6.3.4 Putting it all together to solve Ax = b

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Homework 6.3.4.1

1 point possible (graded)

Implement the function

- `[ A_out, b_out ] = Solve( A, b )`

that

- Computes the LU factorization of matrix A, $A = LU$, overwriting the upper triangular part of A with U and the strictly lower triangular part of A with the strictly lower triangular part of L. The result is then returned in variable `A_out`.
- Uses the factored matrix to solve $Ax = b$.

Use the routines you wrote in the previous units

You can check that it computes the right answer with the following script:

- `test_Solve.m` (In `LAFF-2.0xM/Programming/Week06/`)

This script exercises the function by starting with matrix

```
A = [
     2     0     1     2
    -2    -1     1    -1
     4    -1     5     4
    -4     1    -3    -8
]
```

Next, it solves $Ax = b$ with

```
b = [
     2
     2
    11
    -3
]
```

by calling

```
x = Solve( A, b )
```

Finally, it checks if x indeed solves $Ax = b$ by computing

```
b - A * x
```

which should yield a zero vector of size four.

☑ Done/Skip ✔

Here is our implementations of the function:

- Solve.m