CSCI 4620U / SOFE 4850U / CSCI 4620G
Lab 2

Purpose

To use an empirical method to estimate the Fitt's law parameters of your input device.

Tasks

1. Access http://ergo.human.cornell.edu/FittsLaw/FittsLaw.html and do the test.
2. Implement a version of the test using Processing for the following conditions:

Variable	Condition								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Distance	250	250	250	500	500	500	1000	1000	1000
Width	15	30	45	15	30	45	15	30	45
Ratio (D/W)	16.6666	8.33333	5.55555	33.3333	16.6666	11.1111	66.6666	33.3333	22.2222

   a. The user should perform 6 trials per condition; that is, 6 clicks alternating between targets (3 clicks for each target), which will give you 5 time intervals.
   b. For each condition, record the **average time between clicks**.
   c. Output the results in a way that allows you to easily copy and paste it into MS Excel for analysis.

Tips

- Use the function `millis()` to compute the time between clicks
- You will need a method to test if a given point lies within a certain rectangle
- Labels **are not mandatory** (e.g., "hits remaining")
- Use the function `print()` or `println()` to output text to the console
- Declare the method `void mouseClicked()` to capture click events

3. Run the experiment with at least two participants. The more participants, the more accurate the results.
4. Organize the collected data according to the spreadsheet provided as a reference.
5. Find the parameters *a* and *b* using regression analysis in Excel
   a. Load Analysis ToolPak in Excel.
   b. Go to Data Analysis and choose Regression.

c. Select "Average time" column as Y input range.
d. Select "A/W" column as X input range.
e. Click OK.
f. Create Chart (scatterplot) with trendline.

The "intercept" coefficient corresponds to *a,* while "X Variable 1" (slope) corresponds to *b*. Those constants indicate the performance of your input device.

FAQ

1. What should be the height of the rectangles?

   The height should be large enough not to impact on target acquisition.

2. Is the distance between targets measured from the edge or the center?

   Center.

Submission

This activity is INDIVIDUAL.

Submit your Processing sketch (folder) zipped and the Excel spreadsheet filled. Add the name of the student who participated in the experiment.