Gauss Elimination Algorithm in python.
Example Solution:

a	X0	X1	B
	2	1	10
	1	3	8

n= 2 Number of unknows

X= {0,0} Solution Vector

```
# Gauss Elimination Algorithm

# 1- Applying Gauss Elimination
for i in range(n):

  if a[i][i] == 0.0:

    sys.exit('Divide by zero detected!')

  for j in range(i+1, n):

    ratio = a[j][i]/a[i][i]

    for k in range(n+1):

      a[j][k] = a[j][k] - ratio * a[i][k]

# 2- Back Substitution
x[n-1] = a[n-1][n]/a[n-1][n-1]

for i in range(n-2,-1,-1):
    x[i] = a[i][n]

    for j in range(i+1,n):
        x[i] = x[i] - a[i][j]*x[j]

    x[i] = x[i]/a[i][i]
```

Applying Gauss Elimination

For i in range 2

i = {0,1}

For j in range 1,2

j = {1}

ratio = a[1][0] / a[0][0]

ratio = 1/2

For k in range 3

k = {0,1,2}

R2 - (1/2*R1) -> R2
(R2 - (ratio * R1) -> R2)

k=0

a[1][0] = a[1][0] - ((1/2) * a[0][0])

k=1

a[1][1] = a[1][1] - ((1/2) * a[0][1])

k=2

a[1][2] = a[1][2] - ((1/2) * a[0][2])

i=0 j=1

a'

X0	X1	B
2	1	10
0	2.5	3

End (k for)

End (j for)

For i in range 2

i=1

For j in range 2,2

j = {}

Cannot loop and the elimination part of the algorithm ends.

End

Back Substitution

X[1] = a[1][2] / a[1][1]
= 3/2.5 = 1.2

For i in range 0,1-,1-

i = {0}

X[0] = 10

For j in range 1,2

j = {1}

X[0] = X[0] - (a[0][1] * X[1])
= 10 - (1*1.2) = 8.8

End (j for)

X[0] = X[0] / a[0][0] =
8.8 / 2 = 4.4

End (i for)

Solution Vector =
X{4.4,1.2}