# **MXB161 Original Creation Live Script template**

### Submission requirements

At first, you submit this document with the highlighted sections completed only. We will provide feedback on your plan to ensure it is feasible.

The fully completed document is then due, along with the rest of the portfolio, at the end of the semester.

* **Due date:** 
  + Initially submit by 11:59pm, Friday 3 May (end of week 9) for feedback. Only the highlighted sections need to be completed at this time.
  + Submit the fully completed document on 11:59pm, Friday 31 May (end of week 13) along with the rest of your portfolio.
* **How to submit:** Via the assessment link on Blackboard

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| **Project description** | Creating a disease spreading simulation using cellular automata and image processing. The simulation will show the spread of the virus, through cellular automata, and determine the amount of spread; this will be done through image processing. The cellular automata will follow rules that are based on the cells in a masked population density map. So the simulation will move differently depending on whether or not a cell is in a populated region or not. This simulation can be used to help countries improve their health standard so that mass diseases doesn’t spread rapidly. |
| **Unit topics** | Which two topics from the unit do you plan to synthesise techniques from?   * Image Processing * Cellular Automata |
| **Technique extension** | In Cellular Automata the variables used were largely logicals. In the simulation numerical integers will be used to represent multiple values. E.g. Healthy, Infected, Dead and possibly unoccupied and walls. |
| **Problem solution** | We will use cellular automata to show how the virus spread in different environments (ie, countries). Data will be collected from a graph showing the trends of healthy, infected and dead people. |
| **Proposed timeline**  (complete this section only after you have received feedback on your proposal) | List the key milestones (or subtasks) and associated timelines that your team will need to meet in order to arrive at your problem solution.   |  |  | | --- | --- | | **Milestone description** | **Anticipated completion date** | | Define and agree on scope of project | 29th of April | | Complete Original Creation Template | 3rd of May | | Start delegating tasks for people to do | 6th of May | | Have Cellular Automata Section Finished | 10th of May | | Have initial masked image finished | 11th of May | | Synthesize the two part to create a simulation with the masked image | 13th of May | | Create auto-masker for all images | 17th of May | | Synthesize auto-masker with cellular automata | 20th of May | | Re-edit synthesis to work faster | 24th of May | | Create graphs for data analysis | 24th of May | | Further editing on whole MatLab script to run faster | 27th of May | | Start Live Script | 27th of May | | Re-editing auto-masker | 29th of May | | Finish live script with all photos and functions | 31th of May | |
| **Team roles and responsibilities**  (complete this section only after you have received feedback on your proposal) | List your team members and outline what part of the project each will be responsible for leading.  Caleb Crook:   1. Created Cellular Automata simulation 2. Edited the synthesis of cellular automata with the auto-masker by adding functions to make it more efficient 3. Assisted in creating explanations for live script   Jud Moy:   1. Initially masked a image we were going to use for our script but later on we realized we needed something that could mask all images 2. Created Image Auto-masker 3. Assisted in creating explanations for live script   Ash Phillips:   1. Created Graphs for data Analysis 2. Wrote data analysis section for live script 3. Proof read and edited entire live script   Damini Raniga:   1. Synthesized the cellular automata simulation with auto-masker 2. Wrote the majority of live script 3. Edited Auto-masker to run faster by removing for loops |