

# Lecture 4 report

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## 1. Box-mueller normal distribution check

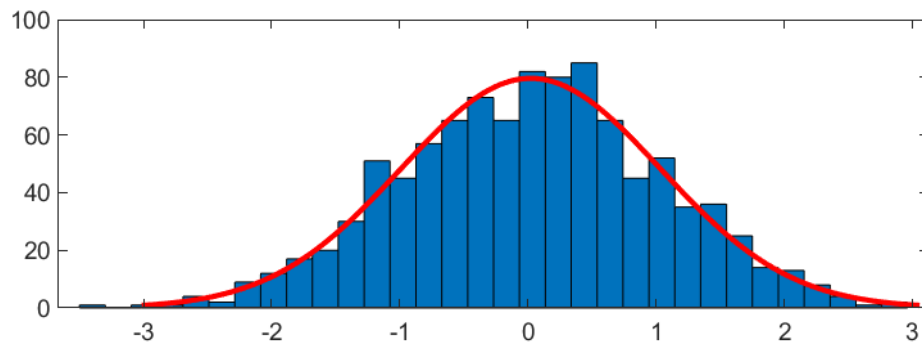


Figure 1 - Box mueller generated data

Random data seems to be normally distributed with following parameters:

- Median: 0.0217097
- Standard dev: 1.01177

## 2. Exercise 2

### 2.1. Volatility set to 0

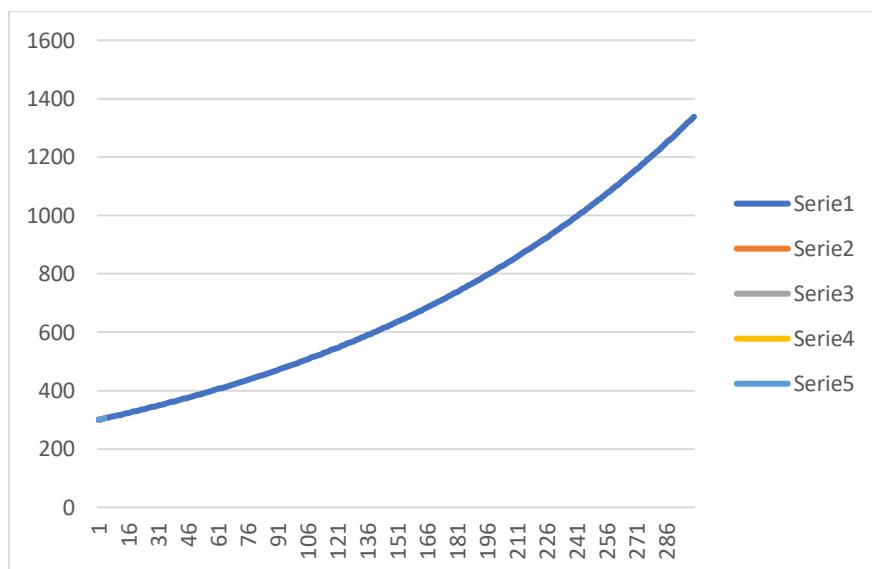


Figure 2 - Volatility set to 0

When volatility is set to 0 the process is deterministic. Each time the result is the same.

## 2.2. Histogram of 1000 final stock prices

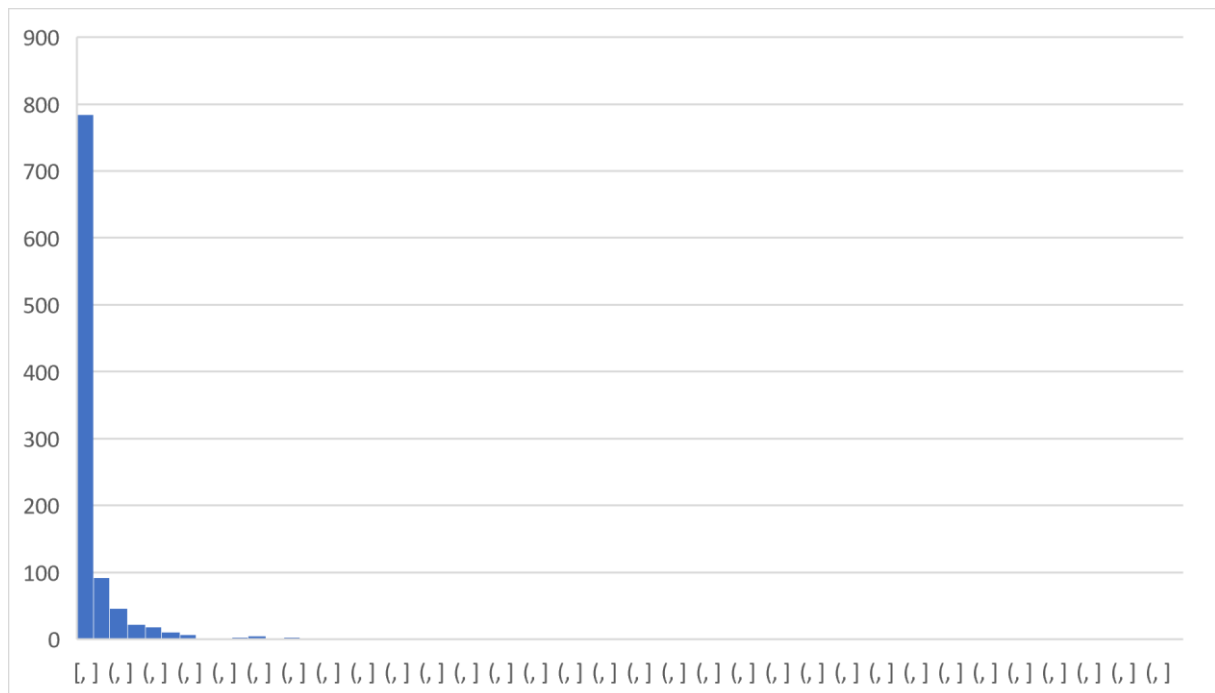


Figure 3 - 1000 final stock prices

Histogram of 1000 final stock prices is similar to log-normal. Average volatility is a little smaller than input volatility (Input = 0,1, Average  $\approx 0,08$ )

## 3. Amazon stocks

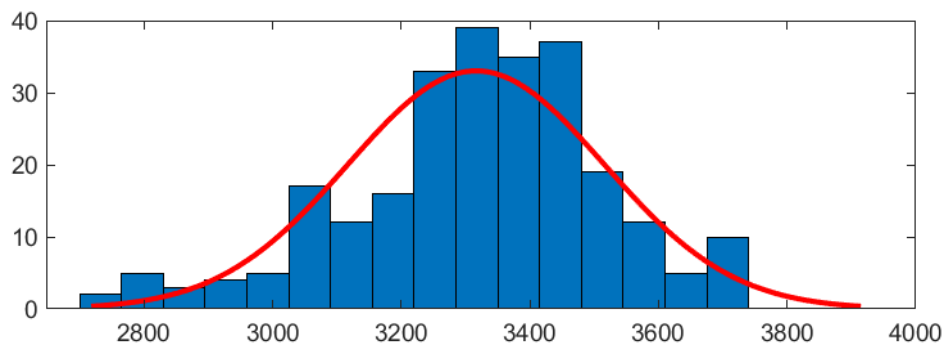


Figure 4 - Amazon stock log returns

Amazon prices log returns seems to be normally distributed with following parameters:

- Median: 3316.37
- Standard dev: 199.42