

Output :-

----- Demonstrate various datatypes -----

Name of student:

Rohit Gupta

Address of the student:

Majad (E)

Roll no. of student:

28

Percentage of the student:

89.16

Grade of student

A+

Mobile No.:

1608290906

Student name: Rohit Gupta

Student address: Majad (E)

Roll no. of student: 28

student percent: 89.16

Student grade: A+

student mobile no.: 1608290906

SEMESTER - II

PRACTICAL No. 1

23

Aim:- To study the use of different types of datatypes.

Source code :-

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    char name [50];
    char add [50];
    int roll no;
    float percent;
    char grade;
    long int mob;
    clrscr ();
    printf ("----- Demonstrate various datatype-----");
    printf ("Name of the student\n");
    scanf ("%s", &name);
    printf ("Address of the student\n");
    scanf ("%s", &add);
    printf ("Roll no. of the student\n");
    scanf ("%d", &roll no);
    printf ("Percentage of student\n");
    scanf ("%f", &percent);
}
```

```
printf ("Grade of student In");
scanf ("%s", &Grade);
printf ("Module no. In");
scanf ("%d", &mob);
printf ("In student name : %s", name);
printf ("In student address : %s", add);
printf ("In student rollno. : %d", rollno);
printf ("In student percent : %f", percent);
printf ("In student grade : %s", grade);
printf ("In student mobile no. : %ld", mob);
getch();
```

~~Chris~~ 24/01/2020

Practical No. 2

a) Aim :- Write a C program which will show the use of various different types of operators

Arithmetic operations
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;
    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", div);
    getch();
}

```

Logical Operators :-

```

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("value 1 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 : 5
 Enter 3rd value : 2
 value 1 is : 0
 value 2 is : 1
 value 3 is : 1
 value 4 is : 0
 value 5 is : 1

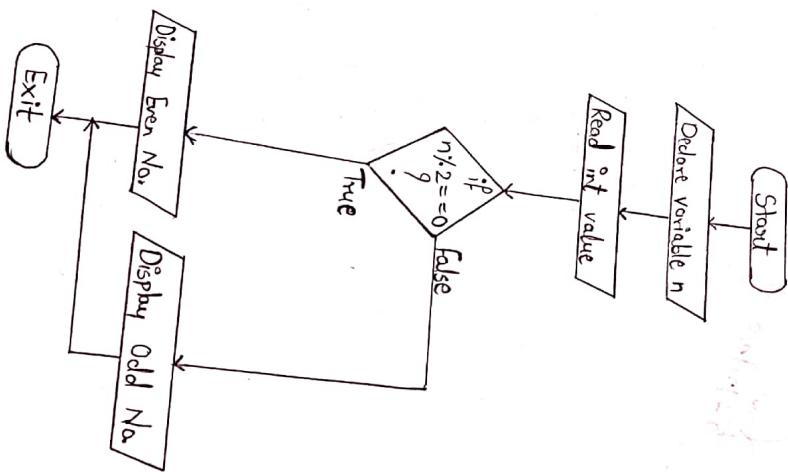
Explanation

C
Output :-

1) Enter a number : 46
Even number.

2) Enter a number : 67
Odd number.

Flowchart :-



C

```
else
{
    printf (" Odd Number ");
}
getch();
```

Q) Write a program to find the entered year is leap year or not.

Algorithm :-

Step 1 :- Start.

Step 2 :- (Take Input) Read year from user .

Step 3 :- If year % 4 = 0 and year % 400 == 0
year % 4 == 0 and year % 100 != 0
OR

Print "Leap Year".
else print "Not a Leap Year".

Step 4 :- Exit .

Program :-

```
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")
```

```
}
```

```
getch();
```

```
}
```

- 3) Write a program to find whether the entered character vowel or consonant.

Algorithm :-

Step 1:- Start.

Step 2:- [Take] Input] Read character value from user

Step 3:- [check] if value == 'a' || value == 'e' || value == 'i' || value == 'o'
 value == 'u' || value == 'A' || value == 'E' || value == 'I'
 value == 'O' || value == 'U'.

Step 4:- print "vowels".

else print "consonant".

Step 4:- Exit.

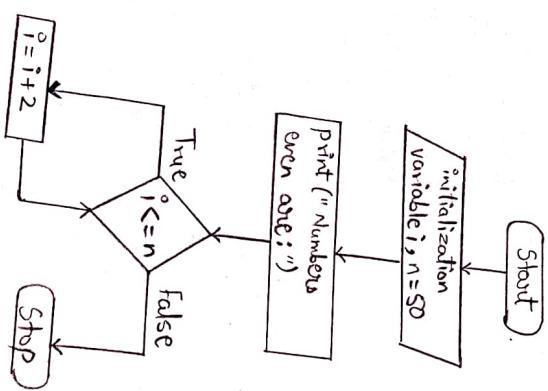
Program :-

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

Output :-

C	
2	12
4	22
6	32
8	42
10	14
12	16
14	24
16	34
18	44
20	26
30	36
40	46
50	48

Flowchart :-



All even numbers from 1 to 50 are :

31

PRACTICAL NO. 1.

Programs on looping.

- 1.) Write a program to print even numbers between 1-50 using while loop.

Algorithm :-

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

Program :-

```

#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;
}
  
```

Q8

2.) Write a program to print odd numbers between 1 to n.

```
printf ("%d\n", i);
i = i + 2;
```

```
getch();
```

2.) Write a program to print odd numbers between 1 to n using do-while loop.

Source code :- Algorithm :-

Step 1 :- Start.

Step 2 :- Initialize two static variable $n = 50$, $i = 1$;

Step 3 :- Use do while loop for iteration from 1 to 50

Step 4 :- Use if condition statement to check whether given number is even or odd.

Step 5 :- Increment the value of i by 1.

Step 6 :- Display the appropriate output.

Step 7 :- Stop.

Program :-

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

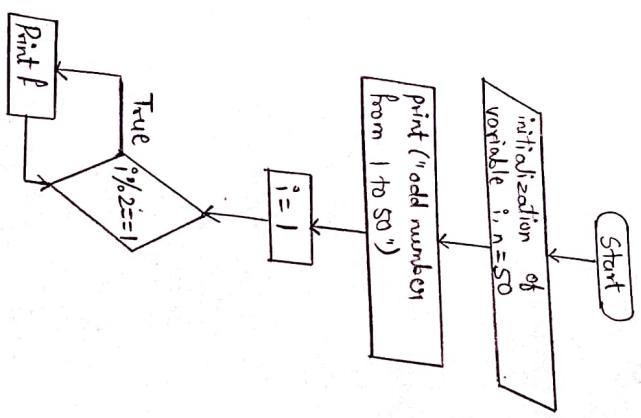
Output :-

Odd numbers from 1 to 50 are :

1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
47
49

8
Flowchart :- (Odd number)

33



```

int i, n = 50;
clrscr ();
printf ("Odd numbers from 1 to 50 are :\n", n);
i = 1;
do
  if ((i % 2 == 1))
  {
    printf ("%d \n", i);
  }
  i++;
} while (i <= n);
 getch ();
  
```

- c) Write a program to print sum of all even numbers between 1 to n using for loop.

Algorithm :-

- Step 1 :- ~~Start~~
- Step 2 :- Initialize three variable ~~x~~ and one is dynamic ~~even no. you~~
 $i = 2$; $sum = 0$; n , ρ for check the given range.
- Step 3 :- Use for loop for check the given range.
- Step 4 :- Add current even number by 2.

Step 5 :- Display the appropriate output.

Step 6 :- Stop.

Program :-

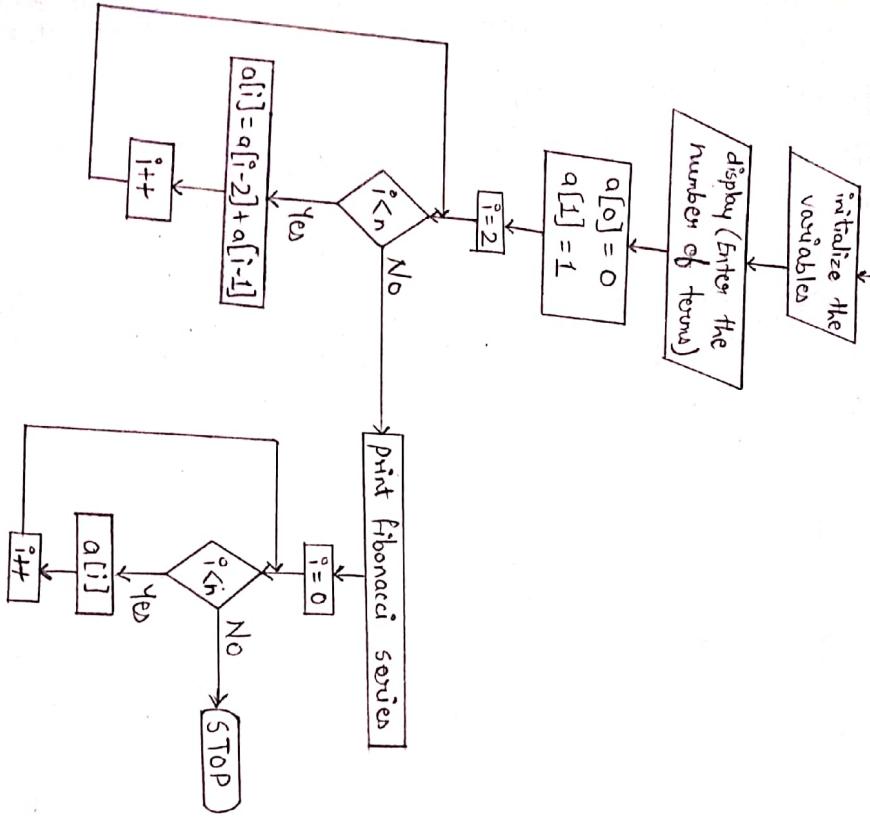
```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int i, n, sum=0;
    clrscr();
    printf ("Enter the range :");
    scanf ("%d", &n);
    for (i=2; i<=n; i=i+2)
    {
        sum = sum + i;
    }
    printf ("Sum of all even numbers upto the range are : ", sum);
    getch();
}
```

Output :-

Enter the number of terms : 4
The Fibonacci series upto 4 terms is

0 1 1 2

Flowchart :-



PRACTICAL NO. 5

Fibonacci Series :-

Algorithm :-

- Step 1 : Start
- Step 2 : Initialize the variables
- Step 3 : Print ("Enter the number till Fibonacci series")
- Step 4 : Scan the Entered value from the user.
- Step 5 : Use the for conditional loop for the Fibonacci series. i.e. by initialising the 0th & the 1st position.
- Step 6 : When the condition in for loop is false print or display the appropriate values stored in array to user.
- Step 7 : Stop.

Program :-

```

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

```

int a[20], n;
clrscr();
printf ("\n Enter the number of terms :")
scanf ("%d", &n);
a[0] = 0;
a[1] = 1;
for (i=2; i<n; i++)
{
  a[i] = a[i-2] + a[i-1];
}
  
```

8.

```
printf ("\n The Fibonacci series upto %d term is:\n")  
for (i=0; i<n; i++)  
{  
    printf ("%d \t", a[i]);  
}
```

```
}  
getch();
```

2.) Programs to print inverted half pyramid using *

Algorithm :-

Step 1 :- Start.

Step 2 :- Initialize variables as i, j and rows.

Step 3 :- Display (Enter number of rows) to the user

and subsequently scan the value too.

Step 4 :- Using for conditional loop we will initialize value of i as rows and value of j.

is greater than equal 1 and decrement.

Step 5 :- Subsequently use nested for loop that is again a for loop by initializing value of j as 1 and j is less than equal to i and pre-increment j.

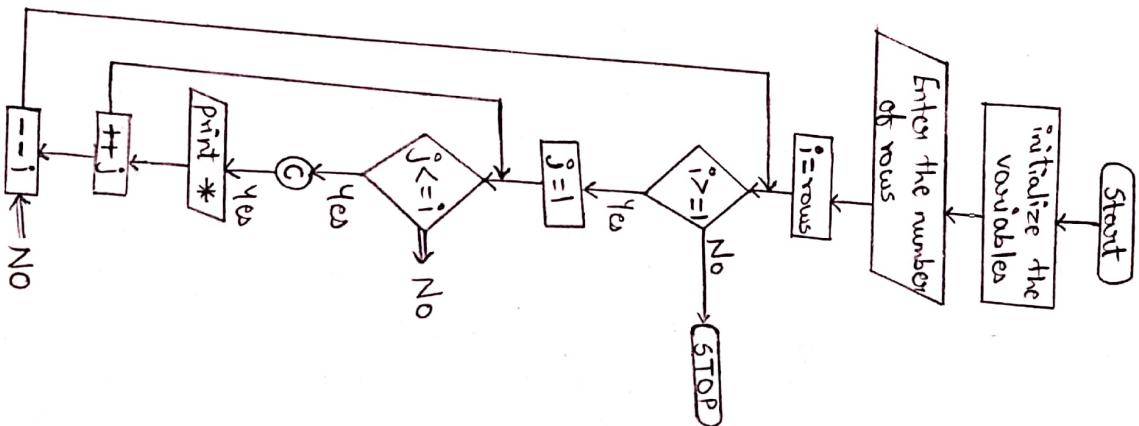
Step 6 :- Print the star(*)

Step 7 :- Stop.

2.) Output :-

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

Flowchart



PRACTICAL No. 6

Aim :- Programs on Structure.

Step 1 :- Declare the structure with initialization of variables.

Step 2 :- Call the declared structure with structure object.

Step 3 :- Print to the user to enter the student detail as roll no, name and percentage with following format specifier.

Step 4 :- Display the same to user.

Code :-

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

struct stud

{

```
    char name [20];
    int roll;
    float per;
```

}

```
struct stud s1;
clrscr();
printf ("\n Enter student details : ");
printf (" \n Enter roll no : ");
```

```
scanf ("%d", &st.roll);
printf ("Enter the name:");
scanf ("%s", &st.name);
printf ("Enter the per:");
scanf ("%f", &st.per);
printf ("Int Roll %s %f", st.roll, st.name, st.per);
getch();
```

2) Algorithm :-

Step 1 : Start.

Step 2 : Declare structure student "which will take input
as roll number in integer, name in character
& percentage in float".

Step 3 : Depending upon the number of inputs declare
the structure objects.

Step 4 :- Display to the user to enter roll, Name
& percentage for the 1st user & 2nd user
respectively.

Step 5 :- Display the same by scanning the inputs.

Code :-

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    struct student
    {
        int roll;
        char name [20];
        float per;
    } s1, s2;
    clrscr ();
    printf ("\t Roll \t Name \t Percentage ");
    scanf ("%d %s %f", &s1.roll, &s1.name, &s1.per);
    scanf ("%d %s %f", &s2.roll, &s2.name, &s2.per);
    printf ("\n%d \t %s \t %f", s1.roll, s1.name, s1.per);
    printf ("\n%d \t %s \t %f", s2.roll, s2.name, s2.per);
    getch ();
}
```

Output :-

Enter how many records you want to enter : 2

1) Enter the ID : 1

2) Enter the name : Rohit.

Enter the address: Kashmir .

2.) Enter the ID : 2

Enter the name: Studd

Enter the address: Ladakh .

Employee record is :

ID	Name	ADDRESS
1	Rohit	Kashmir
2	Studd	Ladakh .

```
printf("In\n Employee record is :");  
printf("Int ID \t Name \t Address\n");  
getch();
```

Enter the value of $x: 5$
Enter the value of $y: 6$

Before function call the numbers are:

$x=5$ $y=6$ $r=11$

Inside the function

$x=10$ $y=20$ $r=30$

After function call the numbers are:

$x=5$ $y=6$ $r=30$

Algorithm :

Step 1 : Start.

Step 2 : Declare function with integer parameters.

Step 3 : Declare variables display the user enter the

value of x & y respectively and scan the same.

Step 4 : Add the values and store in an another

variable.

Step 5 : Display the numbers before function call.

Step 6 : Call the function and display the same.

Step 7 : Define the declared function and print the

same.

Step 8 : Stop.

Code :-

```
#include <stdio.h>
#include <conio.h>
int sample (int, int)
void main ()
{
    int x, y, r;
    clrscr();
    printf("Enter the value of x:");
    scanf("%d", &x);
    printf("Enter the value of y:");
    scanf("%d", &y);
    sample(x, y);
}
```

```
int sample (int a, int b);
```

```
{
```

```
    int result;
```

```
    a = 10;
```

```
    b = 20;
```

Output :- Enter a string : cs is all about programming

Enter substring : all

STRING FOUND!

2) #include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
 char str [50];
 char st [10];
 clrscr();
 printf ("\n Enter a string :");
 gets(str);
 printf ("\n Enter substring to find in the above string");
 gets(st);
 if (strstr (str,st) == NULL)
 {
 printf ("\n STRING NOT FOUND!");
 }
 else
 {
 printf ("\n STRING FOUND!");
 }
 getch();
}