



**ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ**  

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**UNIVERSITY OF PIRAEUS**

## THE PYTHON PROGRAMMING LANGUAGE

*MSC INFORMATION SYSTEMS AND SERVICES*

*SPECIALIZATION: BIG DATA AND ANALYTICS*

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## Abstract

This project is financial and is related to the analysis of IBM stocks. In general, the percentage daily fluctuations of the share are calculated, the construction of a histogram is plotted, where in the horizontal axis it has the percentage daily fluctuation and in the vertical the number of days during which the above fluctuation was observed. In the same diagram, i show the maximum and minimum fluctuation values and the last date on which they were observed. Then, models corresponding to the above distribution, were constructed the distribution of the models in the same histogram was plotted and then, the most appropriate distribution was selected. Finally, the goal was to automate the above process so that the program accepts as input the name of a stock and automatically performs the above search on the network and its analysis.

**The dataset is mined from Quandl Library**

## Results:

```
[distfit] >fit..
```

```
[distfit] >transform..
```

```
[smoothline] >Smoothing by interpolation..
```

```
[distfit] >[norm    ] [RSS: 0.0530839] [loc=0.012 scale=1.883]
```

```
[distfit] >[expon   ] [RSS: 0.0301149] [loc=-74.918 scale=74.930]
```

```
[distfit] >[pareto  ] [RSS: 0.0458045] [loc=-76.454 scale=1.536]
```

```
[distfit] >[dweibull ] [RSS: 0.0997374] [loc=-0.000 scale=1.094]
```

```
[distfit] >[t       ] [RSS: 0.0978945] [loc=0.009 scale=1.065]
```

```
[distfit] >[genextreme] [RSS: 0.0433678] [loc=12.133 scale=3.017]
```

```
[distfit] >[gamma    ] [RSS: 0.0326697] [loc=-23.519 scale=1.847]
```

```
[distfit] >[lognorm  ] [RSS: 0.0478955] [loc=-189.650 scale=189.689]
```

```
[distfit] >[beta     ] [RSS: 0.0618810] [loc=-906.135 scale=925.690]
```

```
[distfit] >[uniform  ] [RSS: 0.0263683] [loc=-74.918 scale=88.078]
```

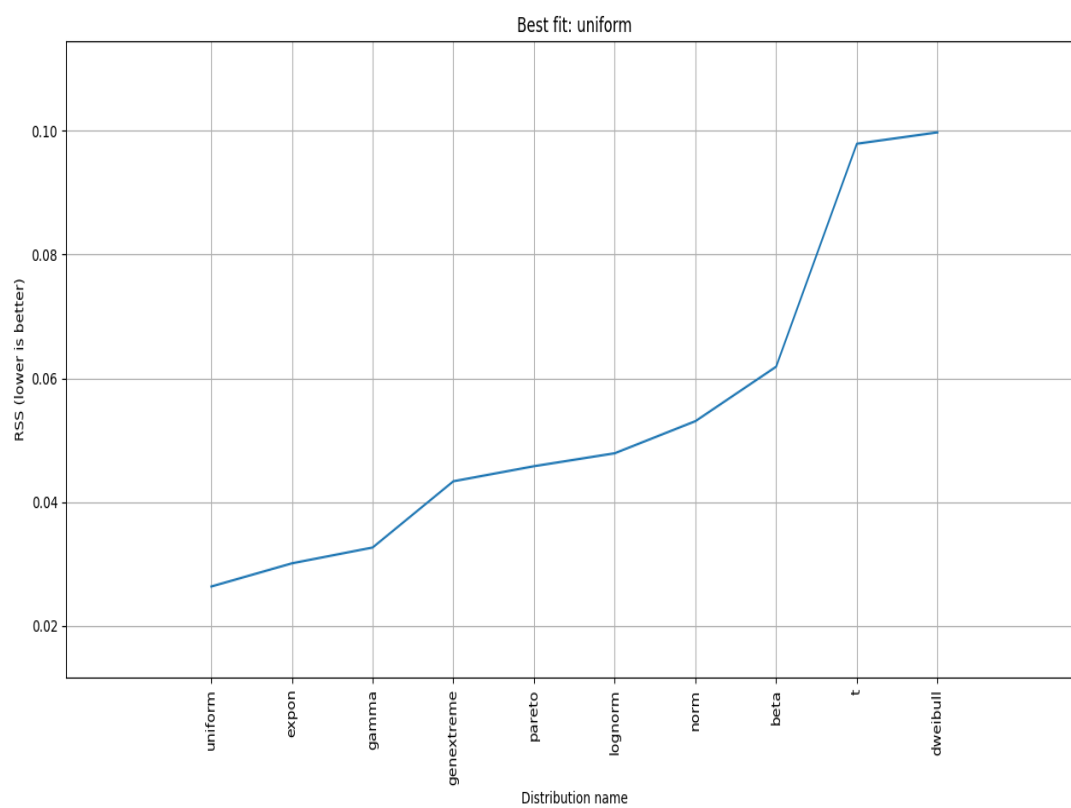
```
[distfit] >Compute confidence interval [parametric]
```

```
{'distr': <scipy.stats._continuous_distns.uniform_gen object at 0x0000020F9A085D90>, 'params': (-74.91776315789474, 88.07810758423871), 'name': 'uniform', 'RSS': 0.026368270729935753, 'loc': -
```

```
74.91776315789474, 'scale': 88.07810758423871, 'arg': (), 'CII_min_alpha': -70.5138577786828, 'CII_max_alpha': 8.756439047132034}
```

```
[distfit] >plot summary..
```

Process finished with exit code 0



Fit results: aa = 5947.39, bb 128.22, cb = -906.13, db 925.69

