#include<stdio.h>

int main()

{

int i,j,k,n;

float A[20][20],c,x[10],sum=0.0;

printf("\nEnter the order of matrix: ");

scanf("%d",&n);

printf("\nEnter the elements of augmented matrix row-wise:\n\n");

for(i=1; i<=n; i++)

{

for(j=1; j<=(n+1); j++)

{

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

scanf("%f",&A[i][j]);

}

}

for(j=1; j<=n; j++) /\* loop for the generation of upper triangular matrix\*/

{

for(i=1; i<=n; i++)

{

if(i>j)

{

c=A[i][j]/A[j][j];

for(k=1; k<=n+1; k++)

{

A[i][k]=A[i][k]-c\*A[j][k];

}

}

}

}

x[n]=A[n][n+1]/A[n][n];

/\* this loop is for backward substitution\*/

for(i=n-1; i>=1; i--)

{

sum=0;

for(j=i+1; j<=n; j++)

{

sum=sum+A[i][j]\*x[j];

}

x[i]=(A[i][n+1]-sum)/A[i][i];

}

printf("\nThe solution is: \n");

for(i=1; i<=n; i++)

{

printf("\nx%d=%f\t",i,x[i]); /\* x1, x2, x3 are the required solutions\*/

}

return(0);

}