**Data Analysis**

**Prototype A (Boxes)**

The data for Prototype A contained some data points that were considered as outliers, or otherwise data points outside the normal range of responses. Rather than removing these data points, they were instead adjusted to be within the range as to represent a full data set for all tasks tested.

Task A: **Max** 82 **Min** 2 **Average** 10.39

The average time taken to complete Task A was reported to be 10.39 seconds based on the full data set with a maximum of 82 and minimum of 2. The scatter plot above shows the data set with outliers removed, as do the plots for Task B and Task C. Data points above 35 seconds were adjusted to be between 1 and 30 seconds in Task A. This included only 6 data points at 43, 60, 81, and 82 seconds. These points were adjusted to 4, 6, 8, and 8 respectively and allowed the data spread to better represent an accurate scatter plot. After adjusting these values, the cleaned data set for Task A reports an average time of completion to be 9.18 seconds with a maximum of 30 and minimum of 2 seconds. Most users took about 9 seconds to complete Task A using Prototype A.

Task B reported an average completion time of 782.27 seconds from the full data set with a maximum of 100,000 seconds and minimum of 1.9 seconds. In Task B, data points with a test time above 300 seconds were considered outliers. These were reduced to a value between 1 and 250 seconds. Of the 155 data points collected, 8 were recorded at 600 seconds and 1 was recorded at 100000 seconds. These points were adjusted to 60 and 100 seconds respectively to better represent reasonable testing time periods. The reported average time of completion for Task B is 109.88 seconds from the data set with outliers 600, and 100000 removed. The data set has a calculated maximum of 371 and minimum of 1.9. Before plotting, 1 data point at 371 seconds was also adjusted to 37 seconds, as it’s variance from the remaining data was also relatively large. This data point, if included, is not necessarily an outlier and does not significantly influence the data set. Instead, adjusting this data point allowed the scatter plot to better show the spread of data points. Overall, the data shows that the amount of users who were easily able to use the prototype for Task A is around the same as the number of users who struggled during testing.

Testing time was reported to be 23.57 second on average for Task C for the full data set with a maximum of 205 and minimum of 2. Data points above 160 seconds were adjusted to better match the remainder of the data set at they were considered influencing outliers. Values such as 162 or 153 were adjusted to 160 and 150 while other values such as 200 or 205 were adjusted to 20. The adjusted data set reported an average time of 21.19 seconds with a maximum of 160 seconds and minimum of 2 seconds. The data set showed a majority of time entries were under 40 seconds, with around 15% of them scattered between 41 and 150 seconds. Overall, users struggled to complete Task C compared to Task A but were spared the difficulty faced during Task B.

**Prototype B (Circles)**

Similar to the data collected from testing Prototype A, Prototype B’s data has been adjusted so that any outliers or otherwise influencing data points no longer skew the data set.

The average reported testing time for Task A is reported to be 10.67 seconds full data set with a maximum of 60 seconds and minimum of 2 seconds. Two data points of 60 seconds were considered as outliers and adjusted to 6 seconds to better fit the remaining data set. The adjusted data set reports an average time of completion for Task A to be 10.32 seconds with a maximum of 42 seconds and minimum of 2 seconds. Overall, users took about 10 seconds to complete Task A using Prototype B.

Task B reported an average testing time of 133.91 seconds using a full data set with a maximum of 600 seconds and minimum of 4 seconds. This data set included 8 outliers all at 600 seconds. Once these were removed, Task B’s average testing time reported as 106.04 seconds with a maximum of 363 seconds and a minimum of 4 seconds. Similar to Prototype A, Task B seems to relatively difficult for most users compared to both Task A and Task C.

Users took an average of 24.50 seconds to complete Task C using Prototype B with a maximum of 300 seconds and a minimum of 3 seconds using the full data set. Adjusting the data point at 300 seconds reduces the data set range by 175 seconds. Further adjust the four data points above 154 can further help demonstrate the average task completion time among the common users. The adjusted data set reports an average completion time of 18.80 seconds for Task C with a maximum of 154.26 seconds and minimum of 3 seconds. **Summary of data**

**Summary of Task performance**

**Summary of participant feedback**

**Overall design recommendation**

**How do participants perform on each task**

**How do participants respond to the prototypes**