Guide for C3G4 product

Done by: Heng Jing Han, Jisa Mariam Zachariah, Lim Yang Zhi, Peh Wei Ting Jeslyn

Github link: https://github.com/jesterlyn/ESC

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Preferences Submission

What is it?

A user-friendly platform for students to submit their preferences and edit it whenever necessary. For Capstone, it is made to be as user-friendly as possible as well. We also provide the full code to Capstone for any developer to be able to tweak the code.

What's included:

- Google forms
- Online excel spreadsheet
- Code in anaconda notebook (**Capstone group's preferences.csv**)
- Python code (**utils.py**, **excel.py**)
- Python exe file[1] (**excel.exe**)
- Test cases (**testing.py**)
- JSON file to link code to online excel spreadsheet (**pref-3e777ad38276.json**)

Disclaimer: The anaconda code, python code and exe file all serve the same purpose. You only need to use one that suits you.

Requirements

Software needed:

- Anaconda (developer)
- Python (gspread, oauth2client.service_account, unittest)

Access needed:

- Capstone to google forms response[2]
- Capstone to online excel spreadsheet[3]
- Python code to online excel spreadsheet[4] through a json file

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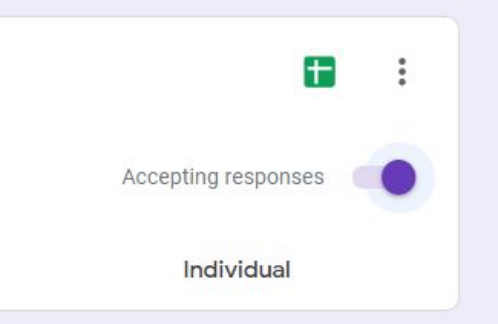
[1] https://dev.to/eshleron/how-to-convert-py-to-exe-step-by-step-guide-3cfi
[2] https://docs.google.com/forms/d/18t66y0X5pbvQ-zA2hhsCprV7xcdlg4MVRQrmQbm7FT0/edit
[3] https://docs.google.com/spreadsheets/d/1LT7AOWy1jw8HuAT00N2ULrLylFRoGZzYEUMHDGi6es0/edit#gid=1320405905
[4] https://towardsdatascience.com/accessing-google-spreadsheet-data-using-python-90a5bc214fd2

Steps

1) Disseminate unique group ID to all student groups

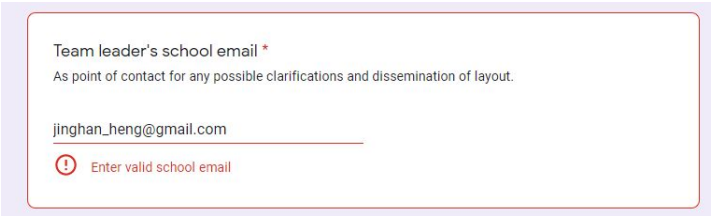
Proj 41 - NUS_Pediatric Surgery Neural Network
Proj 43 - PA_POP-UPHood

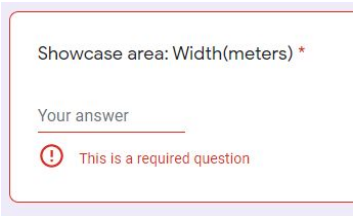
2) Release the google form link to them[5] and enable the “accepting response” button in the form responses[6]



[5] www.tinyurl.com/capstonepref
[6] https://docs.google.com/forms/d/18t66y0X5pbvQ-zA2hhsCprV7xcdlg4MVRQrmQbm7FT0/edit

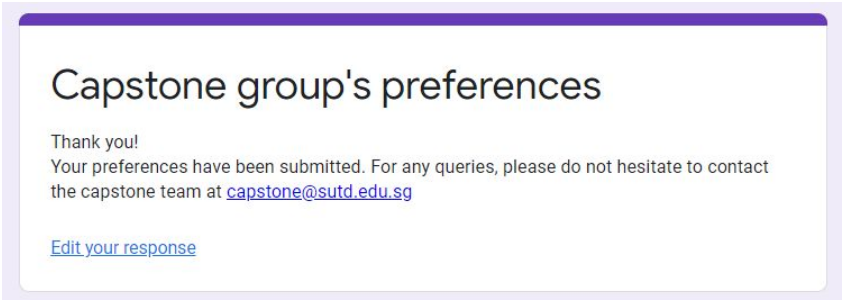
3) The form will automatically check for invalid inputs such as negative numbers and non-school email addresses. Additionally, some of the fields are compulsory and the form will reject a blank submission, such as the group ID and showcase dimensions.





4) With every submission, the online excel spreadsheet is updated with no delay. All capstone staff who have been granted access to the spreadsheet[7] will be able to view and edit it.

If they notice any abnormalities in any group's submission, the staff can contact the group via the provided email. The group can then go to the same link to access the google forms and edit their submissions, where the updates will be reflected in the excel sheet without delay.



5) When all submissions are in (where total submissions is equal to total number of groups), capstone staff can disable the "accepting response" button in the form responses to prevent any more changes.

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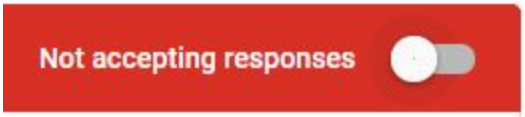
7 https://docs.google.com/spreadsheets/d/1LT7AOWy1jw8HuAT00N2ULrLylFRoGZzYEUMHDGi6es0/edit#gid=1320405905

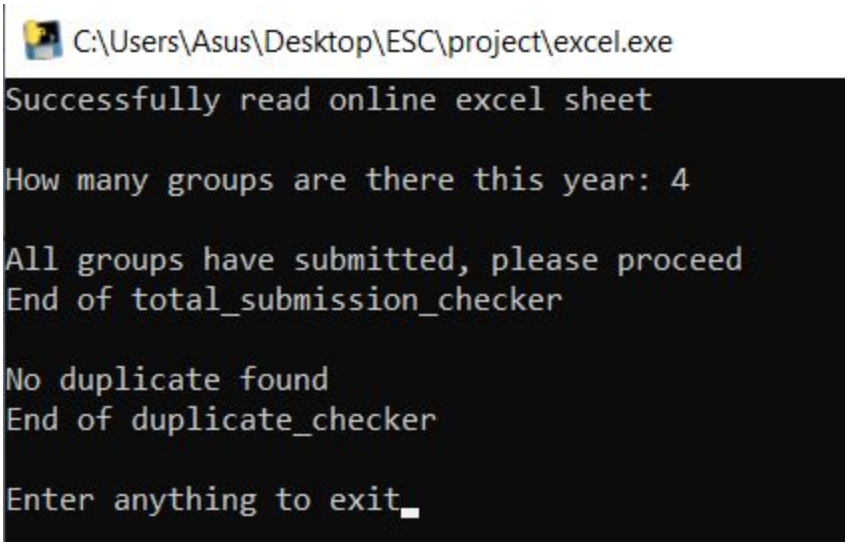


6) (FOR DEVELOPER) The developer can run *excel.py* to check for total submissions or presence of duplicates. Should there be discrepancies, the code will inform accordingly and the staff will be required to intervene by liaising with the groups **directly.**

```
>>>
============== RESTART: C:\Users\Asus\Desktop\ESC\project\excel.py ==
Successfully read online excel sheet

How many groups are there this year: 4

All groups have submitted, please proceed
End of total_submission_checker

No duplicate found
End of duplicate_checker

Enter anything to exit


============== RESTART: C:\Users\Asus\Desktop\ESC\projec
Successfully read online excel sheet

How many groups are there this year: 4

Not all groups have submitted, do some action to remedy
Team 4 has not submit
End of total_submission_checker

No duplicate found
End of duplicate_checker

Enter anything to exit
```

```
============== RESTART: C:\Users\Asus\Desktop\ESC\project\excel.py ==
Successfully read online excel sheet

How many groups are there this year: 4

All groups have submitted, please proceed
End of total_submission_checker

Duplicate found: Team 1
End of duplicate_checker

Enter anything to exit
```

7) (FOR NON-DEVELOPER) If you don't wish to interact with code, simply double click on *excel.exe* to run the executable that will do the same thing as the code.



8) The code (*excel.py* or *excel.exe*) can also be run anytime in step 4 if preferred.

Test cases

In the code **testing.py**, it uses the unittest library to test the code's robustness and ensure that it handles erroneous input cases well. This is provided for in case any developer wishes to develop the original excel code and will be able to use these test cases to verify the functionality of their updated code.

```
Ran 15 tests in 26.391s

OK (expected failures=7)
```

JavaScripts

What is it?

It is a script written in ExtendScript specifically for Adobe Illustrator, the platform which the floor plan should be edited on. Upon running the script with successful provision of the required data, an output floor plan with the capstone groups allocated will be generated on the Illustrator file.

What's included:

- Allocation.jsx
- Folder called CSV Files

Disclaimer: There will be steps that you will have to complete before the script can be run.

Requirements

Software required:

- Adobe Illustrator

Access required:

- Capstone to google forms response[8]
- Capstone to online excel spreadsheet[9]

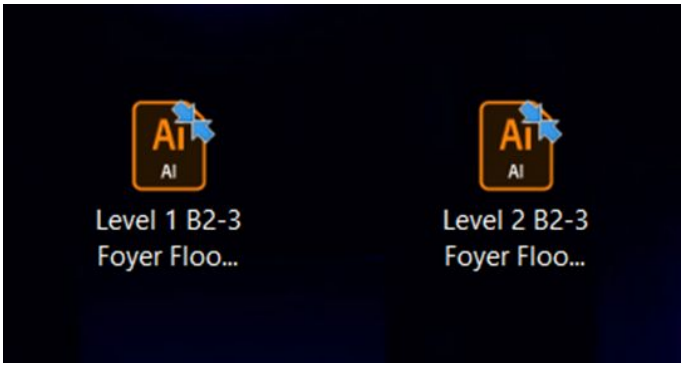
[8] https://docs.google.com/forms/d/18t66y0X5pbvQ-zA2hhsCprV7xcdlg4MVRQrmQbm7FT0/edit

[9] https://docs.google.com/spreadsheets/d/1LT7AOWy1jw8HuAT00N2ULrLylFRoGZzYEUMHDGi6es0/edit#gid=1320405905

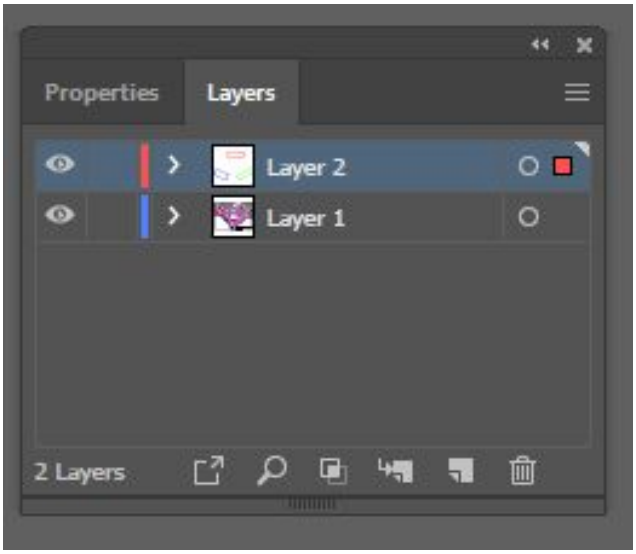
Steps

1) Download Capstone to online excel spreadsheet[10] in .csv form. Save into the folder provided called CSV Files or any folder of your choice.

2) Open the Illustrator document containing the empty floor plan to be edited.

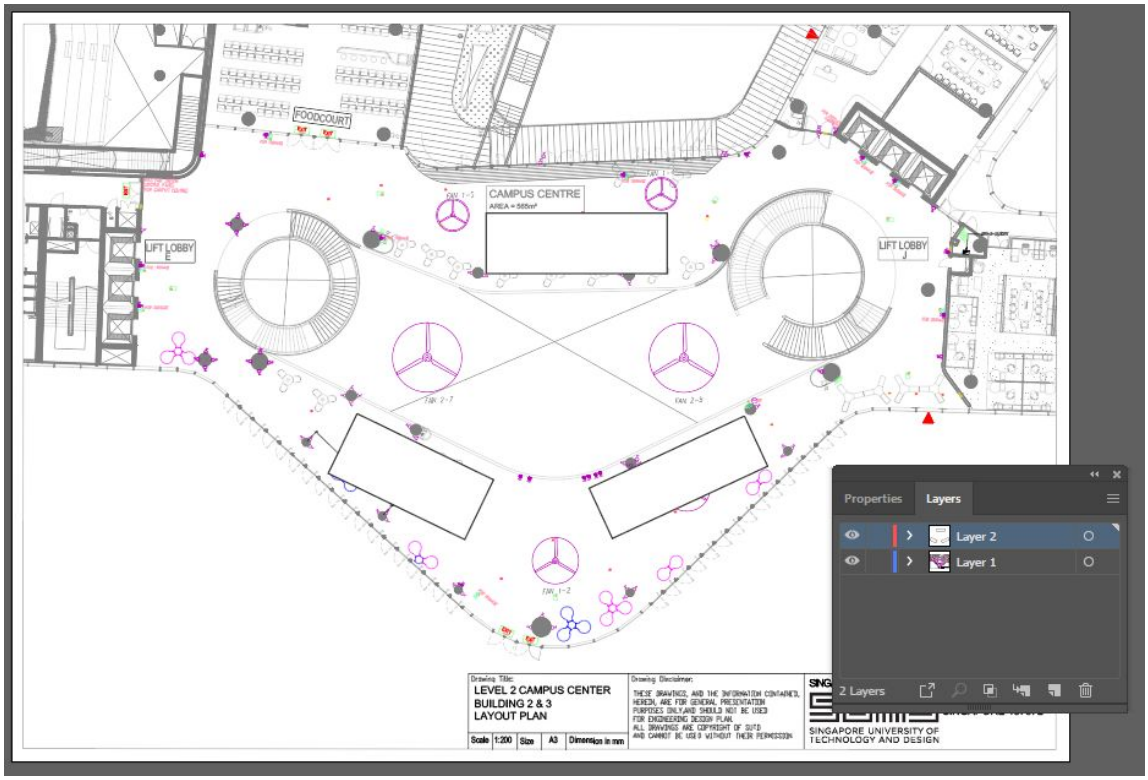


3) In the document, create a new layer. This is to ensure the checksum function will not be confused with the actual floor plan



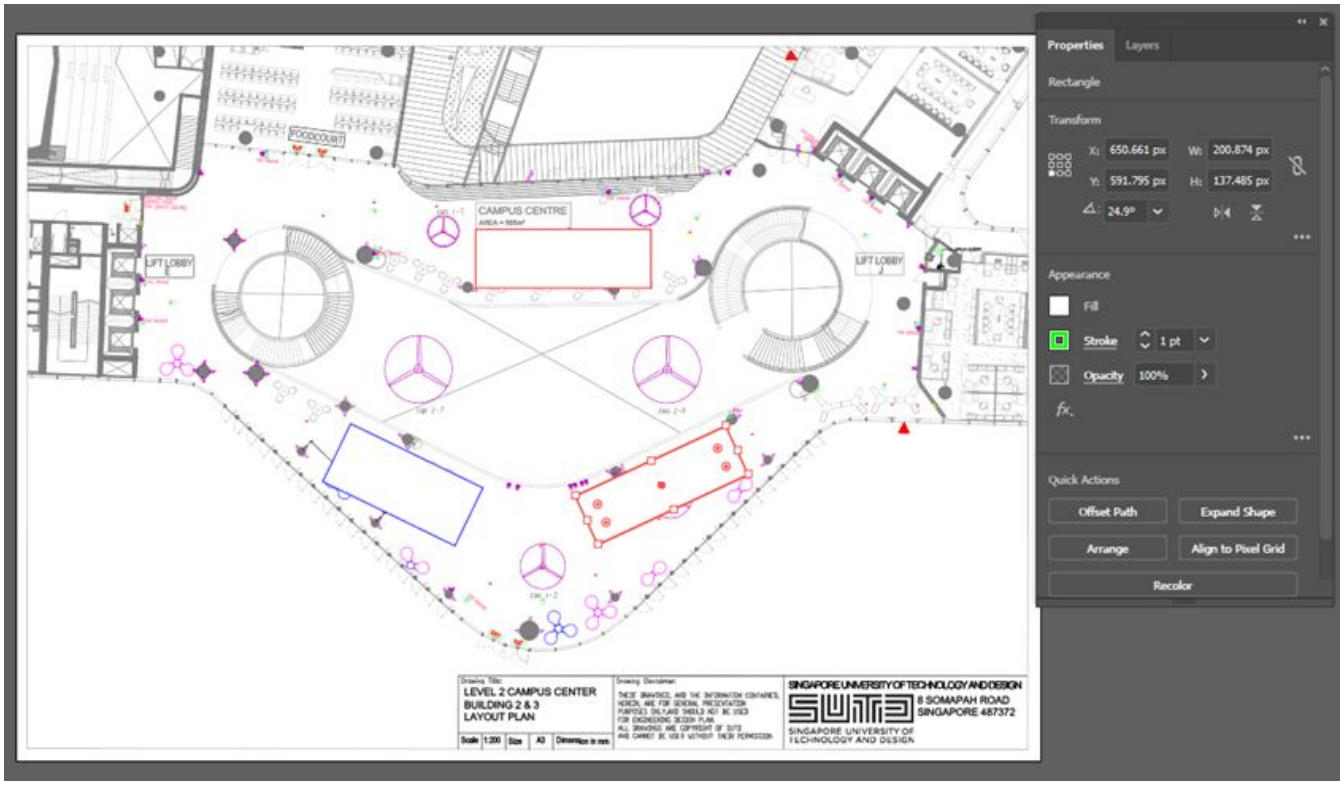
10 https://docs.google.com/spreadsheets/d/1LT7AOWy1jw8HuAT00N2ULrLylFRoGZzYEUMHDGi6es0/edit#gid=1320405905

4) Draw the rectangular boundaries out where you would like for the capstone groups to be assigned within. Rotate if needed. Ensure that these boundaries are drawn on the newly created layer.

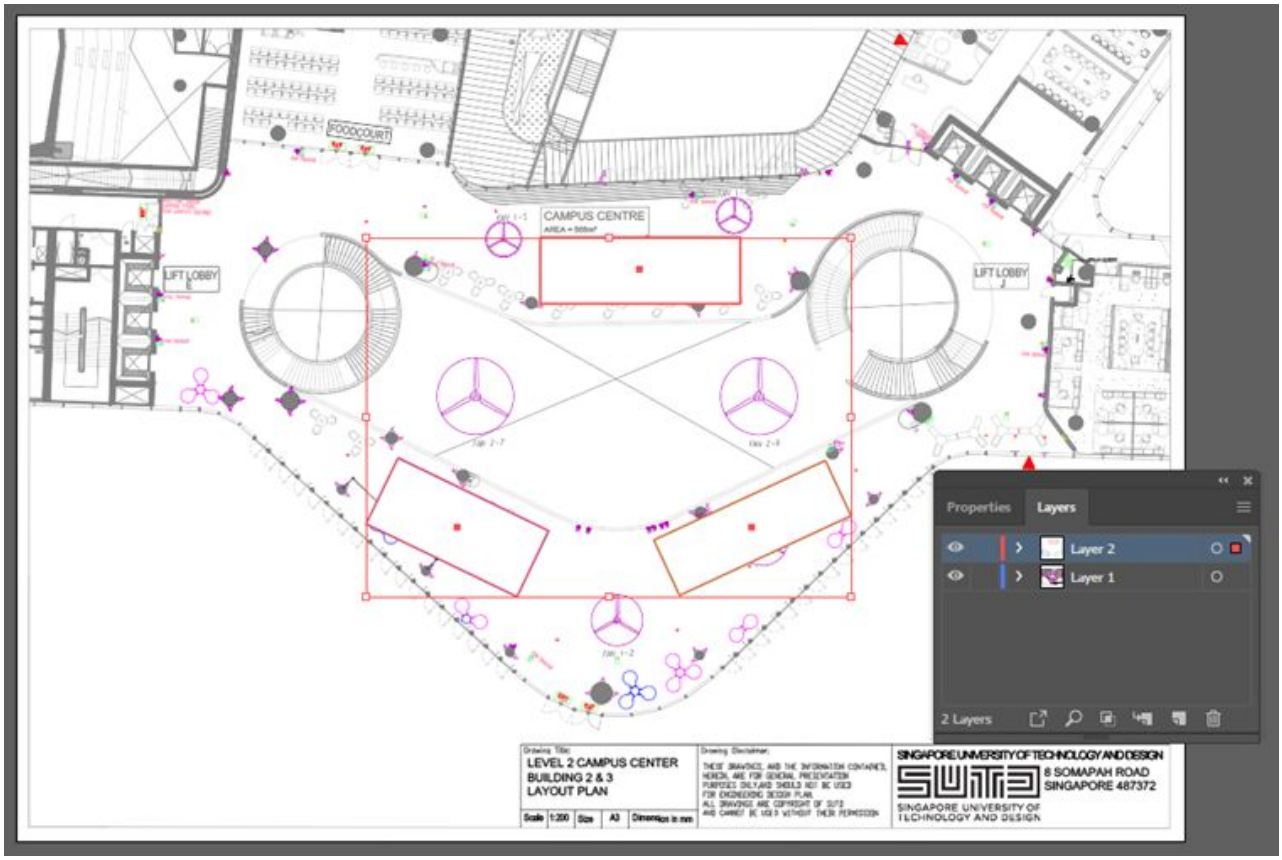


5) For each boundary, change the stroke colour for different solution types to be assigned to it. By default, the boundaries to be allocated will be changed to mixed types. The colours are as follows:
    a) Software only: RGB (255, 0, 0)
    b) Hardware only: RGB (0, 0, 255)
    c) Mixed (both hardware and software): RGB (0, 255, 0)

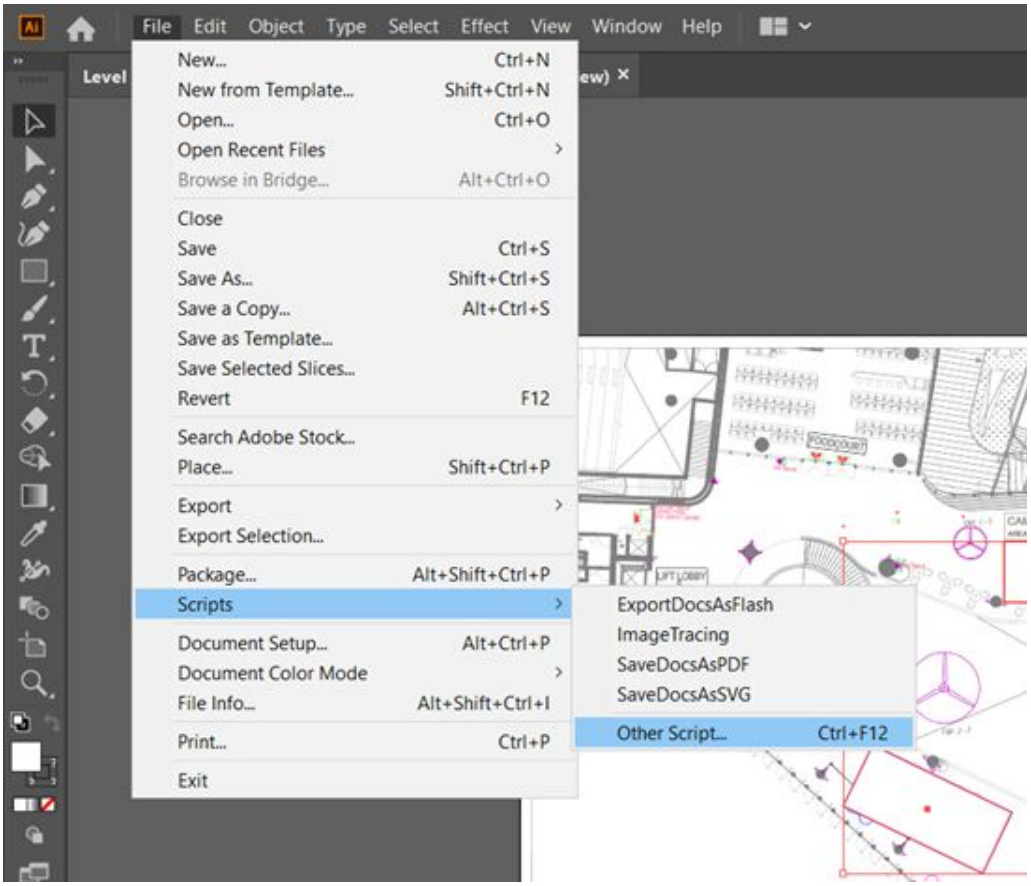
If unable to change to RGB colours: click here



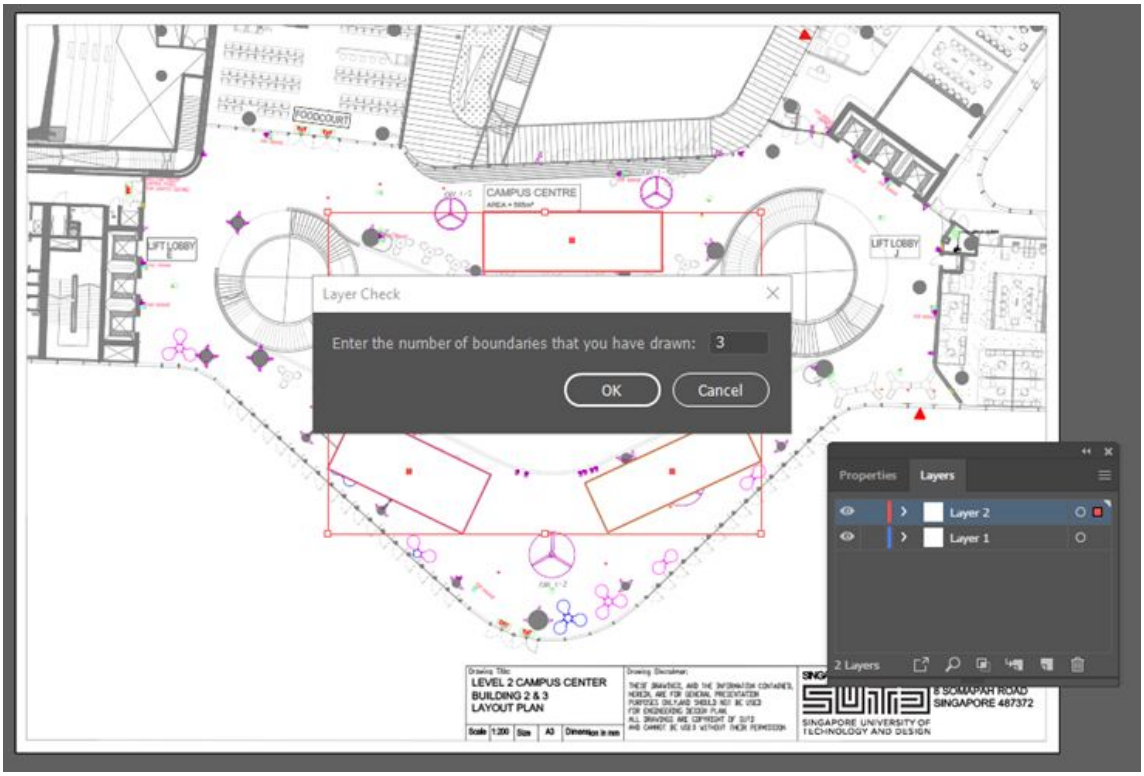
6) Select the boundaries that is to be considered in the allocation. Boundaries that are not selected will not be included in the algorithm and hence no groups will be allocated to them.



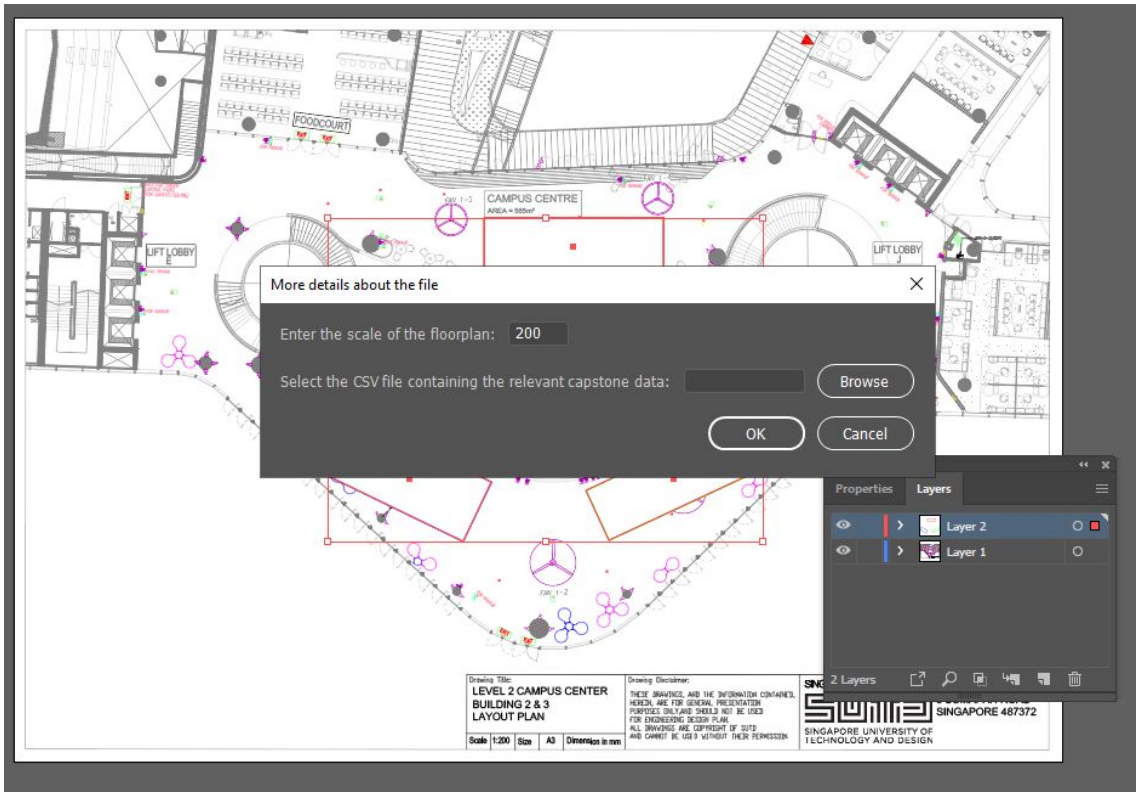
7) Run the script from File -> Scripts -> Other Script -> (where you saved *Allocation.jsx* in)



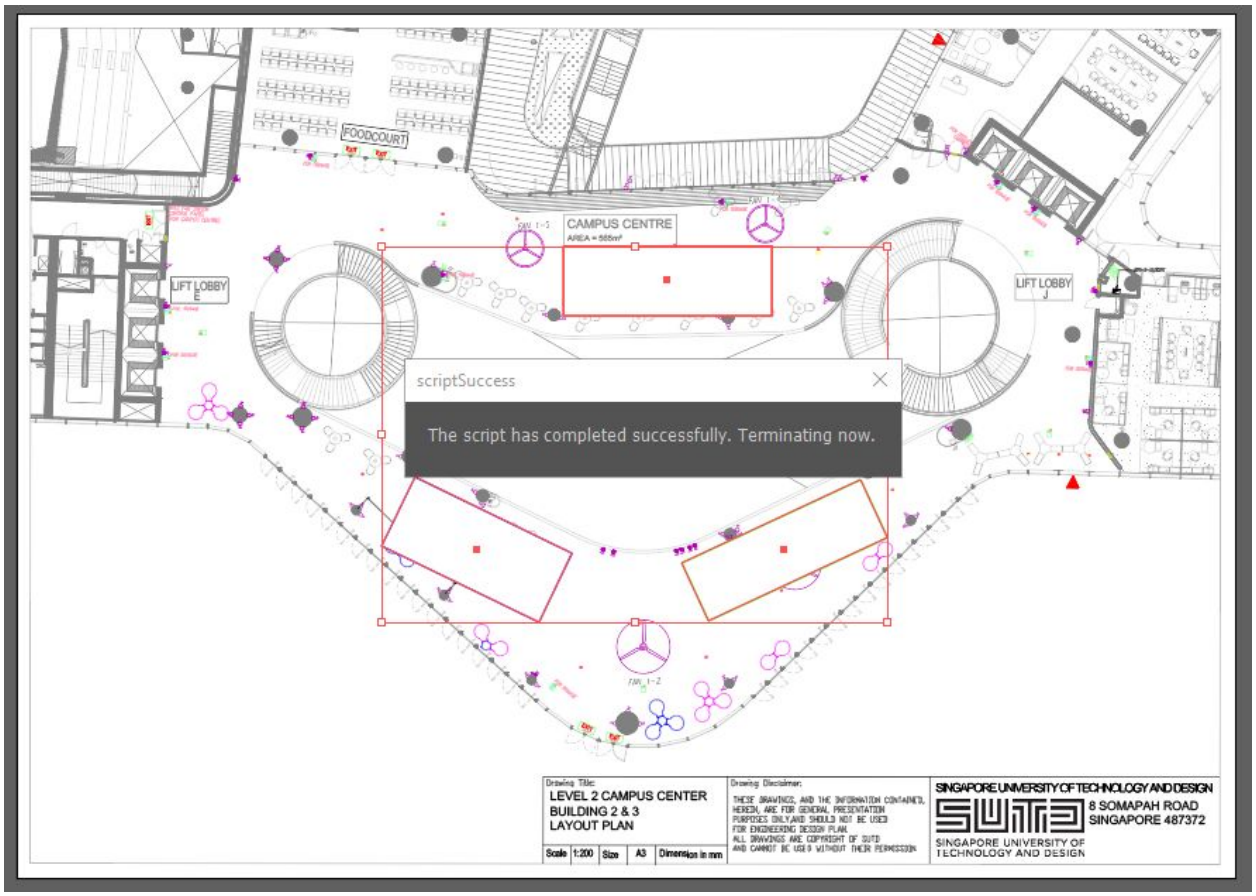
8) First Check: Number of drawn boundaries. This window checks the total number of boundaries that you have drawn on the new layer, including the unselected boundaries.If there are mismatched inputs, a separate window will appear prompting for retries, until the cancel button is pressed



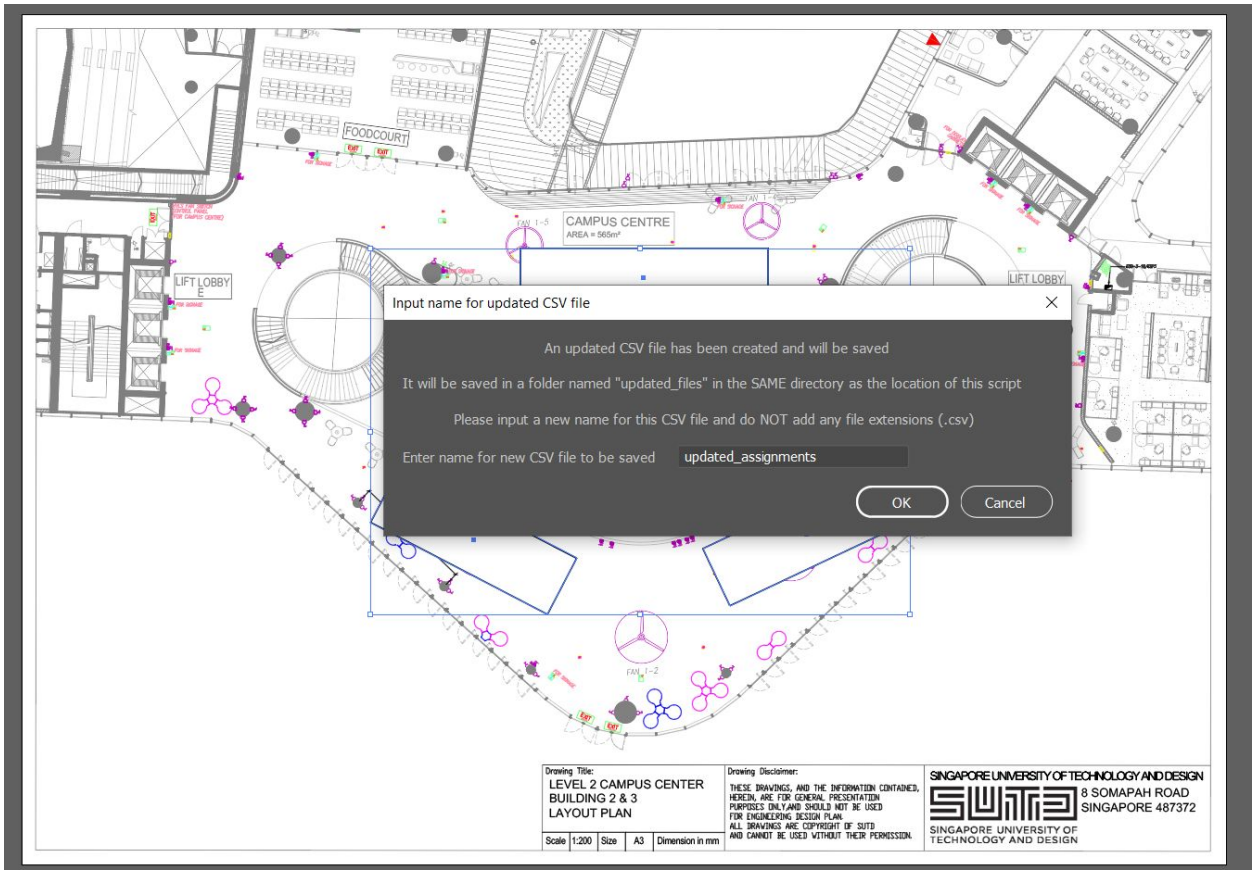
9) Second check: More details. Enter the scale of the floorplan, and use the browse icon to find the downloaded CSV file containing all the capstone group preference submissions. If this window is incomplete or filled up wrongly, the script will display the relevant error messages and not proceed, in which you will have to retry until the form is successfully filled or the cancel button is pressed.



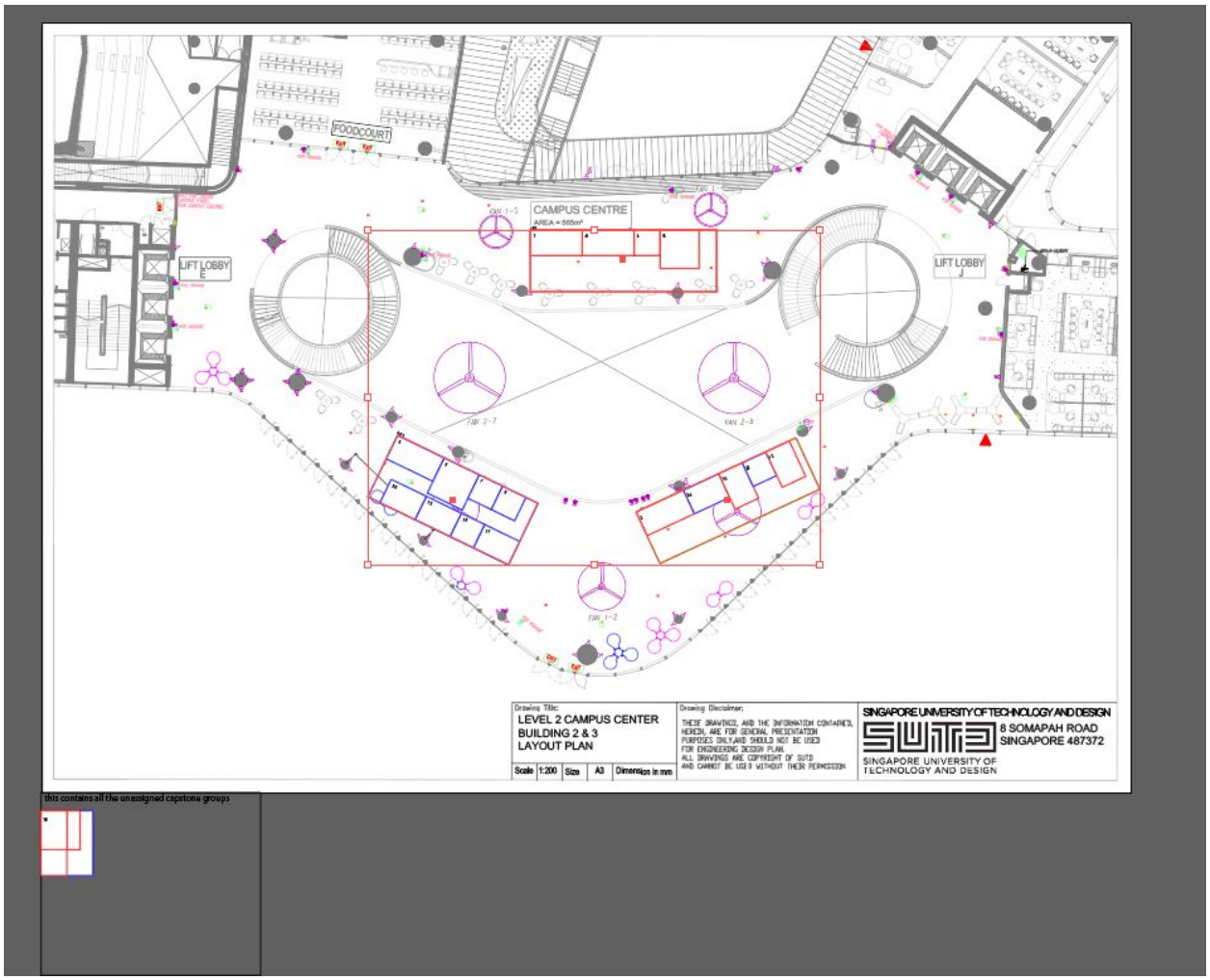
10) On success, the following window should be displayed



11) The current allocation will be saved as a new CSV file and you will be prompted to enter a new file name for it. This file will be saved in a file called updated_files, and the file location will be wherever the script is downloaded to



12) (Completed) This will explain the output:
    a) Capstone groups in blue are hardware products, in red are software products
    b) Capstone ID is assigned to the top left corner of each drawn groups
    c) The groups will be assigned along the top width of each boundary before the bottom width to maximise the space used.
    d) Should the groups be unassigned at the end, they are drawn into the box in the bottom left corner of the floor plan. This will require your manual intervention.
    e) If there are new updates, simply ctrl-z and rerun the script with the updated CSV files.



13) The script is designed such that you can rerun the script using the CSV files that were saved by the script should you wish to add new boundaries and allocate them. Simply follow from step 1, and use the newly updated CSV file, and the script will handle the additional allocation

Self-Help

- Changing to RGB stroke colour in Illustrator (return)