Practical- 02

Aim :- Programs to understand the basic datatype and I/O.

Program : 1

```
# include <stdio.h>
# include <conio.h>
  void main ()
{
    char name [50] ;
    char add [50] ;
    int roll-no ;
    float percent ;
    char grade ;
```

Output :-

**** Demonstration of various datatypes ****
Name of the Student : Kushal Singh
Address of the Student : Mumbai
Roll no of the Student : 1763
Percentage of the Student : 70%
Grade of the Student : A
Mobile no of the Student : 8907566148?
Student name :- Kushal Singh

```
printf("\n mobile no:");
scanf("%lld", &mob);
printf("\n student name: %c", name);
printf("\n student address: %s", add);
printf("\n student roll-no: %d", roll-no);
printf("\n student percent: %f", percent);
printf("\n student grade: %c", grade);
printf("\n student mobile-no: %lld", mob);
getch();
}
```

Program:2

Source code:-

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int side, area;
    clrscr();
    printf("Enter the side\n");
    scanf("%d", &side);
    area = side * side;
    printf("\n Area of square %d", area);
    getch();
}
```

Output

Enter the side : 5

Area of a Square : 25

Practical -2

a) AIM :- 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 number : ");
scanf ("%d", &num1);
printf ("Enter 2nd number : ");
scanf ("%d", &num2);
add = num1 + num2;
```

OUTPUT :-

Enter 1st number : 8
Enter 2nd number : 6
Addition of 2 numbers : 14
Subtraction of 2 numbers : 2
Multiplication of 2 numbers : 48
Division of 2 numbers : 1.3333.

Logical operators

```
#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("value 2 is: %d\n", value2);
  value3 = (x<y) || (z=y);
  printf("value 3 is: %d\n", value3);
  value4 = !(x==y);
  printf("value 4 is: %d\n", value4);
  value5 = (x==y);
  printf("value 5 is: %d\n", value5);
  getch();
}
```

OUTPUT:-

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

Ternery operator

```
#include <conio.h>
#include <stdio.h>
void main()
{
int a=100, b=20, c=50, big;
clrscr();
big=a>b && a>c?a:b;
printf("The biggest number is:%d",big);
getch();
```

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Output :-

The biggest number is 100

Practical-3

Aim:- Decision Statements

write a program to find out odd & even numbers

Algorithm:

Step 1: Start
Step 2: [Take Input] Read 0 number from the User
Step 3: check if number % 2 == 0 then print even Number
Step 4: EXIT

SOURCE CODE

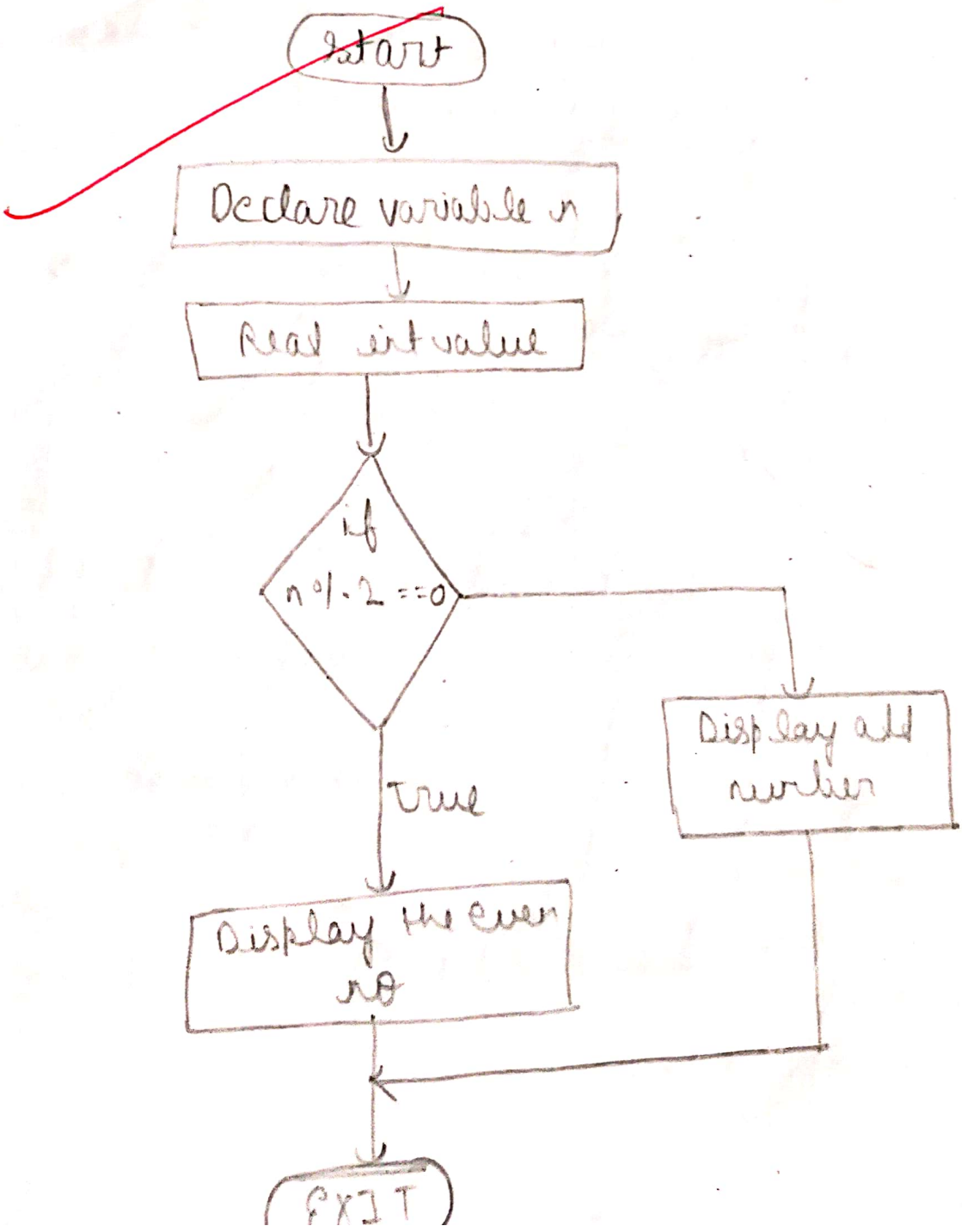
```
# include <stdio.h>
# include <conio.h>
  void main()
{
  int n;
  clrscr();
  printf("Enter a number:");
  Scanf("%d", &n);
  if (n%2 == 0)
  {
  printf("Even number!");
```

Output :-

Enter a number : 26
Even number

Enter a number : 93
Odd number.

FLOWCHART

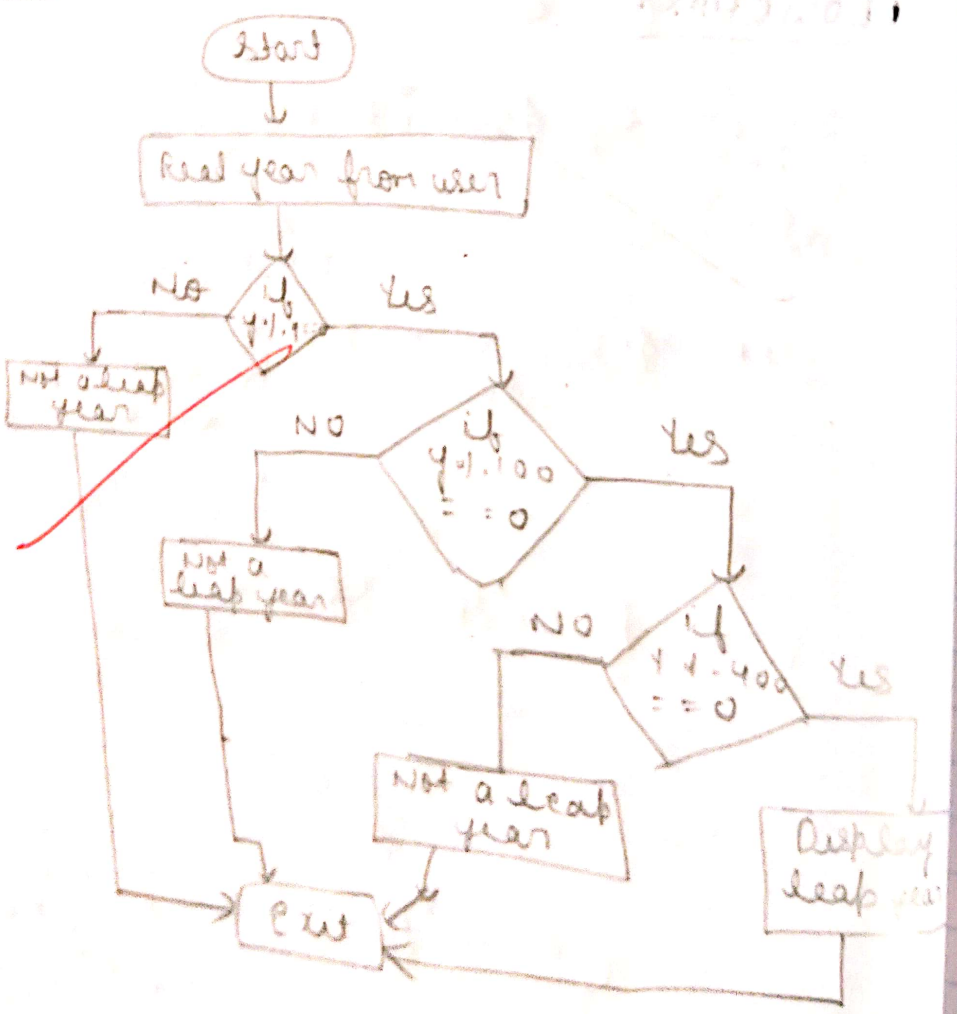


08 Output

Enter a year : 2013
Not a leap year

Enter a year: 2020
Leap year

Flowchart :-



```
else
{
  printf(" odd number :");
}
getch();
}
```

* Write a program to find the entered year is a leap year or not!

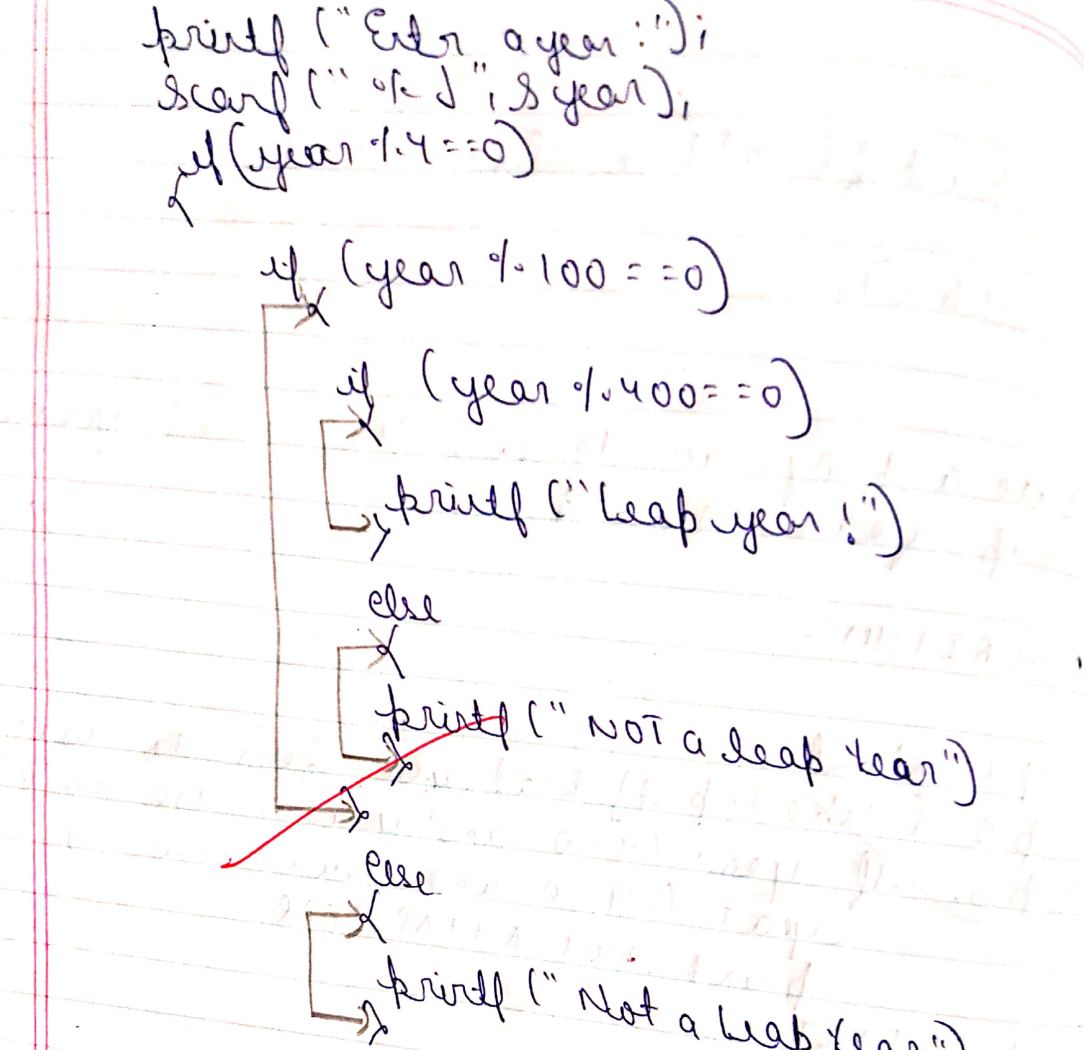
ALGORITHM:-

Step 1: Start
Step 2: [Take Input] Read year from the user
Step 3: If year %4 = 0 and year %. 400 == 0 or
        year %. 4 = 0 and year %. 100 != 0
        print NOT A LEAP YEAR
Step 4:- EXIT

SOURCE CODE:-

```
#include <stdio.h>
#include <conio.h>
void main()
{
int year;
clrscr();
```

```
printf ("Enter a year :");
scanf ("%d", &year);
if (year %4 == 0)
    if (year %100 == 0)
        if (year %400 == 0)
            printf ("Leap year !")
        else
            printf ("NOT a leap year")
    else
        printf ("Not a leap year");
else
    printf ("NOT a leap year")
getch();
}
```



write a program to find whether the character is vowel or consonant

ALGORITHM

step1:- Start
step2:- [Take Input] Read character value from user.
step3:- [Check] if value == 'a' || value == 'e' || value == 'i' || value == 'o' || value == 'u' || value == "A" || value == "E" || value == "I" || value == "O" || value == "U"
step4:- Exit.

Source code

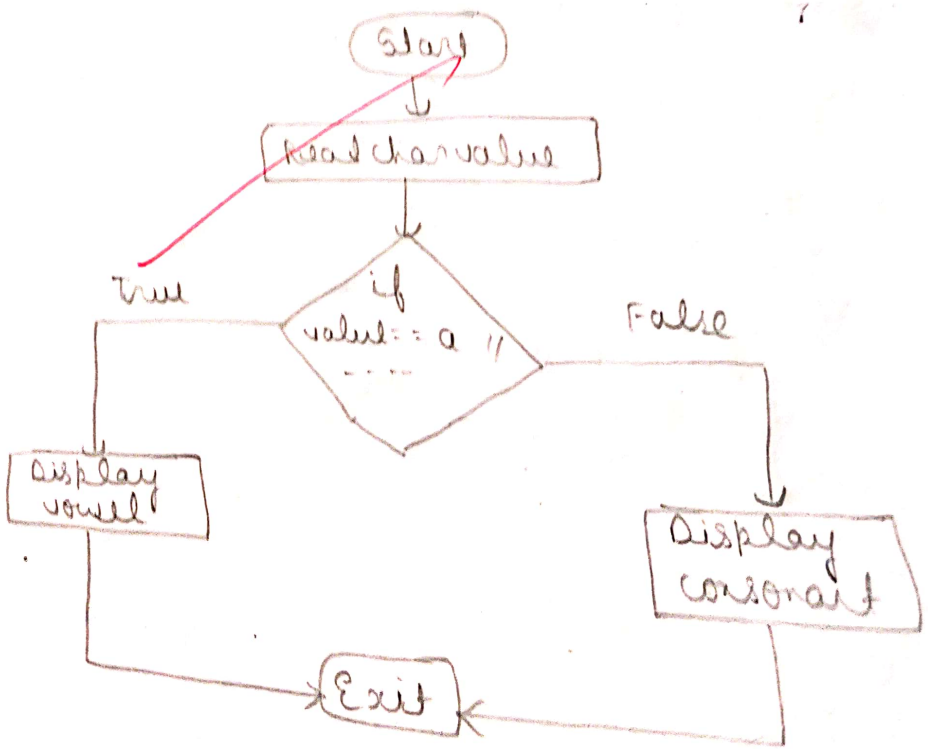
```
#include <stdio.h>
#include <conio.h>
  void main ()
{
   char a;
   clrscr ();
   printf ("Enter the alphabet:");
   scanf ("%c", &a);
   if (a=='a' || a=='e' || a=='i' || a=='o' ||
       a=='u' || a=='A' || a=='E' || a=='I' ||
       a=='O' || a=='U')
   {
      printf ("vowel")
   }
```

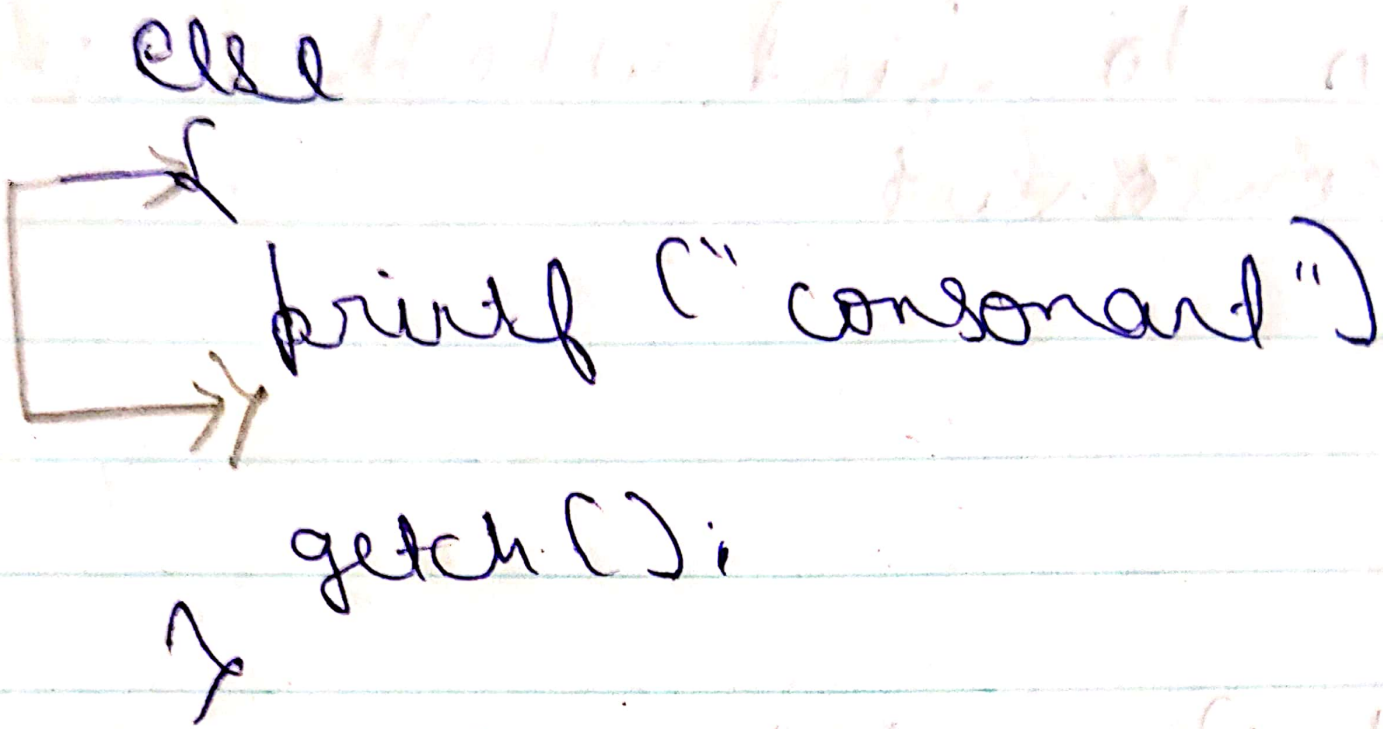
98

Output

Enter alphabet : O
vowel
Enter alphabet : x
Consonant

Flowchart :-





Practical -4

Aim:- Write a program to print even number between 1-50 using while loop

Source code

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int i,n=50;
    clrscr();
    printf("All even numbers from 1 to 50 are:\n");
    i=2;
    while (i<=n)
    {
        printf("%d\n",i);
        i=i+2;
    }
    getch();
}
```

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Output :

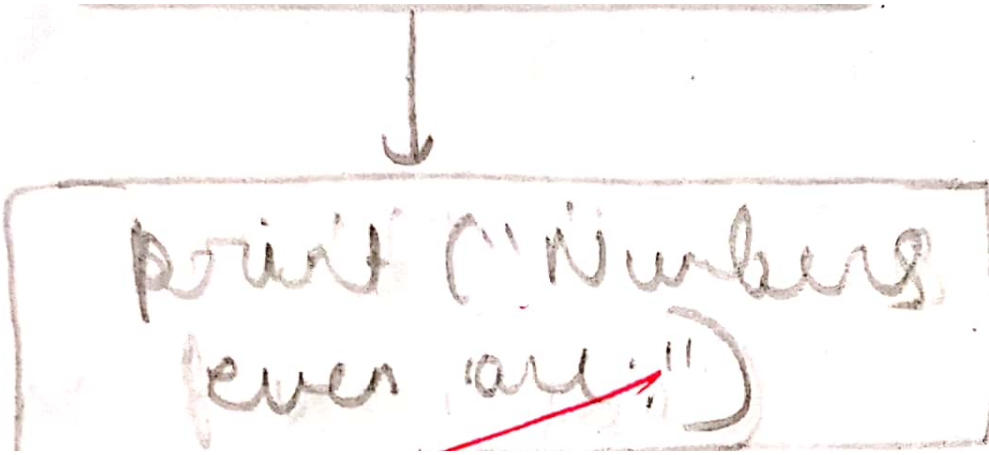
All even numbers from 1 to 50 are

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
34
36
38
40
42
44
46
48
50

Algorithm

Step:-

1) Start
2) Initialize two variable with static variable where n=50 & i=2
3) Use while loop for printing the even number upto the range 50
4) Adding 2 to current even number will give next even number.
5) Display the appropriate Output
6) Stop



Aim:- Write a C program to print odd number between 1-50 using do while loop

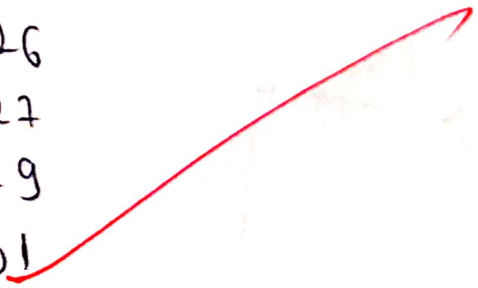
Source code:

```
# include <stdio.h>
# include <conio.h>
void main()
{
    int i,n = 50;
    clrscr();
    printf("Odd numbers from 1 to 50 are:\n",n);
    i=1;
    do
    {
```

38 Output

All numbers from 1 to 50 are.

1
3
5
7
9
11
15
17
19
21
23
26
27
29
31
33
35
37
39
41
43
45
47
49



Algorithm

Step

1) Start
2) Initialize two static variable n=90, i=1,
3) Use do while loop for iterates from 1 to 90
4) Use if condition statement to check whether given number is even or odd
5) Increment the value of i by 1
6) Display the appropriate output
7) Stop.

print ("All numbers
from (1 to 50"

Aim: Write a C program to print sum of all even number 1 to n using for loop.

Source code.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n, sum=0;
    clrscr();
    printf("Enter the range:");
    scanf("%d",&n);
    for(i=2; i<=n ; i=i+2)
{
```

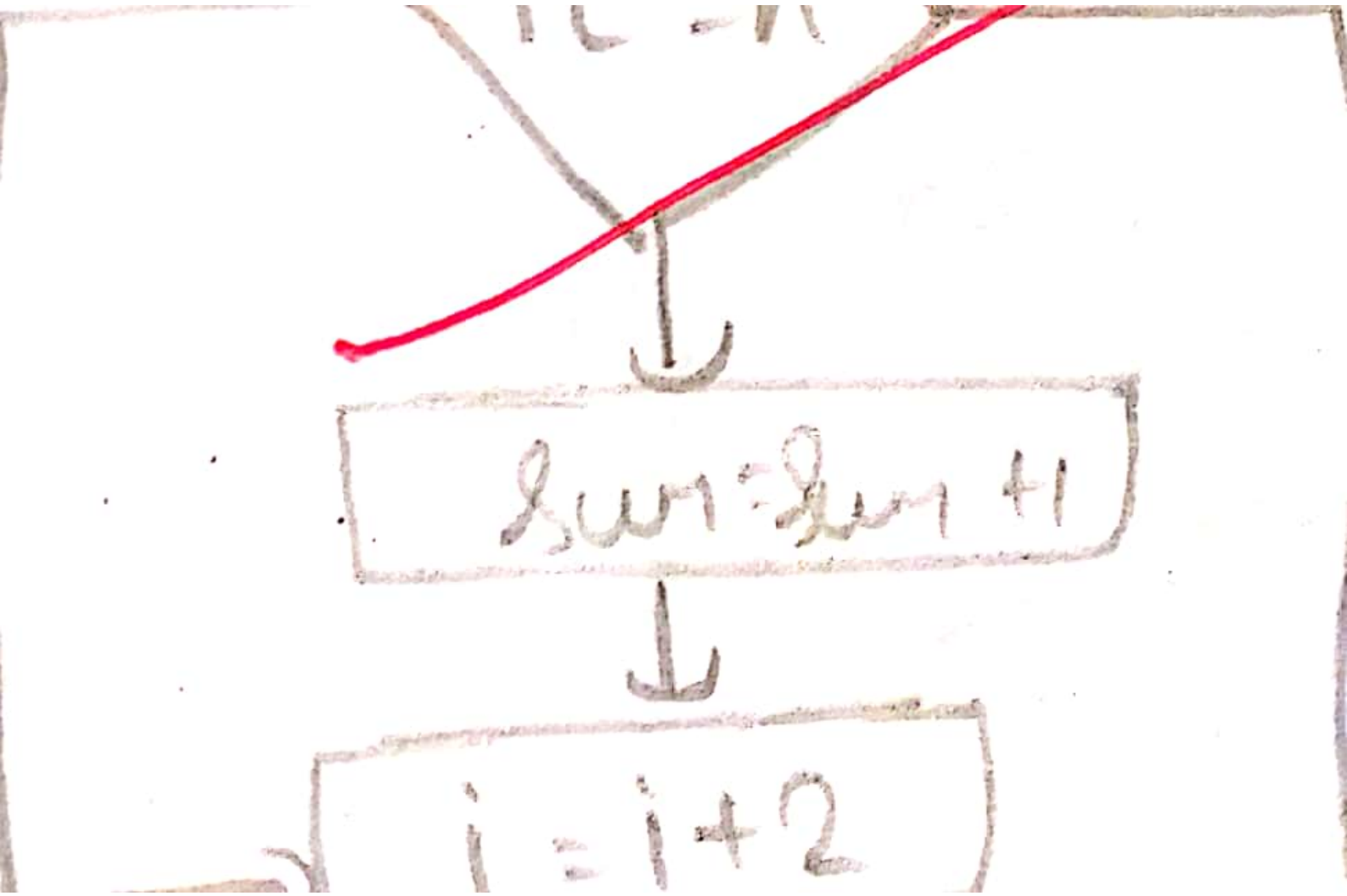
&&

Output:

Enter the range 10

Sum of all even numbers upto the range are 30

- Initialize three variable and one is dynamic
  i=2; sum=0;n;
- use for loop for check the given range
- Add current even number
- Display the appropriate
- Stop.



Practical-5

Arrays

a) Basics of Array
write a program in C to read array elements from the user and display them

Algorithm:-
Step 1:- Declare a array of any size
Step 2:- Accept the number of elements user wants to enter in array
Step 3:- Use for loop to accept the array elements from the user
Step 4:- Again use for loop to display array elements

Source code :-

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[15], size, i;
clrscr();
    printf("Enter the size of array you want");
    scanf("%d", &size);
    for(i=0; i<size; i++)
    {
    printf("\n Enter the value of a[%d]
                element :", i);
    scanf("%d", &a[i]);
    }
```

Output:-

Enter the size of array you want : 5

Enter the value of a[0] element : 11

Enter the value of a[1] element : 12

Enter the value of a[2] element : 13

Enter the value of a[3] element : 14

Enter the value of a[4] element : 15

The elements of array are :-

a[0] = 11

a[1] = 12

a[2] = 13

a[3] = 14

a[4] = 15

Fibonacci Series Using Array

a) write a program in C to develop fibonacci series using Array.

Algorithm:-

step 1:- Declare a array of angsize of data type int

step 2:- Accept a value from user till you want to display the fibonacci series

step 3:- Initialize first element of array to 0 and 2 second element to 1 as series start from 0 and 1

8.

Source code:

```
#include <conio.h>
#include <stdio.h>
void main ()
{
    int a[20], term, i, j;
    clrscr ();
    printf ("Enter the number of terms:");
    scanf ("%d", &term);
    a[0] = 0;
    a[1] = 1;
    printf ("%d", a[0]);
    printf ("%d\n", a[1]);
    for (i=; i<term; i++)
        a[i] = a[i-1] + a[i-2];
        printf ("\n%d", a[i]);
    }
    getch ();
}
```

Output:

Enter the number of terms :- 7

0

1

1

2

3

9

7

To represent multidimensional array in matrix format

Algorithm:
S1:- Start
S2:- accept 4 variable i, j, row, col.
S3:- declare the array of any size.
S4:- Ask the user to enter the value of no of row they want.
S5:- Ask the user to enter the value of no of column they want.
S6:- By using for loop and then nested for loop for representation of data user will enter.
S7:- Print the inputed data by print statement include for indentation between them

Code:-
```
# include <stdio.h>
# include <conio.h>
void main()
{
```

* Output

Enter the no of row 3
Enter the no of col 3
The display matrix

3 2 1

4 3 0

5 3 6

Practical - 6

Aim:- Programs on functions

1) Write a program in C which will demonstrate the use of getch and getchar

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

Output :-

Press any key to continue [enter]

Enter an alphabet a

Continue Y/N Y [enter]

WAP to find factorial of a number using recursion function.

```
#include <stdio.h>
#include <conio.h>
factorial (int n);
 void main()
 {
 clrscr ();
int x, fact;
printf("\n enter value of x:");
scanf("%d",&x);
```

Output:-

Enter the value of x: 4
Factorial of 4 = 24

Sum of digits of entered numbers

```
#include <stdio.h>
#include <conio.h>
void abc (int n);
void main ()
{
  clrscr ();
  int n;
  printf ("\n Enter Number : ");
  scanf ("%d", &n);
  abc (n);
  getch ();
}

void abc (int n)
{
    int r, s = 0;
    while (n != 0)
    {
      r = n % 10;
      s = s + r;
      n = n / 10;
    }
  printf ("\n Sum of digits = %d", s);
}
```

Output :-

Enter number : 31

Sum of digit : 4