BOĞAZİÇİ ÜNİVERSİTESİ

IE423

QUALITY ENGINEERING

Project Part 1

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4.1. Data Retrieval & Manipulation:

The data is fetched and manipulated through statistical tools. There are 10 stock bonds selected and the data examined is within the dates from 2012-09 to 2019-07.

Selected bonds: AKBNK (Akbank T.A.Ş.) from banking industry, ARCLK (Arçelik A.Ş.) from consumer electronics industry, BANVT (Banvit Bandırma Vitaminli Yem Sanayi A.Ş.) from food and beverages industry, CCOLA (Coca-Cola İçecek A.Ş.) from food and beverages industry, EREGL (Ereğli Demir ve Çelik Fabrikaları T.A.Ş.) from steel production industry, MGROS (Migros Ticaret A.Ş.) from supermarket industry, SISE (Türkiye Şişe ve Cam Fabrikalari A.Ş.) from glass industry, TCELL (Turkcell İletişim Hizmetleri A.Ş.) from communication and technology services industry, THYAO (Türk Hava Yolları)from aviation industry, TUPRS (Türkiye Petrol Rafinerileri A.Ş.) from oil & gas industry.

4.2. Identification of Outliers using Boxplots and 3-Sigma Limits:

All boxplots are given in the appendix. Their interquartile ranges have been found and outliers are indicated. By using standard deviations, 3 sigma ranges have been found for all the stock bonds and their outliers are calculated by this method.

There are many outliers that could have been examined, however, there are too many of them. Every single one of them is indicated in the pictures, in the appendix.

For example, there is an outlier in every selected bond in 2013-05-06 and its value is nearly 0. That could mean that there is a problem regarding databases of Borsa Istanbul.

To give an example of outlier examination, in 2019-04, THYAO stocks are not really dropping down at that moment but there are many outliers in the 1st quartile. After that month, in 2019-05, the outliers are in the 4th quartile. These are interpreted as THYAO's stocks are very volatile and the standard deviation is very high due to the changing vacation preferences before the vacation months.
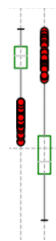

Figure 1

4.3. Insights with Open Source Data:

For the Google Trends part, popular political leaders of Turkey are inspected. Recep Tayyip Erdoğan, Kemal Kilicdaroglu, Ekrem İmamoğlu, Muharrem Ince and Binali Yildirim. Some characteristics were prioritized when selecting these people. It's their time to gain popularity, they are people who came to the fore in different elections.

First peak for Recep Tayyip Erdogan is on June 2013. When looked at other politicians, it is seen that he is the only one. We can say that this increase occurred due to the 'Gezi Parki' events in June 2013. Because this issue was an event that affected the prime minister of that period.

Second noticeable rise: March 2014. However, this time there is a rise in both Kemal Kilicdaroglu and Recep Tayyip Erdogan. This gives us information that there was an encounter. March 2014, Turkish Local Elections.

May 2016 is a time when Binali Yildirim is on the rise. 24 May 2016, Binali Yildirim became prime minister.

Contrary to the general trend, June 2018 is a time when Muharrem İnce had more search volume than Recep Tayyip Erdogan. These high search volumes indicate that Muharrem İnce and Recep Tayyip Erdoğan are facing each other. 24 June 2018 Turkish General Elections.

In June 2019, this time Ekrem İmamoğlu and Binali Yildirim are the two highest ranked people. We can say that this data was created due to the recurring Istanbul Local Elections, and this may show us the accuracy of the proposition that elections took place when there were high searches.

Looking at May 2023, it can be seen that more than one name is at the forefront. Recep Tayyip Erdogan, Muharrem Ince and Kemal Kilicdaroglu. Looking at the election data, it can be said that all three of these people competed in the election, and in the election that went to the second round, Recep Tayyip Erdogan and Kemal Kılıçdaroglu faced each other, and for this reason, the search volume of these two people was higher.

If we need to compare the June 2018, June 2019 and May 2023 data with the election results; We can say that there is a connection between search volumes and the vote rates received by candidates. In June 2019, Ekrem İmamoğlu received 54.22% of the votes and Binalı Yıldırım received 45% of the votes. Although search volumes do not directly give us an idea about the percentages of the election results, they do give us data about who won.

Looking at the May 2023 election results, Recep Tayyip Erdogan received 49.52% of the votes in the first round, Kemal Kılıçdaroğlu 44.88% and Muharrem İnce 0.43%. When the two candidates with the most votes advanced to the second round, Recep Tayyip Erdogan finished the election as the leader with 52.18% of the votes. This is a comparison that shows us the connection between search volume and win rate. The reason why Muharrem Ince has such a high search volume may be the process of withdrawing from candidacy.

When we look at the June 2018 data, a different situation appears. Recep Tayyip Erdogan received 52.59% of the votes and Muharrem İnce received 30.64% of the votes. When we look at the search volumes, we see that Muharrem İnce is searched more. The reason for this may be social media propaganda and the performances of the candidates. Muharren İnce, who held 107 rallies in 45 days, may be a more popular candidate for this reason.
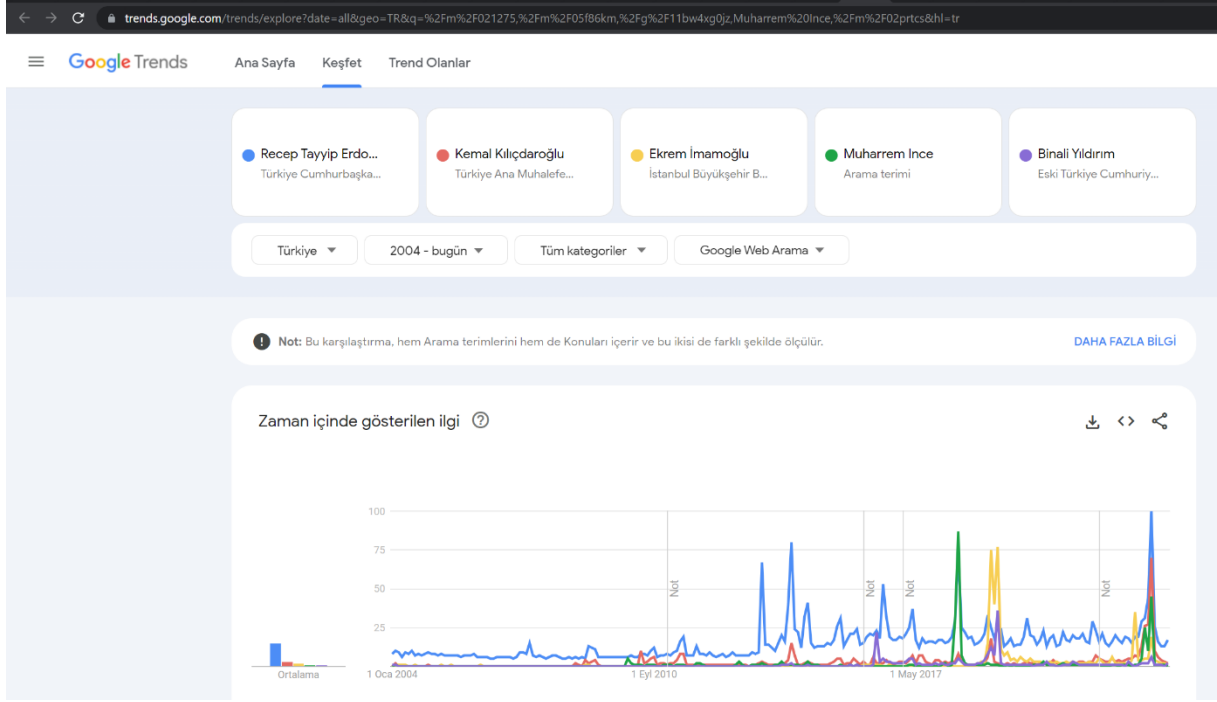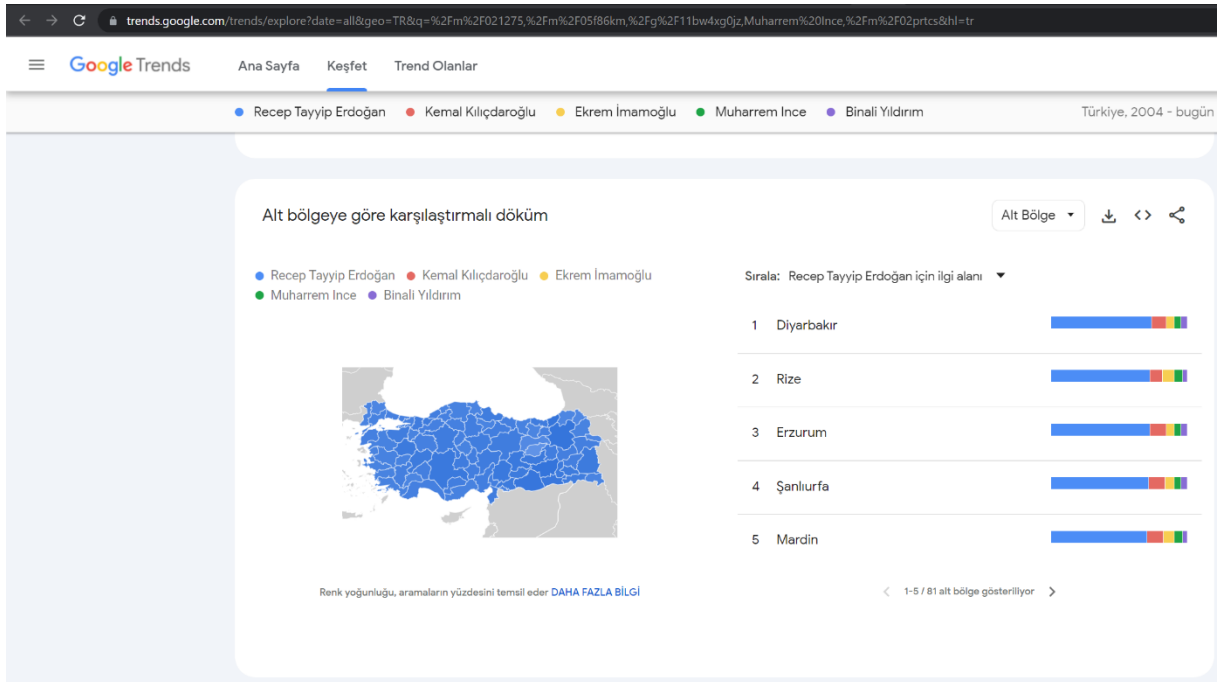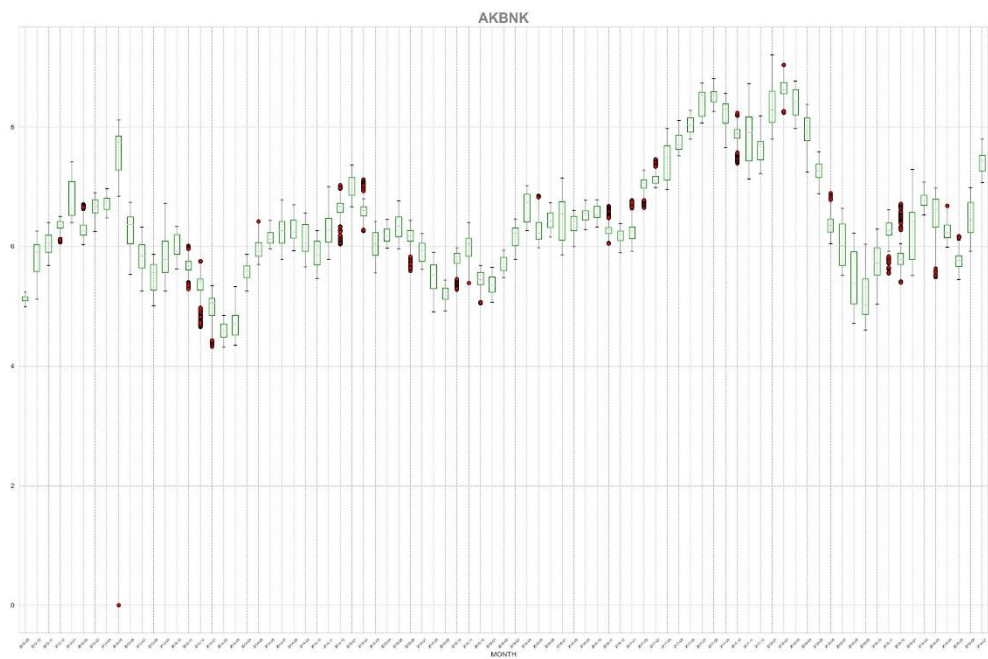

Figure 2

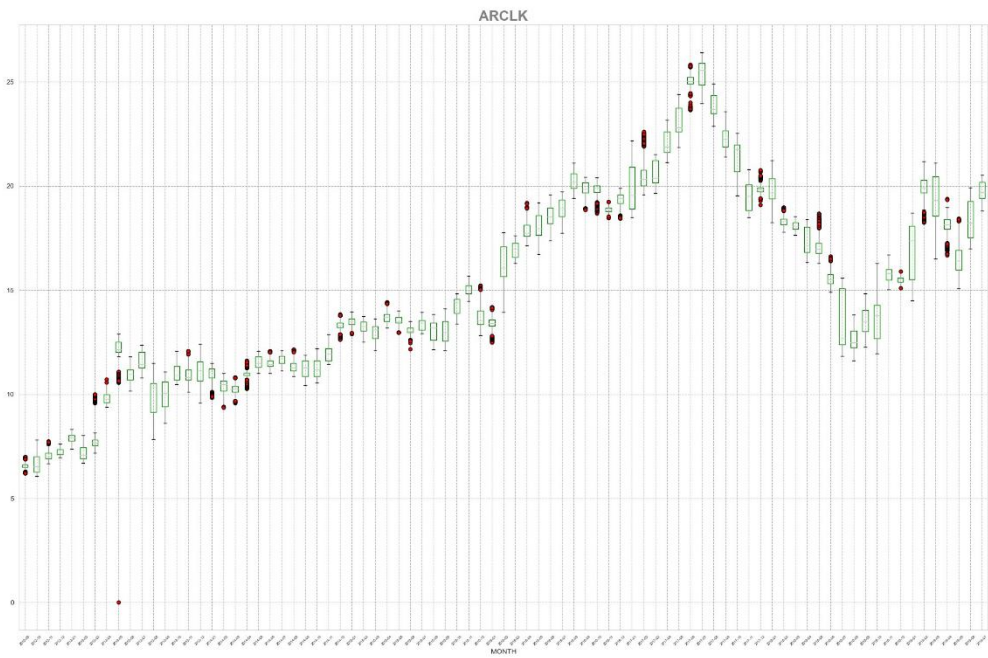Figure 3

Appendix

4.2

Table 4.2.1

Table 4.2.2

Table 4.2.3

Table 4.2.4

Table 4.2.5
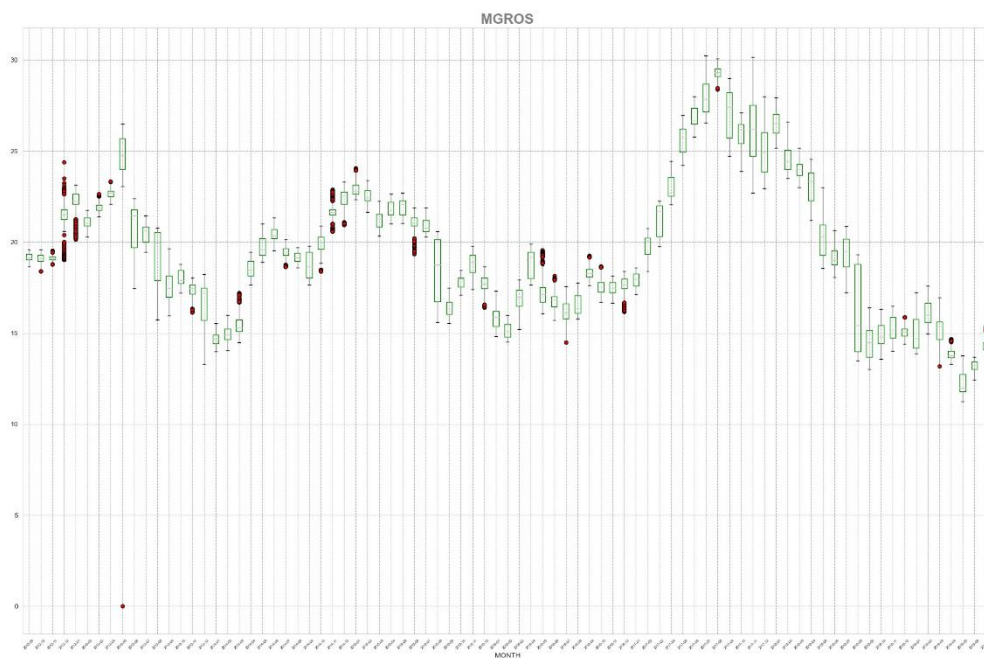
Table 4.2.6
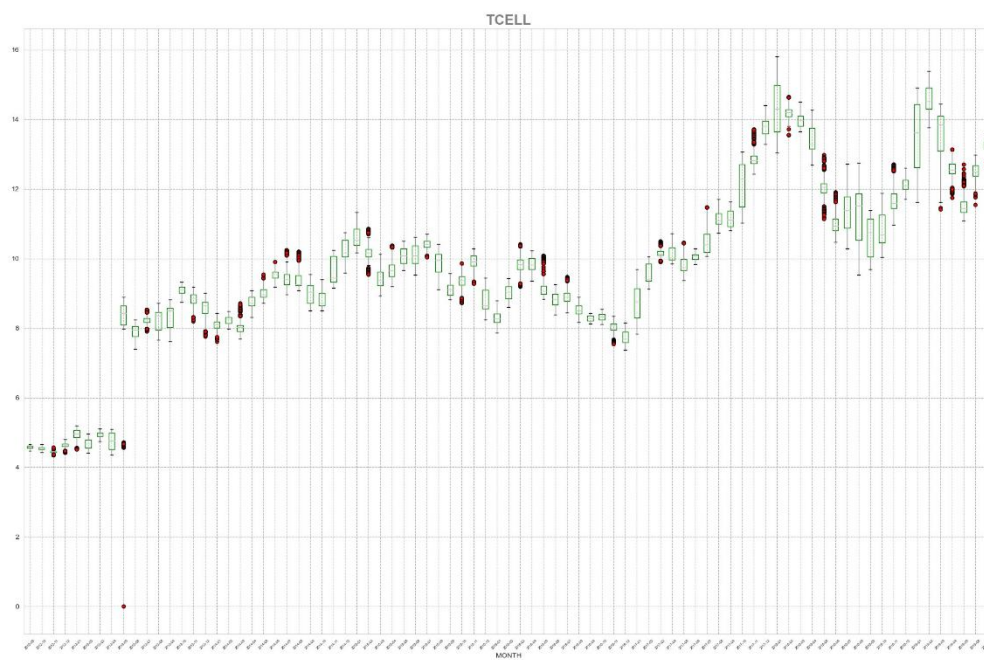
Table 4.2.7

Table 4.2.8

Table 4.2.9

Table 4.2.10

References

https://tr.investing.com/equities/

https://trends.google.com/trends/explore?date=all&geo=TR&q=%2Fm%2F021275,%2Fm%2F05f86km,%2Fg%2F11bw4xg0jz,Muharrem%20Ince,%2Fm%2F02prtcs&hl=tr

https://www.ysk.gov.tr/doc/dosyalar/docs/2023_İSTATİSTİK_KİTABI.pdf

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