Week-1 : <u>Statements , Expressions & Conditionals</u>

Aim –1 : write a c program to print the memory allocation required for all the datatypes in C language

Program:

```
#include<stdio.h>
 main() {
    int intType;
    float floatType;
    double doubleType;
    char charType;


    printf("Size of int: %zu bytes\n", sizeof(intType));
    printf("Size of float: %zu bytes\n", sizeof(floatType));
    printf("Size of double: %zu bytes\n", sizeof(doubleType));
    printf("Size of char: %zu byte\n", sizeof(charType));

    return 0;
}
```

Output: Size of int: 4 bytes
Size of float: 4 bytes
Size of double: 8 bytes
Size of char: 1 byte

Aim-- 2 : write a c program to print the given number is even or odd.

```
#include <stdio.h>
main() {
    int num;
    printf("Enter an integer: ");
    scanf("%d", &num);
```

```
    if(num % 2 == 0)
        printf("%d is even.", num);
    else
        printf("%d is odd.", num);


}
```

Output: Enter an integer: 9
9 is odd.

Enter an integer: -4
-4 is even.

Aim—3 : Write C a Program to find the given number is Positive ,negative or zero.

```
#include <stdio.h>

main()
{
    int num;

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

    if (num > 0)
        printf("%d is positive.", num);
    else if (num < 0)
        printf("%d is negative.", num);
    else if (num == 0)
        printf("%d is zero.", num);

    return 0;
```

```
}
```

Input: Enter the number = 2
Output: 2 is positive

Input: Enter the number = -554
Output: -554 is negative

Input: Enter the number = 0
Output: 0 is zero

Aim—4 : a) Write C a Program to find the swap 2 numbers using 3rd variable

```
#include<stdio.h>
 main() {
     double first, second, temp;
     printf("Enter first number: ");
     scanf("%lf", &first);
     printf("Enter second number: ");
     scanf("%lf", &second);


     temp = first;


     first = second;


   second = temp;

     printf("\nAfter swapping, firstNumber = %.2lf\n", first);
     printf("After swapping, secondNumber = %.2lf", second);
     return 0;
}
```

```
Enter first number: 1.20
Enter second number: 2.45

After swapping, firstNumber = 2.45
After swapping, secondNumber = 1.20
```

b. Write C a Program to find the swap 2 numbers without using 3rd variable

```
#include <stdio.h>
int main() {
    double a, b;
    printf("Enter a: ");
    scanf("%lf", &a);
    printf("Enter b: ");
    scanf("%lf", &b);


    a = a - b;


b = a + b;


a = b - a;

    printf("After swapping, a = %.2lf\n", a);
    printf("After swapping, b = %.2lf", b);
    return 0;
}
Enter a: 10.25
Enter b: -12.5
After swapping, a = -12.50
After swapping, b = 10.25
```

Aim—4 Write a C program to check number is perfect square or not.

```
#include <stdio.h>
#include <math.h>
int main()
{
int num;
int iVar;
float fVar;
printf("Enter an integer number: ");
scanf("%d",&num);
fVar=sqrt(num);
iVar=fVar;
if(iVar==fVar)
printf("%d is a perfect square.",num);
else
printf("%d is not a perfect square.",num);
return 0;
}
```

Output:

Enter an integer number: 64
64 is a perfect square

Enter an integer number: 23
23 is not a perfect square

Aim--5:

```
#include<stdio.h>

#include<conio.h>

int main()

{

   int a,b;

   int op;
```

```
printf(" 1.Addition\n 2.Subtraction\n 3.Multiplication\n 4.Division\n");
printf("Enter the values of a & b: ");
scanf("%d %d",&a,&b);
printf("Enter your Choice : ");
scanf("%d",&op);
switch(op)
{
case 1      :
   printf("Sum of %d and %d is : %d",a,b,a+b);
   break;
case 2      :
   printf("Difference of %d and %d is : %d",a,b,a-b);
   break;
case 3      :
   printf("Multiplication of %d and %d is : %d",a,b,a*b);
   break;
case 4      :
   printf("Division of Two Numbers is %d : ",a/b);
   break;
default     :
   printf(" Enter Your Correct Choice.");
   break;
}
```

```
    return 0;
}
```

Output for Program:

```
1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter the values of a & b:  20 15
Enter your Choice : 1
Sum of 20 and 15 is : 35
```

Week-2

1. write a C program to print all the factors of a given number

```
#include <stdio.h>

main()
{
   int i, n;
   printf("Enter any number to find its factor: ");
   scanf("%d", &n);
   printf("All factors of %d are: ", n);
   for(i=1; i<=n; i++)
   {
      if(n % i == 0)
      {
         printf("%d, ",i);
      }
   }
   return 0;
```

```
}
```

Input/output:

Enter any number to find its factor: 9
All factors of 9 are: 1, 3, 9,
Enter any number to find its factor: 10
All factors of 10 are: 1,2,5,10

Explination: Input number from user. Store it in some variable say n
Run a loop from 1 to n, increment 1 in each iteration. The loop structure should look like for(i=1; i<=n; i++).
For each iteration inside loop check current counter loop variable i is a factor of n or not. To check factor we check divisibility of number by performing modulo division i.e. if(n % i == 0) then i is a factor of n. If i is a factor of n then print the value of i.

2. write a C program to find the factorial of a given number

```
#include<stdio.h>
main()
{
  int i,factorial=1,n;
  printf("Enter a number: ");
  scanf("%d",&n);
  for(i=1;i<=n;i++)
     factorial=factorial*i;
  printf("Factorial of %d is: %d",n,factorial);
  return 0;
}
```

Inpur/output:

Enter a number: 5
Factorial of 5 is: 120
Enter a number: 10
Factorial of 10 is: 3628800

3. write a C program to find whether a given is number palindrome or not

```
#include <stdio.h>
int main() {
   int n, rev = 0, rem, temp;
   printf("Enter an integer: ");
```

```
    scanf("%d", &n);
    temp = n;

    while (n != 0) {
        rem = n % 10;
        rev= (rev * 10 )+rem;
        n /= 10;
    }
  if (temp == rev)
        printf("%d is a palindrome.", rev);
    else
        printf("%d is not a palindrome.", rev);

    return 0;
}
```

input/output:

Enter an integer: 123

123 is not a palindrome.

Enter an integer: 121

121 is a palindrome.

4. write a C program to print Fibonacci upto given ‘n’ number of terms

```
#include <stdio.h>
int main() {
    int i, n, a = 0, b = 1, c;
    printf("Enter the number of terms: ");
    scanf("%d", &n);
    do
    {
                i++;
                printf("%d, ", a);
        c = a + b;
        a = b;
        b = c;

                }
```

```
    while(i <= n);
          }
```

input/output:

Enter the number of terms: 5

0, 1, 1, 2, 3, 5,

Enter the number of terms: 7

0, 1, 1, 2, 3, 5,8,13

5. write a C program to find whether a given is number prime or not

```
#include <stdio.h>
 main()
 {
   int n, i, flag = 0;
   printf("Enter a positive integer: ");
   scanf("%d", &n);
   for (i = 2; i <= n / 2; ++i) {
      if (n % i == 0) {
         flag = 1;
         break;
      }
   }
   if (n == 1) {
      printf("1 is neither prime nor composite.");
   }
   else {
      if (flag == 0)
         printf("%d is a prime number.", n);
      else
         printf("%d is not a prime number.", n);
   }

   return 0;
}
```

input/output:

Enter a positive integer: 5

5 is a prime number.
Enter a positive integer: 20
20 is not a prime number.

Week –3 :