Gauss elimination without pivoting

```
Upper Triangular Matrix U
4.000000          2.000000          0.000000
0.000000          3.000000          1.000000
0.000000          0.000000          4.666667


Solution Matrix X
1.500000
2.000000
0.500000
```

Gauss elimination with pivoting

```
Upper Triangular Matrix U
4.000000          2.000000          0.000000
0.000000          3.000000          1.000000
0.000000          0.000000          4.666667
Permutation Matrix P
1.000000          0.000000          0.000000
0.000000          1.000000          0.000000
0.000000          0.000000          1.000000
Solution Matrix X
1.500000
2.000000
0.500000
```

LU decomposition by using Doolittle (without pivoting)

```
Lower Diagonal Matrix L
1.000000          0.000000          0.000000
0.500000          1.000000          0.000000
0.000000          0.333333          1.000000
Upper Diagonal Matrix U
4.000000          2.000000          0.000000
0.000000          3.000000          1.000000
0.000000          0.000000          4.666667
Solution Matrix X
1.500000
2.000000
0.500000
```

LU decomposition by using Crout method (without pivoting)

```
Lower Diagonal Matrix L
4.000000          0.000000          0.000000
2.000000          3.000000          0.000000
0.000000          1.000000          4.666667
```

```
Upper Diagonal Matrix U
1.000000            0.500000            0.000000
0.000000            1.000000            0.333333
0.000000            0.000000            1.000000
Solution Matrix X
1.500000
2.000000
0.500000
```

Cholesky decomposition

```
Cholesky factor Matrix L
2.000000            0.000000            0.000000
1.000000            1.732051            0.000000
0.000000            0.577350            2.160247
Solution Matrix X
1.500000
2.000000
0.500000
```