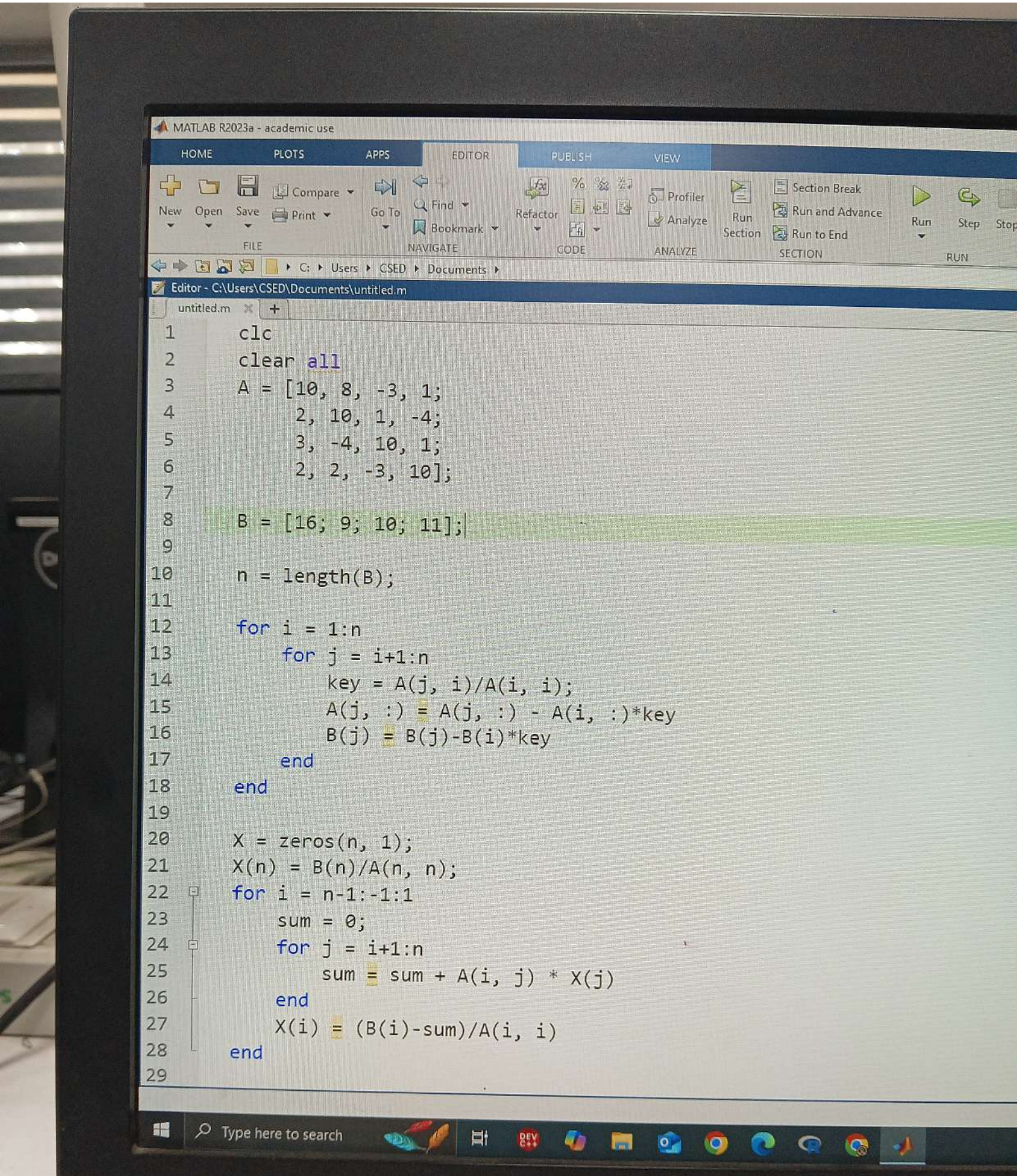


Gauss Elimination Method

Editor - C:\Users\Admin\Desktop\gaussaj.m

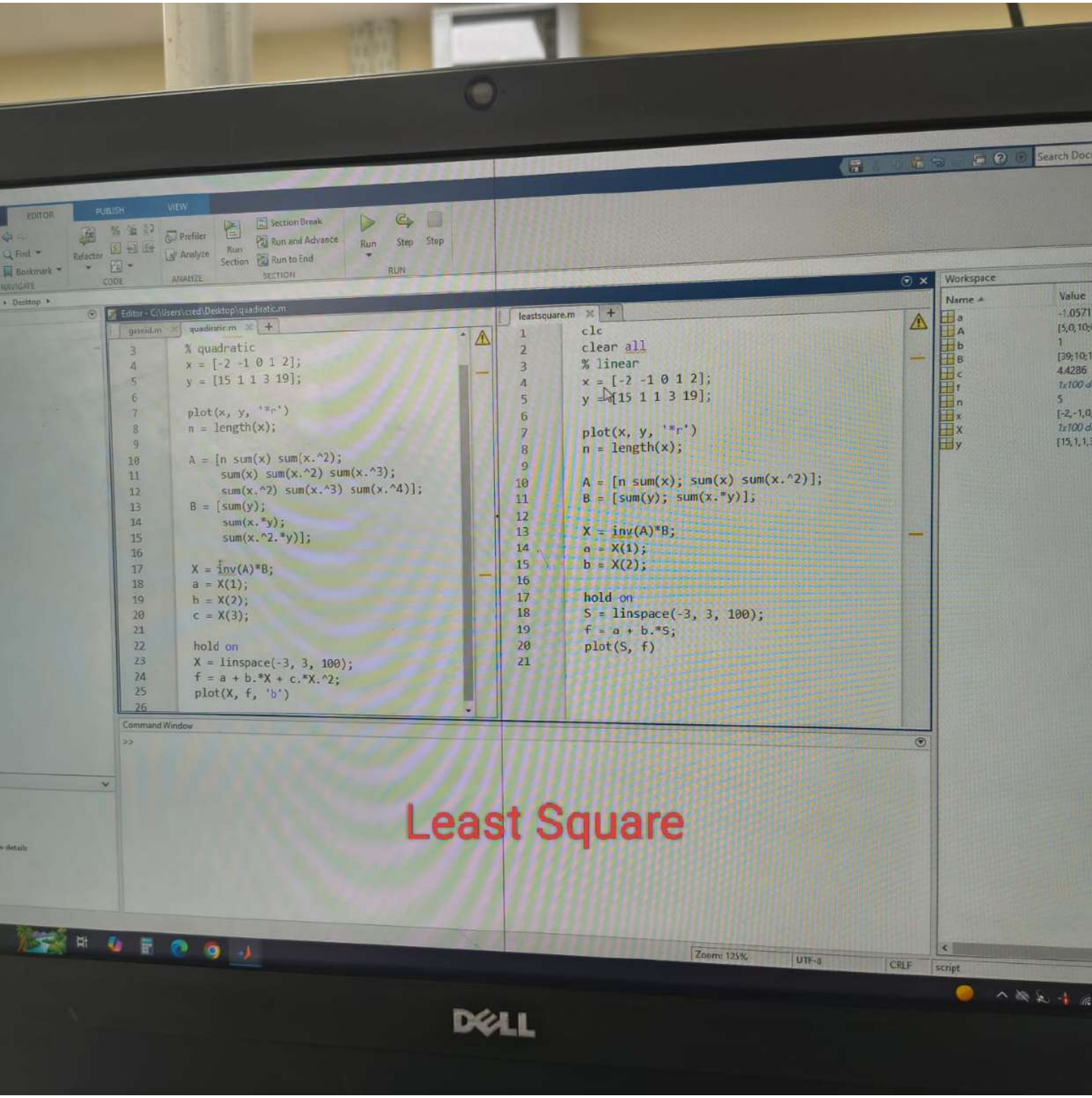
untitld.m | gaussy.m | gausselimination.m | gaussaj.m

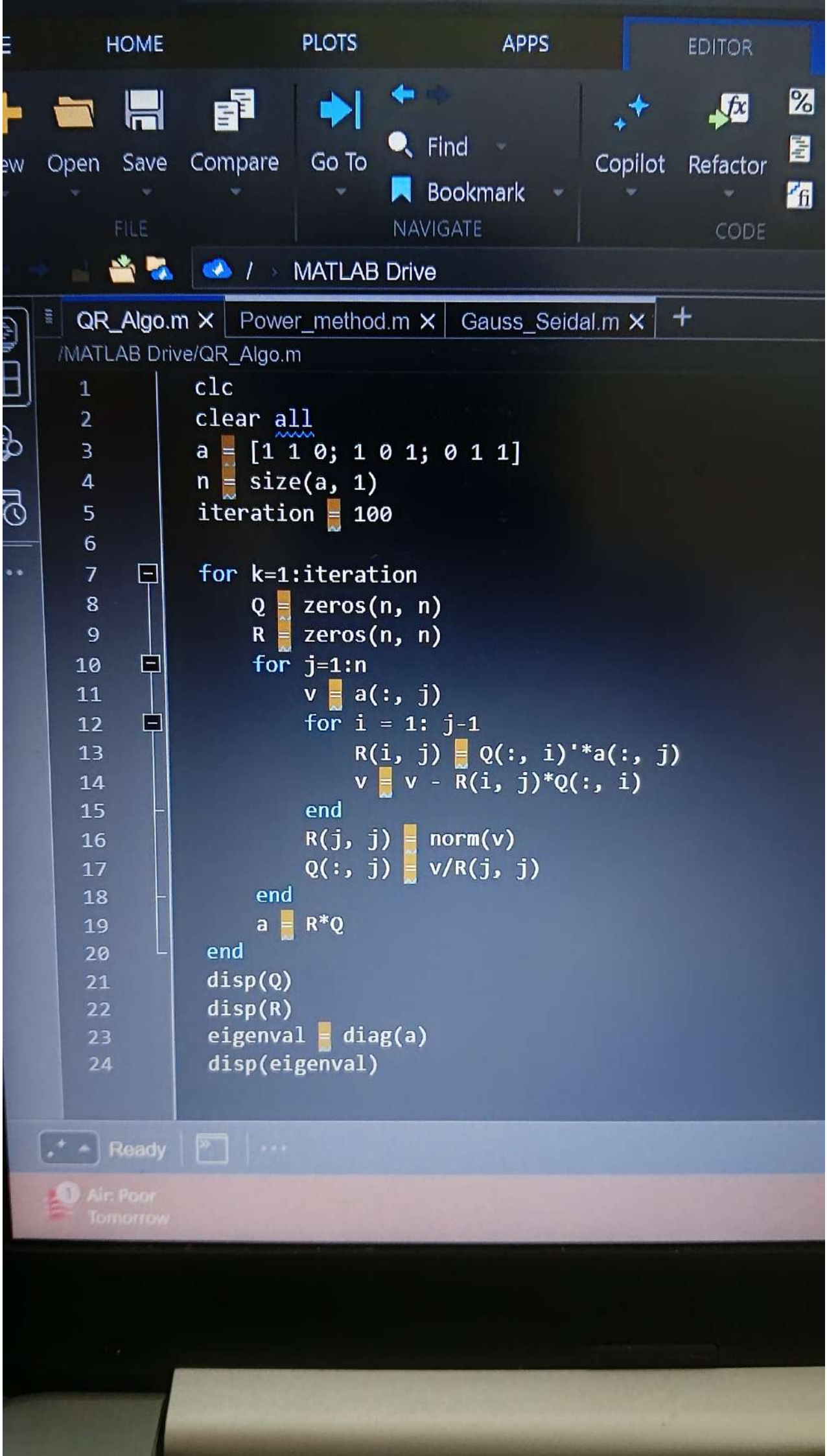
```
clc
clear all
x=[1 1.5 2 2.5]
y=[2.7183 4.4817 7.3891 12.1825]
n=size(x,2)
p=2.25
d=zeros(n,n)
d(:,1)=y
for j=2:n
    for i=1:n-j+1
        d(i,j)=(d(i+1,j-1)-d(i,j-1))/(x(i+j-1)-x(i))
    end
end

ans=d(1,1)
for i=2:n
    prod=d(1,i)
    for j=1:i-1
        prod=prod*(p-x(j))
    end
    ans=ans+prod
end
disp(ans)
```

Newton Divided Difference

Command Window


% quadratic
x = [-2 -1 0 1 2];
y = [15 1 1 3 19];
plot(x, y, '*r')
n = length(x);
A = [n sum(x) sum(x.^2);
sum(x) sum(x.^2) sum(x.^3);
sum(x.^2) sum(x.^3) sum(x.^4)];
B = [sum(y);
sum(x.*y);
sum(x.^2.*y)];
X = inv(A)*B;
a = X(1);
b = X(2);
c = X(3);
hold on
X = linspace(-3, 3, 100);
f = a + b.*X + c.*X.^2;
plot(X, f, 'b')
clc
clear all
% linear
x = [-2 -1 0 1 2];
y = [15 1 1 3 19];
plot(x, y, '*r')
n = length(x);
A = [n sum(x); sum(x) sum(x.^2)];
B = [sum(y); sum(x.*y)];
X = inv(A)*B;
a = X(1);
b = X(2);
hold on
S = linspace(-3, 3, 100);
f = a + b.*S;
plot(S, f)
Least Square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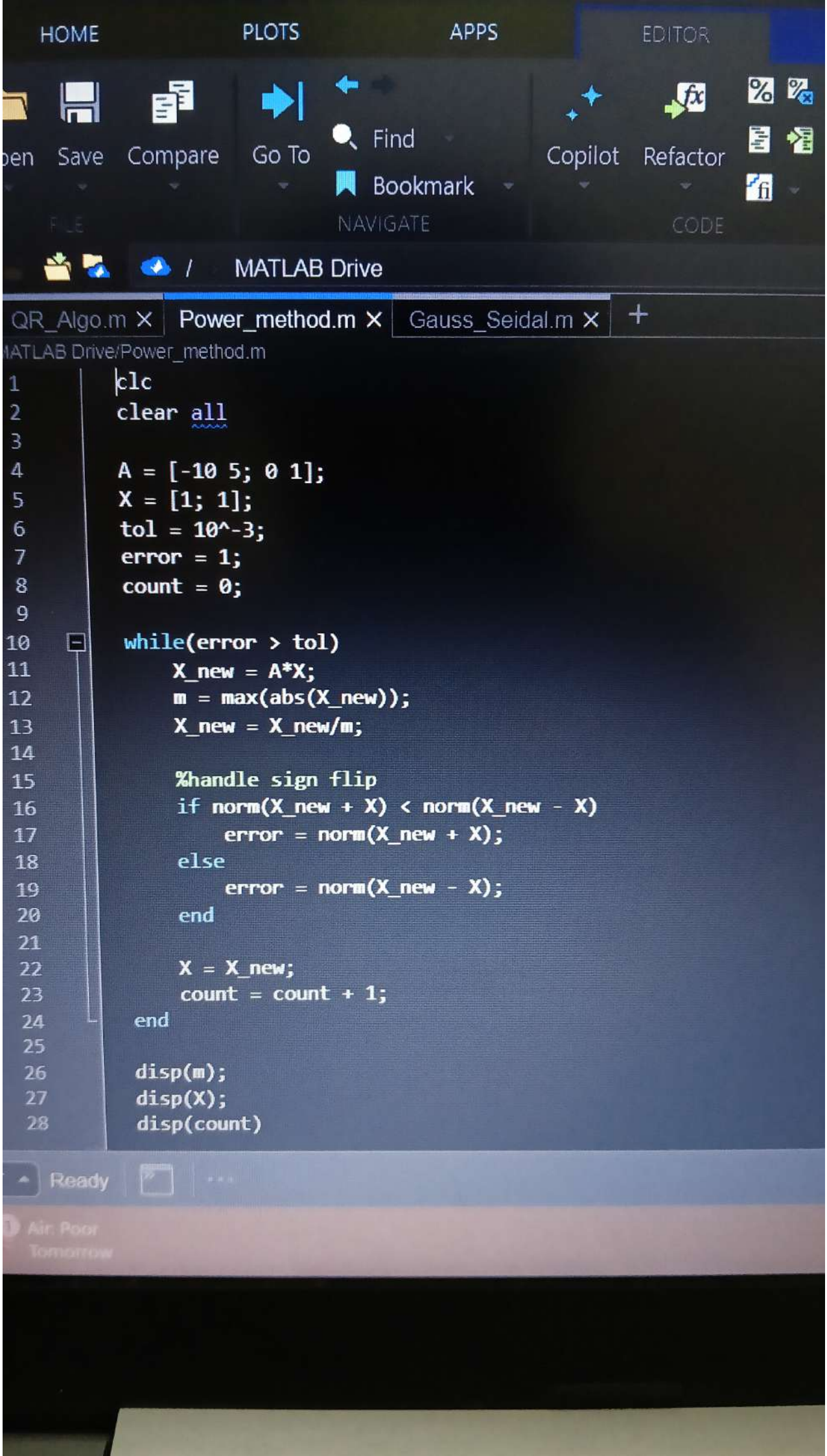
Bookmark
Copilot
Refactor
FILE
NAVIGATE
CODE
MATLAB Drive
QR_Algo.m
Power_method.m
Gauss_Seidal.m
/MATLAB Drive/QR_Algo.m
clc
clear all
a = [1 1 0; 1 0 1; 0 1 1]
n = size(a, 1)
iteration = 100
for k=1:iteration
Q = zeros(n, n)
R = zeros(n, n)
for j=1:n
v = a(:, j)
for i = 1: j-1
R(i, j) = Q(:, i)'*a(:, j)
v = v - R(i, j)*Q(:, i)
end
R(j, j) = norm(v)
Q(:, j) = v/R(j, j)
end
a = R*Q
end
disp(Q)
disp(R)
eigenval = diag(a)
disp(eigenval)
Ready
Air: Poor
Tomorrow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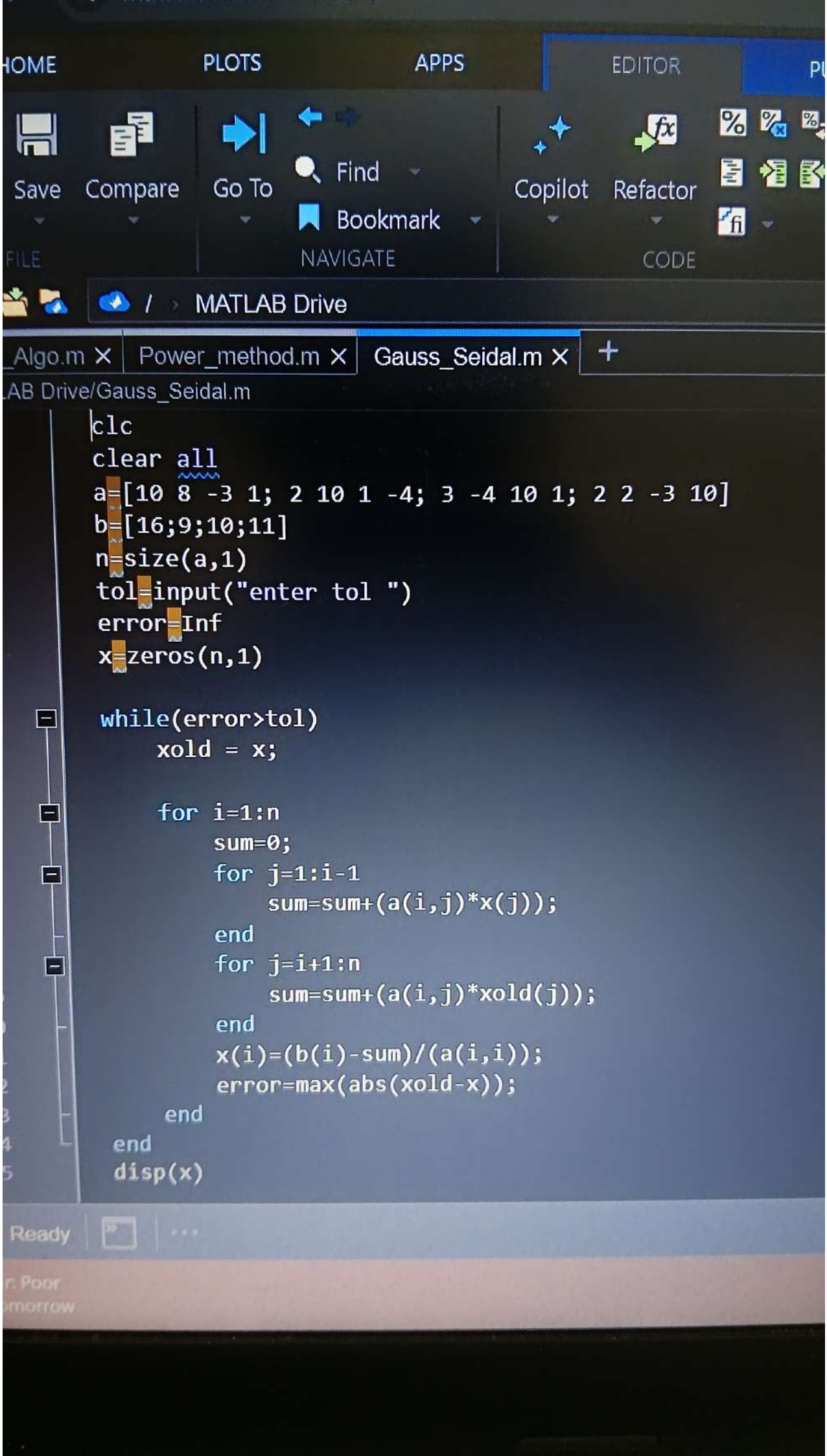
Copilot
Refactor
CODE
MATLAB Drive
QR_Algo.m
Power_method.m
Gauss_Seidal.m
ATLAB Drive/Power_method.m
clc
clear all
A = [-10 5; 0 1];
X = [1; 1];
tol = 10^-3;
error = 1;
count = 0;
while(error > tol)
X_new = A*X;
m = max(abs(X_new));
X_new = X_new/m;
%handle sign flip
if norm(X_new + X) < norm(X_new - X)
error = norm(X_new + X);
else
error = norm(X_new - X);
end
X = X_new;
count = count + 1;
end
disp(m);
disp(X);
disp(count)
Ready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CODE
MATLAB Drive
_Algo.m
Power_method.m
Gauss_Seidal.m
AB Drive/Gauss_Seidal.m
clc
clear all
a=[10 8 -3 1; 2 10 1 -4; 3 -4 10 1; 2 2 -3 10]
b=[16;9;10;11]
n=size(a,1)
tol=input("enter tol ")
error=Inf
x=zeros(n,1)
while(error>tol)
xold = x;
for i=1:n
sum=0;
for j=1:i-1
sum=sum+(a(i,j)*x(j));
end
for j=i+1:n
sum=sum+(a(i,j)*xold(j));
end
x(i)=(b(i)-sum)/(a(i,i));
error=max(abs(xold-x));
end
end
disp(x)
Ready