



# INDEX



No.	Title	Page No.	Date	Staff Member's Signature
	<u>Programming with C</u>			
①	write a program to understand the basic datatypes of I/O	27	10/12/19	Joshi 10/12/19
②	Write a C program which will show the use of various different types of operators	28	24/12/19	
(3)	A) Write a C program to find a year is leap year or not	32	24/12/19	Joshi 24/12/20
	B) To find the odd & even number			
	C) To find the entered character is vowel or consonant			
(a)	To find largest of 3 no. using nested if else.			
③	To create a menu driven calculator using switch case statement.			



Output:

\*\* Demonstration of Datatypes \*\*

Enter your Roll Number:

1806

Enter your Name:

Vivek

Enter your Mobile Number:

123456

Enter your Grade:

A

Enter your Percentage:

96

Your Roll Number is : 1806

Your Name is : Vivek

Your Mobile Number is : 123456

Your Grade is : A

Your Percentage is : 96.000000

## Practical - 1

027

Aim: Write a program to understand the basic datatypes and I/O.

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int roll;
    char name[50];
    long double mob;
    char grade;
    float per;
    clrscr();
    printf(" ** Demonstration Of Datatypes ** \n");
    printf(" Enter your Roll Number: \n");
    scanf("%d", &roll);
    printf(" Enter your Name: \n");
    scanf("%s", name);
    printf(" Enter your mobile number: \n");
    scanf("%ld", &mob);
    printf(" Enter your grade: \n");
    scanf("%s", &grade);
    printf(" Enter your Percentage: \n");
    scanf("%f", &per);
    printf(" Your roll number is: %d \n", roll);
    printf(" Your name is: %s \n", name);
```

2.0

```
printf("Your Mobile Number is : %ld \n", mob);
printf("Your Grade is : %.2f \n", grade);
printf("Your Percentage is : %.2f \n", per);
getch();
```

*Frin  
10/10/19*

## Program 2:

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    float pi = 3.142;
    float r, AOC;
    clrscr();
    printf("*****Area of Circle *****\n");
    printf("Enter the radius :\n");
    scanf("%f", &r);
    AOC = pi * r * r;
    printf("Area of Circle is : %f \n", AOC);
    getch();
}
```

Output:

\*\*\* Area Of Circle \*\*\*

Enter the radius

15

Area of Circle is : 706.950012.



Output:

Enter 1st number : 8

Enter 2nd number : 2

Addition of 2 numbers : 10

Subtraction of 2 numbers : 6

Multiplication of 2 numbers : 16

Division of 2 numbers : 4

Practical - 2

Ques: Write a C program which will show the use of various different types of operators.

Arithmetic Operators:Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int num1, num2, add, sub, mul, Div;
    clrscr();
    printf("Enter 1st of number:");
    scanf("%d", &num1);
    printf("Enter 2nd number:");
    scanf("%d", &num2);
    add = num1 + num2;
    printf("Addition Of 2 numbers: %d\n", add);
    sub = num1 - num2;
    printf("Subtraction Of 2 numbers: %d\n", sub);
    mul = num1 * num2;
    printf("Multiplication Of 2 numbers: %d\n", mul);
    Div = num1 / num2;
    printf("Division Of 2 numbers: %d\n", Div);
    getch();
}
```

11

## # logical Operators: Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int x, y, z, value1, value2, value3, value4, value5;
    clrscr();
    printf(" Enter 1st Value : ");
    scanf("%d", &x);
    printf(" Enter 2nd Value : ");
    scanf("%d", &y);
    printf(" Enter 3rd Value : ");
    scanf("%d", &z);
    value1 = (x < y) && (z > y);
    printf(" Value1 is : %d \n", value1);
    value2 = (x = y) && (z < y);
    printf(" Value2 is : %d \n", value2);
    value3 = (x < y) || (z = y);
    printf(" Value3 is : %d \n", value3);
    value4 = ! (x == y);
    printf(" Value4 is : %d \n", value4);
    value5 = (x == y);
    printf(" Value5 is : %d \n", value5);
    getch();
}
```

Output:

030

Enter 1st Value: 9

Enter 2nd Value: 8

Enter 3rd value: 2

value 1 is: 0

value 2 is: 1

value 3 is: 1

value 4 is: 0

value 5 is: 1

Output:

value of a is: 8

value of b is: 4

Greater number is : 8

(b) Aim: Write a C program that will demonstrate the use of ternary operators

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, z;
    clrscr();
    printf("Value of a is : ");
    scanf("%d", &a);
    printf("Value of b is : ");
    scanf(" %d", &b);
    z = (a > b) ? a : b;
    printf("Greater number is : %d \n", z);
    getch();
}
```

### Practical-3

- a. Ques: Write a C program to find whether the entered year is leap year or not.

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n;
    clrscr();
    printf("Enter a year : ");
    scanf("%d", &n);
    if (n % 4 == 0)
    {
        printf("Entered year is a leap year");
    }
    else
    {
        printf("Not a leap year");
    }
    getch();
}
```

Output:

Enter a year: 2016

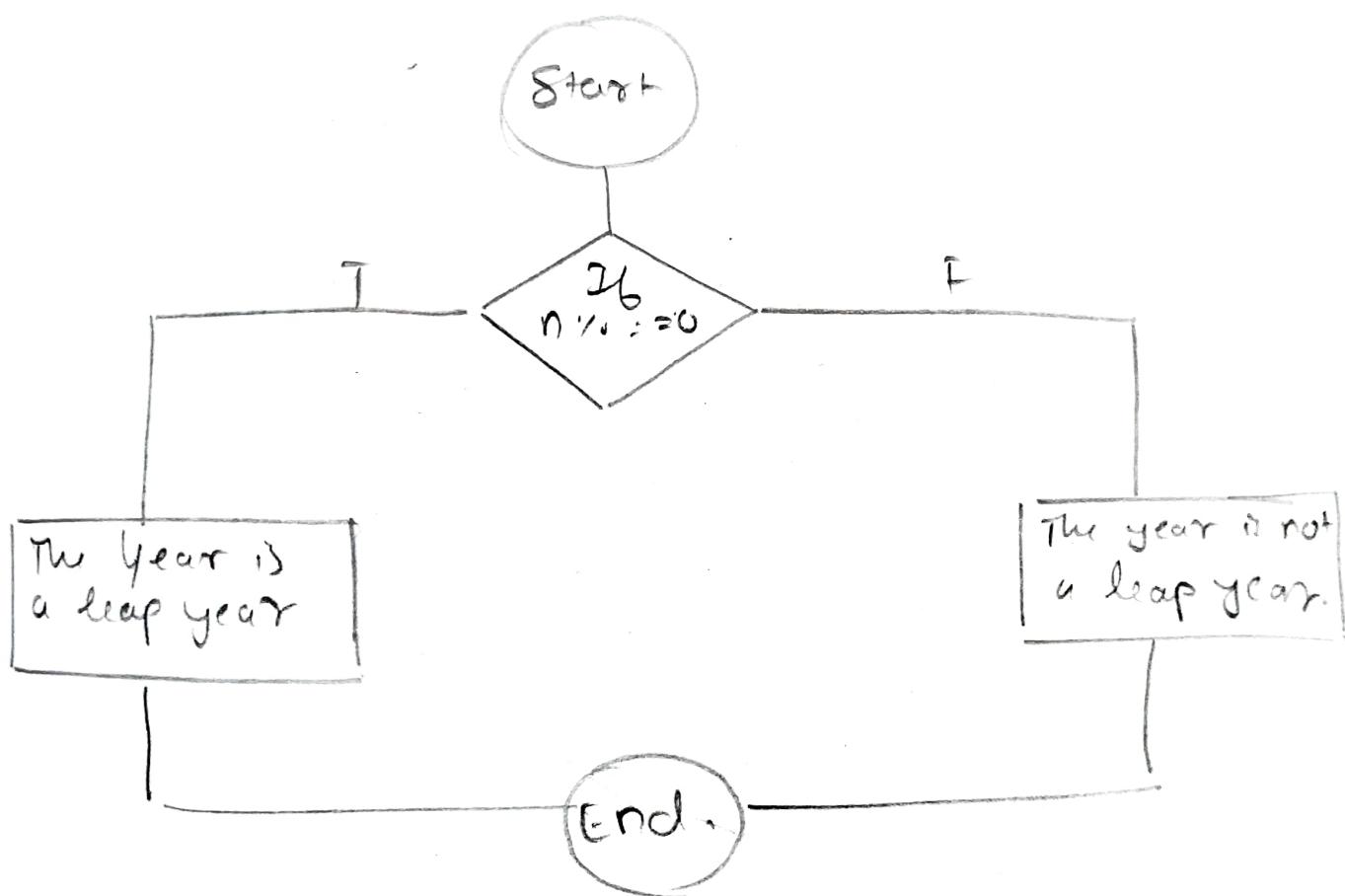
Entered year is a leap year.

Q32

Enter a year: 2017

Entered year is

Not a leap year.



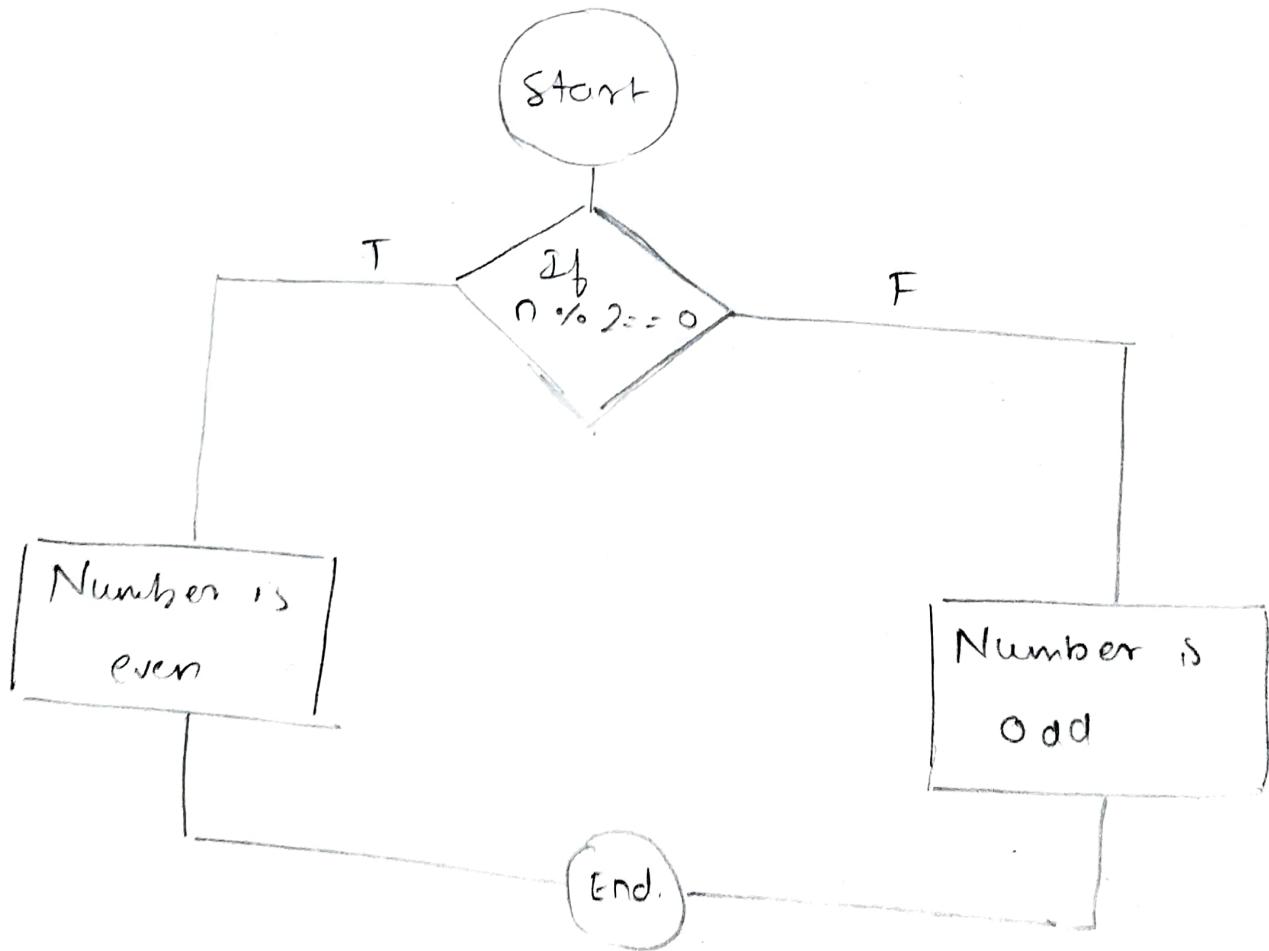
Ques:

Enter a number : 8

Even number

Enter a number : 9

Odd number



b) Ques: Write a C program to find odd & even.

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int num;
    clrscr();
    printf("Enter a number:");
    scanf("%d", &num);
    if ((num % 2) == 0)
    {
        printf("Even number");
    }
    if ((num % 2 != 0))
    {
        printf("Odd number");
    }
    getch();
}
```

Aim: Write a C program to find the entered character is vowel or consonant.

Source code:

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    Char x;
    clrscr();
    printf("Enter the character : ");
    scanf("%c", &x);
    If (x == 'a' || x == 'e' || x == 'i' || x == 'o' ||
        x == 'u' || x == 'A' || x == 'E' || x == 'I' ||
        x == 'O' || x == 'U')
    {
        printf("Entered Character is a vowel");
    }
    Else
    {
        printf("Entered Character is a consonant");
    }
    getch();
```

Output

Enter the character : e

Entered character is a vowel.

Enter the character : S

Entered Character is a consonant.

Enter the character : E

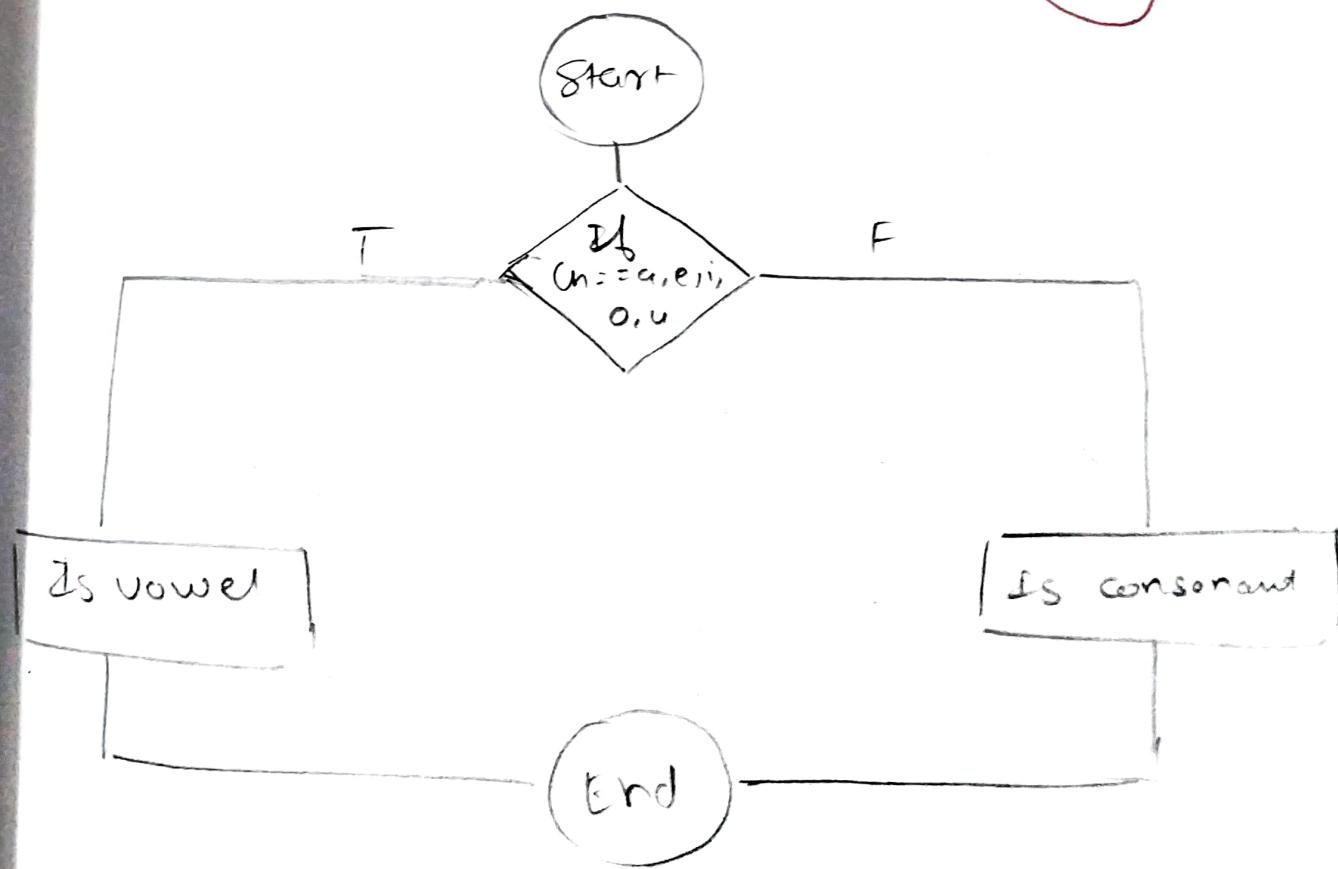
Entered character is a vowel.

Enter the character : W

Entered character is a consonant.

034

*Sami*  
07/01/2020



Output:

:30

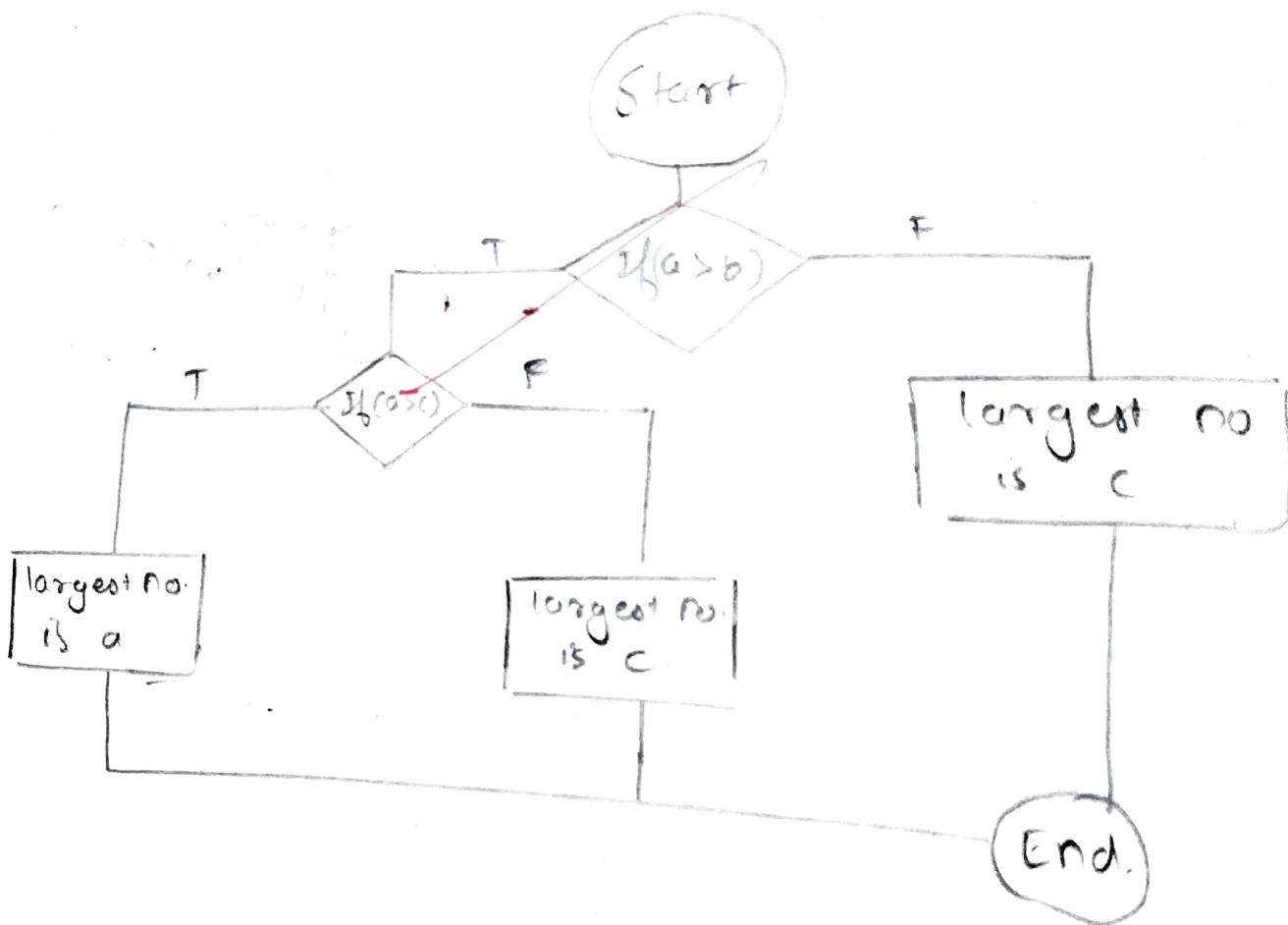
Enter 3 values :

10

4

6

The greatest no. is : 10



Aim: WAP to find largest of 3 numbers using nested if else.

Source code:

```
#include < stdio.h>
#include < conio.h>
void main()
{
    float a, b, c;
    clrscr();
    printf("Enter 3 values:\n");
    scanf("%f %f %f", &a, &b, &c);
    if (a > b)
    {
        if (a > c)
        {
            printf("The greatest no. is : %d", a);
        }
        else
        {
            printf("The greatest no. is : %d", c);
        }
    }
    else
    {
        printf("The greatest no. is : %d", b);
    }
    getch();
}
```

Aim: Write a program to create a menu driven calculator using switch case statement.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n1, n2, result, ch;
    clrscr();
    printf(" Enter two values: ");
    scanf("%d %d", &n1, &n2);
    printf(" *** Options ***");
    printf(" 1. Addition \n");
    printf(" 2. Subtraction \n");
    printf(" 3. Multiplication \n");
    printf(" 4. Division \n");
    printf(" 5. Remainder \n");
    printf(" Enter your choice: ");
    scanf("%d", &ch);
    switch(ch)
{
```

Case 1: result =  $n_1 + n_2$ ;

```
    printf(" Addition is: %d", result);
    break;
```

Case 2: result =  $n_1 - n_2$ ;

```
    printf(" Subtraction is: %d", result);
    break;
```

Output:

Enter two values: 5 6

Q36

\*\*\* Options \*\*\*

1. Addition

2. Subtraction

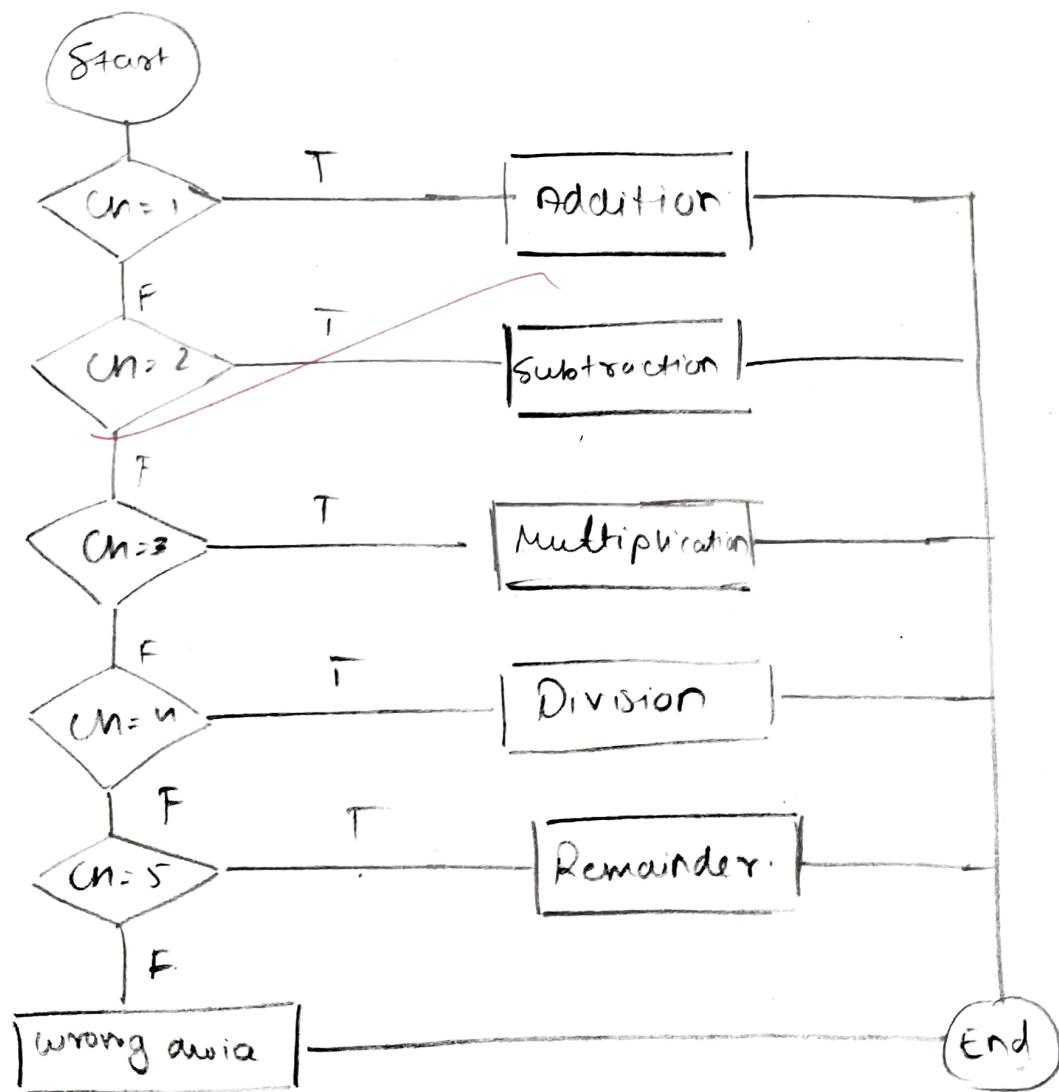
3. Multiplication

4. Division

5. Remainder

Enter your choice: 1

Addition is : 11



Case 3: result = n1 \* n2;  
        printf ("Multiplication is : %d", result);  
        break;

Case 4: result = n1 / n2;  
        printf ("Division is : %d", result);  
        break;

Case 5: result = n1 % n2;  
        printf ("Remainder is : %d", result);  
        break;

~~default:~~

    printf ("Wrong choice");

}  
getch();

Practical 4

## Practical 4

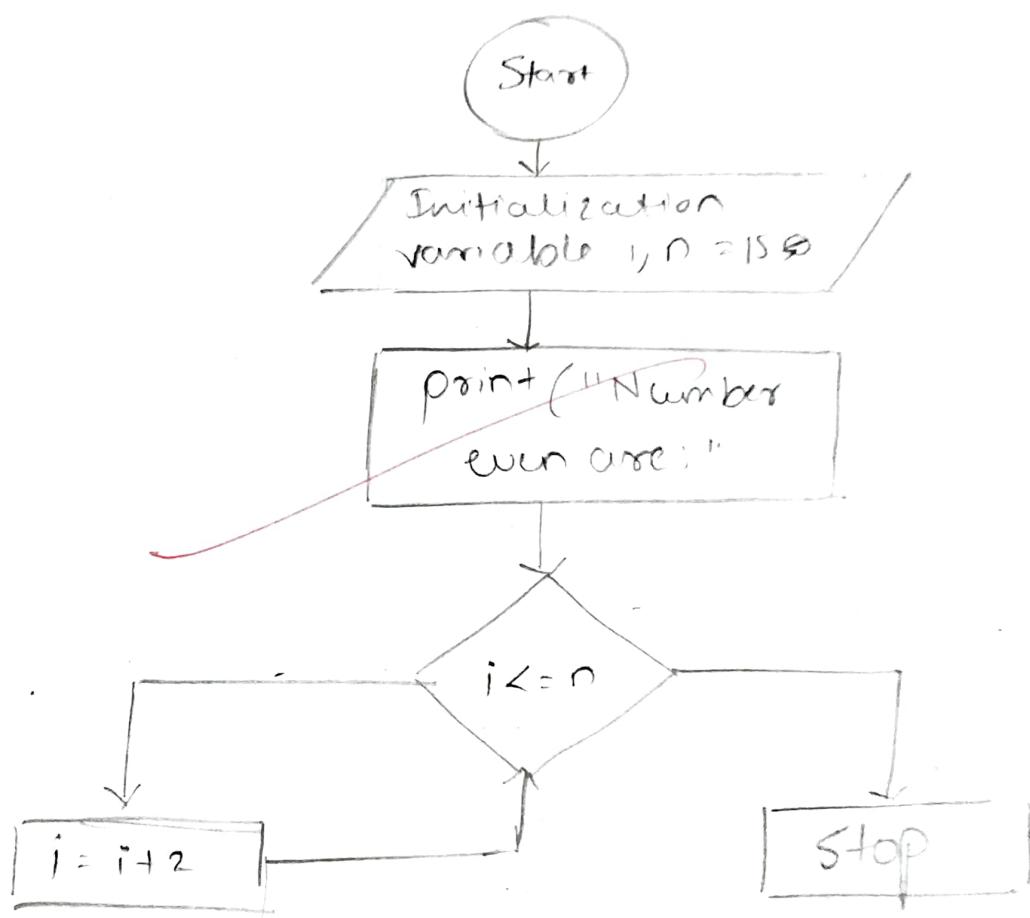
Aim: Prog Programs on looping.

- (1) WAPP to print even no. between 1 to 150 using while loop.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i;
    printf("All even numbers from 1 to 150 are : \n");
    i = 1;
    while (i <= 150)
    {
        if (i % 2 == 0)
        {
            printf("%d \n", i);
        }
        i++;
    }
    getch();
}
```

Output:  
All even numbers from 1 to 15 are:  
2  
4  
6  
8  
10  
12  
14

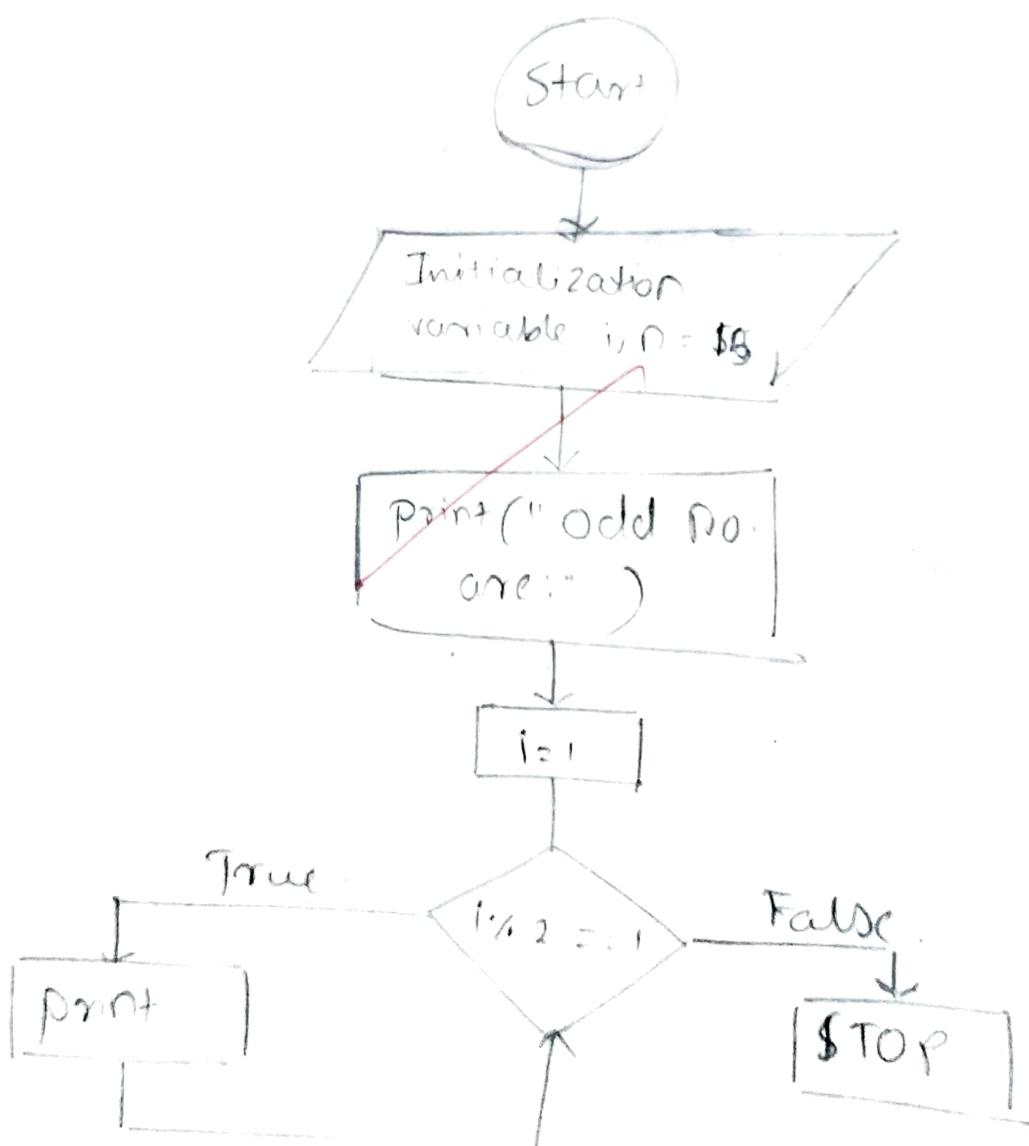
038



Output:

All odd no. from 1 to 15 are :

1  
3  
5  
7  
9  
11  
13  
15



Algorithm:

- ① start
  - ② include appropriate libraries.
  - ③ use while conditional loop to iterate the declared variable till 15.
  - ④ if the iterating no. is divisible by 2, then print appropriate message.
  - ⑤ Increment the iterating variable by 1
  - ⑥ Stop.
- Q) WAP to print odd no. between 1 to 15 using do while loop.

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int i, n=15;
    clrscr();
    printf ("Odd no. from 1 to 15 are: \n");
    i=1;
    do
    {
        if (i%2 == 1)
        {
            printf ("odd \n", i);
        }
        i++;
    }
}
```

```
white(i < n);  
getch();
```

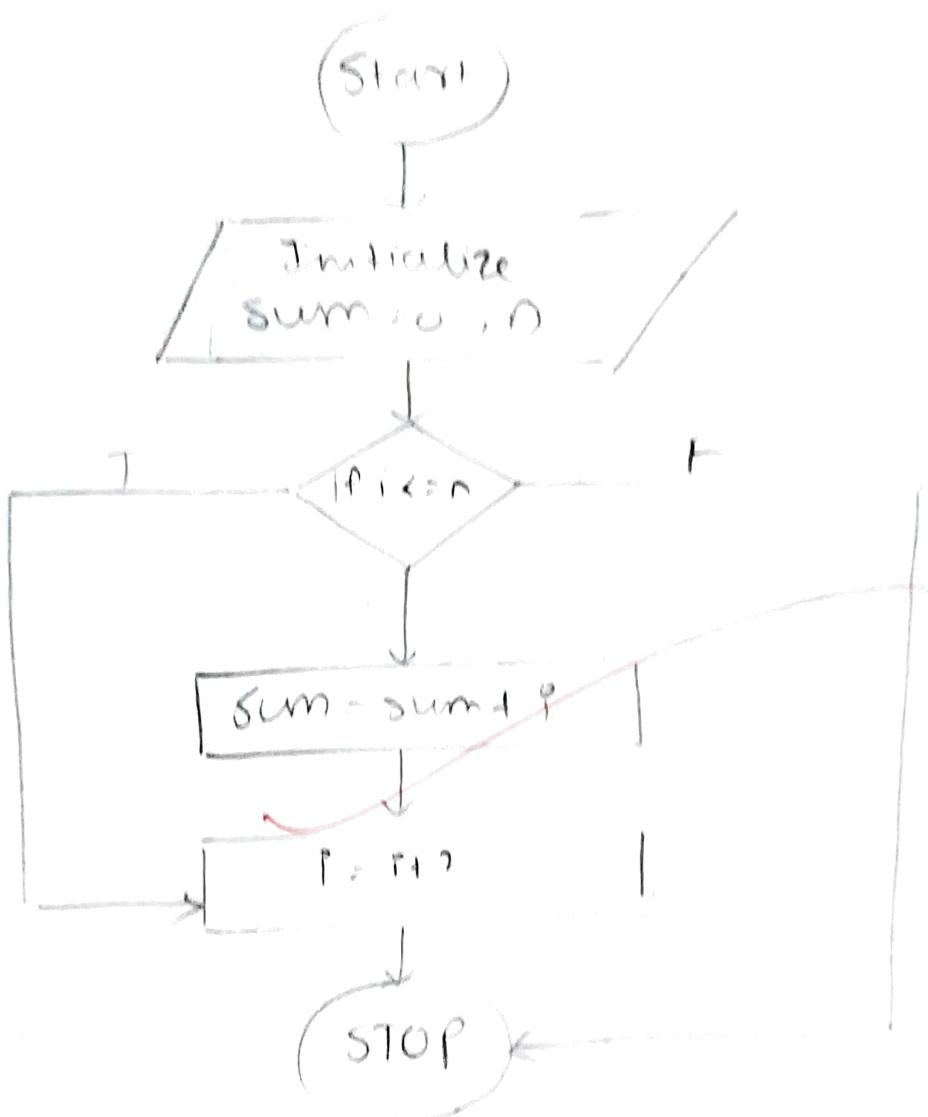
### Algorithm:

- ① Start
- ② Initialize the static variable  $n=15$ ,  $i=1$
- ③ use if conditional statement for iteration from  $i=1$  to  $15$ .
- ④ use if conditional statement to check whether given number is even or odd.
- ⑤ Increment value of  $i$  by 1.
- ⑥ Display the appropriate output.
- ⑦ Stop

- ③ WAP to print sum of all even numbers between 1 to  $n$  using for loop.

```
#include <stdio.h>  
#include <conio.h>  
void main()  
{  
    int n, sum = 0;  
    clrscr();  
    printf("Enter main limit you want to print:");  
    scanf("%d", &n);  
    for (i=1; i<=n; i++)  
    {
```

output!  
Enter the Max limit you want to print to  
the sum of all even numbers upto 10 is : ~~50~~ ~~100~~



```

if (i >= 0)
{
    printf("%d", i);
    sum = sum + i;
}

```

~~print P("The sum of all even no. upto %d=%d", n, sum);  
getch();~~

### Algorithm:

- ① include appropriate libraries.
- ② declare variable & assign mem. limit.

Q. WAP to print the following pattern.

```
*  
* *  
* * *  
* * * *
```

```
#include <stdio.h>  
#include <conio.h>  
void main()  
{  
    int r, i, j;  
    clrscr();  
    printf("Enter no. of rows");  
    scanf("%d", &r);  
    printf("\n");  
    for (i=1; i<=r; i++)  
    {  
        for (j=1; j<=i; j++)  
        {  
            printf("*");  
        }  
        printf("\n");  
    }  
    getch();
```

output:

\*  
\* \*  
\* \* \*  
\* \* \* \*  
\* \* \* \*



Algorithm:

- (1) Initialize two variable with datatype integer.
- (2) Use nested conditional statement & check if it is less than or equal to no. of rows.
- (3) In another condition check your starts from len them equal to previous conditional variable & increment by 1.
- (4) Print appropriate output.

~~Pratik  
11/12/2010~~

29

## Practical No. 5

Aim: Programs on Array.

Q) write a Program to find ~~Largest~~ <sup>Sum</sup> Of 5 Numbers

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, num[5], sum=0;
    clrscr();
    printf(" Enter the elements in array : ");
    for (i=0; i<5; i++)
    {
        scanf("%d", &num[i]);
    }
    printf(" \n Entered elements are: ");
    for(i=0; i<5; i++)
    {
        printf(" %d ", num[i]);
        sum = sum + num[i];
    }
    printf(" \n Sum of elements of array: %d ", sum);
    getch();
}
```

output:  
enter the elements in array: 3

3

5

4

3

7

Entered elements are : 3 5 4 3 7

sum of elements is : 25

Output

Enter elements in array : 5 6 7 8 9.

Sorted array : 9 8 7 6 5

- (a) Program to find sum & average of all elements in array.
- (b) To sort elements in array in ascending order.

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

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

```
void main()
```

```
{
```

```
    int i, k, j, a[5], t;
```

```
    float avg;
```

```
    clrscr();
```

```
    printf("Enter elements in array");
```

```
    for (i=0; i<5; i++)
```

```
{
```

```
        for (k=j+1; k<8; k++)
```

```
{
```

```
            if (a[j] < a[k])
```

```
{
```

```
                t = a[i];
```

```
a[i] = a[k];
```

```
a[k] = t;
```

```
}
```

```
}
```

```
    printf("In sorted array is : ");
```

```
    for (i=0; i<5; i++)
```

```
{
```

```
        printf("%d", a[i]);
```

```
}
```

```
getch();
```

```
.
```

Q) To add two matrix

```
#include < stdio.h>
#include < conio.h>
void main()
{
    int x[3][3], y[3][3], z[3][3];
    int r, c;
    printf("\n Enter elements of matrix x:");
    for (r=0; r<3; r++)
    {
        for (c=0; c<3; c++)
        {
            scanf("%d", &x[r][c]);
        }
    }
    for (r=0; r<3; r++)
    {
        for (c=0; c<3; c++)
        {
            z[r][c] = x[r][c] + y[r][c];
        }
    }
    printf("\n Matrix z");
    for (r=0; r<3; r++)
    {
        for (c=0; c<3; c++)
        {
            printf("%d", z[r][c]);
        }
    }
}
```

Output :

Enter element of matrix x : 0 1 2 3 4 5 6 7 8

y : 0 1 2 3 4 5 6 7 8

Matrix Z :

0	2	4
6	8	10
12	14	16

```

}
print("n");
getch();
}
getch();
}

```

### Q) To do matrix manipulation

```

#include <stdio.h>
#include <conio.h>
void main()
{
    int x[3][3], y[3][3], z[3][3];
    int r, c, t, i;
    clrscr();
    printf("n Elements Of matrix X:");
    for (r=0; r<3; r++)
    {
        for (c=0; c<3; c++)
        {
            scanf("%d", &x[r][c]);
        }
    }
    printf("n Enter elements of Y:");
    for (r=0; r<3; r++)
    {
        scanf("%d", &y[r][c]);
    }

```

89.

```
for(r=0; r<3; r++)
```

{

```
    for(c=0; c<3; c++)
```

{

```
        for(k=0; k<3; k++)
```

{

$$t = t + z[r][c][k] * y[k]$$

}

$$z[r][c] = t$$

}

{

```
printf("Matrix 2: ");
```

```
for(r=0; r<3; r++)
```

{

```
    for(c=0; c<3; c++)
```

{

```
        printf("%d ", z[r][c]);
```

}

```
    getch();
```

output:

Elements of matrix 2: 1 2 3 4 5 6 7 8 9 0 1 1  
q: 1 2 3 4 5 6 7 8 9.

matrix 2: 80 36 42  
66 81 96  
102 126 150

Output:

Enter sent of word: Death note is  
awesome.

word 1 = Death

word 2 = Note

word 3 = is

word 4 = awesome

~~word 4 = awesome~~

## Practical 6

Page

Ques: Program Using String Functions

i) To read string of words using scanf().

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    char w1[20], w2[20], w3[20], w4[20];
    printf("\n Enter first of word: ");
    scanf(" %s %s %s %s", &w1, &w2, &w3, &w4);
    printf("\n Word1 = %s", w1);
    printf("\n Word2 = %s", w2);
    printf("\n Word3 = %s", w3);
    printf("\n Word4 = %s", w4);
    getch();
}
```

ii) Read line of text using putchar().

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
    clrscr();
    char name[6] = "Pan";
}
```

3.   
int K; char name[20];  
for (K=0; K<5; K++)  
{  
    putchar (name[K]);  
    printf ("\n");  
}  
getchar();  
}

Q] Program to read line of sent using gets()

```
#include <stdio.h>  
#include <conio.h>  
#include <string.h>  
void main()  
{  
    clrscr();  
    char name[20];  
    printf ("\nEnter line of sent: ");  
    gets(name);  
    puts(name);  
    getch();  
}
```

output:

p

a

s

s

050

output:

Outer line of tent: Random tent.  
Random tent.

29

Output:

Enter line of text: Python is run  
Python is run.

Q) Read line of text using getch()

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

```
void main ()
```

```
{
```

```
    clrscr();
```

```
    char c[80], p;
```

```
    int i <= 0;
```

```
    printf("\n\n Enter line of text : ");
```

```
    do {
```

```
        p = getch();
```

```
        c[i] = p;
```

```
        i++;
```

```
    } while (p != '\n');
```

```
    c[i] = '\0';
```

```
    printf("\n\n %s", c);
```

```
    getch();
```

```
33
```

189

Program Of reverse a String Using ~~strrev()~~

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main(),
{
```

```
clrscr();
Char c[10];
printf("Enter string : ");
scanf("%s", c);
strrev(c);
printf("Reverse string is : %s", c);
getch();
```

3.

*Shri  
03/03/2020*

Output :-

Enter string : Light

Reverse string is: thgil