

Practical 1

Aim: Program to understand the basic datatype & input/output

Program 1: Area of rectangle

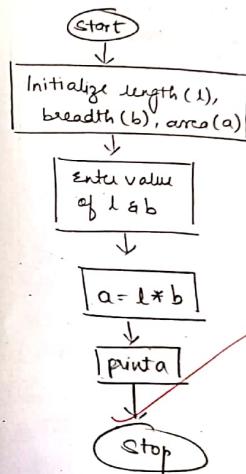
```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int l, b, area;
    printf ("Enter the number");
    scanf ("%d %d", &l, &b);
    area = l * b;
    printf ("The area is %d : ");
    getch();
}
```

Output:

Program 1

Enter the number (l) = 7
 Enter the number (b) = 58
 Enter the area is 406

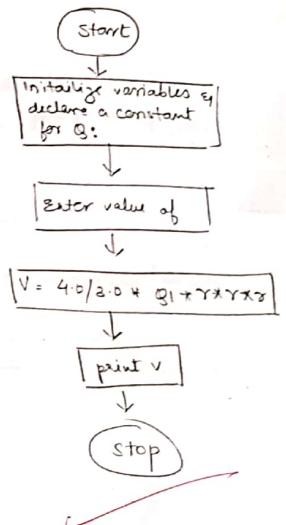
Program 1



26

Program 2

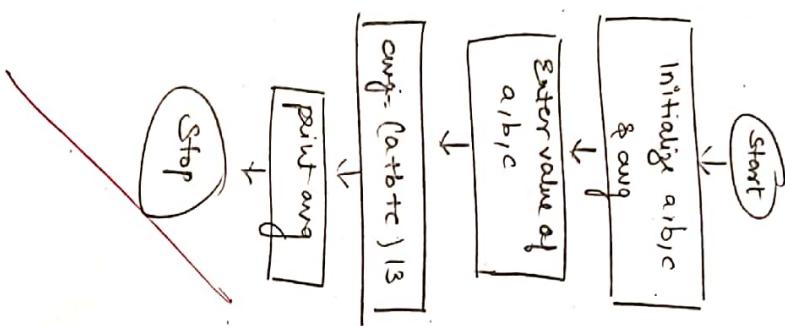
Enter the radius = 7
 The value is 1436.028733



Program 3

Output :

Enter the number : 7, 1, 2
avg : 6.001



Program 2 : Volume of sphere

```

#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    float r, v, pi;
    printf ("enter the radius");
    scanf ("%f", &r);
    pi = 3.14
    v = 4.0/3.0 * pi * r * r * r;
    printf ("The volume is %.2f", v);
    getch();
}
  
```

Program 3 : Average of three numbers

```

#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    float a, b, c, avg;
    printf ("Enter the number");
    scanf ("%f %f %f", &a, &b, &c);
    avg = (a + b + c) / 3;
    printf ("Avg : %.2f", avg);
}
  
```

Program 4: Convert temperature from celsius to fahrenheit

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

```
void main ()
```

```
{
```

```
clrscr();
```

```
float c,f;
```

```
print ("Enter the value of celsius :");
```

```
scanf ("%f", &c);
```

```
f = (c * 9/5) + 32;
```

```
print ("Fahrenheit %f +", f);
```

```
getch();
```

```
}
```

Program 5: Convert temperature from fahrenheit to celsius

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

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

```
void main ()
```

```
{
```

```
float c,f;
```

```
print ("Enter the value of fahrenheit :");
```

```
scanf ("%f", &f);
```

```
c = (f - 32) * (5/9);
```

```
print ("Celsius %f +", c);
```

```
getch();
```

```
}
```

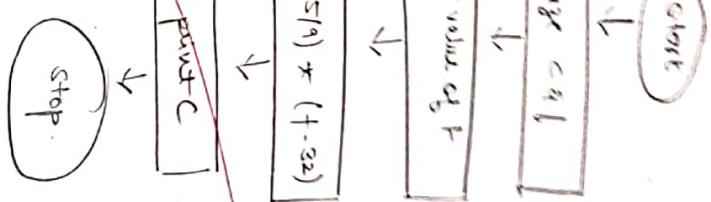
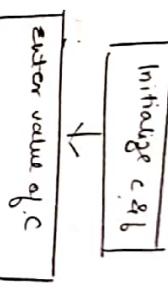
```
clrscr();
```

point 6: Enter the value of fahrenheit : 37.400002

Output :

Program 5
Enter value in celsius : 3
Fahrenheit : 37.400002

Program 5
Enter value of fahrenheit : 37
Celsius : 24.666



Practical 2

Aim: Programs on operators & representations

Program 1

Algorithm:

Step 1: Initialize four variables with datatype int.

2: clear the screen

3: Store the value 25 in a & 10 in b

4: Print value of a & b

5: Do the expression $c = ++a - b$

6: Do post incrementation b & add to a , store it in d

7: print the value of a,b,c & d

8: Do $a \% b$ & store in c

9: Do a/b & store in d

10: print the value of c & d

#include < stdio.h>

#include < conio.h>

void main()

{

int a,b,c,d;

clrscr();

a=25, b=10;

printf ("In a=%d, b=%d", a, b);

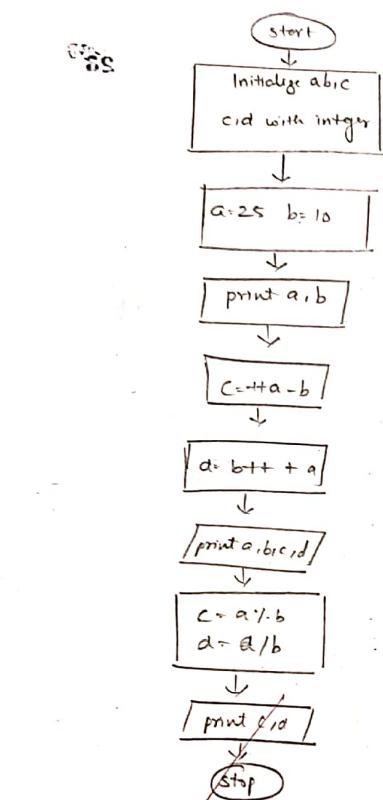
c= ++a - b;

d= b++ + a;

printf ("In a=%d, b=%d, c=%d, d=%d", a, b, c, d);

c=a%b;

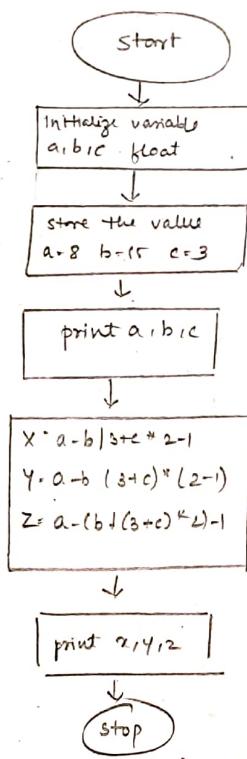
d=a/b;



Output:

a=25, b=10
a=26, b=11, c=16, d=38
c=4, d=2

66



Output:

$a = 8.000000, b = 15.000000, c = 3.000000$
 ~~$x = 8.000000, b = 5.500000, c = 2.000000$~~

Practical +

31

```

printf("In a=%f, b=%f, c=%f", a,b,c);
getch();
}

Program 2
Algorithm
1: Initialize variable a,b,c with value a=8, b=15, c=3, & x,y,z
2: print the value of a,b,c,
3: perform a-b/3+c*2-1 & store in x
4: perform a-b/(3+c)*(2-1) & store in y
5: perform a-(b/(3+c)*2)-1 & store in z
6: print the value of x,y,z
#
#
void main()
{
float a,b,c
a = 8
b = 15
c = 3
printf("In a=%f, b=%f, c=%f", a,b,c)
x = a-b/3+c*2-1
y = a-b/(3+c)*(2-1),
z = a-(b/(3+c)*2)-1;
printf("In x=%f, y=%f, z=%f", x,y,z)
getch();
}
  
```

Program 3

Algorithm

1: Initialize a,b,c & ans with data-type ans integer
2: clear the screen

3: store the value in $a = 6$, $b = 4$, $c = 1$

4: perform expression $a + b \times c++$ // c++ j is store the value in ans

5: print the value for a,b,c,ans

6:

#include <stdio.h>

include <conio.h>

void main()

{

int a, b, c, ans;

clrscr();

$a = 6$, $b = 4$; $c = 1$;

ans = $a + b \times c++$ // c++ j

printf("%d\n", a, b, c, ans);

getch();

}

return 0;

Output:

$a = 7$, $b = 5$, $c = 1$, $ans = 1$

```

graph TD
    Start([Start]) --> Init[/Initialize a, b, c, d/]
    Init --> Store1[/Store a=6, b=4, c=1/]
    Store1 --> Store2[/Store ans=a+b*c++/]
    Store2 --> Print[/Print a, b, c, ans/]
    Print --> Stop([Stop])
  
```

Scanned with CamScanner

Initialise
variables
with data type int

$\boxed{x = 10}$

$\boxed{\begin{array}{l} a = x + \\ b = -x \end{array}}$

$\boxed{c = x++ + --b}$

$\boxed{\downarrow}$
 $\boxed{\text{print}(c)}$

Stop.

Output :

$a = 10, b = 0, c = 90, x = 11$

Program 4 Algorithm:

1: Initialise variables a,b,c,x with datatype int
2: Clear the screen

3: Store $x = 16$
4: For post increment-the value of x & store in a
5: Pre decrement-the value of x & store in b
6: Perform $x++ + -b$ & store in c
7: Print the value of a,b,c,x
8: End

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, x;
    clrscr();
    x = 10;
    a = x++;
    b = --x;
    c = x++ + --b;
    printf("a=%d, b=%d, c=%d, x=%d", a, b, c, x);
    getch();
}
```

80%

88

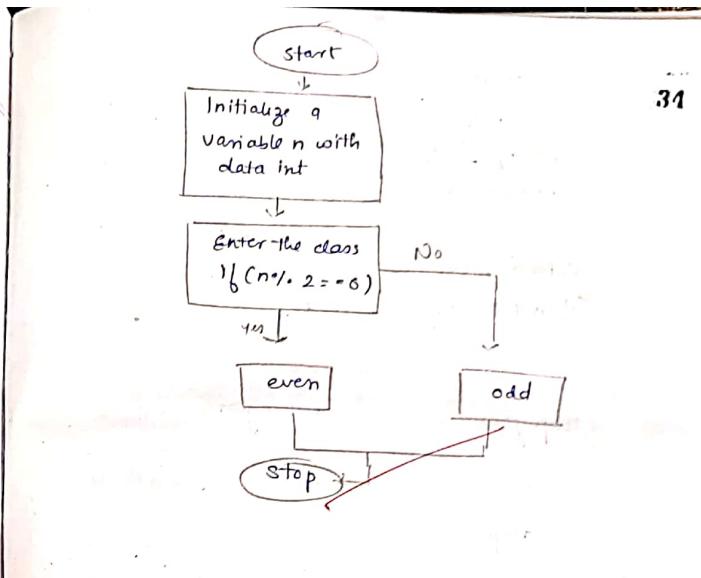
Practical No. 9

Aim: Program on decision making & branching.

Program 1: Check whether number is odd or even.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int n,r;
    printf ("Enter value of n : ");
    scanf ("%d", &n);
    r = n % 2;
    if (r == 0)
        printf ("n is even", n);
    else
        printf ("n is odd", n);
    getch();
}
```

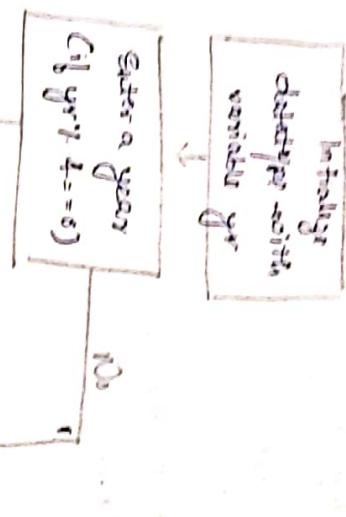
31



Output :

Enter value of n : 12
12 is even

Enter value of n : 51
51 is odd.



Program 2: Check if the entered year is a leap year or not

```

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

```

clrscr();
int yr, i;
printf ("Enter the year ");
scanf ("%d", &yr);
i = yr % 4;
if (i == 0)
    printf ("In %d is a leap year", yr);
else
    printf ("In %d is not a leap year", yr);
}
```

Output:

~~Enter the year 2001~~
~~2001 is not a leap year~~
~~Enter the year 2004~~
~~2004 is a leap year.~~

Program 3 : check whether entered alphabet is a vowel or consonant.

```
#include <stdio.h>
void main()
{
    clrscr();
    char ch;
    printf ("\n Enter the alphabet");
    ch = getch();
    if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')
        printf ("\n %c is vowel", ch);
    else
        printf ("\n %c is a consonant", ch);
}
```

36

Start
Initialize ch
write datatype char

Enter an alphabet

```
if ch == 'a' || ch == 'e' || ch == 'i' ||  
ch == 'o' || ch == 'u' || ch == 'A'  
|| ch == 'E' || ch == 'I' || ch == 'O' ||  
ch == 'U'
```

Entered character is
a vowel

Entered character
is a consonant

stop

Output :

Enter the alphabet : i

i is a vowel

Enter the alphabet : s
s is a consonant .

Program 4.3

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

```
void main()
```

```
int a,b,c;
```

```
clrscr();
```

```
printf("Enter 3 nos ");
```

```
scanf("%d,%d,%d",&a,&b,&c);
```

```
if (a > b) && (a > c)
```

```
printf ("In a is greater");
```

```
else if ((b > a) && (b > c))
```

```
printf ("In b is greater");
```

```
else
```

```
printf ("In c is greater");
```

```
 getch();
```



Output: Enter 3 nos 3

7

1

b is greater

3 7 1

a is greater

b is greater

c is greater

Program 5: Program to enter single digit decimal number from keyboard
 & print that digit in word form

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int n;
    printf ("\n Enter single digit decimal no: ");
    scanf ("%d", &n);
    if (n == 0)
        printf ("In zero");
    else if (n == 1)
        printf ("In one");
    else if (n == 2)
        printf ("In two");
    else if (n == 3)
        printf ("In three");
    else if (n == 4)
        printf ("In four");
    else if (n == 5)
        printf ("In five");
    else if (n == 6)
        printf ("In six");
    else if (n == 7)
        printf ("In seven");
    else if (n == 8)
        printf ("In eight");
}
```

Start

Intialize variable
 n with datatype int

Enter a single digit n.

if n == 0

zero

if n == 1

one

if n == 2

two

if n == 3

three

if n == 4

four

if n == 5

five

if n == 6

six

if n == 7

seven

if n == 8

eight

if n == 9

nine



Output :

Enter single digit decimal no : 1
one
Enter single digit decimal no : 15
Error

```
else if (n==9)
    cout << "In nine";
else
    cout << "In error ";
    getch();
```

Program 7: Program to perform addition subtraction multiplication using switch case.

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

```
void main()
```

```
{ clrscr();
```

```
int a, b, choice;
```

```
printf ("In select your choice ");
```

```
printf ("1. In 1. Addition ");
```

```
printf ("In 2. Subtraction ");
```

```
printf ("In 3. Multiplication ");
```

```
printf ("In 4. Division ");
```

```
printf ("In 5. Exit ");
```

```
scanf ("%d ", &choice);
```

```
if (choice > 1 && choice < 4)
```

```
switch (choice)
```

```
{
```

```
case 1 :
```

```
    r = a+b;
```

```
    printf ("In 1. d + r. d = r. d , a, b, r );
```

```
    break;
```

```
case 2 :
```

```
    r = a-b;
```

Start

Initialize -
new variable
with data type integer

Enter your choice

If choice = 1 & &
choice <= 0

Enter value of
and b

Output:

Enter your choice
2

Enter value of a b c d
10 .

-2

41

```
printf ("In %d - %d = %d ", a,b,r);
break;
case 3:
    r=a+b;
    printf ("In %d + %d = %d ", a,b,r);
    break;
case 4:
    r=a/b;
    printf ("In %d / %d = %d ", a,b,r);
    break;
default:
    printf ("In No operation");
    break;
}
getch();
```

8
04/02

Aim: Program to understand looping statements.

```
Program 1: Program to print even numbers from 1 to 100.
#include <stdio.h>
#include <conio.h>
void main()
{
    int i;
    clrscr();
    for (i=2; i<=100; i=i+2)
        printf ("odd It", i);
    getch();
}
```

Output:

2
4
6
8
10
12
14
16
18
20

42

Output:

1
1 2 .
1 2 3
1 2 3 4
1 2 3 4 5

Program 2

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

```
Void main()
```

```
{  
    int k, i, j;  
    clrscr();
```

```
    i = 1;
```

```
    while (i <= 5)
```

```
{  
    k = 1;
```

```
    while (k <= i)  
    {  
        printf("%d", k);  
        k++;
```

```
    }  
    printf("\n");  
    i++;  
}
```

```
getch();  
}
```

43

Program 3
~~#include <stdio.h>~~
~~#include <conio.h>~~

void main ()

{

int i, n, sum, x;

clrscr();

printf ("Enter the value of n ");

scanf ("%d", &n);

i = 1;

sum = 0;

do

x = j * 2;

if (x == 1)

sum = sum + x;

++i;

} while (i <= n);

printf ("\n The sum of all odd no are %d, sum),

} } }

Output :

Enter the value of n

The sum of all odd no are 25

Output:

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

45

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

{

```
int i, j;
```

```
clrscr();
```

```
for (i = 1 ; i <= 5 , i++)
```

```
{
```

```
for (j = 1 ; j <= i ; j++)
```

```
{
```

```
print ("* ");
```

```
}  
print ("\n");
```

```
getch();
```

✓

✓

Q5.

```
Program 5  
#include <stdio.h>  
#include <conio.h>  
void main ()  
{  
    int a, b, i, j;  
    clrscr();  
    a = i, j =  
    b = 0;  
    for (i = 3; i <= 20, i++)  
        b = a + b;  
    puts ("After", b);  
    a = 5  
    b = 1  
    getch();
```

Output:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Output

46

Practical 5

47

Output:

Enter the elements into array : 3

4
5
6
7

Entered array elements are : 3 4 5 6 7

sum of elements in : 25

1. write a program to find the sum of 5 numbers (array)
#include <stdio.h>
#include <conio.h>

void main()

int i, num[5], sum=0;

clrscr();

printf ("Enter the elements into array");

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

scanf ("%d", &num[i]);

printf ("\\n Entered array elements are ");

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

printf ("%d \\t", num[i]);

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

sum = sum + num[i];

printf ("\\n sum of element is : %d", sum);

getch();

Ex:

```
Program 2 : Largest number of 10 numbers  
#include <stdio.h>  
#include <conio.h>  
void main()  
{  
    int i, num[10], l;  
    clrscr();  
    printf ("Enter 10 values in array : ");  
    for (i=0; i<10; i++)  
        scanf ("%d", &num[i]);  
    l = num[0];  
    for (i=1; i<10; i++)  
        if (num[i] > l)  
            l = num[i];  
    if (l == num[0])  
        printf ("No positive value present in the given array");  
    else  
        printf ("Largest number is %d", l);  
}
```

Output

Enter the values into array

-55

22.

5.

-3

4.

11.

16

19

no positive value present in the given array is

49

Program 3 : positive number in the array

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

void main ()
{
    clrscr();
    int i, num[10], p;
    printf ("Enter the values into array");
    for (i=0; i<10, i++)
        scanf ("%d", &num[i]);
    p=0;
    for (i=1, p<10, i++)
    {
        if (num[i]>0)
            p=p+1;
    }
    printf ("%d is the no. of positive numbers", p);
    getch();
}
```

Q.:

4) find the no. of odd count

#include <stdio.h>

#include <conio.h>

void main()

{

clrscr();

int i, num[10], p;

printf ("Enter the values into array ");

for (i=0; i<10; i++)

scanf ("%d", &num[i]);

p=0;

for (i=0; i<10; i++)

{

if (num[i] % 2 != 0)

{

p=p+1;

}

}

printf ("The no. of odd numbers are %d", p);

getch();

Outer two values two array

50

no. of odd number is 5

Q1

Q1
Enter the values into array:

4

6

9

sorted array : 1 4 6 9

a) print array in ascending order

#include <cslib.h>

#include <iostream.h>

void main()

{

char c;

int i, j, num[5];

print ("Enter the values into array");

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

scanf ("%d", &num[i]);

for (j=0; j<5; j++) ,

for (j = 1 + 0; j < 5; j++)

{ if (num[i] > num[j])

i = num[i],

num[i] = num[j]

num[j] = i,

num[i] = j,

num[j] = i,

num[i] = j,

num[j] = i,

num[i] = j,

print (" sorted array ")

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

print ("%d At %d num[%d]");

getch();

Program 6 : Program to print matrix multiplication

Code :

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

```
void main()
```

```
{
```

```
clrscr(),
```

```
int x[3][3], y[3][3], z[3][3];
```

```
int i, r, c, k, t, j;
```

```
printf ("In outer element of matrix x : ");
```

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

```
{
```

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

```
{
```

```
scanf (" %d", &x[r][c]);
```

```
}
```

Enter elements of matrix y :

```
printf ("In outer elements of matrix y : ");
```

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

```
{
```

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

```
{
```

```
scanf ("%d", &y[r][c]);
```

```
}
```

printf (" In outer - the value of matrix y : ");

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

```
{
```

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

```
{
```

Enter elements of matrix y :

2
2
2
2
2
2

matrix : 7 12 10 16
27 24 24
48 42 42

Scanned with CamScanner

Scanned with CamScanner

```
scanf ("%d", &Y);
for (c=0 ; c<3 ; i++)
    for (c=0 ; c<3 ; i++)
        for (c=0 ; c<3 ; i++)
            t = t + x[i][c] * y[c][r];
        z = x[r][t];
        printf ("\n Matrix Z is ");
        for (r=0 ; r<3 ; i++)
            for (c=0 ; c<3 ; i++)
                p = 0;
                for (c=0 ; c<3 ; i++)
                    if (x[r][c] != 0)
                        p++;
                if (p == 1)
                    printf ("%d ", z);
                else
                    printf ("0 ");
            }
        printf ("\n");
    }
}
getch();
```

Ques. Program using string function

Program 1

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

User()

```
char w1[20], w2[20], w3[20], w4[20]
```

```
printf ("In Enter text of word :");
scanf ("%s %s %s %s", &w1, &w2, &w3, &w4);
printf ("In words - %s", w1);
printf ("In word 2 - %s", w2);
printf ("In words = %s", w3);
printf ("In word 4 = %s", w4);
```

getch();

output

Enter text of word : my name is Payal
 word 1. my
 word 2. name
 word 3. is
 word 4. Payal

output:

P
y
a
n
e
m
i
s
P
a
y
a
l

```
Program 2 :
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
    getch();
}
```

~~# output~~

~~user input of text "Hello World"~~

~~Hello World~~

```
char str[64] = "Parrot";
int i;
for (i = 0; i < 64; i++)
    printf("%c", str[i]);
```

~~getch();~~

~~Program3~~

```
#include < stdio.h>
#include < conio.h>
#include < string.h>
void main()
{
    clrscr();
    char t[20];
    printf("Enter user input of text : ");
    gets(t);
    puts(t);
    getch();
```

Program 4 : Read line of text using getch()

58

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

void main ()
{
    char s[80], p;
    clrscr();
    clrscr(), p;
    int k=0;
    printf ("\n Enter line of text = ");
    do
    {
        p = getch();
        s[k] = p;
        ++k;
    } while (p != '\n');
    s[k] = '\0';
    printf ("\n %s \n", s);
    getch();
}
```

Output
Enter the line of text : My name is skandam
My name is skandam

output

Enter string : ~~hump~~

Reverse string : ~~olleH~~

Program : Reverse a string using `strrev()`:

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

{

```
clrscr();
char h[10];
printf ("\n Enter string: ");
scanf ("%s", h);
strrev (h);
printf ("\n Reverse string : %s ", h);
getch();
```

18
7/5/22

Practical 7



Aim : Program using user-defined function.

-58

```
Program 1 :
#include <stdio.h>
#include <conio.h>
```

```
void circle (void);
```

```
void main ()
```

```
{
```

```
    clrscr();
```

```
    circle ();
```

```
    getch ();
```

```
void circle (void)
```

```
{
```

```
    int r;
```

```
    float a, c;
```

```
    printf ("\n Enter value of r = ");
```

```
    scanf ("%d", &r);
```

```
    a = 3.14 * r * r;
```

```
    c = 2 * 3.14 * r;
```

```
    printf ("Area = %f ", a);
```

```
    printf ("Circumference = %f ", c);
```

Output :

Enter value of r = 5

~~Area = 78.500000 .~~

~~Circumference = 31.400000 .~~

Program : Prints digits of the entered numbers

```
output :
Enter num : 5
Entered num : 5
5
```

```
#include <stdio.h>
#include <conio.h>
int get - no (void);
void main ()
{
    clrscr ();
    int n;
    n = get - no ();
    printf ("In Enter num = %d ", n);
    getch ();
}

int get - no (void)
{
    int num;
    printf ("Enter num = ");
    scanf ("%d", &num);
    return (num);
}
```

8



1. $\text{V}_o = \text{V}_i$ for small signals

2. $\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o$

3. $\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o$

4. $\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2$

5. $\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

6.

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

$\text{V}_o = \text{V}_i + \text{I}_o \cdot R_o + \frac{1}{2} \text{I}_o^2 \cdot r_o + \frac{1}{4} \text{I}_o^3 \cdot r_o^2 + \dots$

Program 4 : Average of 3 entered numbers

```
#include <conio.h>
# include <conio.h>
void average (int num);
void sum (int a, int b, int c);
void main()
{
    clrscr();
    cout<<"Enter value of x,y,z : ";
    int x,y,z;
    cin>>x>>y>>z;
    cout<<"Sum = " << sum(x,y,z) << endl;
    cout<<"Average = " << average(x,y,z) << endl;
}

int sum (int a,int b,int c)
{
    int s;
    s = a+b+c;
    return s;
}

void average (int sum)
{
    float average avg;
    avg = sum / 3.0;
    cout<<"Average : "% . 6 , avg );
}
```

output
Enter value of x,y,z : 4 6 9
Sum = 19
Average : 6.33333

Program 5 : Factorial of number using Recursion

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

```
#include <math.h>
```

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

```
int factorial (int n);
```

```
void main () {
```

```
clrscr();
```

```
int x, fact;
```

```
printf ("In Enter value of x : ");
```

```
scanf ("%d", &x);
```

```
fact = factorial (x);
```

```
printf ("In Factorial of %d = %d ", x, fact);
```

```
getch ();
```

```
int factorial (int n);
```

```
{
```

```
int b;
```

```
if (n == 1)
```

```
return (1);
```

```
else
```

```
b = n * factorial (n - 1);
```

```
return (b);
```

```
}
```

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

Practical 8

63

output

Enter rollno, name & total of student : 1759

Payal

180

~~Rollno: 1759
Name: Payal
Total: 180~~

- Aim : Program of Structures

Program 1: Student Structures

#

struct student

{

int rollno;

char name [20];

int total;

}

void main();

struct student X;

char c;

cout<<

" Enter name , rollno & total of student ";

cin>>

x;

cout<<

" Rollno = %d , %s . rollno) ;

cout<<

" Name = %s , & x.name) ;

cout<<

" Total = %d " , x.total);

getch();

Program 2 Employee comparison

65

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

```
struct employee
```

```
{ int eno, salary ; }
```

```
void main ()
```

```
{
```

```
struct employee n, y;
```

```
printf ("Enter no & salary");
```

```
scanf ("%d %d", &n.eno, &n.salary);
```

```
printf ("Enter no & salary :");
```

```
scanf ("%d %d", &y.eno, &y.salary);
```

```
if (n.eno == y.eno & n.salary == y.salary)
```

```
    printf ("Both are equal");
```

```
else if (n.eno == y.eno & n.salary != y.salary)
```

```
    printf ("Both are unequal");
```

```
else
```

```
    printf ("Both are equal");
```

```
else
```

```
    printf (" Both are unequal ");
```

```
getch();
```

Output

Enter no & salary : 5 15000

Enter no & salary : 4 25000

Both are equal

Enter no & salary : 5 15000

Both are unequal

```

# Program Fruit Structure Using Structure
#include <stdio.h>

struct fruit
{
    int price, qty, total;
    char name[10];
};

void main()
{
    struct fruit b[5];
    int k;
    clrscr();
    printf("Enter name, price & qty ");
    for (k = 0; k < 5; k++)
    {
        scanf("%s %d %d", &b[k].name, &b[k].price, &b[k].qty);
        b[k].total = b[k].price * b[k].qty;
    }
    for (k = 0; k < 5; k++)
    {
        printf("Name : %s, Price : %d, Qty : %d, Total : %d\n",
               b[k].name, b[k].price, b[k].qty, b[k].total);
    }
}

```

6.8
#include <stdio.h>
#include <conio.h>
#include <string.h>

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

char p-name[20], tname[20];

int average;

void main ()

scanf(),

struct cricket p[5], t;

int i, k, x;

putf ("In %d %s", &p[i], &p[i].name);

for (i=0; i<4; i++)

{ k=i+1; k<=5; k++)

{ for (x = stemp[i].tname, p[k].tname);

(x = stemp[i].tname, p[k].tname);

i) (x>0)

{ t = p[i];

p[i] = p[k];

p[k] = t; }

printf ("In teamwise player names: \n");

for (i = a; i < b; i++)

{ printf ("In %d %s \n", p[i].name, p[i].tname);

getch();

Output:
Enter records of 5 players

Teamwise Player	Player	Team	Age
ms Dhoni	India	100	
Shreyas	India	100	
Rishabh	India	100	
Rohit	India	100	
Rahane	India	100	

Output:

Rollno = 22

Name: Prakash

Salary = 500

Programs : Structure within structure

```
#include
#include <conio.h>
#include <iostream.h>
struct employee
{
    int id;
    char name[10];
    struct employee b;
    int salary;
};

void main()
{
    struct employee s={22,"prakash",500};
    cout<<"\n Rollno = " << s.id << "\t Name = " << s.name << "\t salary = " << s.salary;
}
```

~~25/02~~

Practical 9

58 Aim! Program on pointers in C language.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int a=12, b=4, x,y,*p,*q;
    p=&a;
    q=&b;
    x = *p + *q - 6;
    y = 4 * (*p - *q) + 10;
    printf ("In a=%d",a);
    printf ("In b=%d",b);
    printf ("In x=%d",x);
    printf ("In y=%d",y);
    getch();
}
```

59 output

a = 12
b = 4
x = 42
y = 43

68

Practical 9

Topic: Program on pointers in C language.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int a=12, b=4, x=4, *p, *q;
    p=&a;
    q=&b;
    x = *p + *q - 6;
    y = 4 * (*p - *q) + 10;
    printf ("In a=%d", a);
    printf ("In b=%d", b);
    printf ("In x=%d", x);
    printf ("In y=%d", y);
    getch();
}
```

output

a = 12
b = 4
x = 42
y = 42

→ output
sum =

process 2
includes $\text{sum} = \text{sum} + \text{val}$
includes $\text{sum} = \text{sum} + \text{val}$
void main()

3

classer []
 $i = 0, 1, 2, \dots, n - 1$ = [1, 2, 3, 4, 5, 6, 7, 8]

$F = \{x_i\}_{i=0}^{n-1}$

$f_i = (i = 0, 1, 2, \dots, n - 1)$

$E_{\text{sum}} = \text{sum} + p_1$

$p_1 = p_1 + 3$

$F = \{x_i\}_{i=0}^{n-1}$
 $f_i = (i = 0, 1, 2, \dots, n - 1)$

G_i

```

Program 4
#include <stdio.h>
#include <conio.h>
void exchange (int *a, int *b);
void main ()
{
    int x,y;
    x=10;
    y=20;
    printf ("\n Before exchange x=%d , y=%d",x,y);
    exchange (&x, &y);
    printf ("\n After exchange x=%d , y=%d",x,y);
    getch ();
    void exchange (int *a, int *b)
    {
        int t;
        t = *a;
        *a = *b;
        *b = t;
    }
}

```

Before exchange $x=10$, $y=20$
 After exchange $x=2$, $y=10$

output
 $x=30$

Program 3

```
#include <stdio.h>
#include <conio.h>
void change (int *p)
void main ()
{
    clrscr();
    int x = 20;
    change (&x);
    printf ("In x=%d", x);
    getch();
}

void main (int *p)
{
    *p = *p + 10;
```

250

Practical 10

Program 5
Aim: Program on file handling

#Program 1 : open file → write & close file.

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
int main()
{
FILE *fp;
char data[50];
printf ("Opening the file test.c in write mode");
fp = fopen ("test.c", "w");
if (fp == NULL)
{
printf ("could not open file test.c");
return 1;
}
printf ("In Enter some text from keyboard to write in file");
while (scanf ("%s", data) > 0)
{
fputs (data, fp);
fputs ("\n", fp);
}
printf ("Closing the file test.c");
fclose (fp);
return 0;
}
```

72

Output :

Opening the file test.c in write mode
Enter some text from keyboard to write in file test.c
Hi How are you doing?
closing the file test.c

735

Output

Name : Fresh2refresh

Age : 5

Total number of characters in file is 15

73

Program 2 :

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

```
int main ()
```

```
{ char name [20];
```

```
int age, length;
```

```
FILE * fp;
```

```
fp = fopen ("text.txt", "w");
```

```
fprintf (fp, "%s %d", "Fresh2refresh", 5);
```

```
length = tell (fp);
```

```
rewind (fp)
```

```
fscanf (fp, "%d", &age);
```

```
fscanf (fp, "%s", &name);
```

```
close (fp)
```

```
printf ("Name : %s \n age : %d \n", name, age);
```

```
printf ("Total numbers of characters in file is %d", length)
```

```
return 0;
```

```
}
```

10
✓✓✓✓