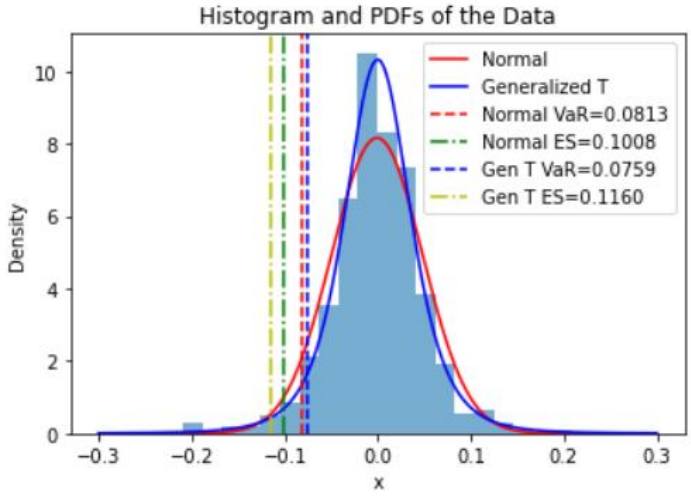
Q1:

Under Normal Distribution, the VaR is 0.0812 and ES is 0.1008 while under Generalized T distribution, the VaR is 0.0759 and ES is 0.1160. From the graph, I noticed that VaR under Normal Distribution is larger than under Genralized T distribution while ES under Normal Distribution is smaller than under Genralized T distribution. I think such a difference is because that T distribution has a fatter tail so that there will be more extreme values under T distribution.

```
VaR at 5% level: 0.08125483171032236
Expected Shortfall at 5% level: 0.10079349540127162

Generalized T Distribution:
VaR: 0.075861511162783
ES: 0.11595365600765128
```



Q2:

All functions perform as expected which is shown in FinTech 545 Week05 Q2.py.

Q3:

Portfolio A VaR: 7962.8
Portfolio A ES: 10246.6
Portfolio B VaR: 6758.4
Portfolio B ES: 8782.3
Portfolio C VaR: 5704.3
Portfolio C ES: 7528.5
Total VaR: 20280.2
Total ES: 26920.5

VaR under Generalized T is much larger than VaR calculated in Week 4, it may because that T distribution has a fatter tail.