1. Write a program to calculate the sum of two matrices each of order 3x3.

Ans #include<stdio.h>

int main()

{

int a[3][3],b[3][3],c[3][3],i,j;

printf("Enter the 1st Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

printf("Enter the 2nd Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

c[i][j]=a[i][j]+b[i][j];

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

printf("%d ",c[i][j]);

}

printf("\n");

}

return 0;

}

2. Write a program to calculate the product of two matrices each of order 3x3.

Ans

#include<stdio.h>

int main()

{

int a[3][3],b[3][3],c[3][3],i,j,k,sum=0;

printf("Enter the 1st Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

printf("Enter the 2nd Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

for(k=0;k<=2;k++)

{

sum = sum + (a[i][k] \* b[k][j]);

}

c[i][j]=sum;

sum=0;

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

printf("%d ",c[i][j]);

}

printf("\n");

}

return 0;

}

3. Write a program in C to find the transpose of a given matrix.

Ans #include<stdio.h>

int main()

{

int a[3][3],b[3][3],i,j;

printf("Enter the Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

b[i][j]=a[j][i];

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

printf("%d ",b[i][j]);

}

printf("\n");

}

return 0;

}

4. Write a program in C to find the sum of right diagonals of a matrix.

Ans #include<stdio.h>

int main()

{

int a[3][3],i,j,sum=0;

printf("Enter the Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

sum= a[0][0] + a[1][1] + a[2][2];

}

}

printf("Right diagonal of the matrix is %d ",sum);

return 0;

}

5. Write a program in C to find the sum of left diagonals of a matrix.

Ans #include<stdio.h>

int main()

{

int a[3][3],i,j,sum=0;

printf("Enter the Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

sum= a[0][2] + a[1][1] + a[2][0];

}

}

printf("Left diagonal of the matrix is %d ",sum);

return 0;

}

6. Write a program in C to find the sum of rows and columns of a Matrix.

Ans #include<stdio.h>

int main()

{

int a[3][3],i,j,sum=0;

printf("Enter the matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

printf("Sum of Rows: ");

for(i=0;i<=2;i++)

{

sum=0;

for(j=0;j<=2;j++)

{

sum= sum + a[i][j];

}

printf("%d ",sum);

}

printf("\nSum of Columns: ");

for(i=0;i<=2;i++)

{

sum=0;

for(j=0;j<=2;j++)

{

sum= sum + a[j][i];

}

printf("%d ",sum);

}

return 0;

}

7. Write a program in C to print or display the lower triangular of a given matrix.

Ans #include<stdio.h>

int main()

{

int a[3][3],i,j,sum=0;

printf("Enter the Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

printf("Lower Trianguler Matrix:\n");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

if(i<j)

a[i][j]=0;

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

return 0;

}

8. Write a program in C to print or display an upper triangular matrix.

Ans #include<stdio.h>

int main()

{

int a[3][3],i,j,sum=0;

printf("Enter the Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

printf("Upper Trianguler Matrix:\n");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

if(i>j)

a[i][j]=0;

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

return 0;

}

9. Write a program in C to accept a matrix and determine whether it is a sparse matrix.

Ans #include<stdio.h>

int main()

{

int a[3][3],i,j,count=0;

printf("Enter the Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

if(a[i][j]==0)

count++;

}

}

if(count>((3\*3)/2))

printf("The matrix is Sparx Matrix");

else

printf("The matrix is not a Sparx Matrix");

return 0;

}

10. Write a program in C to find the row with maximum number of 1s

Ans #include<stdio.h>

int main()

{

int a[3][3],i,j,sum=0,max=0,index=0;

printf("Enter the Matrix: ");

for(i=0;i<=2;i++)

{

for(j=0;j<=2;j++)

{

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

}

}

for(i=0;i<=2;i++)

{

sum=0;

for(j=0;j<=2;j++)

{

if(a[i][j]==1)

sum=sum+a[i][j];

}

if(sum>max)

{

max=sum;

index=i+1;

}

}

printf("Maximum number of 1s are present in %dth row",index);

return 0;

}