

```

#include <iostream>
#include <vector>
using namespace std;

int main()
{
    int n;
    cout << "Enter the number of variables: ";
    cin >> n;

    vector<vector<double>> matrix(n, vector<double>(n + 1));

    for (int i = 0; i < n; ++i)
    {
        for (int j = 0; j <= n; ++j)
        {
            if (j != n)
            {
                cout << "enter the value of X" << j + 1 << " " << "in the " << i + 1 << " " << "equation" << " ";
                cin >> matrix[i][j];
            }
            else
            {
                cout << "enter the value of constant " << " " << "in the " << i + 1 << " " << "equation" << " ";
                cin >> matrix[i][j];
            }
        }
    }

    for (int i = 0; i < n; ++i)
    {
        double diagelem = matrix[i][i];
        for (int j = 0; j <= n; ++j)
        {
            matrix[i][j] /= diagelem;
        }

        for (int k = 0; k < n; ++k)
        {
            if (k != i)
            {
                double multiplier = matrix[k][i];
                for (int j = 0; j <= n; ++j)
                {
                    matrix[k][j] = matrix[k][j] - multiplier * matrix[i][j];
                }
            }
        }
    }

    cout << endl;
    for (int i = 0; i < n; ++i)
    {
        for (int j = 0; j <= n; ++j)
        {
            cout << matrix[i][j] << " ";
        }
    }
}

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    cout << endl;
}
cout << "The solutions are:" << endl;
for (int i = 0; i < n; ++i)
{
    cout << "x" << i + 1 << " = " << matrix[i][n] << endl;
}
return 0;
}
```