```c
#include<stdio.h>
int main()
{
float a[11] [11],l[11] [11], u[11] [11], b[11], x[11],y [11], sum;
int n, i,j, k;
printf("Enter the number of unknown \n");
scanf("%d", &n);
printf("Enter the coefficient matrix \n");
for(i=1; i<=n; i++)
{
for(j=1;j<=n;j++)
scanf("%f", &a[i][j]);
}
printf("\n Enter the constant matrix\n") ;
for(i=1;i<=n; i++)
scanf(" %f", &b[i]);
for(j=1;j<=n;j++)
{
for (i=1;i<=n;i++)
{
if(i<=j)
{
u[i][j]=a[i][j];
for (k=1;k<=i-1; k++)
u[i][j]=u[i][j] -l[i] [k] *u [k] [j];
if(i==j)
l[i][j]=1;
else
l[i] [j]=0;
}
else
{
u[i][j]=0;
l[i][j]=a[i][j];
for (k=1;k<=j-1; k++)
l[i][j ] =l [i] [j] -l[i] [k]*u [k][i];
l[i][j]=l[i] [j]/u[j][j];
}
}
}
printf("\nThe upper triangular matrix is\n") ;
for(i=1;i<=n; i++)
{
for(j=1; j<=n;j++)
printf( "%7.5f", u[i][j]);
printf ("\n");
}
printf("\nThe lower triangular matrix is\n");
for(i=1;i<=n;i++)
{
for (j=1;j<=n;j++)
printf("%7.5f", l[i][j]);
printf("\n");
}
for(i=1;i<=n;i++)
{
y[i]=b[i];
for(j=1;j<i;j++)
y[i]=y[i] -l[i][j]*y[j];
}
```

```
for(i=n;i>=1;i--)
{
x[i]=y[i];
for(j=i+1;j<=n;j++)
x[i]=x[i]-u[i] [j]*x[j];
x[i]=x[i]/u[i] [i];
}
printf("\nThe solution is\n");
for(i=1;i<=n;i++)
printf("x[%d]=%8.5f\n ", i, x[i]);
printf(" (correct up to five decimal places) \n");
return (0);
}
//*Output*//
Enter the number of unknown
4
Enter the coefficient matrix
6.61 1.32 0.91 -1.81
2.31 7.95 1.11 0.45
1.69 -0.45 6.77 1.06
2.08 1.19 -2.18 8.65

 Enter the constant matrix
-1.49
8.19
-8.54
30.95

The upper triangular matrix is
6.610001.320000.91000-1.81000
0.000007.488700.791981.08254
0.000000.000006.584931.58782
0.000000.000000.000009.57320

The lower triangular matrix is
1.000000.000000.000000.00000
0.349471.000000.000000.00000
0.25567-0.060091.000000.00000
0.314670.15891-0.331061.00000
The solution is
x[1]= 0.6279
 x[2]= 0.9437
 x[3]=-1.8524
 x[4]= 2.8733
         (correct up to four decimal places)
```