```
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//this is a c program to implement the gauss elimination method :-

#include <stdio.h>
int main()
{

    int N, i, j, V;

    printf("Enter the number of unknowns \n");
    scanf("%d", &N);
    V=N;
    float Aug[N][V + 1];
    printf("Enter the augmented matrix\n");

    for (i = 0; i < N; i++)
    {
        for (j = 0; j <= V; j++)
        {
            scanf("%f", &Aug[i][j]);
        }
    }
```

```
    for (i = 0; i < N; i++)
    {
        for (j = 0; j <= V; j++)
        {
            if (i > j)
            {
                float ut = Aug[i][j] / Aug[j][j];

                for (int k = 0; k < V + 1; k++)
                {
                    Aug[i][k] = Aug[i][k] - (ut * Aug[j][k]);
                }
// printing the intermediate form of the augmented matrix
                printf("Intermediate forms: \n");
                for (int x = 0; x < N; x++)
                {
                    for (int y = 0; y < V + 1; y++)
                    {
                        printf("%f\t", Aug[x][y]);
                    }
                    printf("\n");
                }
                printf("\n");
            }
        }
```

```
    }

    float x[V];

    x[V - 1] = Aug[2][3] / Aug[2][2];
    for (i = N - 2; i >= 0; i--)
    {
        float sum = 0;
        for (j = i + 1; j < V; j++)
        {
            sum = sum + Aug[i][j] * x[j];
        }
        x[i] = (Aug[i][V] - sum) / Aug[i][i];
    }
 printf("the value of unknows are : \n");
    for (int i = 0; i < V; i++)
    {
        printf("%f\n", x[i]);
    }

    //printf("hello the world");
    return 0;
}
```

// Output

Enter the number of unknowns

3

Enter the augmented matrix

2 1 1 10

3 2 3 18

1 4 9 16

Intermediate forms:

| | | | |
|---|---|---|---|
| 2.000000 | 1.000000 | 1.000000 | 10.000000 |
| 0.000000 | 0.500000 | 1.500000 | 3.000000 |
| 1.000000 | 4.000000 | 9.000000 | 16.000000 |

Intermediate forms:

| | | | |
|---|---|---|---|
| 2.000000 | 1.000000 | 1.000000 | 10.000000 |
| 0.000000 | 0.500000 | 1.500000 | 3.000000 |
| 0.000000 | 3.500000 | 8.500000 | 11.000000 |

Intermediate forms:

| | | | |
|---|---|---|---|
| 2.000000 | 1.000000 | 1.000000 | 10.000000 |
| 0.000000 | 0.500000 | 1.500000 | 3.000000 |
| 0.000000 | 0.000000 | -2.000000 | -10.000000 |

the value of unknows are :

7.000000

-9.000000

5.000000