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1  /*Implementation of solution of linear equations by Gauss-Seidel's iteration method.
2   Coded by Ashwini Kumar Singh on 10-Feb-2021*/
3
4  #include<stdio.h>
5  #include<math.h>
6
7  int main() {
8      int i,j,m,n,itrn;
9
10
11     printf("\n*****\n");
12     printf("\nImplementation of solution of system of linear equations by Gauss-Seidel's
13     iteration method\n");
14     printf("\nCoded by Ashwini Kumar Singh on 10-Feb-2021\n");
15     printf("\n*****\n");
16
17     printf("\nEnter the no. of unknown(n) : \n");
18     scanf("%d",&n);
19
20     float x[n],a[n][n],b[n],c;
21
22     printf("\nEnter the number of iterations : \n");
23     scanf("%d",&itrn);
24
25     printf("\nEnter the right hand side constants : \n");
26     for(i=0;i<n;i++) {
27         scanf("%f",&b[i]);
28     }
29
30     printf("\nEnter the coefficients row wise : \n");
31     for(i=0;i<n;i++) {
32         x[i]=0;
33         for(j=0;j<n;j++) {

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33     }
34 }
35
36 FILE *output;
37 output=fopen("outGaussSeidelItr.tsv", "w");
38
39 fprintf(output, "\nIteration");
40 for(i=1; i<=n; i++)
41 {
42     fprintf(output, "\tJx%d", i);
43 }
44
45 for(m=1; m<=itrn; m++)
46 {
47     for(i=0; i<n; i++)
48     {
49         c=b[i];
50         for(j=0; j<n; j++) {
51             if(i!=j) {
52                 c=c-a[i][j]*x[j];
53             }
54         }
55         x[i]=c/a[i][i];
56     }
57
58     printf("\n%d\t:\t", m);
59     fprintf(output, "\n%d\t", m);
60     for(i=0; i<n; i++)
61     {
62         printf("x(%d) = %f\t", i+1, x[i]);
63         fprintf(output, "%f\t", x[i]);
64     }
65
66 }
67
68 printf("\n\nThe Solution is : \n");
69 for(i=0; i<n; i++)

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70     {
71         printf("\nx(%d) = %f", i+1, x[i]);
72     }
73 }
74
```