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Editor - D:\Acads\CL249\Assignment4\jacobi.m

```
1 function [Xf, operations] = jacobi(A, n, B)
2 % Declaring XI, Xf, and operations
3 operations = 0;
4 Xi = zeros(n,1);
5 Xf = zeros(n,1);
6 error = 10^(-6);
7
8 % iteration loop
9 while 1>0
10     for i = 1:n
11         sum = 0;
12         for j = 1:n
13             if(i~=j)
14                 sum = sum + (A(i,j)*Xi(j));
15                 operations = operations + 1;
16             end
17         end
18
19         % setting values to Xf by using previous X's
20         Xf(i) = (B(i) - sum)/A(i,i);
21         operations = operations + 2;
22     end
23
24     isConverging = 1; % like boolean value for checking
25
```

Editor - D:\Acads\CL249\Assignment4\gauss_siedel.m

```
1 function [Xf, operations] = gauss_siedel(A, n, B)
2 % Declaring XI, Xf, and operations
3 operations = 0;
4 Xg = zeros(n,1);
5 Xf = zeros(n,1);
6
7 tol = 10^(-10);
8
9 while 1>0
10     for i = 1:n
11         sum = 0;
12         % Sum of updated elements
13         for j1 = 1:i-1
14             sum = sum + A(i, j1)*Xf(j1);
15             operations = operations + 2;
16         end
17         % Sum of non-updated previous elements
18         for j2 = i+1:n
19             sum = sum + A(i, j2)*Xg(j2);
20             operations = operations + 2;
21         end
22
23         % Setting Xf values
24         Xf(i) = (B(i) - sum)/A(i,i);
25         operations = operations + 2;
26
```

Workspace

Name	Value
A	15x15 double
B	15x1 double
gElim_ops	1130
gSiedel_ops	62707050
jacobi_ops	328080
n	15
X_gElim	15x1 double
X_gSiedel	15x1 double
X_jacobi	15x1 double

Command Window

```
gSiedel_ops =
62707050
```

Algorithm Execution

Output