

Q1:-

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int arr1[3][3];
```

```
    int arr2[3][3];
```

```
    int sum[3][3]={0};
```

```
    int i,j;
```

```
    printf("Enter 1st matrix elements:\n");
```

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

```
    {
```

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

```
        {
```

```
            scanf("%d",&arr1[i][j]);
```

```
        }
```

```
    }
```

```
    printf("Enter 2nd matrix elements:\n");
```

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

```
    {
```

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

```
        {
```

```
            scanf("%d",&arr2[i][j]);
```

```

        }
    }
    printf("Output:\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            printf("%d\n",arr1[i][j]+arr2[i][j]);
        }
    }
    return 0;
}

```

Q2:-

```

#include<stdio.h>

int main()
{
    int arr1[3][3];
    int arr2[3][3];
    int product[3][3]={0};
    int i,j,k,sum=0;
    printf("Enter 1st matrix elements:\n");
    for(i=0;i<3;i++)

```

```
{  
    for(j=0;j<3;j++)  
    {  
        scanf("%d",&arr1[i][j]);  
    }  
  
}  
printf("Enter 2nd matrix elements:\n");  
for(i=0;i<3;i++)  
{  
    for(j=0;j<3;j++)  
    {  
        scanf("%d",&arr2[i][j]);  
    }  
}  
printf("Product of a matrix:\n");  
for(i=0;i<3;i++)  
{  
    for(j=0;j<3;j++)  
    {  
        for(k=0;k<3;k++)  
        {  
            sum=sum+(arr1[i][k]*arr2[k][j]);  
        }  
    }  
}
```

```

        product[i][j]=sum;
        sum=0;
    }
}
for(i=0;i<3;i++)
{
    for(j=0;j<3;j++)
    {
        printf("%d\t",product[i][j]);
    }
    printf("\n");
}
return 0;
}

```

Q3:-

```

#include<stdio.h>

int main()
{
    int arr[3][3];
    int transpose[3][3];
    int i,j;
    printf("Enter 1st matrix elements:\n");
}

```

```

    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            scanf("%d",&arr[i][j]);
            transpose[j][i]=arr[i][j];
        }
    }
    printf("Output:\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            printf("%d\t",transpose[i][j]);
        }
        printf("\n");
    }
    return 0;
}

```

Q4:-

```
#include<stdio.h>
```

```
int main()
```

```

{
    int arr[3][3];
    int sum=0;
    int i,j;
    printf("Enter 1st matrix elements:\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            scanf("%d",&arr[i][j]);
            if(i==j)
                sum=sum+arr[i][j];
        }
    }
    printf("sum of right diagonals of a matrix:\n");
    printf("%d",sum);
    return 0;
}

```

Q5:-

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```

int arr[3][3];
int sum=0;
int i,j,k=2;
printf("Enter 1st matrix elements:\n");
for(i=0;i<3;i++)
{
    for(j=0;j<3;j++)
    {
        scanf("%d",&arr[i][j]);
        if(j==k)
        {
            sum=sum+arr[i][j];
            k--;
        }
    }
}
printf("sum of left diagonals of a matrix:\n");
printf("%d",sum);
return 0;
}

```

Q6:-

```
#include<stdio.h>
```

```
int main()
{
    int arr[3][3];
    int row_sum;
    int column_sum;
    int i,j;
    printf("Enter 1st matrix elements:\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            scanf("%d",&arr[i][j]);
        }
    }
    printf("Sum of rows and column of a matrix:\n");
    for(i=0;i<3;i++)
    {
        column_sum=0;
        row_sum=0;
        for(j=0;j<3;j++)
        {
            row_sum=row_sum+arr[i][j];
            column_sum=column_sum+arr[j][i];
        }
    }
}
```



```
        printf("%d row sum-%d\n",i+1,row_sum);
        printf("%d column sum-%d\n",i+1,column_sum);
    }

    return 0;
}
```

Q7:-

```
#include<stdio.h>

int main()
{
    int arr[3][3];
    int i,j;
    printf("Enter a matrix elements:\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            scanf("%d",&arr[i][j]);
        }
    }

    printf("Upper trigular matrix:\n");
    for(i=0;i<3;i++)
```

```

{
    for(j=0;j<3;j++)
    {
        if(i>j)
        {
            arr[i][j]=0;
            printf("%d",arr[i][j]);
            printf("\t");
        }
        else
        {
            printf("%d",arr[i][j]);
            printf("\t");
        }
    }
    printf("\n");
}
return 0;
}

```

Q8:-

```
#include<stdio.h>
```

```
int main()
```

```
{  
  
    int arr[3][3];  
  
    int i,j;  
  
    printf("Enter a matrix elements:\n");  
    for(i=0;i<3;i++)  
    {  
        for(j=0;j<3;j++)  
        {  
            scanf("%d",&arr[i][j]);  
        }  
    }  
  
    printf("lower trigular matrix:\n");  
    for(i=0;i<3;i++)  
    {  
        for(j=0;j<3;j++)  
        {  
            if(j>i)  
            {  
                arr[i][j]=0;  
                printf("%d",arr[i][j]);  
                printf("\t");  
            }  
            else  
            {
```

```
        printf("%d",arr[i][j]);
        printf("\t");
    }
}
printf("\n");
}
return 0;
}
```

Q9:-

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int arr[3][3];
```

```
    int i,j,count=0;
```

```
    printf("Enter a matrix:\n");
```

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

```
    {
```

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

```
        {
```

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

```
            if(arr[i][j]!=0)
```

```
                count++;
```

```

        }
    }
    if(count<(9/2))
        printf("Matrix is sparse");
    else
        printf("Matrix is dense");
    return 0;
}

```

Q10:-

```

#include<stdio.h>

int main()
{
    int arr[3][3];
    int i,j,max=0,sum=0,index=0;
    printf("Enter element :\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            scanf("%d",&arr[i][j]);
        }
    }
}

```

```
for(i=0;i<3;i++)
{
    sum=0;
    for(j=0;j<3;j++)
    {
        if(arr[i][j]==1)
            sum=sum+arr[i][j];
    }
    if(max<sum)
    {
        index=i+1;
        max=sum;
    }
}
printf("The maximum no. of 1s is %d of %d row",max,index);
return 0;
}
```