

코드

```
2_14.py
1 import numpy as np
2 from LUdecomp3 import*
3
4 n=6
5 d = np.ones(n)*2.0
6 e = np.ones(n-1)*(-1.0)
7 c = e.copy()
8 d[n-1] = 5.0
9 aInv = np.identity(n)
10
11 A = [[2,-1,0,0,0,0],[-1,2,-1,0,0,0],[0,-1,2,-1,0,0],[0,0,-1,2,-1,0],[0,0,0,-1,2,-1],[0,0,0,0,-1,5]]
12 I = np.identity(n) #원래 행렬과 역행렬의 곱을 저장할 배열
13
14 c,d,e = LUdecomp3(c,d,e)
15
16 for i in range(n):
17     aInv[:,i] = LUsolve3(c,d,e,aInv[:,i])
18
19 print("\nThe inverse matrix is:\n",aInv)
20 I = np.dot(A,aInv)
21 print("\n A*X :\n",I)
22
```

출력

```
2_14
C:\Users\govl0\anaconda3\python.exe C:/KMU/2-1/수치해석/과제/3차과제/2_14.py

The inverse matrix is:
[[0.84 0.68 0.52 0.36 0.2  0.04]
 [0.68 1.36 1.04 0.72 0.4  0.08]
 [0.52 1.04 1.56 1.08 0.6  0.12]
 [0.36 0.72 1.08 1.44 0.8  0.16]
 [0.2  0.4  0.6  0.8  1.   0.2 ]
 [0.04 0.08 0.12 0.16 0.2  0.24]]

A*X :
[[ 1.0000e+00  0.0000e+00  0.0000e+00  0.0000e+00  0.0000e+00  0.0000e+00]
 [ 2.2204e-16  1.0000e+00  0.0000e+00  0.0000e+00  0.0000e+00  0.0000e+00]
 [-2.2204e-16 -4.4409e-16  1.0000e+00  0.0000e+00  0.0000e+00  0.0000e+00]
 [ 0.0000e+00  0.0000e+00  0.0000e+00  1.0000e+00  0.0000e+00  0.0000e+00]
 [ 0.0000e+00  0.0000e+00  2.2204e-16  2.2204e-16  1.0000e+00  0.0000e+00]
 [-2.7756e-17 -5.5511e-17  0.0000e+00  0.0000e+00 -1.1102e-16  1.0000e+00]]

Process finished with exit code 0
```