# Introduction

Baseline - my system, using a stock version of skulpt (i.e. minimal error reporting).

* + - Might add in at least some very basic error reporting for baseline as I believe default skulpt doesn't have any reporting at all

# Experimental Design

Within subjects design

## Participants

* Number
* Demographics (age, education, gender mix)
  + 18-22 years old, current Cambridge undergraduates
* Experience with programming
  + Little or no experience with programming
* Computing experience
  + Competent at using a computer
* etc

## Materials

* + Use a questionnaire beforehand for self assessment
    - Current programming ability
    - Confidence solving simple tasks

## Procedure

* + I'd need to be there as a human teacher to guide them through the tasks and to teach the concepts or I'd need to give them some kind of teaching material.
    - Teaching material would obviously be less prone to variation so I'd use this.
    - And I need to make turtle tasks anyway.
    - There is no way to automatically check tasks so I'll need to be there to verify anyway.

* + I don't know what the best thing to measure would be?
    - Time taken to complete the tasks?
      * This may not be the best thing to compare…
    - Number of errors made.
    - Change in self assessment programming ability/confidence
* Consent form
* Pre questionnaire
* Give task sheets in order 1-4
  + Participants will only have one sheet at a time. Must complete or abandon task before moving on to next
  + 15 minute time limit to complete each task
* There will be no teacher. Participants must complete tasks independently.

## Tasks

4 tasks

### Task 1

Actual description of what the task is

### Task 2

### Task 3

### Etc

## Data Analysis Plan

* Measurements
  + How many syntax errors were made in each section
  + How the number of changes made evolved over time?
  + Whether fixes were accepted and used by users. Number accepted vs reverted? Number of syntax errors fixed by the user vs automatically fixed?
* Data analysis method (quantitative)
* Supportive qualitative description
* Logging
  + Syntax errors
  + Usability stuff
    - Every time they click the run button
    - Every time ast visualised
    - All interaction with AST visualiser
  + Code every time its run

## Results

* Output of data analysis plan

## Discussion

* What do the results mean

## Conclusion

* How did the outcomes relate to aims and objectives
* What happens now?