Program-1

// WAP to print the elements of an array.

input →

```
#include <stdio.h>
#include <conio.h>
void main()
{
int a[5]={1,2,3,4,5};
clrscr();
        printf("%d\n", a[0]);
        printf("%d\n", a[1]);
        printf("%d\n", a[2]);
        printf("%d\n", a[3]);
        printf("%d\n", a[4]);
getch();
}
```

output →

```
1
2
3
4
5
```

Date .....

Program-2

// WAP to show the error of too many intializa

input →

```
#include <stdio.h>
#include <conio.h>
void main()
{
 int a[5] = {1, 2, 3, 4, 5, 6};
 clrscr();
   printf("%d\n", a[0]);
   printf("%d\n", a[1]);
   printf("%d\n", a[2]);
   printf("%d\n", a[3]);
   printf("%d\n", a[4]);
 getch();
}
```

compile error -

Too many intialization.

Program- 3

// WAP to ~~initializes~~ the program of an array with different types of intialization.

ⓐ int a[5] = {1, 2, 3};

ⓑ int a[] = {1, 2, 3, 4, 5};

ⓐ input -

```
#include <stdio.h>
#include <conio.h>
void main()
{
 int a[5] ={1, 2, 3};
 clrscr();
    printf("%d\n", a[0]);
    printf("%d\n", a[1]);
    printf("%d\n", a[2]);
    printf("%d\n", a[3]);
    printf("%d\n", a[4]);
 getch();
}
```

output -

```
1
2
3
0
0
```

ⓑ input -

```
#include <stdio.h>
#include <conio.h>
void main()
{
 int a[] = {1, 2, 3, 4, 5};
```

Date .....

```
clrscr();
    printf("%d\n", a[0]);
    printf("%d\n", a[1]);
    printf("%d\n", a[2]);
    printf("%d\n", a[3]);
    printf("%d\n", a[4]);
getch();
}
```

output -

1
2
3
4
5

Program-4

// WAP to insert and print array elements at run time.

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a[20], n, i;
  clrscr();
    printf(" Enter the size of array a[] = ");
      scanf("%d", &n);
    printf(" Enter the element of array a[%d] = ", n);
    for(i=0; i<n; i++)
    {
        scanf("%d", &a[i]);
    }
```

```
    printf(" Element of array a[%d] = \n", n);
    for( i=0 ; i<n ; i++)
    {
        printf("%d\n" , a[i]);
    }
    getch();
}
```

output -

Enter the size of array a[] = 5

Enter the element of array a[5] =

1
2
3
4
5

Element of array a[5] =

1
2
3
4
5

Program - 5

// WAP to print the address of each ~~array~~ element.

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[5] = {1, 2, 3, 4, 5};
clrscr();
```

```
printf("%ou\n", &a[0]);
printf("%ou\n", &a[1]);
printf("%ou\n", &a[2]);
printf("%ou\n", &a[3]);
printf("%ou\n", &a[4]);
getch();
}
```

output-

```
65516
65518
65520
65522
65524.
```

By loop

input

```
#include <stdio.h>
#include <conio.h>
void main()
{
int a[5] = {1,2,3,4,5};
int i;
clrscr();
for(i=0; i<5; i++)
{
printf("%ou", &a[i]);
}
getch();
```

output-

```
65516
65518
65520
65522
65524
```

Program-6

// WAP to print the size of array elements and complete array also.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int a[5] = {1,2,3,4,5};
  clrscr();
   printf("%d\n", sizeof(a[0]));
   printf("%d\n", sizeof(a[1]));
   printf("%d\n", sizeof(a[2]));
   printf("%d\n", sizeof(a[3]));
   printf("%d\n", sizeof(a[4]));
   printf("Size of complete array a[5]=%d",
                                  sizeof(a));
  getch();
}
```

Output.

2
2
2
2
2

Size of complete array a[5] = 20

by loop

input:

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

8

```
{
 int  a[5] = 1,2,3,4,5;
 int  i;
 clrscr();
  for(i=0;i<5;i++)
  {
    printf("%d\n", sizeof(a[i]));
  }
  printf(" Size of complete array a[5] = %d",
                                  sizeof(a));

  getch();
}
```

Output-

2
2
2
2
2

Size of complete array a[5] = 20

Program- 7

// WAP to find the length of an array

input

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int  a[5] = 1,2,3,4,5;
 clrscr();
      printf(" length of an array = ");
      printf("%d", sizeof(a)/ sizeof(a[0]));
 getch();
}
```

output -

length of an array = 5

Program-8

// WAP to add the elements of array.

or// // WAP to find the sum of array elements.

input -

```
#include <stdio.h>
#include <conio.h>
void main( )
{
  int a[20], n, i, sum=0;
  clrscr();
     printf(" Enter the size of array a[ ]=");
      scanf(" %d", &n);
  printf(" Enter the element of array a[%d] =", n);
  for( i=0 ; i <n ; i++)
   {
      scanf("%d ", & a[i]);
   }
  printf(" Element of array a [%d] = ", n);
  for( i =0; i<n ; i++)
  {
     printf(" %d \n" , a[i]);
     sum = sum + a[i];
  }
  printf(" Sum of array a[%d] = %d ", n, sum);
  getch();
}
```

output -

Enter the size of array a[ ] = 5

Enter the element of array a[5] = 1

2
3
4
5

Element of array a[5] = 1
2
3
4
5

Sum of array a[5] = 15

Program - 9

// WAP to find even or odd of array element

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a[20], n, i;
    clrscr();
      printf(" Enter the size of array a[]=");
        scanf("%d", &n);
    printf(" Enter the element of array a[%d] = ", n);
    for( i=0; i<n ; i++)
    {
        scanf(" %d", & a[i]);
    }
    for(i=0 ; i<n; i ++)
    {
        printf(" Your element = %d ", a[i]);
        if( a[i] % 2 == 0)
        {
```

```
        printf("\n%d is even\n", a[i]);
    }
    else
    {
        printf("\n%d is odd\n", a[i]);
    }
  }
  getch();
}
```

Output-

```
Enter the size of array a[] = 5
Enter the element of array a[5] = 1
 2
 3
 4
 5
Your element = 1
 1 is odd
Your element = 2
 2 is even
Your element = 3
 3 is odd
Your element = 4
 4 is even
Your element = 5
 5 is odd
```

Date .....

Program-10

// WAP to sum array elements with functions.

input-

```
#include<stdio.h>
#include<conio.h>
void input();
void output();
void sum();
void main();
{
  clrscr();
  input();
  output();
  sum();
  getch();
}
void input()
{
  int a[7], i;
  printf(" Enter your elements =\n");
    for(i=0;i<7;i++)
    {
      scanf(" %d ",&a[i]);
    }
}
void output()
{
  int a[7], i;
  printf(" Your elements are =\n");
   for(i=0; i<7; i++)
   {
     printf(" %d \n", a[i]);
   }
}
```

```
void sum( )
{
  int a[7], i, sum=0;
   for( i=0; i<7; i++)
   {
      sum = sum + a[i];
   }
      printf(" Sum = %d ", sum);
}
```

Output -

```
Enter your elements =
  1
  2
  3
  4
  5
  6
  7
Your elements are =
  1
  2
  3
  4
  5
  6
  7
Sum = 28
```

Date .....

Program-11

// WAP to find even or odd of array elements with function.

input-

```
#include <stdio.h>
#include <conio.h>
void input();
void output();
void evenodd();
void main()
{
  clrscr();
  input();
  output();
  evenodd();
  getch();
}
void input()
{
  int a[7],i;
  printf(" Enter your elements=\n");
    for(i=0; i<7;i++)
    {
      scanf("%d", &a[i]);
    }
}
void output()
{
  int a[7],i;
  printf(" Your elements are=\n");
  for(i=0; i<7; i++)
  {
```

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

void evenodd()
{
        int a[7], i;
        for(i=0; i<7; i++)
        {
         if(a[i]%2==0)
         {
           printf("%d is even\n", a[i]);
         }
         else
         {
           printf("%d is odd\n", a[i]);
         }
        }
}
```

output -

```
Enter your elements =
  1
  2
  3
  4
  5
  6
  7
Your elements are =
  1
  2
  3
  4
```

Date .....

```
5
6
7
1 is odd
2 is even
3 is odd
4 is even
5 is odd
6 is even
7 is odd
```

Program-12

// WAP to reverse order element of an array.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a[5], i;
  clrscr();
   printf(" Enter your elements =\n");
      for(i=0; i<5; i++)
      {
         scanf("%d", &a[i]);
      }
  printf(" Your elements before reverse order=\n");
   for(i=0; i<5; i++)
   {
      printf(" a[%d] = %d\n", i+1, a[i]);
   }
  printf(" Reverse order element of an array =\n");
   for (i=4; i>=0; i--)
```

```
{
    printf(" a[%d] = %d\n", i+1, a[i]);
}
getch();
}
```

Output -

Enter your elements =
1
2
3
4
5

Your elements before reverse order =
a[1] = 1
a[2] = 2
a[3] = 3
a[4] = 4
a[5] = 5

Reverse order element of an array =
a[5] = 5
a[4] = 4
a[3] = 3
a[2] = 2
a[1] = 1

Program-13

// WAP to reverse element of an array with function.

input-

```
#include<stdio.h>
#include<conio.h>
void input(int [ ], int);
void output(int [ ], int);
void rev(int [ ], int);
void main( )
{
   int  a[20], n;
   clrscr( );
      printf("Enter the size of array = ");
         scanf(" %d", & n);
      input (a,n);
      output (a, n);
      rev(a,n);
   getch( );
}
void input(int a[ ], int n)
{
   int i;
   printf(" Enter the element of array= ");
      for(i=0 ; i<n; i++)
      {
         scanf(" %d", & a[i]);
      }
}
void output(int a[ ], int n)
{
   int i;
   printf(" Before Reverse, The element of array=\n");
```

```
    for(i=0; i<n; i++)
    {
        printf("%d\n", a[i]);
    }
}
void rev(int a[], int n)
{
    int i,temp;
    for(i=0; i<n/2; i++)
    {
        temp = a[n-i-1];
        a[n-i-1] = a[i];
            a[i] = temp;
    }
    printf(" After Reverse, element of array = \n");
    for(i=0; i<n; i++)
    {
        printf("%d\n", a[i]);
    }
}
```

Output -

Enter the size of array = 5
Enter the element of array =
1
2
3
4
5
Before Reverse, The element of array
1
2
3

4
5
After Reverse, element of array =
5
4
3
2
1

Program - 14

//WAP to find minimum element of an array.

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a[20], i, n, min;
  clrscr();
    printf(" Enter the size of an array = ");
      scanf(" %d", &n);
    printf(" Enter the elements of an array = \n");
     for(i=0; i<n; i++)
     {
        scanf(" %d", &a[i]);
     }
  printf(" Elements are = \n");
   for (i=0; i<n; i++)
    {
       printf(" %d \n", a[i]);
    }
  min = a[0];
  for (i=0; i<n; i++)
```

```
{
    if (a[i] < min)
    {
        min = a[i];
    }
}
printf(" Minimum element is = %d ", min);
getch();
}
```

output-

Enter the size of an array = 5
Enter the elements of an array =
1
-2
3
0
-3
Elements are =
1
-2
3
0
-3
Minimum element is = -3

Program - 15

// WAP to find maximum element of an array

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a[20], i, n, max;
  clrscr();
    printf(" Enter the size of an array = ");
        scanf("%d", &n);
    printf(" Enter the elements of an array =\n");
     for(i=0; i<n; i++)
     {
        scanf("%d", &a[i]);
     }
    printf(" Elements are = \n");
     for(i=0; i<n; i++)
     {
        printf(" %d\n", a[i]);
     }
    max = a[0];
    for(i=0; i<n; i++)
     {
        if(a[i] > max)
        {
           max = a[i];
        }
     }
    printf(" Maximum element is = %d", max);
  getch();
}
```

Output

Enter the size of an array = 5
Enter the elements of an array:
61
0
52
-13
95
Elements are =
61
0
52
-13
95
Maximum element is = 95

Program -16

Q WAP to find max & min element of an array using function

input -

```
#include< stdio.h>
#include< conio.h>
void input(int arr[], int);
void output(int arr[], int);
int min(int arr[], int);
int max(int arr[], int);
void main()
{
  int c, d, arr[20], n;
  clrscr();
    printf(" Enter the size of an array = ");
        scanf("%d", &n);
  input(arr, n);
```

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```
    output(arr, n);
    c = max(arr, n);
    d = min(arr, n);
    printf("\n The maximum value is = %d", c);
    printf("\n The minimum value is = %d", d);
    getch();
}

void input(int arr[], int n)
{
  int i;
  printf(" Enter the array elements =\n");
      for(i=0; i<n; i++)
      {
        scanf("%d", &arr[i]);
      }
}

void output(int arr[], int n)
{
  int i;
  printf("\n All the array elements are =\n");
    for( i=0; i<n; i++)
    {
      printf("%d\n", arr[i]);
    }
}

int min(int arr[], int n)
{
  int i, min;
  min = arr[0];
    for(i=0; i<n; i++)
    {
      if(arr[i] < min)
```

```
        {
          min = arr[i];
        }
      }
    return(min);
}
int max(int arr[ ], int n)
{
  int i, max;
  max = arr[0];
      for(i=0; i< n; i++)
        {
          if(arr[i] > max)
          max = arr[i];
        }
    return(max);
}
```

Output-

```
Enter the size of an array = 5
Enter the array elements
  6
 -5
  0
 69
 -1
All array elements are =
  6
 -5
  0
 69
 -1
The maximum value is 69
The minimum value is -5
```

Program - 17

// WAP to sum the even and odd elements of array using function.

input -

```
#include<stdio.h>
#include<conio.h>
void input(int [],int)
void output(int [],int)
int even_sum(int [], int)
int odd_even(int [], int)
void main()
{
 int n, a[20], c, d;
clrscr();
    printf(" Enter the size of an array:");
        scanf(" %d", &n);
 input(a,n)
 output(a,n)
    c = even_sum(a, n);
    d = odd_sum(a,n);
printf(" Sum of even elements : %d\n", c);
printf(" Sum of odd elements : %d\n", d);
 getch();
}

void input(int a[], int n)
{
  int i;
  printf(" Enter the elements of an array :\n");
    for(i=0; i<n; i++)
    {
        scanf(" %d", &a[i]);
    }
}
```

```
void output(int a[], int n)
{
  int i;
  printf(" The elements of an array are: \n");
    for(i=0; i < n; i++)
    {
      printf(" %d \n", a[i]);
    }
}
int even_sum(int a[], int n)
{
  int i, evensum = 0;
    for(i=0; i< n; i++)
    {
      if(a[i] % 2 == 0)
      {
        evensum += a[i];
      }
    }
    return(evensum);
}
int odd_sum(int a[], int n)
{
  int i, oddsum = 0;
    for(i=0; i < n; i++)
    {
      if(a[i] % 2 != 0)
      {
        oddsum += a[i];
      }
    }
    return(oddsum);
}
```

Output -

Enter the size of an array : 5
Enter the elements of an array :
1
2
3
4
5
The elements of an array are :
1
2
3
4
5
Sum of even elements : 6
Sum of odd elements : 9

Program - 18

// WAP to count the even or odd elements of array with function.

input -

```
#include<stdio.h>
#include<conio.h>
void input(int a[],int);
void output(int a[],int);
int even_count(int a[],int);
int odd_count(int a[], int);
{
int a[20], n, e, d;
clrscr();
printf(" Enter the size of an array = ");
scanf("%d", &n);
```

```
input(a,n);
output(a,n);
c = even_count(a,n);
d = odd_count(a,n);
printf("The count of even element is = %d\n", c);
printf("The count of odd element is = %d\n", d);
getch();
}

void input(int a[], int n)
{
 int i;
 printf("Enter the elements of an array = \n");
   for(i=0;i<n;i++)
   {
      scanf("%d", &a[i]);
   }
}

void output(int a[], int n)
{
  int i;
    printf("The elements of an array are = \n");
      for(i=0; i<n; i++)
      {
         printf("%d\n", &a[i]);
      }
}
int even_count(int a[], int n)
{
   int i, evencount=0;
    for(i=0;i<n;i++)
    {
       if(a[i]%2==0)
```

```
    {
      evencount++;
    }
  }
  return(evencount);
}
int odd_count(int a[], int n)
{
  int i, oddcount=0;
    for(i=0; i<n; i++)
    {
      if(a[i]%2 != 0)
      {
        oddcount++;
      }
    }
  return(oddcount);
}
```

<u>output</u> →

```
Enter the size of an array =
  1
  2
  3
  4
  5
The elements of an array are =
  1
  2
  3
  4
  5
The count of even elements is 2
The count of odd elements is 3
```

Program-19

// WAP to print arrays of even and odd elements of an array.

input-

```
#include <stdio.h>
#include <conio.h>
void input(int [], int );
void output(int [], int);
void even_odd(int [], int);
void main( )
{
 int n, a[20];
 clrscr();
   printf(" Enter the size of an array = ");
      scanf("%d", &n);
      input(a,n);
      output(a,n);
      even_odd(a,n);
 getch();
}
void input(int a[], int n)
{
  int i;
   printf(" Enter the elements of an array = \n");
      for(i=0; i<n; i++)
      {
          scanf(" %d", &a[i]);
      }
 }
void output(int a[], int n);
{
  int i;
```

```
    printf("The elements of an array are = \n");
    for(i=0; i<n; i++)
    {
        printf(" %d \n", a[i]);
    }
}
void even-odd(int a[], int n);
{
  int i, even[15], odd[15], j=0, k=0;
    printf("The Array even elements = \n");
    for(i=0; i<n; i++)
    {
        if(a[i]% 2 == 0)
        {
            even[j]=a[i];   j++;
        }
    printf("%d\n", even[j]);
    }
    printf("The Array of odd elements = \n");
    for(i=0; i<n; i++)
    {
        if(a[i]%2 != 0)
        {
            odd[k]=a[i];   k++;
        }
    printf(" %d\n", odd[k]);
    }
}
```

output-

```
Enter the size of an array = 10
Enter the elements of an array =
1
```

2
3
4
5
6
7
8
9
10

The elements of an array are=
1
2
3
4
5
6
7
8
9
10

The Array of even elements=
2
4
6
8
10

The Array of odd elements=
1
3
5
7
9

Program-20

// WAP to add two arrays using function

input-

```
#include<stdio.h>
#include<conio.h>
void input(int a[], int b[], int n);
void output(int a[], int b[], int n);
void addarr(int a[], int b[], int n);
void main()
{
  int a[10], b[12], n;
  clrscr();
    printf("Enter the size of an array=");
      scanf("%d", &n);
    input(a, b, n);
    output(a, b, n);
    addarr(a, b, n);
    getch();
}
void input(int a[], int b[], int n)
{
  int i;
    printf("Enter the elements of array a:\n");
    for(i=0; i<n; i++)
    {
      scanf("%d", &a[i]);
    }
    printf("Enter the elements of array b:\n");
    for(i=0; i<n; i++)
    {
      scanf("%d", &b[i]);
    }
}
```

```
void output(int a[], int b[], int n)
{
  int i;
  printf(" Elements of array a: ");
  for(i=0; i<n; i++)
  {
    printf(" %d\n", a[i]);
  }
  printf(" Elements of array b: ");
  for(i=0; i<n; i++)
  {
    printf(" %d \n", b[i]);
  }
}
void addarr(int a[], int b[], int n)
{
  int i;
  printf(" Sum of array a and b: \n");
  for(i=0; i<n; i++)
  {
    printf(" %d + %d = %d \n", a[i], b[i], a[i]+b[i]
  }
}
```

Output-

```
Enter the size of an array = 5
Enter the elements of array a:
 1
 2
 3
 4
 5
Enter the elements of array b:
```

6
7
8
9
10

Elements of array a:
1
2
3
4
5

Elements of array b:
6
7
8
9
10

Sum of array a and b:
1 + 6 = 7
2 + 7 = 9
3 + 8 = 11
4 + 9 = 13
5 + 10 = 15

Program - 21

// WAP to display names of days of a week using single dimensional array having length of 7.

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
int day[7], i;
clrscr();
for(i=0; i<=6; i++)
{
  printf("Enter the no.(1-7) to print week day=");
  scanf("%d", &day[i]);
 switch(day[i])
 {
  case 1:
      printf("%d is Sunday\n", day[i]);
      break;
  case 2:
      printf("%d is monday\n", day[i]);
      break;
  case 3:
      printf("%d is Tuesday\n", day[i]);
      break;
  case 4:
      printf("%d is wednesday\n", day[i]);
  break;
  case 5:
      printf("%d is Thursday\n", day[i]);
      break;
  case 6:
      printf("%d is Friday\n", day[i]);
      break;
```

```
    case 7:
            printf("%d is Saturday\n", day[i]);
            break;
    default:
            printf(" Invalid choice");
    }
}
```

Output-

Enter the no. (1-7) to print weekday = 1
1 is Sunday
Enter the no. (1-7) to print weekday = 7
7 is Saturday
Enter the no. (1-7) to print weekday = 5
5 is Thursday.
Enter the no. (1-7) to print weekday = 3
3 is Tuesday
Enter the no. (1-7) to print weekday = 10
Invalid choice
Enter the no. (1-7) to print weekday = 6
6 is Friday
Enter the no. (1-7) to print weekday = 2
2 is Monday

Program - 22

// WAP to delete an element by index.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int i, a[20], n, loc, pos;
 clrscr();
   printf(" Enter the size of an array = ");
      scanf(" %d ", &n);
   printf(" Enter the element of an array = \n");
     for(i=0; i<n; i++)
     {
        scanf(" %d ", &a[i]);
     }
   printf(" Enter the position w/c you want to delete = ");
      scanf(" %d ", &pos);
   loc = pos-1;
   for(i=loc; i<n-1; i++)
   {
     a[i] = a[i+1];
   }
   n--;
   for(i=0; i<n-1; i++)
   {
      printf(" %d \n", a[i]);
   }
 getch();
}
```

output-

Enter the size of an array = 5
Enter the element of an array =

8
6
7
12
10

Enter the position w/c you want to delete = 3

8
6
12
10

Program - 23

// WAP to delete an element by value.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int i, a[20], n, val;
 clrscr();
    printf(" Enter the size of an array = ");
      scanf(" %d ", &n);
   printf(" Enter the element of an array : \n ");
   for(i=0; i<n; i++)
   {
      scanf(" %d ", &a[i]);
   }
printf(" Enter the value w/c you want to delete = ");
   scanf(" %d ", &val);
for(i = 0; i <n ; i++)
{
   if(a[i] == val)
```

```
        {
            for(; i < n-1; i++)
            {
                a[i] = a[i+1];
            }
            n--;
        }
    }
    printf(" Now, the elements of an array = \n");
    for(i=0; i<n; i++)
    {
        printf("%d\n", a[i]);
    }
    getch();
}
```

Output-

```
Enter the size of an array = 5
Enter the elements of an array=
  7
  9
  6
  3
  4
Enter the value you want to delete = 3
Now, Elements of an array=
  7
  9
  6
  4
```

Program - 24

// WAP to delete an element from an array by index or value using function.

input-

```
#include <stdio.h>
#include <conio.h>
int n;
void deletion-by-position(int a[], int pos)
{
  int i;
   for(i=pos-1; i<n; i++)
   {
     a[i] =a[i+1];
   }
   n--;
   for(i=0; i<n; i++)
   {
     printf("%d\n", a[i]);
   }
}
void deletion_by_value(int a[], int value)
{
 int i;
 for(i=0; i<n; i++)
 {
   if (i=0; i<n; i++)
   {
     a[i] = a[i+1];
   }
 }
 n--;
for(i=0; i<n; i++)
{
```

```
        printf("%d\n", a[i]);
    }
}
void print_array(int a[])
{
    int i;
        printf("\n[");
        for(i=0; i<n; i++)
        {
            printf("%d  ", a[i]);
        }
        printf("]\n");
}
void input_array(int a[])
{
    int i;
    for(i=0; i<n; i++)
    {
        printf("%d:", i+1);
        scanf("%d", &a[i]);
    }
}
void main()
{
    int pos, value, a[10], choice;
    clrscr();
    printf("Enter the size of an array:");
    scanf("%d", &n);
    printf("Enter the elements of an array:\n");
    input_array(a);
    printf("Elements of an array=\n");
    print_array(a);
```

```
printf(" You can delete an element by position or value.");
printf("\n1. delete by position.");
printf("\n 2. delete by value.");
printf(" Enter your choice:");
 scanf(" %d", &choice);
switch(choice)
{
 case 1:
 {
    printf(" Enter the position of the element to be
                deleted: ");
      scanf(" %d",&pos);
      deletion-by-position(a,pos);
      break;
 }
 case 2: {
      printf(" Enter the value of the element to be deleted:");
        scanf(" %d ", &value);
      deletion-by-value(a, value);
      break;
 }
default: printf("\n Invalid choice");
}
getch();
exit();
}
```

<u>output 1-</u>

Enter the size of an array: 5
Enter the elements of an array:
1: 1
2: 2
3: 3

4:4
5:5
Elements of an array =
[1 2 3 4 5]
You can delete an element by position or value.
1. delete by position.
2. delete by value
Enter your choice : 1
Enter the position of the element to be deleted : 3
1
2
4
5

Output-2
Enter the size of an array : 5
Enter the elements of an array :
1:1
2:2
3:3
4:4
5:5
Elements of an array =
[1 2 3 4 5]
You can delete an element by position or value.
1. delete by position
2. delete by value
Enter your choice : 2
Enter the value of element to be deleted : 4
1
2
3
5

Program-25

// WAP to insert an element in an array.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int v, p, i, n, a[15];
 clrscr();
   printf(" Enter the size of an array = ");
    scanf(" %d ", &n);
   printf(" Enter the elements of an array = \n");
   for(i = 0; i < n; i++)
   {
     scanf(" %d ", &a[i]);
   }
   printf(" Elements of an array before insert the
                                    value = \n");
   for(i = 0; i < n; i++)
    {
      printf(" %d ", a[i]);
      printf(" \n ");
    }
 printf(" Enter the value w/c you want to insert = ");
    scanf(" %d ", &v);
 printf(" Enter the position where you want to insert
                                  your value = \n");
    scanf(" %d ", &p);
 for(i = n; i! = p; i++)
 {
   a[i] = a[i-1];
 }
  a[p] = v;
```

```
n++;
printf("Elements of an array after insert the value = \n");
    for(i=0; i<n; i++)
    {
        printf("%d\n", a[i]);
    }
  getch();
}
```

Output-

Enter the size of an array = 5
Enter the elements of an array =
9
10
11
12
13
Elements of an array before insert the value =
9
10
11
12
13
Enter the value w/c you want to insert = 64
Enter the position where you want to insert your value = 3
Elements of an array after insert the value =
9
10
64
11
12
13

Program-26

// WAP to searching and count an element by linear search.

input-

```
# include <stdio.h>
# include <conio.h>
void main()
{
  int  a[15], n, i, value, count;
  clrscr();
    printf(" Enter the size of an array = ");
      scanf(" %d", &n);
  printf(" Enter the elements of an array = \n");
    for(i=0; i<n; i++)
    {
      scanf(" %d", &a[i]);
    }
  printf(" Elements of an array = \n");
   for(i=0; i<n; i++)
   {
      printf("%d \n", a[i]);
   }
  printf(" Enter the value w/c you want to search
                                and count also = ");
    scanf(" %d ", &value);
  for(i=0; i<n; i++)
  {
    if (a[i] == value)
    {
      printf(" %d is found at location %d \n", a[i],
                                        i+1);

      count++;
    }
}
```

```
    printf("%d is found %d times", value, count);
  getch();
}
```

Output-

Enter the size of an array = 5
Enter the elements of an array=
65
72
51
51
51
Elements of an array=
65
72
51
51
51
Enter the value w/c you want to search and count also = 51

51 is found at location 3
51 is found at location 4
51 is found at location 5
51 is found 3 times.

Program-27

// WAP to searching an element by binary search.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int a[20], n, f=0, mid, i, search, l;
 clrscr();
   printf(" Enter the size of an array= ");
     scanf(" %d ", &n);
    for(i=0; i<n; i++)
    {
       scanf(" %d ", &a[i]);
    }
    printf(" Elements of an array = \n ");
     for(i=0; i<n; i++)
     {
       printf(" %d \n ", a[i]);
     }
  printf(" Enter the element w/c you want to search=");
     scanf(" %d ", &search);
  l=n-1;
 mid = (f+l)/2;
 while (f<=l)
 {
  if( a[mid]==search)
  {
   printf(" %d is found at location %d ", search, mid+1);
    break;
  }
 else if( a[mid] < search)
 {
```

```
        f = mid + 1;
        mid = (f+l)/2;
      }
      else
      {
          l = mid - 1;
          mid = (f+l)/2;
      }
    }
    if (f>l)
        printf(" %d is not found ", search);
  getch();
}
```

<u>output-1-</u>

Enter the size of an array = 5
Enter the elements of an array=
61
-1
3
2
3
Elements of an array=
61
-1
3
2
3
Enter the element w/c you want to search = 4
4 is not found.

<u>output 2-</u>

Enter the size of an array = 5
Enter the elements of an array ?

61
-1
3
2
3
Elements of an array =
61
-1
3
2
3
Enter the element w/c you want to search = 3
3 is found at location 3
3 is found at location 5

Program-28

// WAP to ~~array~~ print an array in ascending order by bubble sort.

input -

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

```
printf(" Elements before bubble sort \n");
    for(i=0; i<n; i++)
    {
        printf(" %d\n", a[i]);
    }
printf(" Elements after bubble sort in ascending order")
    for (i=0; i<n; i++)
    {
        for( j=0; j<n-i; j+1)
        {
            if(a[j] > a[j+1])
            {
                temp = a[j];
                a[j] = a[j+1];
                a[j+1] = temp;
            }
        }
    }
    for( i=0; i<n; i++)
    {
        printf(" %d\n", a[i]);
    }
    getch();
}
```

<u>output-</u>

Enter the size of an array = 5
Enter the element of an array =
13
57
39
15
37

Element before bubble sort
13
57
39
15
37
Element after bubble sort in ascending order
13
15
37
39
57

Program-29

// WAP to arrange an array in descending order by bubble sort.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int i, j, temp, a[15], n;
 clrscr();
  printf(" Enter the size of an array= ");
     scanf(" %d ", &n);
 printf(" Enter the element of an array = \n");
  for(i=0; i<n; i++)
  {
     scanf(" %d ", &a[i]);
  }
printf(" Element before bubble sort \n");
  for(i=0; i<n; i++)
```

```
{
    printf("%d \n", a[i]);
}
printf(" Elements after bubble sort in descending
                                    order \n");
for(i=0; i<n; i++)
{
    for( j=0; j<n; j++)
    {
        if (a[j] < a[j+1])
        {
            temp = a[j];
            a[j] = a[j+1];
            a[j+1] = temp;
        }
    }
}
for(i =0; i<n; i++)
{
    printf("%d \n", a[i]);
}
getch();
}
```

<u>output-</u>

```
Enter the size of an array = 5
Enter the elements of an array =
 41
 12
 96
 -1
 0
Element before bubble sort
```

41
12
96
-100
0

Element after bubble sort in descending order.
96
41
12
0
-100

Program - 30

// WAP to arrange an array in ascending order by selecting sort.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
int a[15], n, i, j, min, temp;
clrscr();
printf(" Enter the size of an array = ");
    scanf("%d", &n);
printf(" Enter the element of an array = \n");
for(i=0; i<n; i++)
{
  scanf("%d", &a[i]);
}
printf(" Elements before selecting sort \n");
for(i=0; i<n; i++)
{
```

```
    printf("%d\n", a[i]);
  }
printf("Elements after selecting sort in ascending
                                    order\n");
  for(i=0; i<n; i++)
  {
    min=i;
    for(j=i+1; j<n; j++)
    {
      if (a[j] < a[min])
      {
        min=j;
      }
      temp= a[i];
      a[i] = a[min];
      a[min] = temp;
    }
  }
  for(i=0; i<n; i++)
  {
    printf("%d\n", a[i]);
  }
  getch();
}
```

Output

Enter the size of an array = 5
Enter the elements of an array =

12
34
11
9
-67

Elements before selecting sort
12
34
11
9
-67

Elements after selecting sort in ascending order
-67
9
11
12
34

Program-31

// WAP to arrange an array in descending order by selecting sort.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
int a[15], n, i, j, max, temp;
clrscr();
printf(" Enter the size of an array=");
scanf(" %d", &n);
printf(" Enter the elements of an array=\n");
for(i=0; i<n; i++)
{
    scanf("%d", &a[i]);
}
printf(" Element before selecting sort\n");
for(i=0;i<n;i++)
```

```
{
    printf("%d\n", a[i]);
}
printf("Elements after selecting sort in descending
                                order=\n");
for(i=0; i<n-1; i++)
{
    max=i;
    for(j=i+1; j<n; j++)
    {
        if(a[j]>a[max])
        {
            max=j;
        }
        temp = a[i];
        a[i] = a[max];
        a[max]=temp;
    }
}
for(i=0; i<n; i++)
{
    printf("%d \n", a[i]);
}
getch();
}
```

<u>output</u>

Enter the size of an array = 5
Enter the elements of an array =
-100
69
0

-31
1

Elements before selecting sort

-100
69
0
-31
1

Elements ~~after~~ selecting sort in descending order=

69
1
0
-31
-100

Date .....

S.No	Program	P.N	T.S
1.	WAP to prints the elements of an array	1	
2.	WAP to show the error of too many intialization	2	
3.	WAP to initializes the program of an array with different types of intialization		
	ⓐ int a[5] = {1,2,3};	3	
	ⓑ int a[] = {1,2,3,4,5};	3	
4.	WAP to insert and print array elements at run time	4	
5.	WAP to print the address of each array element	5	
6.	WAP to print the size of array elements and complete array also.	7.	
7.	WAP to find the length of an array	8.	
8.	WAP to find the sum of array element	9	
9.	WAP to find even or odd of array element	10	
10.	WAP to sum array elements with functions	12	
11.	WAP to find even or odd of array elements with functions	14	
12.	WAP to reverse order element of an array	16	
13.	WAP to reverse element of an array with function	18	
14.	WAP to find minimum element of an array	20	
15.	WAP to find maximum element of an array	22	
16.	WAP to find max & min element of an array using function	23	
17.	WAP to sum the even and odd elements of array using function.	26	
18.	WAP to count the even or odd elements of array with function	28	
19.	WAP to print arrays of even and odd elements of an array.	31	
20.	WAP to add two arrays using functions	34.	

Spiral

Date .....

S.No	Program	P.N	T.S
21.	WAP to displays names of days of a week using single dimensional array having length of 7.	37	
22.	WAP to delete an element by index.	39	
24.	WAP to delete an element from an array by index or value using function.	42	
25.	WAP to insert an element in an array	46	
26.	WAP to searching and count an element by linear search.	48	
27.	WAP to searching an element by binary search	50	
28.	WAP to print an array in ascending order by bubble sort	52	
29.	WAP to arrange an array in descending order by bubble sort	54	
30	WAP to arrange an array in ascending order by selecting sort	56	
31	WAP to arrange an array in descending order by selecting sort	58	
32	WAP to Find duplicate elements in an array.	60	6 20
33	WAP to delete duplicate element in an array.	62	
34	WAP to intialize 2d array	64	
35	WAP to insert & print 3x3 matrix	65	
36	WAP to sum of all matrix elements	66	
37	WAP to sum of rows elements of matrix.	68	
38	WAP to sum of column elements of matrix	70	
39	WAP to Find the sum of diagonal (left & right)	72	

Spiral

Date .....

S.No	Program	P.N	T.S
40.	WAP to add two matrices	74	
41.	WAP to subtract two matrix	77	
42.	WAP to multiplication of two matrix	80	
43.	WAP to display transpose of matrix	83	
44.	WAP to initialize 3d-array	85	
45.	Program to input and display 4d array with function	87	
46.	WAP to print welcome by using different syntex of initialization of an array	90	
47.	WAP to print element of character array using while loop	91	
48.	WAP to display string with the help of different null character	92	
49.	WAP to display the string 'VIKRAMRAJ' using various formated functions.	93	
50.	WAP to input and display string.	94	
51.	WAP to find length of string with function	94	
52	WAP to print ANSCII value of character using strlen()	95	
53	WAP to compare two string using strcmp()	96	
54	WAP to compare two string using strcmp()	97	
55	WAP to display string in lower case using strlwr()	98	
56	WAP to display string in upper case using strupr()	98	
57	WAP to concatenates two string without using strcat().	99	
58.	WAP to reverse string using strrev()	100	
59.	WAP to display the value of variable and its locations using pointer	100	
60.	WAP to print the value of variables in different ways. How would you use pointer (*) and (&) operations for existing the values	101	
61.	WAP to show pointer of any datatype that occupied the same space.	102	

Date .....

S.No	Program	P. No	TS
62.	WAP to display the address of different variables (int, float, char) together with their values	103	
63.	WAP to add two numbers through variables and pointers	103	
64.	WAP to display the value and address of pointer using pointer	104	
65.	WAP to declare void pointer. Assign the address of integer int, float and char variable to the void pointer using the type-casting method. Display the content of various variables.	105	
66	WAP to declare wild pointer.	106	
67.	WAP to declare null pointer	107	
68.	WAP to see the error without using Dangling pointer	107.	
69.	WAP to declare Dangling pointer	108.	
70.	WAP to display the concept of constant variable pointer.	108.	
71.	WAP to display the concept of constant pointer variable	109.	
72.	WAP to display elements of an array start element counting from 1 instead 0	110.	
73.	WAP to display an array element with their address using array name as a pointer.	111.	
74.	WAP to excess element of array through different ways using pointer.	112.	
75.	WAP to display 2D-array element and their address using pointer	114.	
76.	WAP to store address of different element of an array using array of pointers	115.	
77.	WAP to display and print Book Name, pages and book price of Book1 using structure.	116.	
78.	WAP to read the values using scanf() &	117	

Spiral

Date .....

S.No	Program	P.N	T.S
79.	WAP to read & display the car numbers, assign them to structure variables. starting time & reaching time. Use structure with in structure	118	
80.	WAP to enter full name & date of birth of a person & display the same. Use the nested structure	119	

-31
1

Elements after selecting sort in descending order

69
1
0
-31
-100

Program-32

// WAP to find duplicate element in an array.

input

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

Spiral

```
for(i=0; i<n; i++)
 {
   printf("%d", a[i]);
 }
printf("\n Duplicate elements in given array:\n");
 for(i=0; i<n; i++)
 {
   for(j=i+1; j<n; i++)
   {
      if(a[i] == a[j])
      {
         printf("%d \n", a[j]);
      }
   }
   getch();
 }
```

Output-

Enter the size of an array = 7
Enter the elements of an array =
1
2
3
4
3
7
2

Elements of an array
1 2 3 4 3 7 2
Duplicate element in given array
2
3

Program - 33

// WAP to delete duplicate element in an array.

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[20], i, j, k, n;
clrscr();
  printf("Enter the size of an array =");
      scanf("%d", &n);
  printf("Enter the elements of an array = \n");
   for(i=0; i<n; i++)
   {
      scanf("%d", &a[i]);
   }
  printf("Elements of an array = \n");
   for(i=0; i<n; i++)
   {
      printf("%d  ", a[i]);
   }
  for( i=0; i<n; i++)
   {
     for(j=0; j<n; j++)
      {
       if(a[i] == a[j])
        {
          for (k=j; k<n-1; k++)
           {
             a[k] = a[k+1];
           }
          n--;
```

```
            j--;
        }
    }
}
printf("\n Array elements after deletion of
                the duplicate element : \n");
for( i=0; i<n ; i++)
{
    printf(" %3d ", a[i]);
}
getch();
}
```

Output -

Enter the size of an array = 7
Enter the elements of an array =
1
3
6
4
6
1
2

Elements of an array =
1 3 6 4 6 1 2

Array elements after deletion of the duplicate element : 1 3 6 4 2

Program - 34

// WAP to intialize 2d array.

input

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a[3][3] = { { 2, 3, 4 }, { 5, 6, 7 }, { 8, 9, 2 } }; i, j;
  clrscr();
    for(i=0; i<3; i++)
    {
      for(j=0; j<3; j++)
      {
        printf(" a[%d][%d] = %d \t ", i, j, a[i][j]);
      }
      printf(" \n ");
    }
    getch();
}
```

Output -

a[0][0] = 2	a[0][1] = 3	a[0][2] = 4
a[1][0] = 5	a[1][1] = 6	a[1][2] = 7
a[2][0] = 8	a[2][1] = 9	a[2][2] = 2

Program- 35

// WAP to insert & print 3x3 Matrix.

inputs-

```
#include <stdio.h>
#include<conio.h>
void main()
{
  int a[3][3],i,j;
  clrscr();
    printf(" Enter the elements of matrix a = \n");
      for (i=0; i<3; i++)
      {
        for( j=0; j<3; j++)
        {
          printf(" a[%d][%d] = ",i,j);
          scanf(" %d", &a[i][j]);
        }
      }
    printf(" Elements of Matrix a = \n");
      for(i=0; i<3; i++)
      {
        for( j=0; j<3; j++)
        {
          printf(" %3d", a[i][j]);
        }
        printf("\n");
      }
    getch();
}
```

output-

Enter the elements of matrix a =

a[0][0] = 1

```
a[0][1] = 2
a[0][2] = 3
a[1][0] = 4
a[1][1] = 5
a[1][2] = 6
a[2][0] = 7
a[2][1] = 8
a[2][2] = 9
Elements of matrix a =
1    2    3
4    5    6
7    8    9
```

Program-36

// WAP to sum of all matrix elements

input-

```
#include <stdio.h>
#include <conio.h>
{
  int a[3][3], i, j, sum=0;
  clrscr();
  printf("Enter the elements of matrix a =\n");
    for(i=0; i<3; i++)
    {
      for(j=0; j<3; j++)
      {
        printf("a[%d][%d] = ", i, j);
        scanf("%d", &a[i][j]);
        sum+ = a[i][j];
      }
    }
printf("The elements of matrix a =\n");
```

Date .....


```
for(i=0; i<3; i++)
{
    for(j=0; j<3; j++)
    {
        printf("%3d", a[i][j]);
    }
    printf("\n");
}
printf("Sum of all elements of matrix a = %d\n", sum);
getch();
}
```

Output-

```
Enter the elements of matrix a =
    a[0][0] = 1
    a[0][1] = 2
    a[0][2] = 3
    a[1][0] = 4
    a[1][1] = 5
    a[1][2] = 6
    a[2][0] = 7
    a[2][1] = 8
    a[2][2] = 9
Elements of matrix a =
    1   2   3
    4   5   6
    7   8   9
Sum of all elements of matrix a = 45
```

Program-37

// WAP to sum of rows elements of matrix

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int a[3][3], i, j, rowsum;
 clrscr();
  printf(" Enter the elements of matrix a=\n");
    for(i=0; i<3; i++)
    {
      for(j=0; j<3; j++)
      {
        printf(" a[%d][%d] = ", i,j);
        scanf(" %d ", &a[i][j]);
      }
    }
  printf(" Elements of matrix a=\n");
    for(i=0; i<3; i++)
    {
      for(j=0; j<3; j++)
      {
        printf(" %3d ", a[i][j]);
      }
      printf(" \n");
    }
  printf(" The Row Sum is :\n");
    for( i=0; i<3; i++)
    {
      for(j=0; j<3; j++)
      {
```

```
        printf(" %3d ", a[i][j]);
    row_sum+= a[i][j];
    }
    printf(" = %d ", row_sum);
    printf("\n");
    row_sum=0;
    }
    getch();
}
```

Output-

Enter the elements of matrix a =

a[0][0] = 1
a[0][1] = 2
a[0][2] = 3
a[1][0] = 4
a[1][1] = 5
a[1][2] = 6
a[2][0] = 7
a[2][1] = 8
a[2][2] = 9

Elements of matrix a =

1	2	3
4	5	6
7	8	9

The Row Sum is :

1	2	3	=	6
4	5	6	=	15
7	8	9	=	24

Program-38

// WAP to sum of column elements of matrix.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int a[3][3], i,j, sum;
clrscr();
 printf(" Enter the elements of matrix a=\n");
    for(i=0;i<3;i++)
     {
      for(j=0;j<3;j++)
      {
        printf(" a[%d][%d]=", i,j);
         scanf(" %d", &a[i][j]);
      }
    }
printf(" Elements of matrix a=\n");
    for(i=0; i<3; i++)
     {
       for(j=0; j<3; j++)
        {
          printf(" %3d", a[i][j]);
        }
        printf(" \n");
     }
printf(" The Column Sum is =\n");
    for(i=0; i<3; i++)
     {
       for(j=0; j<3; j++)
       {
```

```
        sum = sum + a[j][i];
    }
    printf("\n sum of column %d is = %d", i+1,
                                        sum);
        sum = 0;
    }
  getch();
}
```

Output

Enter the elements of matrix a =

a[0][0] = 1
a[0][1] = 2
a[0][2] = 3
a[1][0] = 4
a[1][1] = 5
a[1][2] = 6
a[2][0] = 7
a[2][1] = 8
a[2][2] = 9

Elements of matrix a =

1	2	3
4	5	6
7	8	9

Sum of column 1 = 12
Sum of column 2 = 15
Sum of column 3 = 18

Program-39

// WAP to Find the sum of diagonal (left & right)

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a[3][3], i, j, sum=0, sum1=0;
  clrscr();
   printf("Enter the elements of an array a=\n");
     for(i=0; i<3;i++)
     {
       for(j=0; j<3; j++)
       {
       printf(" a[%d][%d] = ", i,j);
         scanf(" %d ", &a[i][j]);
       }
     }
  printf(" Elements of matrix a = \n");
     for(i=0; i<3; i++)
      {
        for(j=0; j<3; j++)
        {
          printf(" %3d ", a[i][j]);
        }
       printf(" \n");
     }
  for(i=0; i<3; i++)
   {
     for(j=0; j<3; j++)
     {
```

```
        if (i==j)
        {
            sum = sum + a[i][j];
        }
        if (i+j==n-1)
        {
            sum1 = sum1 + a[i][j];
        }
    }
}
printf("\n The left diagonal sum = %d", sum);
printf("\n The right diagonal sum = %d", sum1);
getch();
}
```

Output-

```
Enter the elements of matrix a =
    a[0][0] = 1
    a[0][1] = 2
    a[0][2] = 3
    a[1][0] = 4
    a[1][1] = 5
    a[1][2] = 6
    a[2][0] = 7
    a[2][1] = 8
    a[2][2] = 9
Elements of matrix a =
    1   2   3
    4   5   6
    7   8   9
The left diagonal sum is 15
The right diagonal sum is 15
```

Program - 40

// WAP to add two matrices.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int a[3][3], b[3][3], c[3][3], i, j;
  clrscr();
  printf("Enter the elements of matrix a=\n");
      for(i=0; i<3; i++)
       {
         for(j=0; j<3; j++)
          {
            printf(" a[%d][%d] =", i, j);
             scanf("%d", &a[i][j]);
          }
       }
  printf(" Enter the elements of matrix b= \n");
    for(i=0; i<3; i++)
     {
       for(j=0; j<3; j++)
        {
          printf(" b[%d][%d] = ", i, j);
           scanf("%d", &b[i][j]);
        }
     }
  printf(" Elements of matrix a= \n");
    for(i=0; i<3; i++)
     {
        for(j=0; j<3; j++)
         {
```

```
        printf(" %3d", a[i][j]);
      }
    printf("\n");
  }
printf(" elements of matrix b= \n");
  for(i=0; i< 3; i++)
  {
    for(j=0; j< 3; j++)
    {
      printf(" %3d", b[i][j]);
    }
    printf("\n");
  }
printf(" sum of matrix a and b = \n");
  for(i=0; i< 3; i++)
  {
    for(j=0; j<3; j++)
    {
      c[i][j] = a[i][j] + b[i][j];
    printf(" %3d ", c[i][j]);
    }
    printf("\n");
  }
  getch();
}
```

<u>output</u>-

Enter the elements of matrix a =

a[0][0] = 1

a[0][1] = 2

a[0][2] = 3

a[1][0] = 4

a[1][1] = 5

```
a[1][2] = 6
a[2][0] = 7
a[2][1] = 8
a[2][2] = 9
Enter the elements of matrix b =
b[0][0] = 10
b[0][1] = 11
b[0][2] = 12
b[1][0] = 13
b[1][1] = 14
b[1][2] = 15
b[2][0] = 16
b[2][1] = 17
b[2][2] = 18
Elements of matric a =
1   2   3
4   5   6
7   8   9
Elements of matric b =
10  11  12
13  14  15
16  17  18
Sum of matrix a and b =
11  13  15
17  19  21
23  25  27
```

Program-41

// WAP to subtract two matrices

input-

```
#include <stdio.h>
#include <conio.h>
{
  int a[3][3], b[3][3], c[3][3], i, j;
  clrscr();
  printf(" Enter the elements of matrix a = \n");
    for(i=0; i< 3; i++)
     {
       for(j=0; j<3; j++)
       {
         printf(" a[%d][%d] = ", i,j);
         scanf(" %d %d ", &a[i][j]);
       }
     }
  printf" Enter the elements of matrix b = \n");
       for(i=0; i<3; i++)
       {
         for(j=0; j<3; j++)
         {
           printf(" b[%d][%d] = ", i,j);
             scanf(" %d %d ", &b[i][j]);
         }
       }
  printf(" Elements of matrix a = \n");
     for(i=0; i<n; i++)
      {
        for(j=0; j<3; j++)
        {
          printf(" %3d", a[i][j]);
```

```
        }
        printf("\n");
    }
printf(" Elements of matrix b= \n");
    for(i=0; i<3; i++)
    {
        for(j=0; j<3; j++)
        {
            printf(" %3d ", b[i][j]);
        }
        printf("\n");
    }
printf(" Subtract matrix b from a =\n");
    for(i=0; i<3; i++)
    {
        for( j=0; j<3; j++)
        {
            c[i][j]= a[i][j]-b[i][j];
            printf(" %3d ", c[i][j]);
        }
        printf("\n");
    }
    getch();
}
```

Output

Enter the elements of matrix a =

a[0][0]= 10

a[0][1]= 11

a[0][2]= 12

a[1][0] = 13

a[1][1] = 14

a[1][2]= 15

a[2][0] = 16
a[2][1] = 17
a[2][2] = 18

Enter the elements of matrix b =

b[0][0] = 1
b[0][1] = 2
b[0][2] = 3
b[1][0] = 4
b[1][1] = 5
b[1][2] = 6
b[2][0] = 7
b[2][1] = 8
b[2][2] = 9

Elements of matrix a =

10	11	12
13	14	15
16	17	18

Elements of matrix b =

1	2	3
4	5	6
7	8	9

Subtract matrix b from a =

9	9	9
9	9	9
9	9	9

Program-42

// WAP to multiplication of two matrix

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
int a[15][15], b[15][15], c[15][15], r1, c1, r2, c2, i, j, k, sum;
clrscr();
  printf("Enter the size of row and column of matrix a=");
     scanf("%d %d", &r1, &c1);
printf("Enter the size of row and column of matrix b=");
     scanf("%d %d", &r2, &c2);
printf("Enter the elements of matrix a= \n");
   for(i=0; i<r1, i++)
   {
     for(j=0; j<c1; j++)
     {
       printf(" a[%d][%d] = ", i, j);
         scanf("%d", &a[i][j]);
     }
   }
printf(" Enter the elements of matrix b= \n");
   for(i=0; i<r2; i++)
   {
     for(j=0; j<c2; j++)
     {
       printf(" b[%d][%d] = ", i, j);
         scanf(" %d ", &b[i][j]);
     }
   }
printf(" Elements of matrix a= \n");
```

```
for(i=0; i<r1; i++)
{
    for(j=0; j<c2; j++)
    {
        printf(" %3d", a[i][j]);
    }
    printf("\n");
}
printf(" Elements of matrix b = \n");
for(i=0; i<r2; i++)
{
    for(j=0; j<c2; j++)
    {
        printf(" %3d", b[i][j]);
    }
    printf("\n");
}
printf(" Multiply of matrix a and b = \n");
if (c1==r2)
{
    for(i=0; i<r2; i++)
    {
        for(j=0; j<c2; j++)
        {
            sum=0;
            for(k=0; k<r2; k++)
            {
                sum+= a[i][k] * b[k][j];
            }
            c[i][j] = sum;
        }
    }
}
```

```
else
{
    printf(" Multiply not possible \n");
}
for(i=0; i<r2; i++)
{
    for(j=0; j<c2; j++)
    {
        printf(" %3d", c[i][j]);
    }
    printf("\n");
}
getch();
}
```

Output-

Enter the size of row and column of matrix a
= 3 3

Enter the size of row and column of matrix b
= 3 2

Enter the elements of matrix a =
a[0][0] = 1
a[0][1] = 2
a[0][2] = 1
a[1][0] = 1
a[1][1] = 3
a[1][2] = 1
a[2][0] = 1
a[2][1] = 1
a[2][2] = 1

Enter the elements of matrix b =
b[0][0] = 1
b[0][1] = 3

b[1][0] = 2
b[1][1] = 2
b[2][0] = 1
b[2][1] = 1

Elements of matrix a =

1	2	1
1	3	1
1	1	1

Elements of matrix b =

1	3
2	2
1	1

Multiply of matrix a and b

6	8
8	10
4	6

Program-43

// WAP to display transpose of Matrix.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int a[15][15], i, j, r, c, b[15][15];
  clrscr();
  printf(" Enter the size of row and column
                                of matrix a = ");
     scanf("%d %d", &r, &c);
  printf(" Enter the elements of matrix a = \n");
     for( i = 0; i < r; i++)
     {
```

```
        for(j=0; j<c; j++)
        {
            printf(" a[%d][%d]= ", i, j);
            scanf(" %d", &a[i][j]);
        }
    }
printf(" Elements of matrix a= \n");
    for(i=0; i<r; i++)
    {
        for(j=0; j<c; j++)
        {
            printf(" %3d", a[i][j]);
        }
        printf(" \n");
    }
printf(" Transpose of matrix a= \n");
    for(i=0; i<n; i++)
    {
        for(j=0; j<c; j++)
        {
            b[j][i] = a[i][j];
        }
    }
    for(i=0; i<c; i++)
    {
        for(j=0; j<r; j++)
        {
            printf(" %3d", b[i][j]);
        }
        printf("\n");
    }
getch();
}
```

Output -

Enter the size of row and column of matrix a = 2 3
Enter the elements of matrix a =
a[0][0] = 1
a[0][1] = 2
a[0][2] = 3
a[1][0] = 4
a[1][1] = 7
a[1][2] = 11
Element of matrix a =

1	2	3
4	7	11

Transpose of matrix a =

1	4
2	7
3	11

Program - 44

// WAP to initialize 3d array.

input -

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a[2][3][3] = { { {1,2,3},
                       {4,5,6},
                       {7,8,9},

                     { {10,11,12},
                       {13,14,15},
                       {16,17,18} } };
```

```
int i, j, k;
clrscr();
    for(i=0; i<2; i++)
    {
      printf("\n The %d matrix is :\n", i+1);
      for(j=0; j<3; j++)
      {
          for(k=0; k<3; k++)
          {
              printf("%3d", a[i][j][k]);
          }
          printf("\n");
      }
    }
  getch();
}
```

<u>output</u>-

```
The 1 matrix is :
   1   2   3
   4   5   6
   7   8   9
The 2 matrix is :
  10  11  12
  13  14  15
  16  17  18
```

Program-45

//Program to input and display 4d array with function

input:

```
#include <stdio.h>
#include <conio.h>
void inputmatrix(int mat[5][5][5][5], int size1, int size2, int row,
                                                    int col);
void outputmatrix(int mat[5][5][5][5], int size1, int size2, int row,
                                                    int col);
void main()
{
  int mat[5][5][5][5];
  int size1, size2, row, col;
  clrscr();
  printf("\n Enter the size1, size2, row and column of matrix:");
     scanf("%d %d %d %d", &size1, &size2, &row, &col);
  inputmatrix(mat, size1, size2, row, col);
  outputmatrix(mat, size1, size2, row, col);
  getch();
}
void inputmatrix(int mat[5][5][5][5], int size1, int size2, int row,
                                                    int col)
{
  int i, j, k, a;
  for(a=0; a<size1; a++)
  {
     for(i=0; i<size2; i++)
     {
        for(j=0; j<row; j++)
        {
           for(k=0; k<col; k++)
           {
```

```
        printf("\n Enter mat[%d][%d][%d][%d] = ",
                                    a, i, j, k);
        scanf("%d", &mat[a][i][j][k]);
      }
    }
  }
 }
}
void outputmatrix(int mat[5][5][5][5], int size1, int size2,
                    int row, int col)
{
  int i, j, k, a;
  for(a=0; a< size1; a++)
  {
    for( i=0; i< size2; i++)
    {
      printf("\n The %d- %d matrix is :\n", a+1, i+1);
      for(j=0; j<row; j++)
      {
        for(k=0; k<col; k++)
        {
          printf("%3d", mat[a][i][j][k]);
        }
        printf("\n");
      }
    }
  }
}
```

Output

Enter ~~mat[0][0][0][0]~~ = the size1, size2, row and colum
of matrix = 2 2 2 2

Enter mat[0][0][0][0] = 1

```
Enter mat[0][0][0][1]=2
Enter mat[0][0][1][0]=3
Enter mat[0][0][1][1]=4
Enter mat[0][1][0][0]=5
Enter mat[0][1][0][1]=6
Enter mat[0][1][1][0]=7
Enter mat[0][1][1][1]=8
Enter mat[1][0][0][0]=9
Enter mat[1][0][0][1]=10
Enter mat[1][0][1][0]=11
Enter mat[1][0][1][1]=12
Enter mat[1][1][0][0]=13
Enter mat[1][1][0][1]=14
Enter mat[1][1][1][0]=15
Enter mat[1][1][1][1]=15
The 1-1 matrix is:
  1     2
  3     4
The 1-2 matrix is:
  5     6
  7     8
The 2-1 matrix is:
  9     10
  11    12
The 2-2 matrix is:
  13    14
  15    16
```

Program-46

// WAP to print welcome by using different syntax of Intialization of an array.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  char str1[9] = {'W', 'E', 'L', ' ', 'C', 'O',
                  'M', 'E', '\0'};
  char str2[9] = {{'W'}, {'E'}, {' '}, {'L'},
                  {'C'}, {'O'}, {'M'}, {'E'},
                  {'\0'}};
  char str3[8] = "WELCOME";
  char str4[] = "WELCOME";
  clrscr();
    printf(" First string = %s", str1);
    printf("\n Second string = %s", str2);
    printf("\n Third string = %s", str3);
    printf("\n Fourth string = %s", str4);
getch();
}
```

Output-

First string = WEL COME
Second string = WE LCOME
Third string = WELCOME
Fourth string = WELCOME

Program- 47

// WAP to print element of character array using while loop.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  char text[] = "HAVE A NICE DAY";
  int i;
  clrscr();
  i=0;
  while( text[i] != '\0')
  {
     printf(" %c ", text[i]);
     i++;
  }
  getch();
}
```

output-

HAVE A NICE DAY

Program-48

// WAP to display string with the help of different null character.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
char str[17] = " I am very happy";
int i;
clrscr();
i=0;
printf(" In case of '0' \n");
while (str[i] != 0)
{
    printf(" %c", str[i]);
    i++;
}
printf(" \n In case of '\0' \n");
while (str[i] != '\0')
{
    printf(" %c", str[i]);
    i++;
}
printf(" \n In case of ' ' \n");
while (str[i] != ' ')
{
    printf(" %c", str[i]);
    i++;
}
getch();
}
```

output-

In case of 'θ'
I am very happy
In case of '\θ'
I am very happy
In case of ' '
I

Program - 49

//WAP to display the string 'VIKRAMRAJ' using various formatted functions

~~#~~input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  char name[]="VIKRAMRAJ";
  clrscr();
      printf("%s \n" ,name);
      printf("%5s\n", name);
      printf("%.11s\n", name);
      printf("%10.7s\n", name);
      printf("%-9.3s\n", name);
getch();
}
```

Output-

```
VIKRAMRAJ
VIKRA
VIKRAMRAJ
    VIKRAMR
VIK
```

Program-50

// WAP to input and display string.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
 char name[20];
 clrscr();
     printf(" Enter your string = ");
         gets(name);
     printf(" Your string = ");
         puts(name);
   getch();
}
```

Output-

Enter your string = How a lovely day!
Your string = How a lovely day!

Program-51

// WAP to find length of string with function.

input-

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
char name[50], l;
 clrscr();
     printf(" Enter your string = ");
         gets(name);
     l = str(name);
```

```
    printf(" %d", l);
    getch();
}
```

output-

Enter your string = welcome
7

Program-52

// WAP to print ANSCII value of character using stream.

input-

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
    char name[50], l;
    int i;
    clrscr();
        printf(" Enter your string = ");
            gets(name);
            l= strlen(name);
    for(i=0; i<l; i++)
    {
        printf(" The ANSCII value of %c is %d\n", name, name);
    }
    getch();
}
```

output-

Enter your string = SAKSHI JAIN
The ANSCII value of S is 83
The ANSCII value of A is 65

The ANSCII value of K is 75
The ANSCII value of S is 83
The ANSCII value of H is 72
The ANSCII value of I is 73
The ANSCII value of is 32
The ANSCII value of J is 74
The ANSCII value of A is 65
The ANSCII value of I is 73
The ANSCII value of N is 78

Program-53

// WAP to compare two string using stricmp()

input-

```
#include <stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
 char str1[15], str2[15],v;
 clrscr();
    printf(" Enter your first string =");
       gets(str1);
    printf(" Enter your second string =");
       gets(str2);
    v= stricmp(str1, str2);
     if(v==0)
     {
       printf(" \n Same string");
     }
     else
     {
       printf(" \n Different string");
```

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

Output-

Enter your first string = Hello
Enter your second string = Hello
Same string.

Program - 54

// WAP to compare two string using strcmp()

input-

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
  char  str1[15], str2[15], v;
  clrscr();
    printf(" Enter your first string = ");
      gets(str1);
    printf(" Enter your second string = ");
      gets(str2);
  v= strcmp (str1, str2);
    if (v==0)
    {
      printf("\n same string");
    }
    else
    {
      printf("\n Different string");
    }
  getch();
}
```

output-
Enter your first string = Hello
Enter your second string = Hello
same string

Program-55

// WAP to display string in lower case using strlwr()

input-

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main( )
{
 char str[15];
 clrscr( );
    printf(" Enter your string = ");
          gets(str);
    printf("\n In lower case = %s", strlwr (str));
 getch( );
}
```

output-
Enter your string = SAKSHI JAIN
In lower case = sakshi jain

Program-56

// WAP to display string in upper case using strupr().

input-

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

```
char str[15];
clrscr();
   printf(" Enter your string=");
      gets(str);
   printf("\n In upper case =%s", strupr(str));
   getch();
}
```

Output-

Enter your string= saksh Jain
In upper case = SAKSHT JAIN

Program - 57

// WAP to concatenates two string without using strcat()

input

```
#include<stdio.h>
#include<conio.h>
void main()
{
char str1[15], str2[15], i, j;
printf(" Enter first string =");
   gets (str1);
printf(" Enter your second string=");
   gets(str2)
for(i=0; str1[i]!='\0'; i++);
   for( j=0 ; str2 [j]!='\0'; ++j, ++i)
   {
      str1[i] = str2[j];
   }
   str1[i] = '\0';
printf("\n Concatenation of two string =%s", str1);
getch();
}
```

output
Enter your first string = hello
Enter your second string = sakshi
Concatenation of two string = hellosakshi

Program - 58

// WAP to reverse string using strrev()

input -

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
char str[15];
clrscr();
   printf(" Enter your string = ");
      gets(str);
   printf(" Reverse of string = %s", strrev(str));
getch();
}
```

output -
Enter your string = hellosakshi
Reverse of string = ihskasollah

Program - 59

// WAP to display the value of variable and its location using pointer.

input -

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

```
int x, *p;
clrscr();
x=5;
p=&x;
    printf(" The value of variable = %d", *p);
    printf(" Address of variable = %u", p);
getch();
}
```

Output-

The value of variable = 5

Address of variable = 6552

Program-60

// WAP to print the value of variables in different ways. How would you use pointer (*) and (&) operations for existing the values.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
int x, *p;
clrscr();
x = 5;
p = &x;
printf(" value of variable \n");
printf(" Using x = %d \n", x);
printf(" using *(&x) = %d ", *(&x));
printf("\n using *p = %d ", *p);
printf(" \n location of variable \n");
printf(" Using p = %u \n", p);
printf(" location of pointer using &p = %u ", &p);
```

```
    getch();
}
```

Output-

Value of variable
using x = 5
Using *(&x) = 5
Using *p = 5
location of variable
using p = 65522
location of pointer
using &p = 65524

Program-61

// WAP to show pointer of any datatype that occupied the same space.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
clrscr();
   printf("\n%d", sizeof(int));
   printf("\n%d", sizeof(char));
   printf("\n%d", sizeof(float));
getch();
}
```

output-

2
2
2

Program-62

// WAP to display the address of different variable (int, float, char) together with their values.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a, *p1;
  char b, *p2;
  float c, *p3;
  clrscr();
   a=5, p1=&a;
   b='A', p2=&b;
   c=55, p3=&c;
   printf(" Address of int variable a=%u", p1);
   printf("\n Address of char variable b=%u", p2);
   printf("\n Address of float variable c=%u", p3);
 getch();
}
```

output-

Address of int variable a = 65522
Address of char variable b = 65524
Address of float variable c = 65526

Program-63

// WAP to add two numbers through variables and their pointers

input-

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

```
{
  int a,b, *p, *q;
  clrscr();
    printf(" Enter two no. = ");
      scanf("%d%d", &a, &b);
    p = &a;
    q = &b;
   printf(" Addition = %d", *p + *q);
     getch();
}
```

Output-

Enter two no. = 10 20
Addition = 30

Program-64

// WAP to display the value and address of pointer using pointer

input-

```
#include <stdio.h>
#include <conio.h>
 void main()
 {
   int i=3, *j, **k;
 clrscr();
   printf(" Value of i = %d", i);
   printf("\n Address of i = %u", &i);
   printf("\n Value of i = %d", *(&i));
 j = &i;
   printf("\n\n Value of j = %d ", *j);
   printf("\n Address of i = %u", j);
   printf("\n Address of j = %u\n", &j);
 k = &j;
```

```
    printf("\n Address of i = %u", *k);
    printf("\n Address of j = %u", k);
    printf("\n Address of k = %u", &k);
  getch();
}
```

Output-

Value of i = 3
Address of i = 65522
Value of i = 3

Value of j = 3
Address of i = 65522
Address of j = 65524

Address of i = 65522
Address of j = 65524
Address of k = 65526

Program - 65

// WAP to declare void pointer. Assign the address of integer int, float and char variable to the void pointer using the type casting method. Display the contest of various variables.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  int a=5;
  float b=12.5;
  char c='w';
  void *p;
```

```
clrscr();
  p=&a;
    printf(" In  int a= %d ", *(int *)p);
  p=&b;
    printf("\n In  float b= %f", *(float *)p);
  p=&c;
    printf("\n In  char c= %c", *(char *)p);
  getch();
}
```

Output-

In int a=5

In float f=12.50

In char c=w

Program-66

// WAP to declare wild pointer.

input-

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

Output-

* 39/cn0

Garbage value

Program-67

// WAP to declare null pointer.

input-

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

output = 0

Program-68

// WAP to see the error without using Dangling pointer

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int a= 5, b=10;
  clrscr();
    {
      int c;
      c=a+b;
    }
    printf(" %d ", c);
  getch();
}
```

output- error-
undefined symbol

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Program-69

// WAP to declare Dangling pointer

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
int *ptr= NULL, a=100;
clrscr();
printf("Address of a= %u \n", &a);
{
int b=500;
ptr= &b;
// printf("The address of b= %u \n", ptr);
// printf("The value of b= %d \n",*ptr);
}
printf("The address of b= %u \n", ptr);
printf("The value of b= %d \n", *ptr);
getch();
}
```

output-

Address of a= 65522
The adress of b= 65524
The value of b = 500

Program-70

// WAP to display the concept of constant variable pointer

input-

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

```
const int a = 25;
int const *p = &a      // const int *p = &a;
clrscr();
  printf("\n value of * p is = %d ", (*p));
getch();
}
```

output-

Value of *p is = 25

Program - 71

// WAP to display the concept of constant pointer variable.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int a=25;
  int *const p = &a;
        *p = *p+5;
  clrscr();
    printf(" Value of *p is = %d ", (*p));
  getch();
}
```

output-

Value of * p is = 30

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Program-72

// WAP to display elements of an array start element counting from insist 0.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int a[5] = {1,2,3,4,5}, i;
  clrscr();
    printf(" Elements of array = \n");
     for(i=0; i <=5 ;i++)
      {
        printf(" %d \n", a[i-1];
      }
  getch();
}
```

output-

Elements of array

1
2
3
4
5

Program-73

// WAP to display an array element with their address using array name as a pointer.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i,n;
int a[20];
clrscr();
printf(" Enter the size of array= ");
scanf(" %d ", &n);
for(i=0; i<n; i++)
{
printf(" Enter the elements of an array: ");
scanf(" %d ", &a[i]);
}
for(i=0; i<n; i++)
{
printf(" a[%d] = %d\t address is %u\n", i, *(a+i)
, &*(a+i));
}
getch();
}
```

output-

```
Enter the size of array:4
Enter the elements of array:2
Enter the elements of array:4
Enter the elements of array:6
Enter the elements of array:8
a[0] = 2   address is 65484
```

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a[1] = 4 address is 65486
a[2] = 6 address is 65488
a[3] = 9 address is 65490

Program-74

// WAP to excess element of array through different ways using pointer.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int arr[5] = {10, 20, 30, 40, 50};
  int *ptr = arr;
  int i;
  clrscr();
  printf(" Accessing elements using array indexing:\n");
    for(i=0; i<5; i++)
    {
    printf(" arr[%d] = %d \n", i, arr[i]);
    }
  printf("\nAccessing elements using pointer with array
                                indexing:\n");
  {
    printf(" ptr[%d] = %d \n", i, ptr[i]);
  }
  printf("\n Accessing elements using pointer with pointer
                                arithematic:\n");
    for(i=0; i<5; i++)
    {
    printf(" *(ptr+%d) = %d \n", i, *(ptr+i));
    }
```

Spiral

```
printf("\nAccessing elements using array name as
            pointer with pointer arithmetic \n");
  for(i=0; i<5; i++)
  {
    printf(" * (arr+%d) = %d \n", i, *(arr+i));
  }
}
```

Output-

Accessing elements using array indexing:
arr[0] = 10
arr[1] = 20
arr[2] = 30
arr[3] = 40
arr[4] = 50

Accessing elements using array indexing:
ptr[0] = 10
ptr[1] = 20
ptr[2] = 30
ptr[3] = 40
ptr[4] = 50

Accessing elements using pointer with pointer arithmetic
*(ptr+0) = 10
*(ptr+1) = 20
*(ptr+2) = 30
*(ptr+3) = 40
*(ptr+4) = 50

Accessing elements using array name as pointer with pointer arithmetic:
* (arr+0) = 10

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*(arr+1) = 20
*(arr+2) = 30
*(arr+3) = 40
*(arr+4) = 50

Program-76

// WAP to display 2D array element and their address using pointer.

input-

```
#include <stdio.h>
#include<conio.h>
void main()
{
  int a[3][3] = {1,2,3,4,5,6,7,8,9},i;
  int *p;
  clrscr();
  p= &a[0][0];
  for (i=0; i< 9; i++)
  {
    printf("%d\t %u\n", *p, p);
    p++;
  }
  getch();
}
```

output-

1	65522
2	65524
3	65526
4	65528
5	65530
6	65532
7	65534

8 65536
9 65538

Program-76

// WAP to store address of different element of an array using array of pointers.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
 int i;
 int a[3][3]= {1,2,3,4,5,6,7,8,9};
 int *p[3][3];
 clrscr();
  for(i=0; i<3; i++)
  {
    for(j=0; j<3; j++)
    {
      p[i][j]= &a[i][j];
    }
  }
 for(i=0; i<3; i++)
 {
   for(j=0; j<3; j++)
   {
    printf("%d\t%u\n", *p[i][j], p[i][j]);
   }
 }
```

output-

1 65522
2 65524

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3	65526
4	65528
5	65529
6	65530
7	65532
8	65534
9	65536

Program-79

// WAP to display and print Book Name, pages and Book price of Book1 using structure.

input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
  struct book1
  {
    char book[30];
    int pages;
    float prices;
  }
  struct book1 bk1={"Programming in C", 600, 105.5};
  clrscr();
   printf("\n Book Name: %s ", bk1.book);
   printf("\n No. of pages: %d ", bk1.pages);
   printf("\n Book price : %.2f", bk1.price);
  getch();
}
```

Output-

Book Name: programming in C
No. of pages : 600

Book price : 18.50

Program - 78

// WAP to read the values using scanf() & assign them to structure variables.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  struct book1
  {
     char book[30];
     int pages;
     float prices;
};
struct book1 bk1;
clrscr();
printf(" Enter book name, pages, price ");
    gets(bk1.book);
    scanf(" %d ", &bk1.pages);
    scanf(" %f ", &bk1.price);
getch();
}
```

output-

```
Enter book name, pages, price
   C programming
   500
   18.5
Book Name: C programming
No. of pages: 500
Book price: 18.50
```

Date .....

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Program-79

// WAP to read & display the car number, starting time & reading time. Use structure with in structure.

Input-

```
#include <stdio.h>
#include <conio.h>
void main()
{
    struct time
    {
        int second;
        int minutes;
        int hour;
    };
    struct t
    {
        int carno;
        struct time st;
        struct time rt;
    };
    struct t rl;
    clrscr();
    printf("\n CarNo  Starting Time  Reacting Time\n");
    scanf("%d", &rl.carno);
    scanf("%d%d%d", &rl.st.hour, &rl.st.minutes, &rl.st.
                                second);
    scanf("%d%d%d", &rl.rt.hour, &rl.rt.minutes, &rl.rt.
                                second);
    printf("\n CarNo  Starting Time  Reacting Time");
    printf("%d", rl.carno);
    printf("\t %d:%d:%d", rl.st.hour, rl.st.minutes,
```

Spiral

```
                                , r1.st.second);
printf("\t %d:%d:%d ", r1.rt.hour, r1.rt.minutes
                                , r1.rt.second);
getch();
}
```

output-

CarNo.	Starting Time	Reacting Time
1		
5	14	13
6	12	11

CarNo	Starting Time	Reacting Time
1	5:14:13	6:12:11

Program-80

// WAP: to enter full name & date of birth of a person & display the same. Use the nested structure.

input-

```
#include<stdio.h>
#include<conio.h>
void main()
{
  struct name
  {
    char first[10];
    char second[10];
    char last[10];
  };
  struct b-date
  {
    int day;
    int month;
```

120

```
    int year;
  };
  struct data
  {
    struct name nm;
    struct b_date bd;
  };
  struct data rl;
  clrscr();
  printf("\n Enter the name (first /second /last): ");
   scanf("%s %s %s", &rl.nm.first, &rl.nm.second,
                                  &rl.nm.last);
  printf("\n Enter the birth date (Day /Month/ Year): ");
   scanf("%d %d %d", &rl.bd.day, &rl.bd.month,
                                  &rl.bd.year);
  printf("\t Name: %s %s %s \n", rl.nm.first, rl.nm.second
                                  , rl.nm.last);
  printf("\t Birth Date: %d %d %d", rl.bd.day,
                                  rl.bd.month, rl.bd.year);
  getch();
}
```

<u>Output</u>-

Enter the name (first /second/ las): Sakshi Kumari Jain
Enter the birth date (Day/Month/ Year): 18 06 2006
Name: Sakshi Kumari Jain
Birth Date: 18 06 2006