# Practicle-8

## Program to perform different functions on array

## Code:-

```
#include <iostream>
using namespace std;


//definning function sum

void sum(int arr1[3][3] , int arr2[3][3] , int arr3[3][3])
  {
        for(int row=0 ; row<3 ; row++)
                {
                        for(int col=0 ; col<3 ; col++)
                                {
                                        arr3[row][col]=arr1[row][col]+arr2[row][col];
                                }
                }
  }


//definning function sub for subtracting

void sub(int arr1[3][3] , int arr2[3][3] , int arr3[3][3])
  {
        for(int row=0 ; row<3 ; row++)
                {
                        for(int col=0 ; col<3 ; col++)
                                {
                                        arr3[row][col]=arr1[row][col]-arr2[row][col];
                                }
                }
  }


 //definning function product

void product(int arr1[3][3] , int arr2[3][3] , int arr3[3][3])
  {
        for(int row=0 ; row<3 ; row++)
                {
                        for(int col=0 ; col<3 ; col++)
                                {
                                        for(int i=0 ; i<3 ;i++)
                                                {
                                                        arr3[row][col]+=arr1[row][i]*arr2[i][col];
                                                }
                                }
                }
  }
```

```
//definning function trans for transpose

void trans(int arr1[3][3] , int arr3[3][3])
  {
        for(int row=0 ; row<3 ; row++)
              {
                    for(int col=0 ; col<3 ; col++)
                          {
                                arr3[col][row]=arr1[row][col];
                          }
              }
  }



int main()

{

int z;
bool choice=true , print=true;
while(choice)
  {
        //declaring variables and arrays

        int arr1[3][3] , arr2[3][3] , arr3[3][3] , row ,col , y;
        cout << "Enter the first matrices::";
        for(row=0 ; row<3 ; row++)
              {
                    for(col=0 ; col<3 ; col++)
                          {
                                cin >> arr1[row][col];
                          }
              }                                                   //taking the first array from the user


        cout << "Enter the second matrices::";
        for(row=0 ; row<3 ; row++)
              {
                    for(col=0 ; col<3 ; col++)
                          {
                                cin >> arr2[row][col];
                          }
              }                                                   //taking the second array from the user

        for(row=0 ; row<3 ; row++)
              {
                    for(col=0 ; col<3 ; col++)
                          {
                                arr3[row][col]=0;
                          }
              }                                                   //inistilising arr3 to 0
```

```
//printing the menu

int x;
cout << "*****************************************************************" << endl;
cout << "1.Sum" << endl << "2.Product" << endl << "3.Transpose" << endl << "4.Subracting" << endl ;
cout << "*****************************************************************" << endl;
cout << "Enter your choice(1 , 2 , 3 or 4)::";
cin >> x;                              //taking user input for choices

switch(x)

{

        case 1:
                sum(arr1 , arr2 , arr3);
                break;                          //calculating sum and putting it in arr3
        case 2:
                product(arr1 , arr2 , arr3);
                break;                  //calculating product putting it in arr3
        case 3:
                cout << "*******************************************************" << endl;
                cout << "Which array you want to transpose (1 or 2)::";
                cin >> y;
                if(y==1)
                        {
                                trans(arr1 , arr3);
                        }
                else if(y==2)
                        {
                                trans(arr2 , arr3);                     //doing transpose and putting it in arr3
                        }
                else
                        {
                                cout << "Wrong Input!!" << endl ;
                                print=false;                                            //checking for exeption
                        }
                break;
        case 4:
                sub(arr1 , arr2 , arr3);
                break;                                          //subracting  and putting it on arr3
        default:
                cout << "Wrong Input!!" << endl;
                print=false;
                break;
}

if(print==true)
        {
                for(row=0 ; row<3 ; row++)
                {
                        for(col=0 ; col<3 ; col++)
                                {
                                        cout << arr3[row][col] << " ";
                                }                                                       //printing the final result
                        cout << endl;
                }
        }
```

```
        cout << "**********************************************************************" << endl;
        cout << "Do yow want to continue (1 for Yes)::";
        cin >> z;
        if(z==1)
                {
                        continue;
                }
        else
                {
                        cout << "Thank You :) ";
                        break;
                }

        return 0;
   }

}
```

## Output:-

## Function-1

```
Command Prompt - Practical-8.exe
Microsoft Windows [Version 10.0.19042.685]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\harsh>cd desktop

C:\Users\harsh\Desktop>cd Practicales

C:\Users\harsh\Desktop\Practicales>g++ Practical-8.cpp -o Practical-8.exe

C:\Users\harsh\Desktop\Practicales>Practical-8.exe
Enter the first matrices::1
2
3
1
2
3
1
2
3
Enter the second matrices::1
2
3
1
2
3
1
2
3
**********************************************************************
1.Sum
2.Product
3.Transpose
4.Subracting
**********************************************************************
Enter your choice(1 , 2 , 3 or 4)::1
2 4 6
2 4 6
2 4 6
**********************************************************************
Do yow want to continue (1 for Yes)::1
```

## Function-2

```
Do yow want to continue (1 for Yes)::1
Enter the first matrices::1
1
1
1
1
1
1
1
1
Enter the second matrices::1
1
1
1
1
1
1
1
1
********************************************************************************
1.Sum
2.Product
3.Transpose
4.Subracting
********************************************************************************
Enter your choice(1 , 2 , 3 or 4)::2
3 3 3
3 3 3
3 3 3
********************************************************************************
```

## Function-3

```
C:\Users\harsh\Desktop\Practicales>Practical-8.exe
Enter the first matrices::1
2
3
1
2
3
1
2
3
Enter the second matrices::1
2
3
2
2
23
12
1
1
**********************************************************************
1.Sum
2.Product
3.Transpose
4.Subracting
**********************************************************************
Enter your choice(1 , 2 , 3 or 4)::3
**********************************************************************
Which array you want to transpose (1 or 2)::2
1 2 12
2 2 1
3 23 1
**********************************************************************
Do yow want to continue (1 for Yes)::1
Enter the first matrices::1
2
3
1
2
3
1
2
3
Enter the second matrices::1
2
3
1
2
3
1
2
3
**********************************************************************
1.Sum
2.Product
3.Transpose
4.Subracting
**********************************************************************
Enter your choice(1 , 2 , 3 or 4)::3
**********************************************************************
Which array you want to transpose (1 or 2)::1
1 1 1
2 2 2
3 3 3
**********************************************************************
Do yow want to continue (1 for Yes)::
```

## Function-4

```
Do yow want to continue (1 for Yes)::1
Enter the first matrices::1
2
3
1
2
3
1
2
3
Enter the second matrices::1
2
3
1
2
3
1
2
3
**************************************************************************
1.Sum
2.Product
3.Transpose
4.Subracting
**************************************************************************
Enter your choice(1 , 2 , 3 or 4)::4
0 0 0
0 0 0
0 0 0
**************************************************************************
```

## Handling Exceptions

```
Do yow want to continue (1 for Yes)::1
Enter the first matrices::1
2
3
1
1
1
1
1
1
Enter the second matrices::1
1
1
1
1
1
1
1
1
**********************************************************************
1.Sum
2.Product
3.Transpose
4.Subracting
**********************************************************************
Enter your choice(1 , 2 , 3 or 4)::5
Wrong Input!!
**********************************************************************
```

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