

There are the following JAVA classes implementing the multi-frontal direct solver algorithm for finite difference problem:

- *A.java*
- *A1.java*
- *A2.java*
- *AN.java*
- *Aroot.java*
- *BS.java*
- *E2.java*
- *Eroot.java*
- *Executor.java*
- *Main.java*
- *P1.java*
- *P2.java*
- *P3.java*
- *Production.java*
- *Vertex.java*

Let us focus on the classes *A2.java*, *E2.java*, *Aroot.java*, *Eroot.java*, *BS.java*.

The class *E2* performs partial forward elimination. This is illustrated in Figure below. This is done by the following algorithm:

```
1  divider = A(0,0)
2  for icol=0,2
3    A(0,icol)=A(0,icol)/divider
4  end loop
5  b(0)=b(0)/divider
6  for irow=1,2
7    multiplier = A(irow,0)
8    A(irow,0)=0
```

```

9   for icol=1,2
10      A(irow,icol) = A(irow,icol) - A(irow,0) * A(0,icol)
11   end loop
12   b(irow)=b(irow)-A(irow,0)*b(0)
13 end loop

```

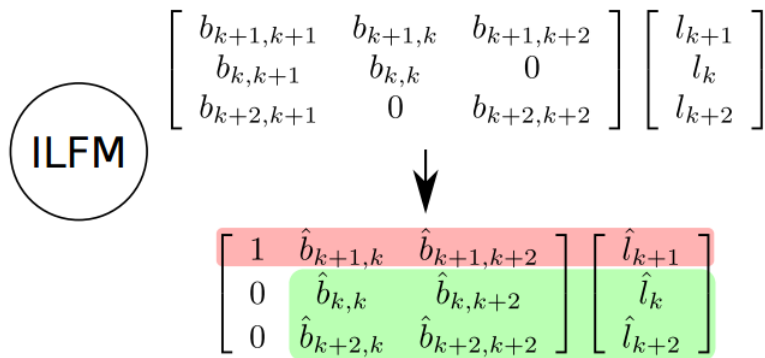


Figure 1: Production *E2* performing partial forward elimination.

Please implement the production *E2*