

# CPSC 444 Tutorial: Experiments 1

## Required Preparation:

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- One team member needs to bring an additional laptop and a mouse.
- If you don't have a mouse, ask the TA for one. Or just use one of the desktop computers.
- Download and unzip the Keyboard Experiment application somewhere in your home directory (no installation required)
  - Windows: [http://www.cs.ubc.ca/~cs444/tutorials/ExptI\\_KeyboardExperiment\\_Windows.zip](http://www.cs.ubc.ca/~cs444/tutorials/ExptI_KeyboardExperiment_Windows.zip)
  - Mac: [http://www.cs.ubc.ca/~cs444/tutorials/ExptI\\_KeyboardExperiment\\_Mac.zip](http://www.cs.ubc.ca/~cs444/tutorials/ExptI_KeyboardExperiment_Mac.zip)
- If you cannot run one of these versions on your laptop, follow the installation instructions below to install Tcl/Tk and run KeyboardExperiment.tcl from your laptop. But it will be a long and painful process.
- The ExperimentLog.txt logfile location varies depending on your OS and version. On a personal computer it should appear either in **the same directory** (on Windows) or in your **user directory** / home folder (on MacOS<sup>2</sup>).

## Description:

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- This tutorial will introduce you to controlled experiments. Your group will design and run a small experiment to compare two types of soft keyboards

## Objectives:

- By the end of the tutorial, you will be able to:
  - Design and run a very simple experiment, including
  - Identifying independent variables
  - Identifying dependent variables
  - Defining an experimental procedure
  - Critically analyze tradeoffs of different design decisions

## Deliverables:

- This is an unmarked assignment, but is required for completion of the next tutorial. Each group needs to compile the results of their experiment in this sample Excel file: [http://www.cs.ubc.ca/~cs444/tutorials/ExptI\\_GroupDatasheet.xlsx](http://www.cs.ubc.ca/~cs444/tutorials/ExptI_GroupDatasheet.xlsx). Change the name of the file to your group name, and one team member should email it to your TA by the end of the tutorial.
  - We **strongly recommend** that you create a shared Google Spreadsheet (or equivalent) from this Excel file, so that all team members can record participants' data in parallel.
- Also, make sure you keep all of your notes from this tutorial because they will be useful in writing up the individual assignment given in the next tutorial.

## Tentative Schedule:

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- Quiz + discussion (~15 min)
- Experiment background and setup
  - Review introduction and background to the experiment (~7.5 min)
  - Verify experimental software and generated log files (~7.5 min)
- Experiment design discussion (~10 min)
- Run experiment (~45 min)
  - See procedure (below)
- Informal analysis (~5 min / time permitting)
  - look over your data and see if you can quickly identify any trends
- Design brainstorm (time permitting)

## Experiment Procedure:

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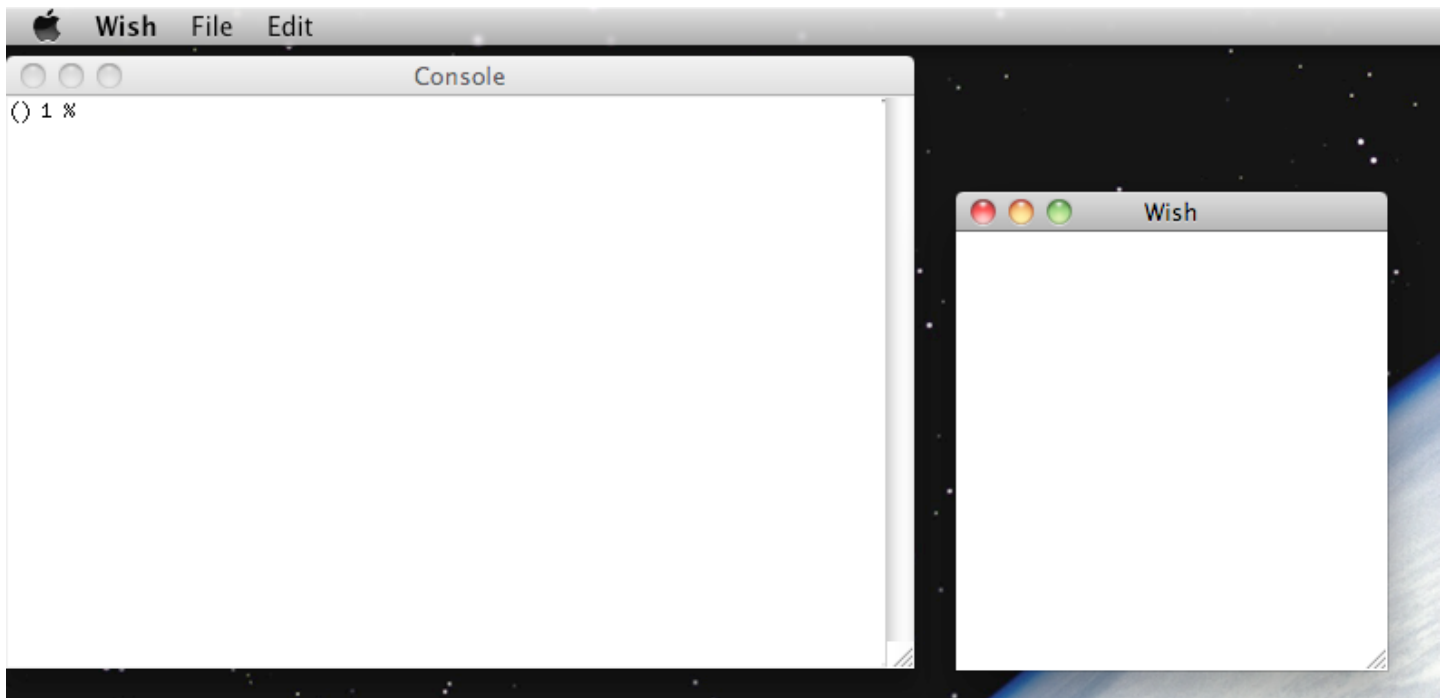
Follow the step-by-step procedure that you have been given at the beginning of the lab.

## Installing Tcl/Tk and Running KeyboardExperiment.tcl

- **Required only if you cannot run the stand-alone versions on your personal computer.**
- 1. Download the appropriate ActiveTcl distribution from ActiveState at <http://www.activestate.com/activetcl/downloads> (Version 8.5.9.0. at time of writing)
- 2. Open the download to run the installer.

### Instructions for Mac:

- 3. Once the installation is complete, launch the wish shell application called "Wish 8.5" from 'Applications' > 'Utilities'.
- 4. You should see two windows. The "Wish" window will contain the application and the "Console" window is where you can type in Tcl/Tk commands. (You won't need to use the Console to complete the tutorial).



### Running KeyboardExperiment.tcl on Mac

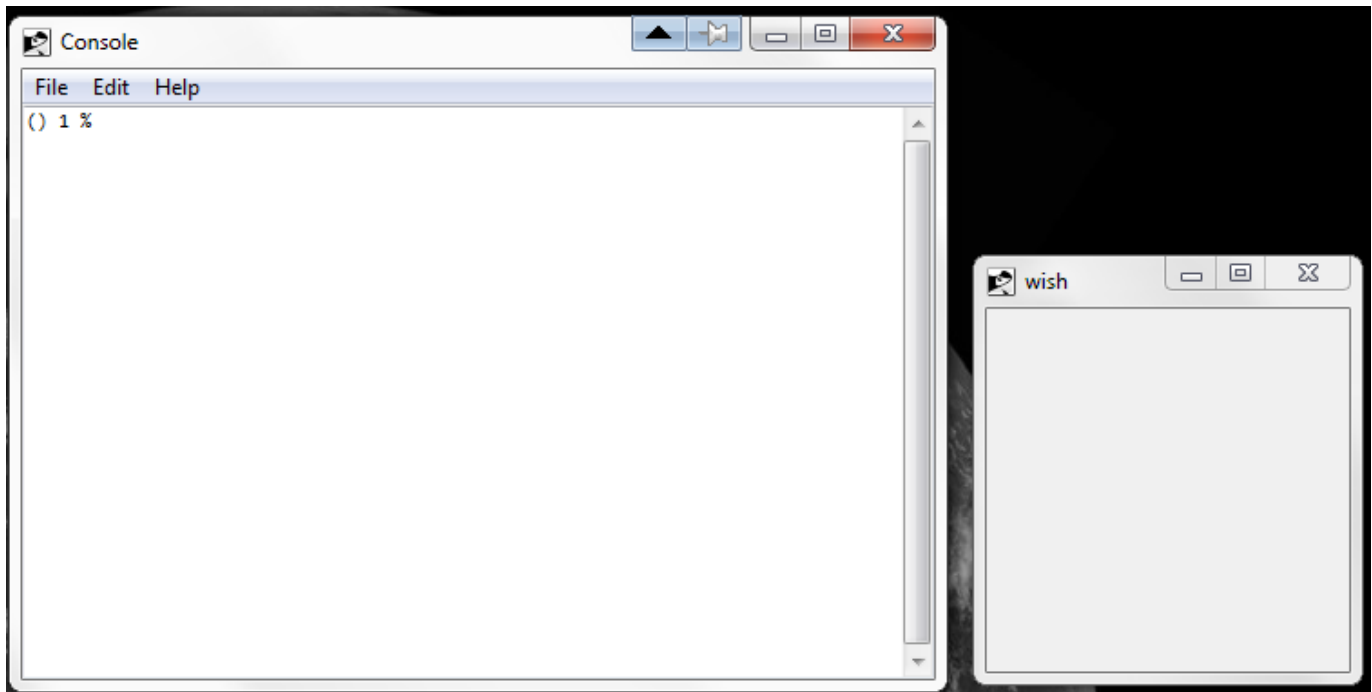
- 5. Download [http://www.cs.ubc.ca/~cs444/tutorials/ExptI\\_KeyboardExperiment.tcl](http://www.cs.ubc.ca/~cs444/tutorials/ExptI_KeyboardExperiment.tcl) from the cs444 website
- 6. From the wish menu bar go to 'File' > 'Source...' and select KeyboardExperiment.tcl.
- 7. You should now see the Keyboard Experiment application in the wish dialog!
  - **Note:** the ExperimentLog.txt file generated by the application should be in your home directory (I.e. Users/Jessica/). If not, use Finder to search for it.

### Instructions for Windows

- 3. Once the installation is complete, go to the command dialog ('Start' > 'Run' and type in 'cmd'). From here you can launch the Wish shell by typing the following:

```
C:\Tcl\bin>wish85
```

- **Note:** Change the path accordingly if you installed ActiveTcl to a location other than C.
- 4. You should see two windows. The "Wish" window will contain the application, and the "Console" window is where you can type in Tcl/Tk commands. (You won't need to use the Console to complete the tutorial).



### Running KeyboardExperiment.tcl on Windows

- 5. Download [http://www.cs.ubc.ca/~cs444/tutorials/EcptI\\_KeyboardExperiment.tcl](http://www.cs.ubc.ca/~cs444/tutorials/EcptI_KeyboardExperiment.tcl) from the cs444 website
- 6. From the Console menu bar go to 'File' > 'Source...' and select KeyboardExperiment.tcl.
- 7. You should now see the Keyboard Experiment application in the wish dialog!
  - **Note:** the ExperimentLog.txt file generated by the application should be in either the C directory or Users/[UserName]'.

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