

1. Write a C program to read 5 subjects marks of a student and calculate his/her Total and Percentage using arrays. And print the result as following criteria Calculate percentage and grade according to following:

Percentage $\geq 90\%$: Grade A

Percentage $\geq 80\%$: Grade B

Percentage $\geq 70\%$: Grade C

Percentage $\geq 60\%$: Grade D

Percentage $\geq 40\%$: Grade E

Percentage $< 40\%$: Grade F

Program:-

```
#include <stdio.h>
void main()
{
    int arr[5],i;
    float sum=0,per;
    for(i=0;i<5;i++)
    {
        printf("Enter marks for subject number %d :",i+1);
        scanf("%d",&arr[i]);
        sum+=arr[i];
    }
    per=(sum/500)*100;
    printf("\nThe percentage is: %f",per);
    if(per>=90)
        printf("\nGrade A");
    else if(per>=80)
        printf("\nGrade B");
    else if(per>=70)
        printf("\nGrade C");
    else if(per>=60)
        printf("\nGrade D");
    else if(per>=40)
        printf("\nGrade E");
    else
        printf("\nGrade F");
}
```

OUTPUT:

```
Enter marks for subject number 1 :87
Enter marks for subject number 2 :65
Enter marks for subject number 3 :48
Enter marks for subject number 4 :85
Enter marks for subject number 5 :100

The percentage is: 77.000000
Grade C

...Program finished with exit code 8
Press ENTER to exit console.
```

```
Enter marks for subject number 1 :45
Enter marks for subject number 2 :23
Enter marks for subject number 3 :54
Enter marks for subject number 4 :12
Enter marks for subject number 5 :32

The percentage is: 33.199997
Grade F

...Program finished with exit code 8
Press ENTER to exit console.
```

2. Write a C program to read two mark lists of equal size (10 size) and check whether they are identical or not.

E.g.

mark list 1 : 22 33 44 55 66

mark list 2 : 22 33 44 55 66

Output : Identical

Program:-

```
#include <stdio.h>
void main()
{
    int arr1[10],arr2[10],i,t=0;
    printf("Enter the values for mark list 1(10 values required) : ");
    for(i=0;i<10;i++)
        scanf("%d",&arr1[i]);
    printf("Enter the values for mark list 2(10 values required) : ");
    for(i=0;i<10;i++)
    {
        scanf("%d",&arr2[i]);
        if(arr1[i]!=arr2[i])
        {
            t=1;
            break;
        }
    }
    if(t==0)
        printf("\nIdentical");
    else
```

```
    printf("\nNot identical");  
}
```

OUTPUT:

```
Enter the values for mark list 1(10 values required) : 1 2 3 4 5 3 6 7 8 9  
Enter the values for mark list 2(10 values required) : 1 2 3 4 5 3 6 7 8 9  
  
Identical
```

```
Enter the values for mark list 1(10 values required) : 1 1 1 1 1 1 1 1 1 1  
Enter the values for mark list 2(10 values required) : 1 1 1 2 1 1 1 1 1 1  
  
Not identical  
  
...Program finished with exit code 14  
Press ENTER to exit console.
```

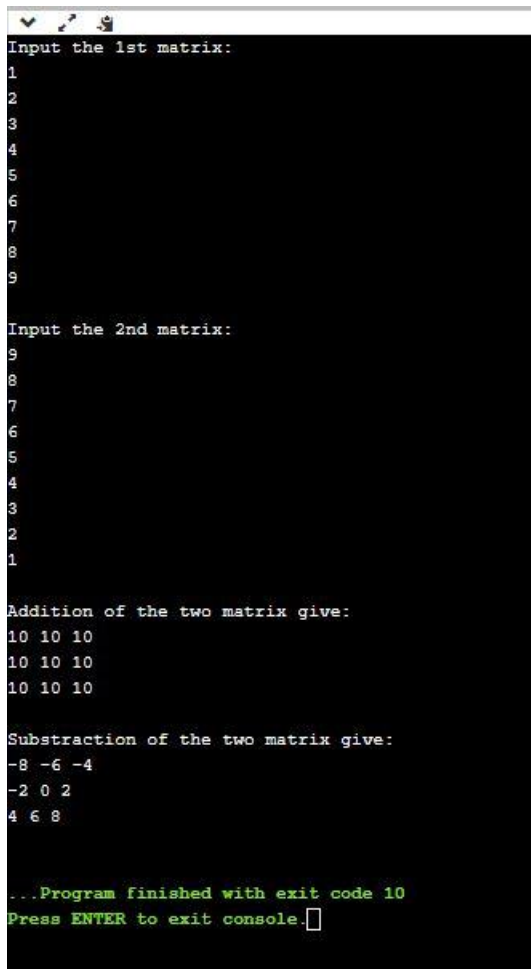
3. Write a C program to read two 3x 3 matrix from user and perform addition and subtraction of Matrices.

Program:-

```
#include <stdio.h>  
void main()  
{  
    int matrix1[3][3],matrix2[3][3],add[3][3],sub[3][3],i,j;  
    printf("Input the 1st matrix: \n");  
    for(i=0;i<3;i++)  
    {  
        for(j=0;j<3;j++)  
            scanf("%d",&matrix1[i][j]);  
    }  
    printf("\nInput the 2nd matrix: \n");  
    for(i=0;i<3;i++)  
    {  
        for(j=0;j<3;j++)  
        {  
            scanf("%d",&matrix2[i][j]);  
            add[i][j]=matrix1[i][j]+matrix2[i][j];  
            sub[i][j]=matrix1[i][j]-matrix2[i][j];  
        }  
    }  
    printf("\nAddition of the two matrix give: \n");
```

```
for(i=0;i<3;i++)
{
    for(j=0;j<3;j++)
        printf("%d ",add[i][j]);
    printf("\n");
}
printf("\nSubstraction of the two matrix give: /n");
for(i=0;i<3;i++)
{
    for(j=0;j<3;j++)
        printf("%d ",sub[i][j]);
    printf("\n");
}
}
```

OUTPUT:



```
Input the 1st matrix:
10
10
10
10
10
10
10
10
10

Input the 2nd matrix:
9
8
7
6
5
4
3
2
1

Addition of the two matrix give:
19 18 17
16 15 14
13 12 11

Substraction of the two matrix give:
-8 -6 -4
-2 0 2
4 6 8

...Program finished with exit code 10
Press ENTER to exit console.
```

4. Write C Program to store and print 12 values entered by the user by using [2][3][2] array.

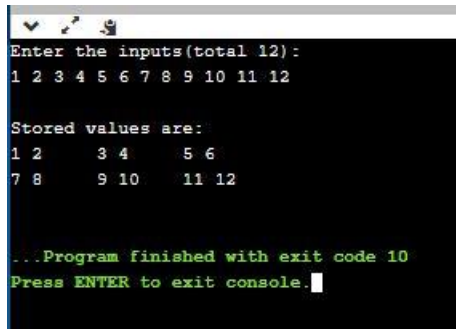
Program:-

```
#include <stdio.h>

void main()
{
    int arr[2][3][2],i,j,k;
    printf("Enter the inputs(total 12): \n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<3;j++)
        {
            for(k=0;k<2;k++)
                scanf("%d",&arr[i][j][k]);
        }
    }
    printf("\nStored values are: \n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<3;j++)
        {
            for(k=0;k<2;k++)
                printf("%d ",arr[i][j][k]);
            printf("\t");
        }
        printf("\n");
    }
```

```
}  
}
```

OUTPUT:



```
Enter the inputs(total 12):  
1 2 3 4 5 6 7 8 9 10 11 12  
  
Stored values are:  
1 2    3 4    5 6  
7 8    9 10   11 12  
  
...Program finished with exit code 10  
Press ENTER to exit console.
```

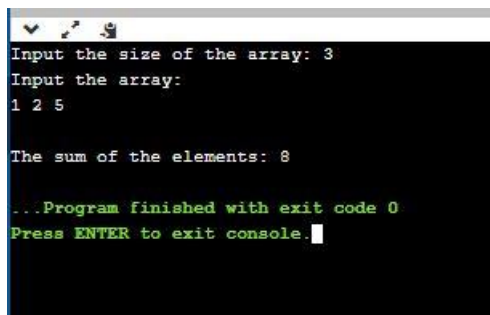
5. WAP to find the sum of all elements in an integer array using function.

Programs:-

```
#include <stdio.h>  
  
int sum(int arr[],int num)  
{  
    int temp=0,i;  
    for(i=0;i<num;i++)  
        temp+=arr[i];  
    return temp;  
}  
  
void main()  
{  
    int num;  
    printf("Input the size of the array: ");  
    scanf("%d",&num);
```

```
int arr[num],i;
printf("Input the array: \n");
for(i=0;i<num;i++)
    scanf("%d",&arr[i]);
printf("\nThe sum of the elements: %d",sum(arr,num));
}
```

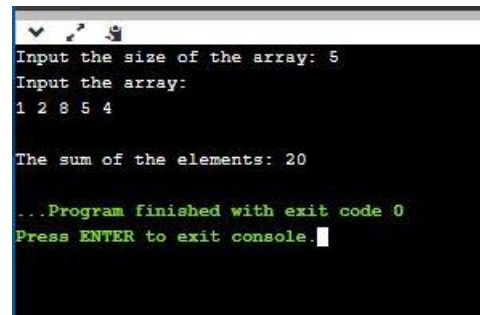
OUTPUT:



```
Input the size of the array: 3
Input the array:
1 2 5

The sum of the elements: 8

...Program finished with exit code 0
Press ENTER to exit console.
```



```
Input the size of the array: 5
Input the array:
1 2 8 5 4

The sum of the elements: 20

...Program finished with exit code 0
Press ENTER to exit console.
```

6. WAP to find the smallest and largest element in an array using function.

Program:-

```
int max(int arr[],int num)

{

    int max=arr[0],i;
```

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

    {

        if(max<arr[i])

            max=arr[i];

    }

    return max;

}

int min(int arr[],int num)

{

    int min=arr[0],i;

    for(i=1;i<num;i++)

    {

        if(min>arr[i])

            min=arr[i];

    }
```



```
    return min;

}

void main()

{

    printf("Enter the size of the array: ");

    int num;

    scanf("%d",&num);

    int i;

    int arr[num];

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

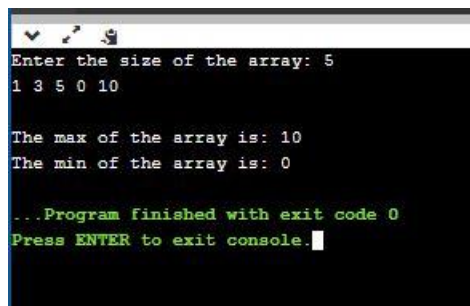
        scanf("%d",&arr[i]);

    printf("\nThe max of the array is: %d",max(arr,num));

    printf("\nThe min of the array is: %d",min(arr,num));

}
```

OUTPUT:



```
Enter the size of the array: 5
1 3 5 0 10

The max of the array is: 10
The min of the array is: 0

...Program finished with exit code 0
Press ENTER to exit console.
```