Arsen Hakobyan 1963236

Program Exit Assessment Project on Computer Lab 8

This lab was about a test that was going on in a computer production plant, where the engineers where trying to figure out the most effective speed for drilling a hole. They tested one drill’s performance speed (fast and slow) on 10 boards each and recorded their results. Since they were focusing on accuracy, they wanted me to write report summarizing the data (provided separately) and the findings of the experiment.

The main problem of this lab was to write a report (based on accuracy) about the tests. I firstly looked at the Excel data and tried to make some graphs to visualize the data. Then, I created a data table with Fast and slow speed tabs, which helped me compare the results, find outliers and find the distribution. Finally, I finalized my report with a recommendation.

My first key decision was to visualize the data with graphs and make data tables. I think that was the most important part when solving the main problem, because when you have the visual data like graphs, you can look at those and never worry about forgetting important attributes. So it helps you to clear your mind and focus on the arithmetic or verbal description. Next key decision was the actual calculation part where you figure out what the mean, the median were to decide the better speed option. In this part, I forgot to make the 5-number summary (maximum value, Q3, median, Q1 and minimum value), which is another crucial step in representing quantitative data. Another key decision was to search for some outliers. I found one and it was a really big and unusual value that misrepresented the data in a 5-number summary, for example. Finding an outlier didn’t mean I could just dismiss it for no reason. So, in my conclusion, I recommended the engineers to investigate it further.

When I first so the outlier I didn’t know what to do with it, as it was so big that I couldn’t see any other data. So, I was stuck with it for some time and finally I thought: “There must be an error of some kind in their test results.” And that was reasonable, because someone could’ve typed the wrong value or something went wrong during the tests. As I told above, I decided to dismiss it, with the reasoning that the outlier should be investigated further by the engineers.

As this lab was all about visualizing the data, I chose the visual representation as my problem-solving technique. For this particular lab, I needed side-by-side box plots: one for fast speeds and one for slow speeds. This helped me notice the outlier and question myself.

To complete this lab I used 3 resources, which were the online tools, my notes and excel. There are many online tools that help you find the 5-number summary (for verification purposes obviously, for what else?). My notes were a major one, because they helped me refresh my mind and understand the difference between quantitative and categorical data. Excel helped me visualize the data by creating graphs.

So, to share an advice with a future student, I’d suggest the person make side-by-side box-blots instead of a bar chart. I lost marks for that mistake. Bar charts are not relevant for quantitative data.