Sure! Here's a step-by-step process for performing LU decomposition on a matrix, along with an example:

Step 1: Choose a square matrix A that you want to decompose into lower and upper triangular matrices. For example, let's choose the following 3x3 matrix:

```

   2   1   1

A = 4   3   3

   8   7   9
```

Step 2: Write A as a product of a lower triangular matrix L and an upper triangular matrix U, such that A = LU. Let's assume that the diagonal entries of L are all 1, so L looks like this:

```

L = 1   0   0

   x   1   0

   y   z   1
```

And U looks like this:

```

U = a   b   c

   0   d   e

   0   0   f
```

Step 3: Solve for the entries of L and U by using the following equations:

For the first row of U:

```
a = 2, b = 1, c = 1
```

For the first column of L:

```
x = 4/2 = 2, y = 8/2 = 4
```

For the second row of U:

```
d = 3 - 2*1 = 1, e = 3 - 1*1 = 2
```

For the second column of L:

```
z = (7 - 2*1)/1 = 5
```

For the third row of U:

```
f = 9 - 2*4 - 1*5 = 0
```

Step 4: Verify that A = LU. To do this, simply multiply L and U together and see if you get the original matrix A:

```
   1  0  0      2  1  1      2  1  1
L * U = 2  1  0  * 0  1  2  =  4  3  3
    4  5  1     0  0  0     8  7  9
```

So we have successfully decomposed A into L and U, with:

```
L = 1  0  0
   2  1  0
   4  5  1

U = 2  1  1
   0  1  2
   0  0  0
```

I hope that helps!