# LAB TASKS

## Q#1

```
#include<bits/stdc++.h>
using namespace std;
int main()
{ float x1=0,x2=0;
 int i,j,a=0,b=0,c=2;
    float arr[3][3];
  for( i=0;i<=2;i++)
  {
    for( j=0;j<=2;j++)
      { cout<<"Enter value of matrix:"<<"["<<i<<"]["<<j<<"]   :";
      cin>>arr[i][j];
      cout<<endl;
      }
  }
  cout<<"Mtrix will appear as:"<<endl;
  while( a<=2&& b<=2)
  {

    x1=x1+arr[a][b];
    a++;b++;
  }
  a=0;b=2;
   while(a<=2&&b>=0)
  {
    x2=x2+arr[a][b];
    a++;b--;
  }
    cout<<" Sum of left diagonal entries is = "<<x1<<endl;
    cout<<" Sum of right diagonal entries is = "<<x2<<endl;
return 0;
}
```

```
Enter value of matrix:[0][0]   :5

Enter value of matrix:[0][1]   :7

Enter value of matrix:[0][2]   :9

Enter value of matrix:[1][0]   :8

Enter value of matrix:[1][1]   :5

Enter value of matrix:[1][2]   :6

Enter value of matrix:[2][0]   :2

Enter value of matrix:[2][1]   :7

Enter value of matrix:[2][2]   :10

Mtrix will appear as:
 Sum of left diagonal entries is = 20
 Sum of right diagonal entries is = 16

Process returned 0 (0x0)   execution time : 16.332 s
Press any key to continue.
```

# Q#2

```
#include<bits/stdc++.h>
using namespace std;
void function(float arrR[3][3], float arr1[3][3],float arr2[3][3])
{
     for( int a=0;a<=2;a++)
{

         for(int b=0;b<=2;b++)
         {
             arrR[a][b]=arr1[a][b]+arr2[a][b];
         }
    }
}

int main()
{
    cout<<endl;

    float arr1[3][3],arr2[3][3],arrR[3][3];
    int a,b,c,d,i;
     for( i=0;i<=2;i++)
   {
    for( int j=0;j<=2;j++)
      { cout<<"    Enter value of first matrix:"<<"["<<i<<"]["<<j<<"]  :";
      cin>>arr1[i][j];
      cout<<endl;
      }
 }
      for(i=0;i<=2;i++) {
    for( int j=0;j<=2;j++)
      { cout<<"    Enter value of second  matrix:"<<"["<<i<<"]["<<j<<"]  :";
      cin>>arr2[i][j];
      cout<<endl;
      }
   }
   function( arrR,   arr1,arr2);

    for(int x=0;x<=2;x++)
    {

         for(int y=0;y<=2;y++)
         {
             cout<<"  "<<arrR[x][y]<<"    ";


         }
         cout<<endl;

    }
    return 0;
}
```

```
    Enter value of first matrix:[2][1]  :8

    Enter value of first matrix:[2][2]  :9

    Enter value of second  matrix:[0][0]  :1

    Enter value of second  matrix:[0][1]  :2

    Enter value of second  matrix:[0][2]  :3

    Enter value of second  matrix:[1][0]  :4

    Enter value of second  matrix:[1][1]  :5

    Enter value of second  matrix:[1][2]  :6

    Enter value of second  matrix:[2][0]  :7

    Enter value of second  matrix:[2][1]  :8

    Enter value of second  matrix:[2][2]  :9

  2      4      6
  8      10      12
  14      16      18

--------------------------------
Process exited after 17.78 seconds with return value 0
Press any key to continue . . .
```

# Q#3

```cpp
#include<bits/stdc++.h>
using namespace std;
void inverse(float arr1[3][3],float arr2[3][3] )
{
    for(int a=0;a<=2;a++)
    {
        for(int b=0;b<=2;b++)
        {
                arr2[a][b]= arr1[b][a];
        }
    }
}
int main()
{
        float Matrix1[3][3],Matrix2[3][3];
    for( int i=0;i<=2;i++)
   {
    for(int j=0;j<=2;j++)
      { cout<<"  Enter value of matrix:"<<"["<<i<<"]["<<j<<"]  :";
      cin>>Matrix1[i][j];
      cout<<endl;
      }
   }
   cout<<"  original matrix:-";
    cout<<endl;
     for( int i=0;i<=2;i++)
   {
    for(int j=0;j<=2;j++)
      { cout<<"  "<<Matrix1[i][j]<<"    ";
      }
        cout<<endl;
   }
   inverse(Matrix1,Matrix2);
     cout<<"  Matrix after inverse:-";
     cout<<endl;
        for( int i=0;i<=2;i++)
   {
    for(int j=0;j<=2;j++)
      { cout<<"  "<<Matrix2[i][j]<<"    ";
      }
        cout<<endl;
   }
   return 0;
}
```

```
  Enter value of matrix:[0][0]  :5

  Enter value of matrix:[0][1]  :7

  Enter value of matrix:[0][2]  :9

  Enter value of matrix:[1][0]  :5

  Enter value of matrix:[1][1]  :4

  Enter value of matrix:[2][0]  :1

  Enter value of matrix:[2][1]  :3

  Enter value of matrix:[2][2]  :8

  original matrix:-
  5     7     9
  5     4     0
  1     3     8
  Matrix after inverse:-
  5     5     1
  7     4     3
  9     0     8

Process returned 0 (0x0)   execution time : 9.225 s
Press any key to continue.
```

# Q#4

```
#include<bits/stdc++.h>
using namespace std;
void function(float arrR[3][3], float arr1[3][3],float arr2[3][3])
{
      for(int a = 0; a < 3; a++)
    {
        for(int b = 0; b < 3; b++)
        {
            arrR[a][b] = 0;
        }
    }
    for(int a = 0; a < 3; a++)
    {
        for(int b = 0; b < 3; b++)
        {
            for(int c = 0; c < 3; c++)
            {
                arrR[a][b] += arr1[a][c] * arr2[c][b];
            }
        }
    }
}

int main()
{
    cout<<endl;

    float arr1[3][3],arr2[3][3],arrR[3][3];
    int a,b,c,d,i;
     for( i=0;i<=2;i++)
    {
    for( int j=0;j<=2;j++)
      { cout<<"    Enter value of first matrix:"<<"["<<i<<"]["<<j<<"]  :";
      cin>>arr1[i][j];
      cout<<endl;
      }
    }
      for(i=0;i<=2;i++) {
    for( int j=0;j<=2;j++)
      { cout<<"    Enter value of second  matrix:"<<"["<<i<<"]["<<j<<"]  :";
      cin>>arr2[i][j];
      cout<<endl;
      }
    }
    function( arrR,   arr1,arr2);
    cout<<"First Matrix :-"<<endl;
      for( int i=0;i<=2;i++)
    {
      for(int j=0;j<=2;j++)
      { cout<<"  "<<arr1[i][j]<<"    ";
      }
        cout<<endl;
    }
    cout<<"second Matrix :-"<<endl;
      for( int i=0;i<=2;i++)
    {
      for(int j=0;j<=2;j++)
      { cout<<"  "<<arr2[i][j]<<"    ";
      }
        cout<<endl;
    }
    cout<<"Final matrix after multiplying these two matrixes :-"<<endl;
      for(int x=0;x<=2;x++)
      {
          for(int y=0;y<=2;y++)
          {
              cout<<"  "<<arrR[x][y]<<"    ";
          }
          cout<<endl;
      }
    return 0;
}
```

```
    Enter value of second  matrix:[0][2]  :3

    Enter value of second  matrix:[1][0]  :4

    Enter value of second  matrix:[1][1]  :5

    Enter value of second  matrix:[1][2]  :6

    Enter value of second  matrix:[2][0]  :7

    Enter value of second  matrix:[2][1]  :8

    Enter value of second  matrix:[2][2]  :9

First Matrix :-
  1      2      3
  4      5      6
  7      8      9
second Matrix :-
  1      2      3
  4      5      6
  7      8      9
Final matrix after multiplying these two matrixes :-
  30      36      42
  66      81      96
  102      126      150

--------------------------------
Process exited after 14.22 seconds with return value 0
Press any key to continue . . .
```

# Q#5

```cpp
#include <bits/stdc++.h>
using namespace std;
int Table(int num, int i = 1)
 {
    if(i > 10){return num;}
    cout << num << " * " << i << " = " << num * i <<endl;
        Table(num, i + 1);
}
int main() {
   cout << "Multiplication table of 15 is:"<<endl;;
   Table(15);
    return 0;
}
```

```
Multiplication table of 15 is:
15 * 1 = 15
15 * 2 = 30
15 * 3 = 45
15 * 4 = 60
15 * 5 = 75
15 * 6 = 90
15 * 7 = 105
15 * 8 = 120
15 * 9 = 135
15 * 10 = 150

--------------------------------
Process exited after 0.2912 seconds with return value 0
Press any key to continue . . .
```