KIET Group of Institutions, Ghaziabad

Department of Computer Applications

(An ISO – 9001: 2015 Certified & 'A' Grade accredited Institution by NAAC)

Problem Solving Using C Lab

KCA 151: Session 2020-21

Experiment – No-1

Objective: Write a program to input, output of two matrix with the following function addition , subtration and transpose		
Scheduled Date	**Compiled Date**	**Submission Date**
14-JAN-2021	**15-JAN-2021**	**15-JAN-2021**

Algprithm:

1. Start.
2. Create functions .
3. Declare two arrays ,variables globally.
4. Declare two more variables for switch case and do-while.
5. Print the choices
   1.insertion.
   2.display.
   3.addition.
   4.subtraction.
   5.transapose.
6. Use switch case , assign declared function s.
7. use do- while for the repetition .
8. write definition of all the functions :

Insert()

```
for(i=0; i<3; i++)
for(j=0;j<3;j++)
  printf("Enter value for arr[%d][%d]:", i, j);
  scanf("%d", &arr1[i][j]);
```

Display()

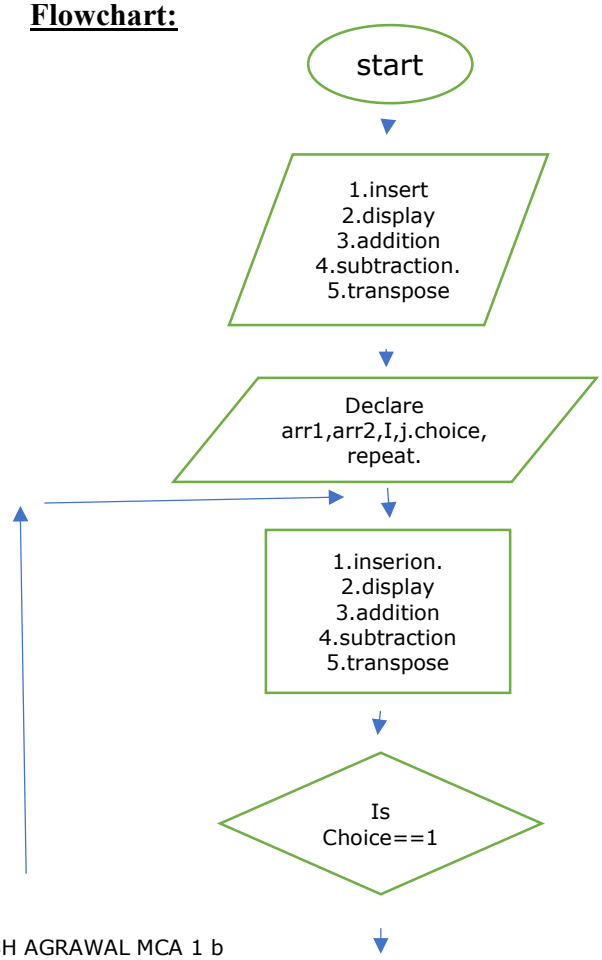
```
 for(i=0; i<3; i++)
for(j=0;j<3;j++)
  printf("Enter value for arr[%d][%d]:", i, j);
  printf("%d", &arr[i][j]);
```

Addition();

```
    for(i=0;i<3;i++)
   for(j=0;j<3;j++)
```

```
    arr3[i][j] = arr1[i][j] + arr2[i][j];
   printf("%d",arr3[i][j]);
Subtraction():
          for(i=0;i<3;i++)
    for(j=0;j<3;j++)
    arr3[i][j] = arr1[i][j] + arr2[i][j];
   printf("%d",arr3[i][j]);
 Transpose():
        for(i=0;i<3;i++)
    for(j=0;j<3;j++)
            printf("%d",arr[j][i]);
            printf(" ");
   printf("\n");
```

Flowchart:



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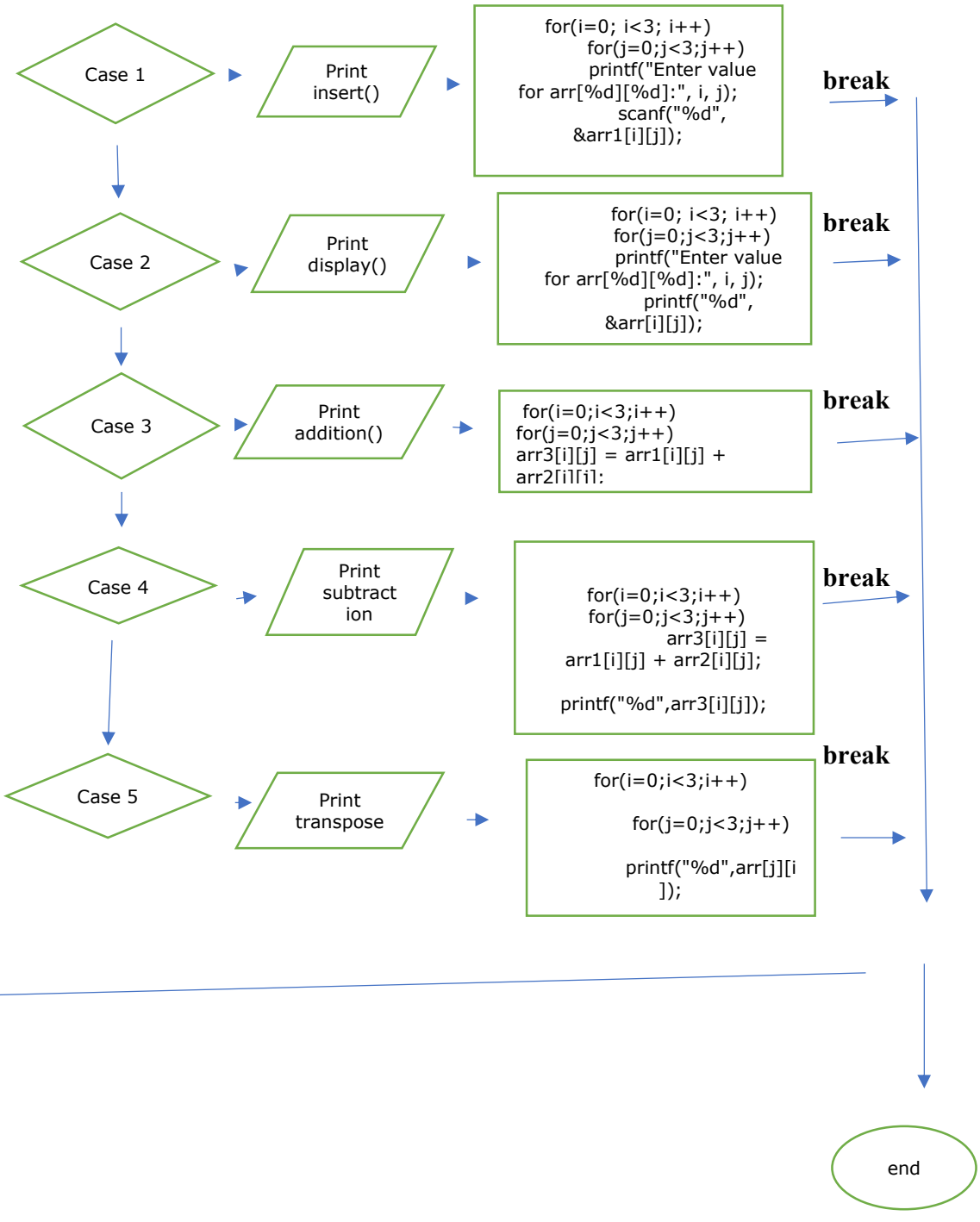

Program :

```
#include <stdio.h>
int insert_array();
int display_array();
int addition();
int subtraction();
int transpose();
int arr1[5][5],arr2[5][5],arr3[5][5];
int i,j;
int main()
{
        int choice,repeat;
   do
    {
     printf("enter your choice \n 1.insertion of matrices.\n2.display of an matrices.\n3.addition
of a matrices.\n4.subtraction of matrices.\n5.tranpose of matrices.\n" );
     scanf("%d",&choice);
   switch(choice)
   {
     case 1:insert_array();break;
     case 2:display_array();break;
     case 3:addition();break;
     case 4:subtraction();break;
     case 5:transpose();break;
   }
     printf("enter 1 to do more operation\n");
     scanf("%d",&repeat);
    } while(repeat==1);

return 0;
}
int insert_array()
{
printf("Enter the elements of array1\n");
```

```
for(i=0; i<3; i++)
 {
  for(j=0;j<3;j++)
   {
    printf("Enter value for arr1[%d][%d]:", i, j);
    scanf("%d", &arr1[i][j]);
   }
 }
 printf("Enter the elements of array2\n");
for(i=0; i<3; i++)
 {
  for(j=0;j<3;j++)
   {
    printf("Enter value for arr2[%d][%d]:", i, j);
    scanf("%d", &arr2[i][j]);
   }
 }        return 0;
}
int display_array()
{
printf("elements of array1 are:\n");
for(i=0;i<3; i++)
{
 for(j=0;j<3;j++)
  {
   printf("%d ", arr1[i][j]);
   printf(" ");
  }
  printf("\n");
 }
 printf("elements of array2 are :\n");
 for(i=0;i<3; i++)
 {
  for(j=0;j<3;j++)
  {
   printf("%d ", arr2[i][j]);
```

```
   printf(" ");
  }
  printf("\n");
 }
}
int addition()
 {
  printf("addition of array elements are : \n");
  for(i=0;i<3;i++)
  {
        for(j=0;j<3;j++)
         {
     arr3[i][j] = arr1[i][j] + arr2[i][j];
          printf("%d",arr3[i][j]);
          printf(" ");
         }
         printf("\n");
  }
 }
int subtraction()
 {
        printf("subtraction of arrays\n");
        for(i=0;i<3;i++)
         {
            for (j=0;j<3;j++)
             {
                    arr3[i][j]=arr1[i][j]-arr2[i][j];
                    printf("%d",arr3[i][j]);
               printf(" ");
             }
            printf("\n");
         }
 }
int transpose()
  {
        printf("transpose of matrix 1\n");
```

```
        for(i=0;i<3;i++)
         {
            for(j=0;j<3;j++)
             {
                    printf("%d",arr1[j][i]);
                    printf(" ");
             }
           printf("\n");
         }
         printf("transpose of matrix 2\n");
        for(i=0;i<3;i++)
         {
            for(j=0;j<3;j++)
             {
                    printf("%d",arr2[j][i]);
                    printf(" ");
             }
           printf("\n");
         }
}
```

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