```
# EXCERCISE 3
 1
 2
 3
    from scipy import linalg as sl
 4
    import numpy as np
 5
 6
    # Define the matrix A
    A = np.zeros((4,4))
 7
 8
    for i in range(np.shape(A)[0]):
        for j in range(np.shape(A)[0]):
 9
10
            if i == j:
11
                A[i][j] = 2
12
            if i == (j-1):
                A[i][j] = 1
13
            if j == (i-1):
14
15
                A[i][j] = 1
16
17
    # get the L and U
    P = sl.lu(A)
18
    U = P[2]
19
20
    L = P[1]
21
    P = P[0]
22
23
    # Define identity matrix
24
    b = np.identity(np.shape(L)[0])
25
    \# Solve L*d = b
    d = sl.solve_triangular(L,b,lower=True)
26
27
    # Solve U^*x = d
28
    Ainv = sl.solve_triangular(U,d)
29
    print Ainv
30
31
```