

## Output:

```
*** Demonstration of datatypes ***  
Enter roll no.: 1794  
Enter your grade: A  
Enter your name: Akhil  
Enter percentage: 98  
Enter mobile no.: 912896546  
Your roll no is: 1794  
Your grade is: A  
Your name is: Akhil  
Your percentage is: 98  
Your mobile no is: 912896546
```

Sem - 2

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## Practical no.: 1

Topic: "Demonstration of datatypes" using  
Ques: Write a program to understand the  
basic datatypes and I/O.

Source code:

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

```
void main()
```

```
{  
    // Demonstration of datatypes  
    int roll;  
    long int mob;  
    char grade;  
    char name[25];  
    float percentage;  
    clrscr();  
    printf(" *** Demonstration of datatypes ***\n");  
    printf(" Enter roll no: \n");  
    scanf("%d", &roll);  
    printf(" Enter your grade: \n");  
    scanf("%s", &grade);  
    printf(" Enter your name: \n");  
    scanf("%s", &name);  
    printf(" Enter percentage: \n");  
    //scanf ("%f", &percentage);  
    printf(" Enter mobile no: \n");  
    scanf("%ld", &mob);  
    printf(" Your roll no is: %d \n", roll);
```

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```
printf("Your grade is : %c\n", grade);
printf("Your name is : %s\n", name);
printf("Your percentage is : %f\n",
percentage);
printf("Your mobile no is : %ld\n",
mob);
getch();
```

Date: 10/12/19  
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### Program 2: Area of circle.

#### Source code:

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

void main()
{
    float pi, r, aoc;
    clrscr();
    pi = 3.142;
    printf("Enter radius:");
    scanf("%f", &r);
    aoc = pi * r * r;
    printf("Area of circle is: %f", aoc);
}
```

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### Output:

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Enter radius: 50

Area of circle is: 7855.000000

1: i can write the output  
2: i can write the output  
3: i can write the output  
4: i can write the output  
5: i can write the output  
6: i can write the output  
7: i can write the output  
8: i can write the output  
9: i can write the output  
10: i can write the output

Output:

Enter first no.: 10  
Enter second no.: 2  
Addition of two no's is: 12  
Subtraction of two no's is: 8  
Multiplication of two no's is: 20  
Division of two no's is: 5

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Practical no: 2

Aim: Write a C program to show the different types of operators.

a) Arithmetic operators:

→ Source code:

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

void main()
{
    clrscr();
    float n1, n2, add, sub, mul, div;
    clrscr();
    printf("Enter first no.:");
    scanf("%f", &n1);
    printf("Enter second no.:");
    scanf("%f", &n2);
    add = n1 + n2;
    sub = n1 - n2;
    mul = n1 * n2;
    div = n1 / n2;
    printf("Addition of two no's is :%f\n", add);
    printf("Subtraction of two no's is :%f\n", sub);
    printf("Multiplication of two no's is :%f\n", mul);
    printf("Division of two no's is :%f\n", div);
```

SS

```
    div;  
    getch();  
}
```

#### b) Logical operators:

→ Source code:

```
#include <stdio.h>  
#include <conio.h>  
  
void main()  
{  
    int x, y, z, value 1, value 2, value 3,  
    value 4, value 5;  
    clrscr();  
    printf("Enter 1st value:");  
    scanf("%d", &x);  
    printf("Enter second 2nd value:");  
    scanf("%d", &y);  
    printf("Enter 3rd value:");  
    scanf("%d", &z);  
    value 1 = (x < y) && (z > y);  
    printf("Value 1 is: %d \n", value 1);  
    value 2 = (x = y) && (z < y);  
    printf("Value 2 is %d \n", value 2);  
    value 3 = (x > y) || (z = y);  
    printf("Value 3 is: %d \n", value 3);  
    value 4 = !(x = y);  
    printf("Value 4 is: %d \n", value 4);  
}
```

Output:

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```
Enter 1st value: 9  
Enter 2nd value: 8  
Enter 3rd value: 2  
Value 1 is: 0  
Value 2 is:  
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

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BS

### Practical no: 3

- a. Aim: 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 year;
    clrscr();
    printf("Enter a year : ");
    scanf("%d", &year);
    if (year % 4 == 0)
    {
        printf("Entered year is leap
               year");
    }
    else
    {
        printf("Entered year is not a leap year");
    }
    getch();
}
```

### Output:

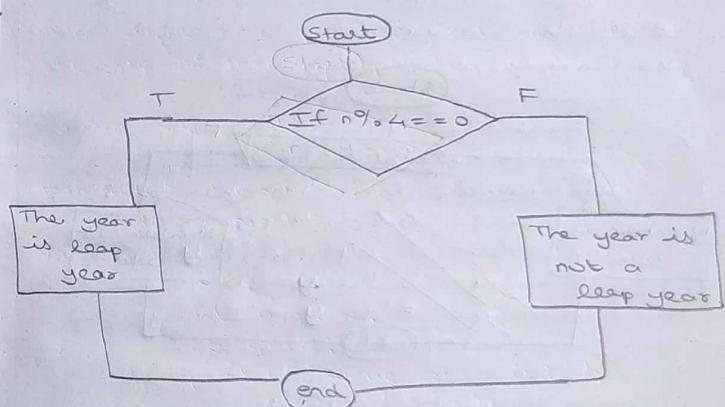
Enter a year : 2016

Entered year is leap year

Enter a year : 2017

Not a leap year

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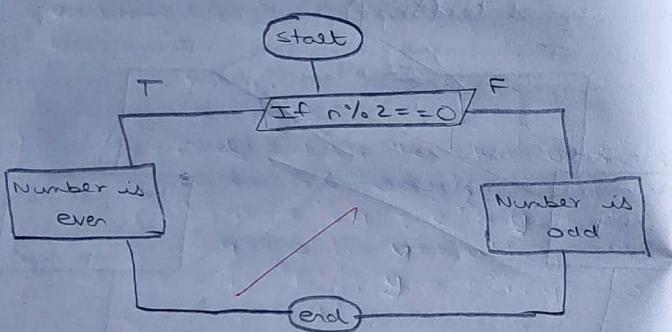
Output:

Enter a number : 8

Even number

Enter a number : 7

Odd number



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

16.

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

→ Source code:

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

Output:

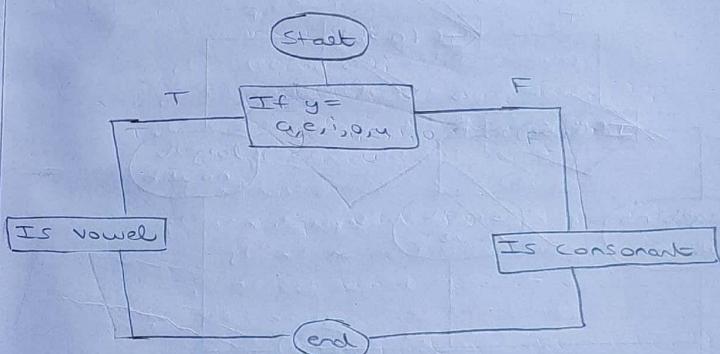
Enter the character : a

Entered character is vowel.

Enter the character : b

Entered character is consonant.

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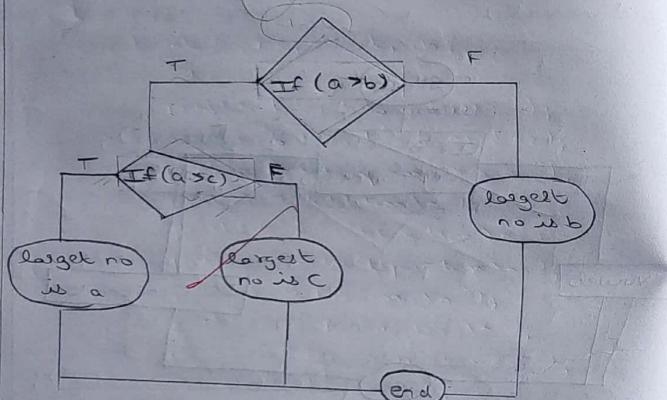


Output:

Enter three values:

5  
2  
3

The greatest no is: 5



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a. Write a program to find largest of 3 numbers using nested if else statements.

```

#include < stdio.h >
#include < conio.h >
void main()
{
    float a, b, c; clrscr();
    printf("Enter three values: \n");
    scanf("%f %f %f", &a, &b, &c);
    if (a > b) * 200 go to 200
    {
        if (a > c) 200 go to 200
        {
            printf("The greatest no is: %d", a);
        }
    }
    else
    {
        if (b > c) 200 go to 200
        {
            printf("The greatest no is: %d", b);
        }
    }
    getch();
}
  
```

v) 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 = n1 + n2;
            printf("Addition is: %d", result);
            break;
        case 2:
            result = n1 - n2;
            printf("Subtraction is: %d", result);
            break;
    }
}

```

### Output:

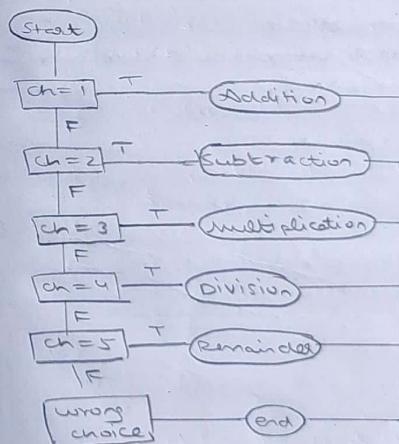
Enter two values: 5 10

\*\*\*\* options \*\*\*\*

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Remainder

Enter your choice: 1

Addition is: 15



~~scanf(" %d %d", &n1, &n2);~~

case 3 :

```
result = n1 * n2; // multiplication
```

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

```
break; // good choice given
```

case 4 :

```
result = n1 / n2; // division
```

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

```
break;
```

case 5 :

```
result = n1 % n2;
```

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

```
break;
```

default :

```
printf("Wrong choice");
```

}

```
getch();
```

}

~~else {  
 printf("Wrong choice");  
}~~

X

Practical no: 4

Ques: Program on looping.

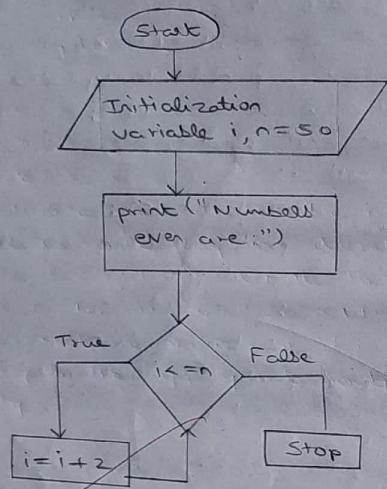
1. WAP to print even numbers between 1 to 50 using while loop.

```
#include < stdio.h >
#include < conio.h >
void main ()
{
    int i, n = 50;
    printf("All even numbers from 1 to 150
           are: \n");
    i = 1;
    while (i <= 50)
    {
        if ((i % 2 == 0))
            printf(" %d \n", i);
        i++;
    }
    getch();
}
```

Output:

All even numbers from 1 to 50 are:

```
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
```



Flowchart of printing even numbers

Output:

odd no from 1 to 15 :

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 50.
- 4) If the no is divisible by 2 then print appropriate message like odd or even.
- 5) Increment the iterating variable by 1.
- 6) Stop.

1. WAP to print odd no between 1 to 15 using do-while loop.

→ ~~#include < stdio.h >~~

~~#include < conio.h >~~

~~void main() { clrscr(); for (i=1; i<=15; i++) { if (i%2==0) printf("%d", i); } getch(); }~~

```

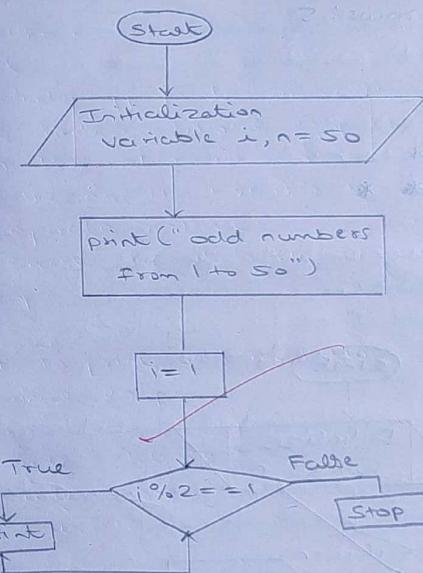
int i, n=15;
#include < stdio.h >
printf("odd no from 1 to 15 are: \n");
i=1;
do
{
    if (i%2!=0) {
        printf("%d \n", i);
    }
    i++;
} while (i<=15)
  
```

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

- Algorithm:**
1. Start
  2. Initialize two static variable  $n = 50$ ,  $i = 1$ ;  $\frac{15}{n}$
  3. Use do while loop for iteration from 1 to 50
  4. Use if condition statement to check whether given number is even, or odd.
  5. Increment the value of  $i$  by 1 at a time.
  6. Display the appropriate output always odd.
  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;
    printf("Enter max limit you want to print:");
    scanf("%d", &n);
    for (i = 2; i <= n; i += 2) {
        sum = sum + i;
    }
    printf("Sum is: %d", sum);
}
```



Flowchart of printing odd numbers

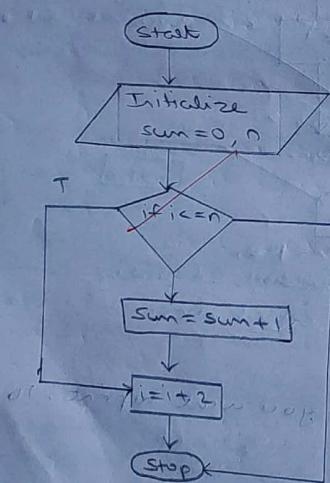
#### Output:

Enter max limit you want to print: 10  
Sum is: 30

Output:

Enter no of rows: 5

\*\*\*\*\*



Flowchart of printing sum of 'n' terms

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Q. W&P to obtain following output.

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

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

John  
11/01/2020

### Practical no: 5

WAP to find sum of three 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("Entered elements are:");
    for (i=0; i<5; i++)
    {
        printf("%d\t", num[i]);
        sum = sum + num[i];
    }
    printf("\n Sum of elements : %d", sum);
    getch();
}
```

### Output:

Entered the elements in array: 5  
3 2 1 5 4  
Sum of elements = 15

Entered elements are: 3 2 1 5 4  
Sum of elements: 15

Output: 2 programs in chapter 21 & 22

Enter 10 elements:

1 5 7 12 13 8 9 10 2, 8

Largest = 13

2. WAP to find sum and average of all elements is an array

```
#include < stdio.h >
#include < conio.h >
void main()
{
    float a[10], i, n, sum=0; l;
    clrscr();
    printf("Enter 10 elements : ");
    scanf("%d", &a[0]);
    for(i=0; i<10; i++)
    {
        l=a[i];
        if(l>n)
            n=l;
        sum+=l;
    }
    printf("Largest : %d", n);
    getch();
}
```

3. WAP to find the smallest number in an array of 10 elements.

```
#include < stdio.h>
#include < conio.h>
void main()
{
    int i, s, a[10];
    clrscr();
    printf("Enter the elements:");
    for (i=0; i<10; i++)
    {
        scanf("%d", &a[i]);
        if (i==0)
            s = a[0];
        for (i=1; i<10; i++)
        {
            if (s>a[i])
                s = a[i];
        }
    }
    printf("Smallest: %d", s);
    getch();
}
```

Output:

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Enter the elements:  
1 2 3 4 5 6 7 8 9 10  
Smallest: 1

Output:

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

Enter elements of y: 0 1 2 3 4 5 6 7 8

Matrix z: 0 2 4  
6 8 10  
12 14 16

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WAP to add two matrix of each size  
 $3 \times 3$ . ( $x[3][3]$ ;  $y[3][3]$ ;  $z[3][3]$ )

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

```

for (c = 0; c < 3; c++)
{
    z[r][c] = sc[r][c] + y[c];
}
printf("In Matrix z:");
for (r = 0; r < 3; r++)
{
    for (c = 0; c < 3; c++)
        printf("%d", z[r][c]);
    getch();
}

```

```

if (c == 0) printf("x");
else if (c == 1) printf("y");
else if (c == 2) printf("z");
getch();
}

```