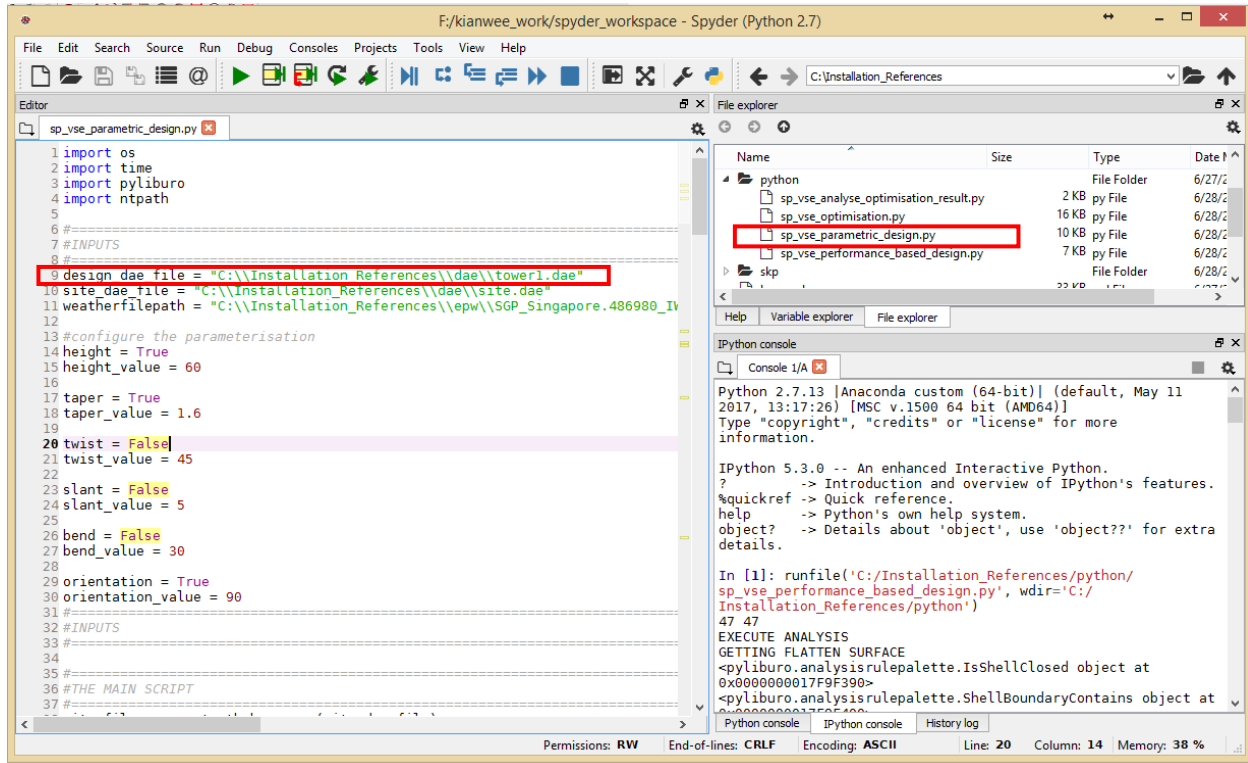


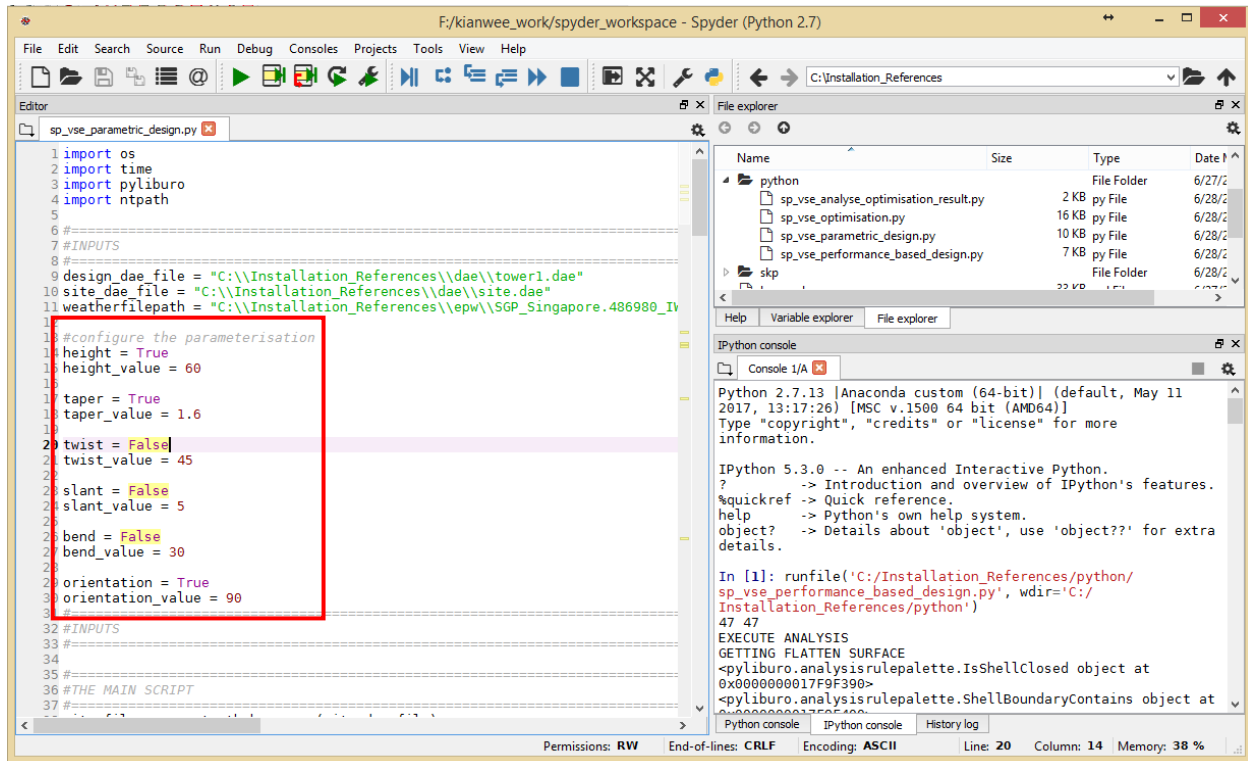
Pre-requisite:

- You must have read the installation guide for pyliburo and installed pyliburo before attempting this exercise.
- You must already finish exercise 1 to attempt exercise 2.

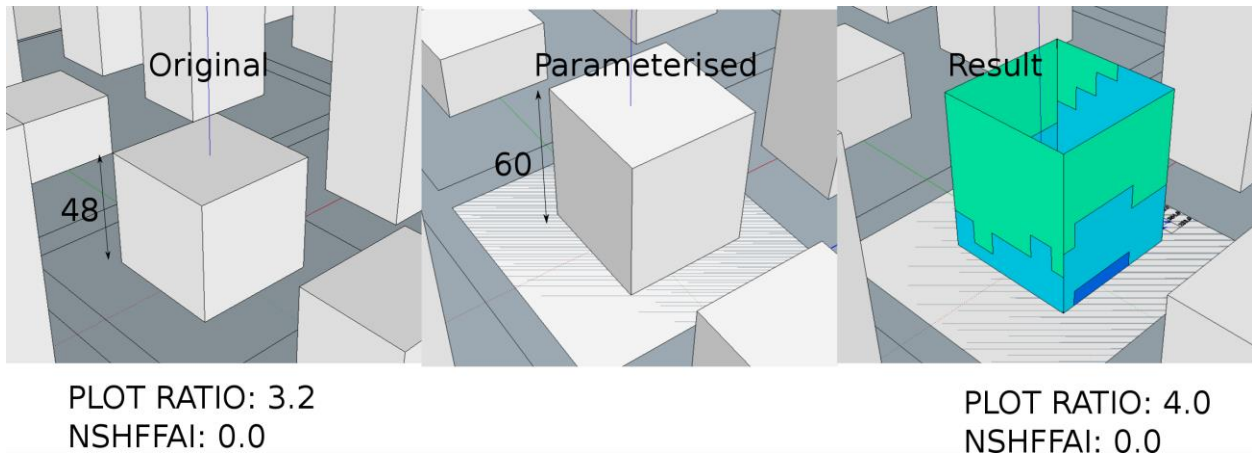
1.) Open spyder and go to the “sp\_vse\_parametric\_design.py” script by double clicking it. We will use the example from exercise 1, “c:\\Installation\_References\\dae\\tower1.dae”.



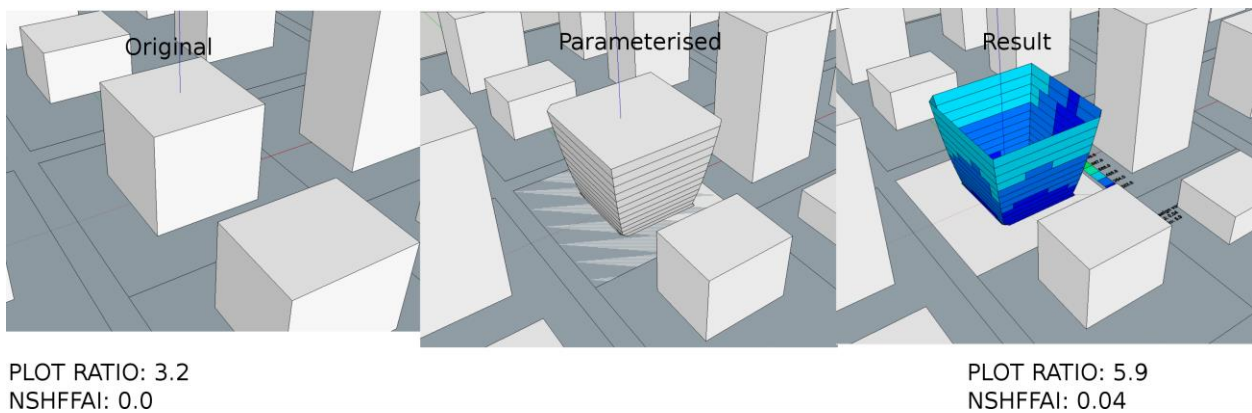
2.) You can parameterize your model according to 6 parameters. Height, taper, twist, slant, bend and orientation. Turn on each parameters by typing in True or False.



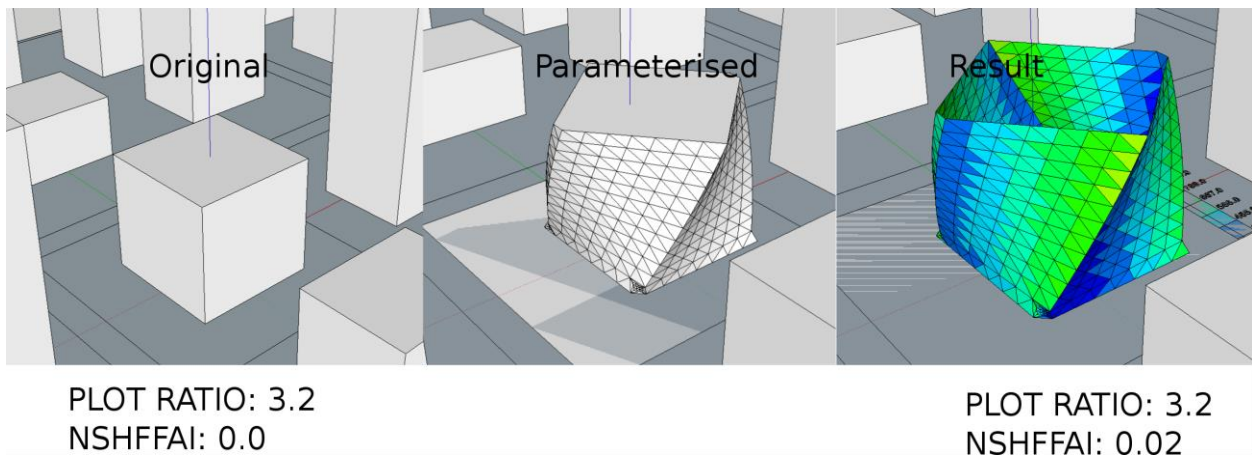
3.)For the height parameter if set to True and specified to 60.



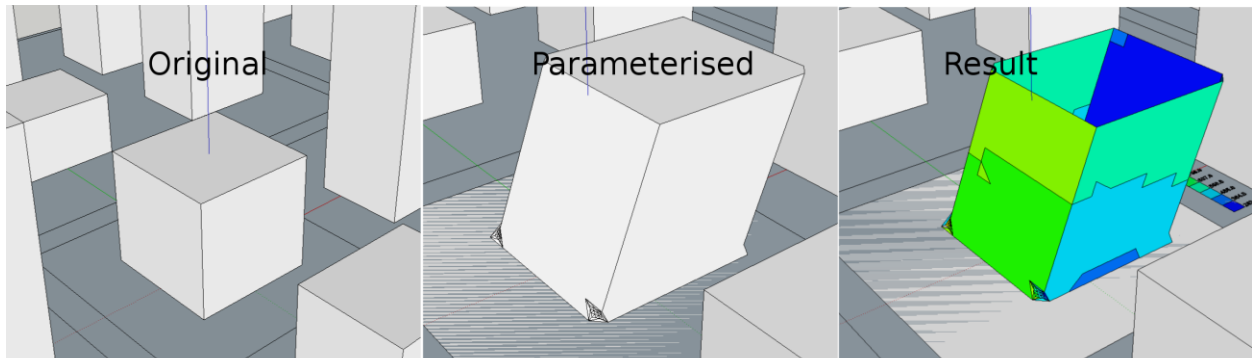
4.)For the taper parameter if set to True and specified to 1.6. The roof is 1.6 times bigger than the footprint.



5.)For the twist parameter if set to True and specified to 45. The roof is twisted counter-clockwise in 45° relative to the footprint.



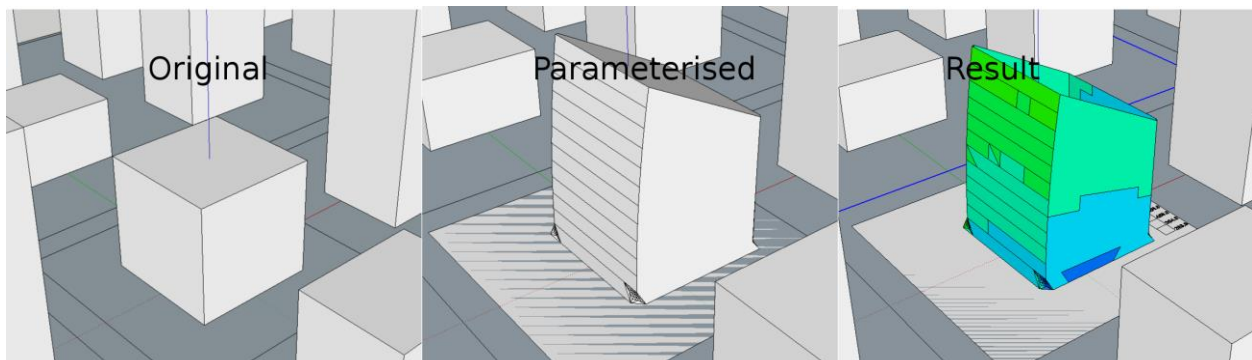
6.) For the slant parameter, if set to True and specified to 20m. The building will slant to the right in 20m.



PLOT RATIO: 3.2  
NSHFFAI: 0.0

PLOT RATIO: 3.2  
NSHFFAI: 0.02

7.) For the bend parameter, if set to True and specified to 30°. The roof of the building will bend in 30° to the right.



PLOT RATIO: 3.2  
NSHFFAI: 0.0

PLOT RATIO: 3.2  
NSHFFAI: 0.0

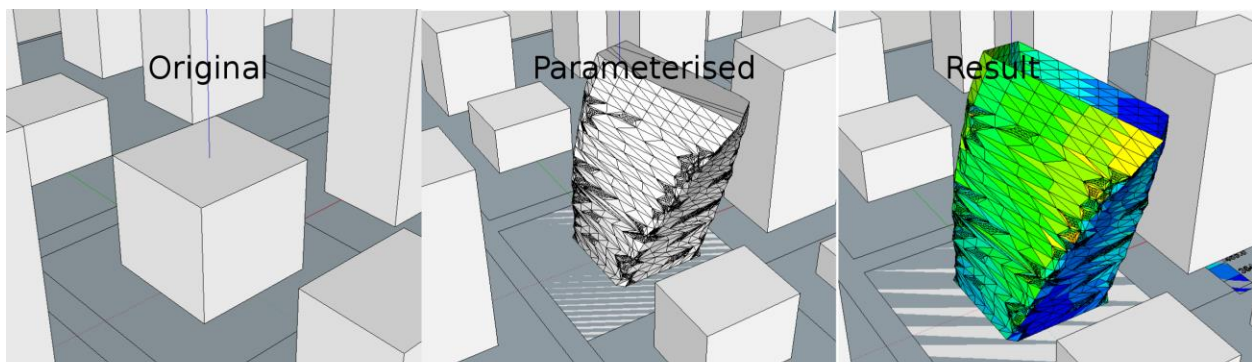
8.) For the orientation parameter, if set to True and specified to 45°, the building will turn 45° counter-clockwise.



PLOT RATIO: 3.2  
NSHFFAI: 0.0

PLOT RATIO: 3.2  
NSHFFAI: 0.0

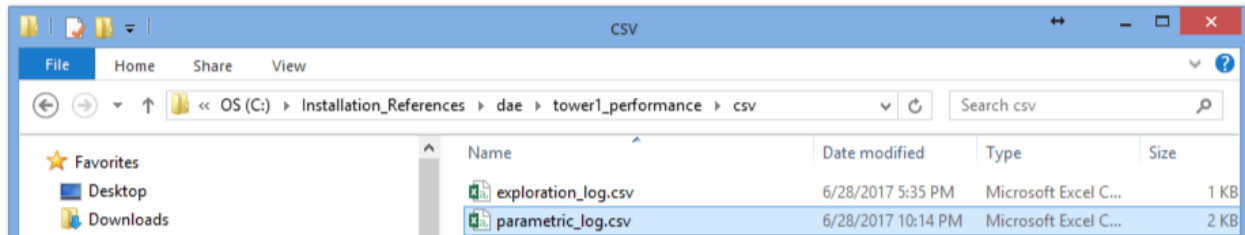
9.) Parameterise your model with different parameters such as:  
Height = 60, Taper = 1.6, Twist = 45, Slant = 20, Bend = 30,  
Orientation = 45. Try out as many different combinations as  
possible and find the best performing design.



PLOT RATIO: 3.2  
NSHFFAI: 0.0

PLOT RATIO: 9.6  
NSHFFAI: 0.02

- 10.) While trying out different parameters. You can navigate to the  
“c:\\Installation\_References\\dae\\tower1\_performance\\csv\\parametric\_log.csv” to check the history of your parameterization.



- 11.) The csv contains all your past exploration. The results and all the parameters. It is advised to look at this csv file when you decide the ranges for optimisation in exercise 3. (PLEASE DO NOT EDIT THIS CSV). If you want to edit this csv, make another copy and edit that copy.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
	design_file_name	plot_ratio	nshfai	height	height_value	orientation	orientation_value	twist	twist_value	taper	taper_value	slant	slant_value	bend	bend_value	nparms	number_of_surfaces	total
2	C:\\Installation	5.2	0	TRUE	80	TRUE	90	FALSE	45	FALSE	1.6	FALSE	5	FALSE	30	2	6	0.234
3	C:\\Installation	7.6	0.03	TRUE	60	TRUE	90	FALSE	45	TRUE	1.6	FALSE	5	FALSE	30	3	1384	0.653
4	C:\\Installation	4	0	TRUE	60	FALSE	90	FALSE	45	FALSE	1.6	FALSE	5	FALSE	30	1	6	0.227
5	C:\\Installation	5.9	0.04	FALSE	60	FALSE	90	FALSE	45	TRUE	1.6	FALSE	5	FALSE	30	1	904	0.475
6	C:\\Installation	4	0	TRUE	60	FALSE	90	FALSE	45	FALSE	1.6	FALSE	5	FALSE	30	1	6	0.251
7	C:\\Installation	3.2	0.02	FALSE	60	FALSE	90	TRUE	45	FALSE	1.6	FALSE	5	FALSE	30	1	904	0.482
8	C:\\Installation	3.2	0.02	FALSE	60	FALSE	90	FALSE	45	FALSE	1.6	TRUE	20	FALSE	30	1	904	0.426
9	C:\\Installation	3.7	0	FALSE	60	FALSE	90	FALSE	45	FALSE	1.6	FALSE	20	TRUE	30	1	904	0.44
10	C:\\Installation	3.2	0	FALSE	60	TRUE	45	FALSE	45	FALSE	1.6	FALSE	20	FALSE	30	1	6	0.231
11	C:\\Installation	9.6	0.02	TRUE	60	TRUE	45	TRUE	45	TRUE	1.6	TRUE	20	TRUE	30	6	6358	4.432