1);
    printf("Enter the value of number 2: ");
    scanf("%d", &num2);

    printf("------Enter your choice :------\n");
    printf("For Addition enter '+'\n");
    printf("For Subtraction enter '-'\n");
    printf("For Multiplication enter '*'\n");
    printf("For Divivsion enter '/'\n");
    printf("For Modulo enter '%'\n");

    fflush(stdin);
    scanf("%c", &operator);
    // showChoices(num1, num2, operator);
    printf("%d %c %d = %d\n",num1, operator, num2, showChoices(num1,
num2, operator));
    printf("End\n");
```

```
    return 0;
}

int showChoices(int num1, int num2, char operator){

    if (operator== '+')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 +
num2);
        return num1+num2;
    }
    else if (operator== '-')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 -
num2);
        return num1-num2;
    }
    else if (operator== '*')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 *
num2);
        return num1*num2;
    }
    else if (operator== '/')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 /
num2);
        return num1 / num2;
    }
    else if (operator== '%')
    {
        // printf("%d %c %d = %d\n", num1, operator, num2, num1 %
num2);
        return num1 % num2;
    }
}
```

Q) Display a menu to the user (like 1.Even Odd 2. Basic salary etc), ask the user to enter his choice, then based on that perform the desired operations.

```c
#include <stdio.h>

int checkEvenOdd(int);
float calculateSalary(float);

int main()
{
    int choiceNum;
    printf("----Choices-----\n");
    printf("Enter 1 for calculate Even odd\n");
    printf("Enter 2 for calculate Salary\n");
    scanf("%d", &choiceNum);

    if (choiceNum == 1)
    {
        int num;
        printf("Enter number to check weather number is even or
odd.\n");
        scanf("%d", &num);
        // checkEvenOdd(num);
        checkEvenOdd(num) ? printf("EVEN number\n") : printf("ODD
number\n");
    }
    else if (choiceNum == 2)
    {
        float basic;
        printf("Enter Basic salary\n");
        scanf("%f", &basic);
        // calculateSalary(basic);
        printf("Salary is %.2f\n",calculateSalary(basic));
    }
    else
    {
```

```
        printf("Invalid Choice\n");
    }

    return 0;
}

int checkEvenOdd(int num)
{

    // num % 2 ? printf("%d is Odd Number\n", num) : printf("%d is
Even number\n", num);
    return !num%2;
}

float calculateSalary(float basic)
{

    float salary;
    if (basic <= 5000)
    {
        salary = basic + (basic * 10) / 100 + (basic * 20) / 100 +
(basic * 30) / 100;
    }
    else
        salary = basic + (basic * 15) / 100 + (basic * 25) / 100 +
(basic * 30) / 100;

    // printf("Salary is %.2f\n", salary);
    return salary;
}
```

```
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
cd "d:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4\" ;
ven_type4 } ; if ($?) { .\13_menuDriven_type4 }
----Choices-----
Enter 1 for calculate Even odd
Enter 2 for calculate Salary
2
Enter Basic salary
5000
Salary is 8000.00
PS D:\Firstbit Solutions\C Programming\Assignments\Assignment 5\Function Type 4>
```

Q) Accept the price from user. Ask the user if he is a student (user may say yes or no). If he is a student and he has purchased more than 500 than discount is 20% otherwise discount is 10%.

But if he is not a student then if he has purchased more than 600 discount is 15% otherwise there is not discount.

```c
#include <stdio.h>

int checkIsStudent(char);

int main()
{
    printf("Start\n");
    float price;
    int discount;
    printf("\nEnter price: ");
    scanf("%f", &price);

    char checkStudent;
    printf("If your are student than press 'Y', else press 'N'\n");
    fflush(stdin);
    scanf("%c", &checkStudent);

    // check validation
    if (checkIsStudent(checkStudent))
    {
        discount = price > 500 ? 20 : 10;
    }
    else
    {
        discount = price > 600 ? 15 : 0;
    }
    // checkIsStudent(checkStudent, price);

    printf("You got %d\% Discount\n", discount);
    printf("You have to pay %.2f rs.\n", price - (price * discount)
/ 100);
    printf("End\n");
    return 0;
}

int checkIsStudent(char checkStudent)
{
    // int discount;
    if (checkStudent == 'y' || checkStudent == 'Y')
    {
        // discount = price > 500 ? 20 : 10;
```

```
        return 1;
    }
    else if (checkStudent == 'n' || checkStudent == 'N')
    {
        // discount = price > 600 ? 15 : 0;
        return 0;
    }
    printf("Invalid choice for student elligibility\n");
    return 0;
}
```

Q)print 1 to 10

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

--------#########---------

NO Change in code at all compare to type 1 function, as there
nothing to return and no parameter, we are printing only.

--------#########------------


*/
int print1To10();

int main(){
    printf("Start\n");
    print1To10();
    printf("End\n");
    return 0;
}

int print1To10(){
    // int i=1;
    // while(i<11){
    //     printf("%d\n", i);
    //     i++;
    // }

    for (int i = 1; i < 11; i++)
    {
        printf("%d\n", i);
```

```
    }
    return 0;
}
```

Q) Print table for the given number.

```
#include <stdio.h>

int printTable(int, int);
//Here if we want to return only multiplication, then stack will
open and close for 10 times, which takes more time to process

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

    int n;
    printf("Enter Any Number u want to print table of\n");
    scanf("%d", &n);
    for (int i = 1; i <= 10; i++)
    {
        printf("%d x %d = %d\n", n, i, printTable(n, i));
    }
    printf("End\n");
    return 0;
}

int printTable(int n, int i) {
    return n*i;
}
```

Q)Sum of nums in given range

```
#include<stdio.h>
int sumInRange(int, int);
int main(){
    int lower, upper;
    printf("Enter Lower limit and Upper limit of Range\n");
    scanf("%d %d", &lower, &upper);

    printf("Sum of Num from %d to %d is %d", lower, upper,
sumInRange(lower, upper));
    return 0;
```

```
}

int sumInRange(int lower, int upper){
    int sum=0;
    for (int i = lower; i <= upper; i++)
    {
        sum += i;
    }
    return sum;
}
```

Q)Check Prime number

```
#include <stdio.h>

int checkPrime(int);

int main()
{
    printf("Start\n");
    int num;
    printf("Enter number u want to check prime of\n");
    scanf("%d", &num);
    // checkPrime(num);
    checkPrime(num) ? printf("Num is Prime Number\n"): printf("Num
is NOT a Prime Number\n");
    printf("End\n");

    return 0;
}

int checkPrime(int num){
    for (int i = 2; i*i <= num; i++)
    {
        if (num % i == 0)
        {
            return 0;
        }
    }
    return 1;
}
```

Q)Check Prime Number

```c
#include <stdio.h>

int checkPrime(int);

int main()
{
    printf("Start\n");
    int num;
    printf("Enter number u want to check prime of\n");
    scanf("%d", &num);
    // checkPrime(num);
    checkPrime(num) ? printf("Num is Prime Number\n"): printf("Num
is NOT a Prime Number\n");
    printf("End\n");

    return 0;
}

int checkPrime(int num){
    for (int i = 2; i*i <= num; i++)
    {
        if (num % i == 0)
        {
            return 0;
        }
    }
    return 1;
}
```

Q)Armstrong number

```c
#include <stdio.h>
#include <math.h>
// if 123 is num, and 1^3 + 2^3 + 3^3 = 123, then its armstrong num
//example 153 = 1 + 125+ 27 is armstrong num
//1634 = 1^4 + 6^4 + 3^4 + 4^4

int checkArmStrong(int);

int main()
{
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
```

```
    scanf("%d", &num);
    // checkArmStrong(num);
    checkArmStrong(num) ? printf("Number is Armstrong\n") :
printf("Number is Not an Armstrong\n");
    printf("End\n");
    return 0;
}

int checkArmStrong(int num){
    int temp = num, sum = 0, count =0;

    //find length of number to find exponent
    while(temp>0){
        count++;
        temp /= 10;
    }
    printf("Count = %d\n", count);

    //temp becomes 0, so ressign for further use
    temp = num;
    while (temp > 0)
    {
        int rem = temp % 10;
        //cal power of rem
        int power = 1, tempCount = count;
        for (int i = 1; i <= tempCount; i++)
        {
            power *= rem;
        }

        // printf("Power = %d\n", power);
        sum += power;
        temp /= 10;
    }

    // sum == num ? printf("Number is Armstrong\n") : printf("Number
is Not an Armstrong\n");
    return sum == num;
}
```

Q)Perfect Number

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

```c
//number can be called perfect if, sum of its divisors is same as
number itself
//ex: 6 because 1 + 2 + 3 = 6
//28 beacuse, 1 +2 + 4 + 7 + 14 =28

int checkPerfectNum(int);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a num:\n");
    scanf("%d", &num);
    checkPerfectNum(num) ? printf("Num is a Perfect
number\n"):printf("Num is NOT a Perfect number\n") ;
    // checkPerfectNum(num);
    printf("End\n");
    return 0;
}

int checkPerfectNum(int num){

    int temp = num, sum =0;
    for (int i = 1; i <= temp/2; i++)
    {
        if(num%i==0) sum += i;
    }

    return temp==sum;
    // if(temp==sum) printf("%d is a Perfect number\n", num);
    // else printf("%s is not a Perfect num\n", num);
}
```

Q)Find Factorial

```c
#include<stdio.h>

int findFactorial(int);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    printf("%d! = %d\n",num, findFactorial(num));
```

```
    // findFactorial(num);
    printf("End\n");
    return 0;
}

int findFactorial(int num) {
    int temp =num, fact =1;

    for(int i=num; i>0;i--){
        fact *= i;
    }
    // printf("%d! = %d\n",temp, fact);
    return fact;
}
```

Q)Strong Num

```
#include <stdio.h>
// num is called strong if its sum of its digit's factorial is same
as num
// ex: 145, 1! + 4!+ 5! = 145

int checkStrongNum();

int main()
{
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    checkStrongNum(num) ? printf("Num is Strong Num\n") :
printf("Num is NOT a Strong Num\n");
    // checkStrongNum(num);
    printf("End\n");
    return 0;
}

int checkStrongNum(int num) {
    int temp = num, rem, sum = 0;
    while (temp > 0)
    {
        rem = temp % 10;

        //--------Factorial Calculation-------
```

```
        // find factorial of rem
        int factorial = 1;
        while (rem > 0)
        {
            factorial *= rem;
            rem--;
        }

        // add factorial of rem to sum
        sum += factorial;

        // continue
        temp /= 10;
    }

    return sum==num;
}
```

Q)Check Palindrome

```
#include <stdio.h>
// 121, 1331, 12321

int checkPalindrome(int);

int main()
{
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    checkPalindrome(num) ? printf("Num is Palindrome\n") :
printf("Num is NOT Palindrome\n");
    // checkPalindrome(num);
    printf("End\n");
    return 0;
}

int checkPalindrome(int num) {
    int temp = num, rem, rev = 0;
    while (temp > 0)
    {
        rem = temp % 10;
        rev = rev * 10 + rem;
```

```
        temp /= 10;
    }

    return num==rev;
}
```

Q)Sumation of first digit and last digit

```
#include<stdio.h>
#include<math.h>
//add first and and last digit of given num

int findFirstNLastDigSum(int);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);
    printf("Sum of first digit and last digit of number is %d\n",
findFirstNLastDigSum(num));
    // findFirstNLastDigSum(num);
    printf("End\n");
    return 0;
}

int findFirstNLastDigSum(int num){
    int temp = num, lastDigit, firstDigit, lengthOfNum=0;
    lastDigit = temp%10;

    //logic 2 for find 1st digit of num
    while (temp>0)
    {
        firstDigit = temp%10;
        temp /= 10;
    }

    return firstDigit + lastDigit;
}
```