Lead-IQ Data Analysis Report

Yifan Zhao

2022-10-07

Project Setup

In this study, we are interested in the lead-IQ dataset, which is described in detail in the `Background/DataInfo.md` document.

Let's read in the data first, and take a look at the variables in the dataset.

```
# Read in lead-iq-01.csv
lead_IQ <- read.csv("../DataRaw/lead-iq-01.csv", stringsAsFactors = T)
# Note: Since the report will be generated in the ./Reports folder,
# relative path is used here.

# Print head and tail of the dataset
kable(head(lead_IQ), row.names = T)
```

	Smelter	IQ
1	Far	70
2	Far	85
3	Far	86
4	Far	76
5	Far	96
6	Far	94

```
kable(tail(lead_IQ), row.names = T)
```

	Smelter	IQ
119	Near	95
120	Near	77
121	Near	74
122	Near	96
123	Near	91
124	Near	78

```
# Check dimensions
dim(lead_IQ)
```

```
## [1] 124   2
```

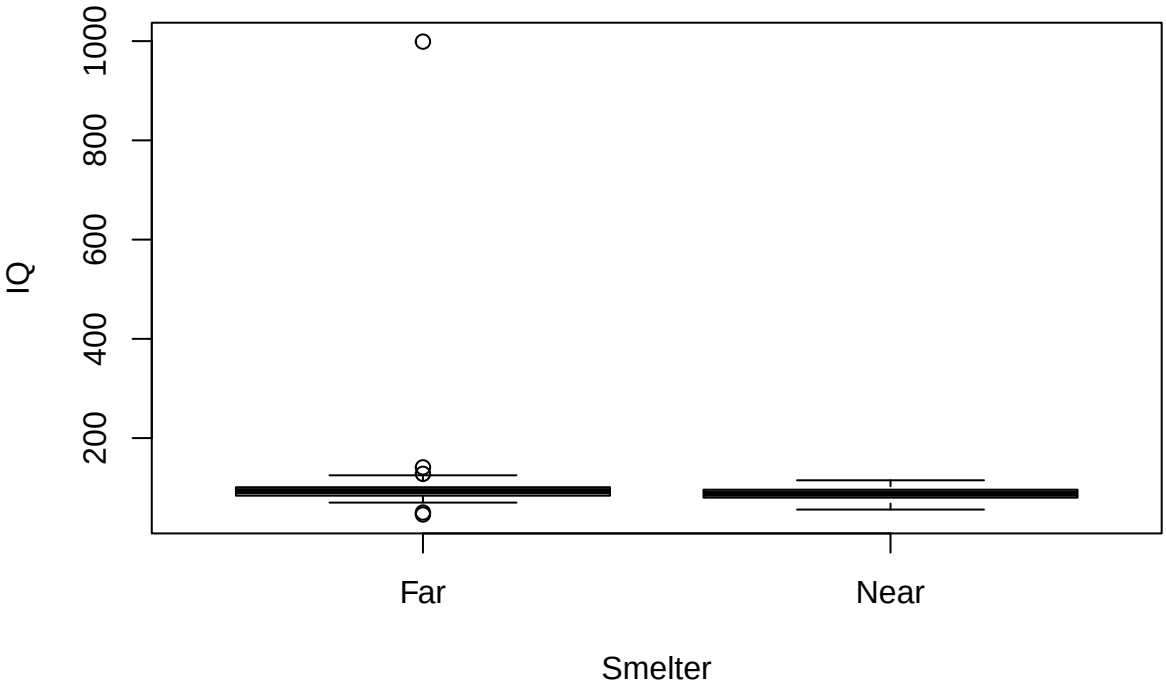
```
# Check variables
summary(lead_IQ)
```

```
##  Smelter         IQ
##  Far :67   Min.   : 46.00
##  Near:57   1st Qu.: 81.50
##            Median : 91.00
##            Mean   : 98.34
##            3rd Qu.: 99.25
##            Max.   :999.00
```

Boxplot

It will be great to show the IQ levels by location status in a box plot.

```
boxplot(IQ ~ Smelter, data = lead_IQ)
```



As we can see from the figure above, there is an outlier in the Far group.

Statistics Summary

- The mean of the IQ is currently 98.34.
- The standard deviation of the IQ is 82.8.
- In Group Near, the mean of the IQ is 89.19;
- In Group Far, the mean of the IQ is 106.12.