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1)The coefficients and constants are given by
A =[-6 2 1 2 1;
3 8 -4 1 0;
-1 1 4 10 1;
3 -4 1 9 2;
2 0 1 3 10]
And the coefficient matrix is given by b = [3; 4; -2; 12;1].
a) Write a code to see A is diagonal dominant or not?
The matrix A is not diagonal dominant at rows 1,2,3,4. So, it is not strictly dominant.

b)Write a code to solve using the Gauss Seidel Method with an error limit of e=0.001
We start with an initial assumption of solution (0,0,0,0,0) and use the gauss seidel method.
We find after iteration = 12 ,
 the solutions are
x=-1.1167055903326961
y=-1.3858907408144172
z=-4.254321044092604
w=1.4957609084125798
v=0.3000449499520257

2) Given the three data points (x, y) = (1.0, 8.0), (2.1,20.6) and (5.0, 13.7), write a program to return the value of y for any arbitrary x in the range [1.0, 5.0] using two-point linear interpolation.
The value for x=3 is 18.458620689655174
The value for x=2 is 19.454545454545453

3)Write a code for two-point segment linear interpolation for the dataset given in file points.txt (attached)
The txt file can be imported into the kernel by using the open() function.