

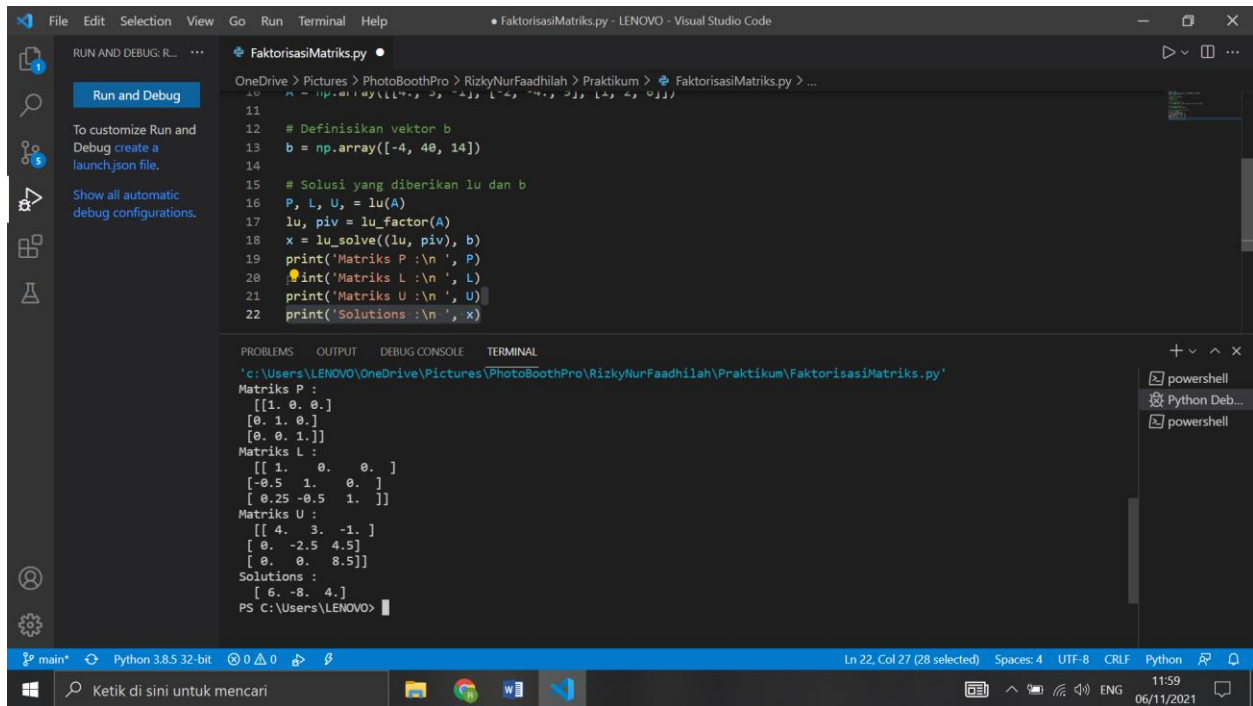
RIZKY NUR FAADHILAH

TF3A4

202010225183

PRAKTIKUM METNUM 2

2.Faktorisasi Matriks LU



The screenshot shows the Visual Studio Code interface with a Python file named 'FaktorisasiMatriks.py' open. The code performs LU factorization on a 3x3 matrix A. The matrix A is defined as $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$. The vector b is $[-4, 40, 14]^T$. The code calculates the LU decomposition and prints the matrices P, L, U, and the solution vector x.

```
11
12 # Definisikan vektor b
13 b = np.array([-4, 40, 14])
14
15 # Solusi yang diberikan lu dan b
16 P, L, U, = lu(A)
17 lu, piv = lu_factor(A)
18 x = lu_solve((lu, piv), b)
19 print('Matriks P :\n ', P)
20 print('Matriks L :\n ', L)
21 print('Matriks U :\n ', U)
22 print('Solutions :\n ', x)
```

The terminal output shows the following results:

```
'c:\Users\LENOVO\OneDrive\Pictures\PhotoBoothPro\RizkyNurFaadhilah\Praktikum\FaktorisasiMatriks.py'
Matriks P :
[[1. 0. 0.]
 [0. 1. 0.]
 [0. 0. 1.]]
Matriks L :
[[ 1.  0.  0. ]
 [-0.5  1.  0. ]
 [ 0.25 -0.5  1. ]]
Matriks U :
[[ 4.  3. -1. ]
 [ 0. -2.5  4.5]
 [ 0.  0.  8.5]]
Solutions :
[ 6. -8.  4.]
PS C:\Users\LENOVO>
```