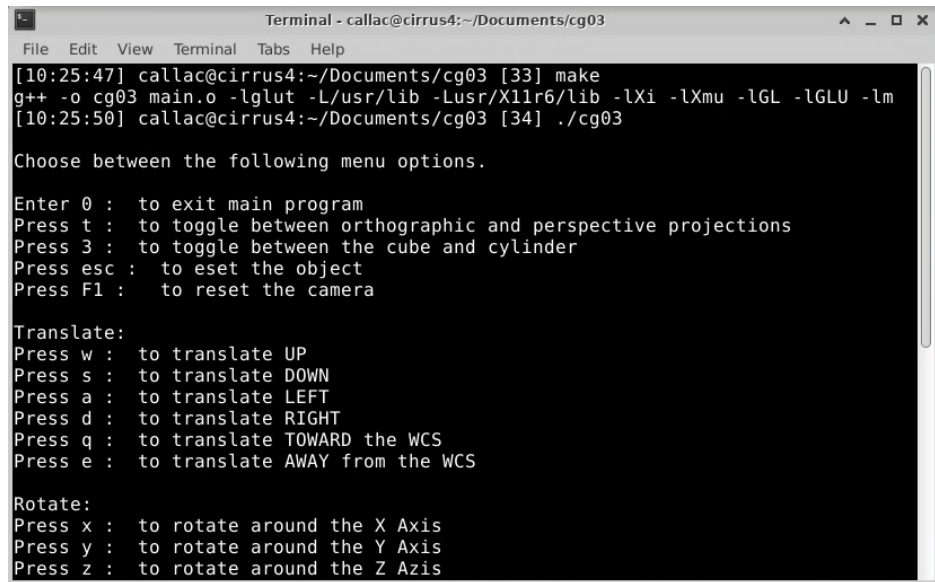


## Calla Corder Assignment 3 Report

How to Build: make

How to Run: ./cg03

### Task A &B Screenshots:



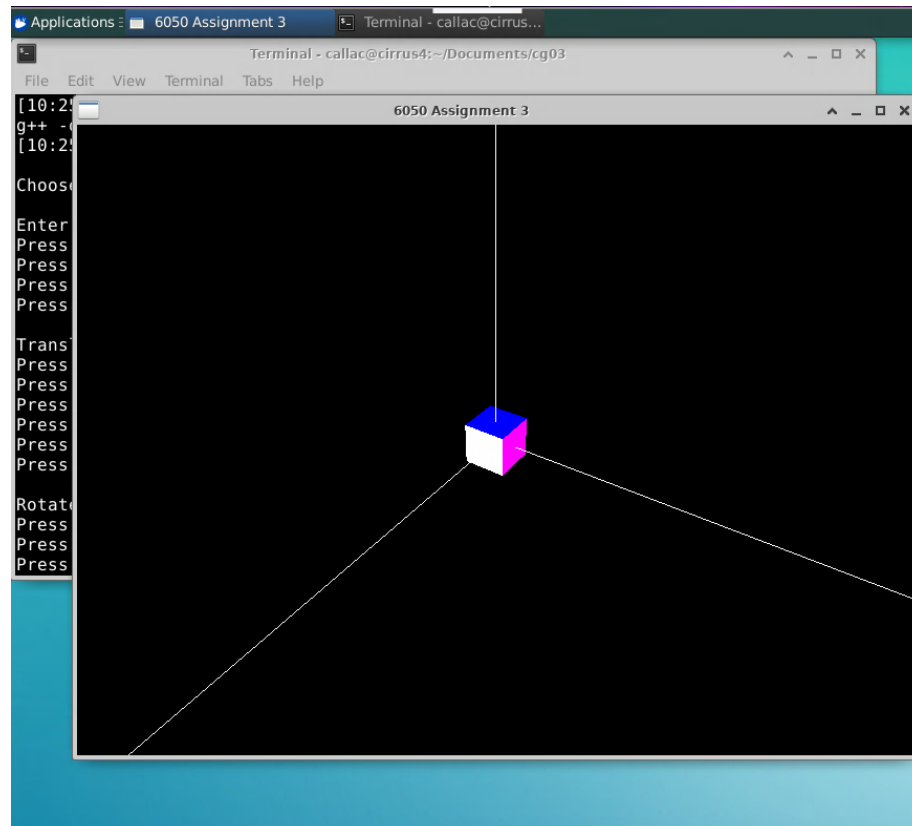
```
Terminal - callac@cirrus4:~/Documents/cg03
File Edit View Terminal Tabs Help
[10:25:47] callac@cirrus4:~/Documents/cg03 [33] make
g++ -o cg03 main.o -lglut -L/usr/lib -Lusr/X11r6/lib -lXi -lXmu -lGL -lGLU -lm
[10:25:50] callac@cirrus4:~/Documents/cg03 [34] ./cg03

Choose between the following menu options.

Enter 0 : to exit main program
Press t : to toggle between orthographic and perspective projections
Press 3 : to toggle between the cube and cylinder
Press esc : to eset the object
Press F1 : to reset the camera

Translate:
Press w : to translate UP
Press s : to translate DOWN
Press a : to translate LEFT
Press d : to translate RIGHT
Press q : to translate TOWARD the WCS
Press e : to translate AWAY from the WCS

Rotate:
Press x : to rotate around the X Axis
Press y : to rotate around the Y Axis
Press z : to rotate around the Z Azis
```

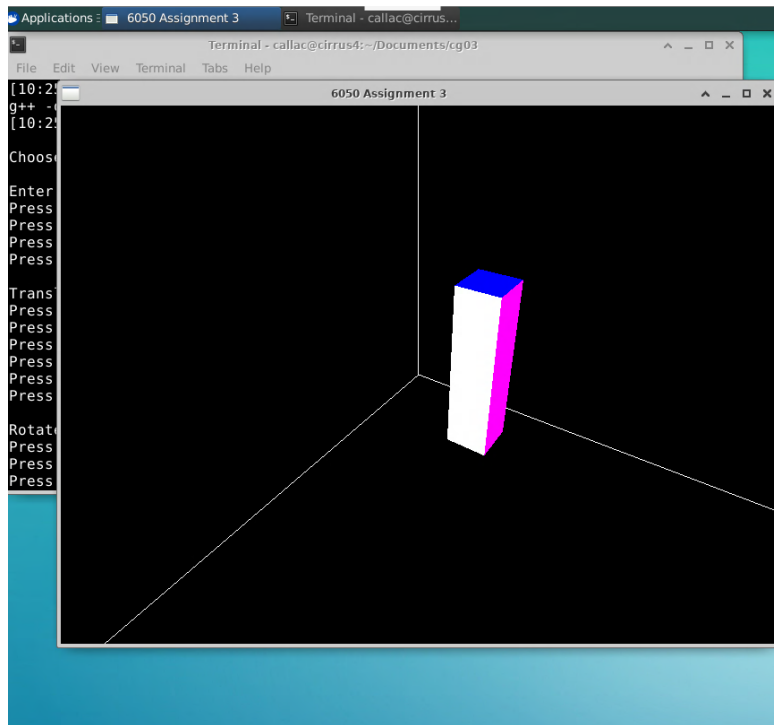


**Task C:****Key Inputs and Operations**

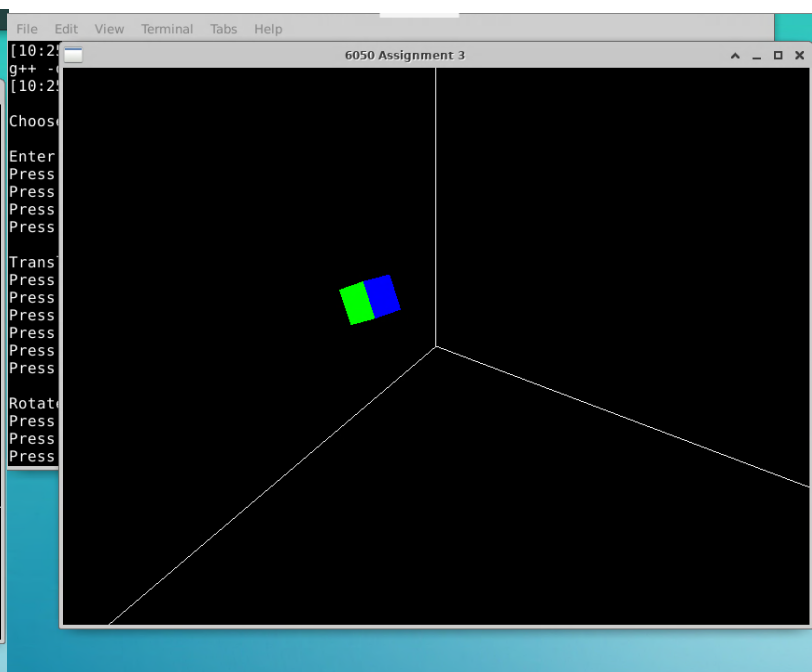
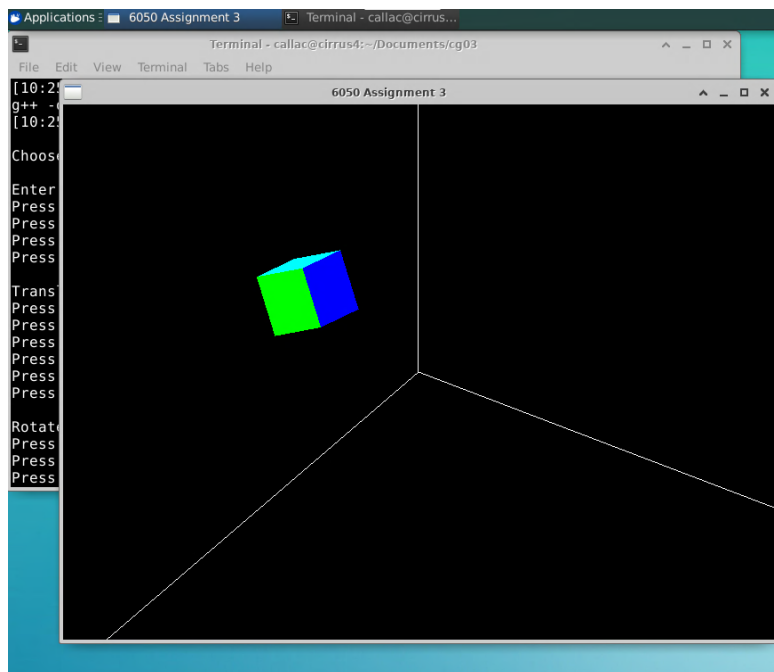
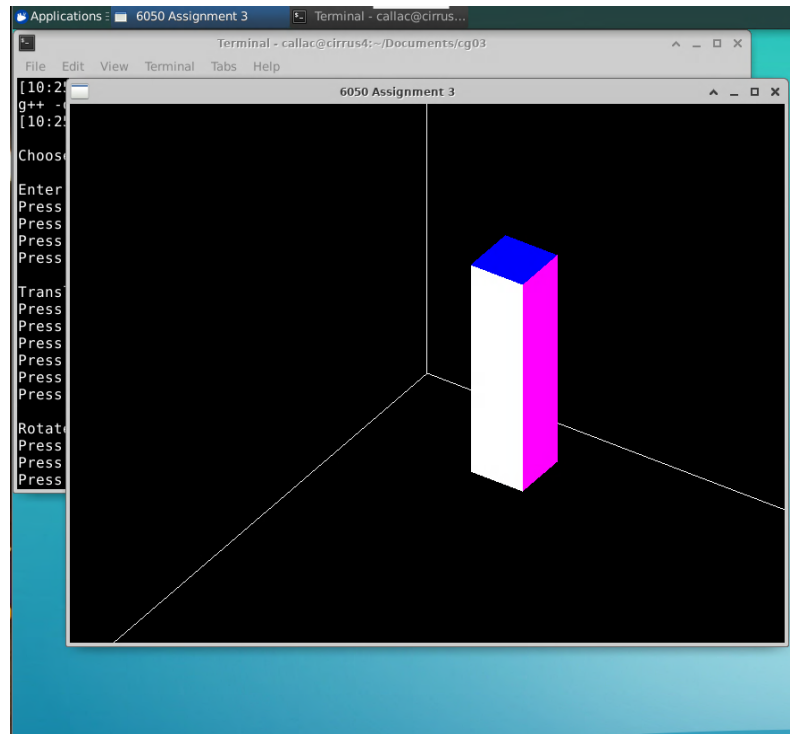
#	Operation	Detail	Key
1	Exit	Exit Program	0
2	Toggle the view between orthographic and perspective projections		t
3	Reset Display	Remove all transformations	esc
4	Translate	Up	w
5	Translate	Down	s
6	Translate	Left	a
7	Translate	Right	d
8	Translate	Closer to WCS	q
9	Translate	Away from WCS	e
10	Rotate	Around X	x
11	Rotate	Around Y	y
12	Rotate	Around Z	z
13	Scale	Up along X	u
14	Scale	Down along X	j
15	Scale	Up along Y	i
16	Scale	Down along Y	k
17	Scale	Up along Z	o
18	Scale	Down along Z	l
19	Translate Camera	Up	Up arrow
20	Translate Camera	Down	Down arrow
21	Translate Camera	Left	Left arrow
22	Translate Camera	Right	Right

			arrow
23	Translate Camera	Along WCS Z axis, closer to the origin	1
24	Translate Camera	Along WCS Z axis, further from the origin	2
25	Field of view	Decrease	+
26	Field of view	Increase	-
27	Toggle between cube and cylinder		3
28	Reset Camera		F1

## Task D: Perspective Projection

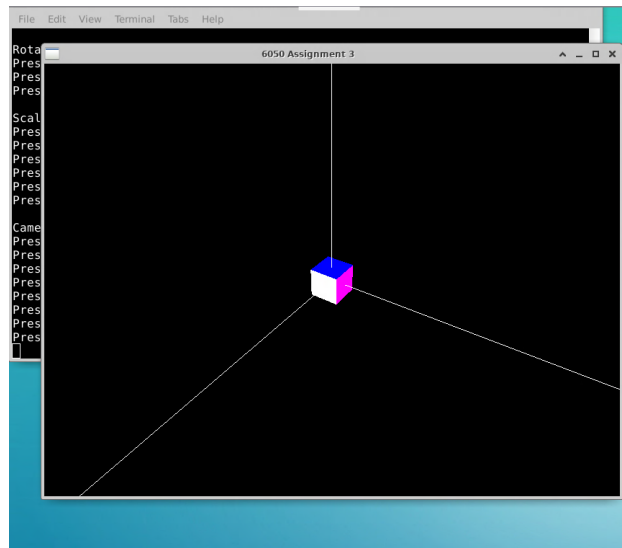


## Orthographic

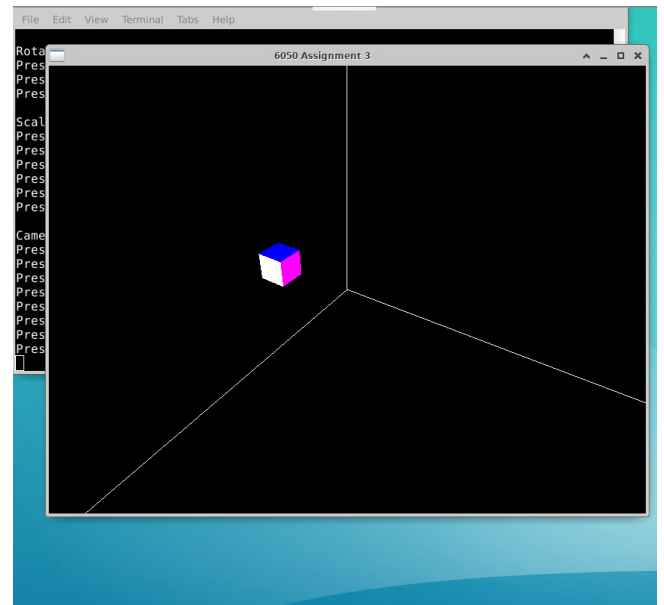
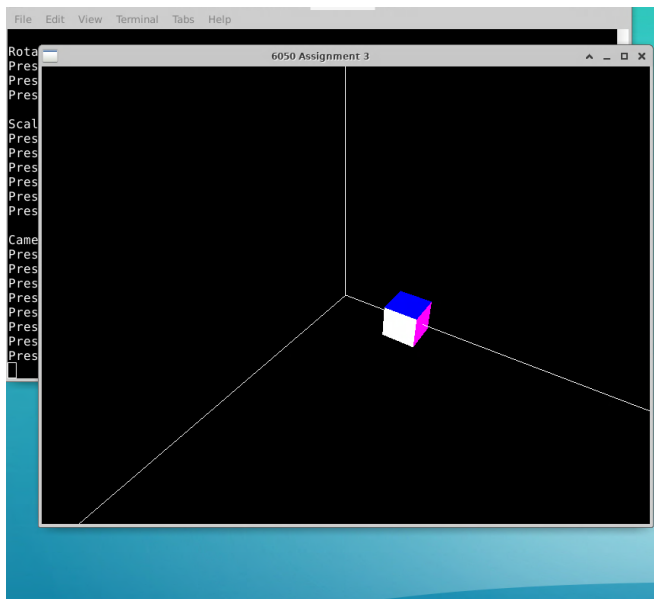


### Task E:

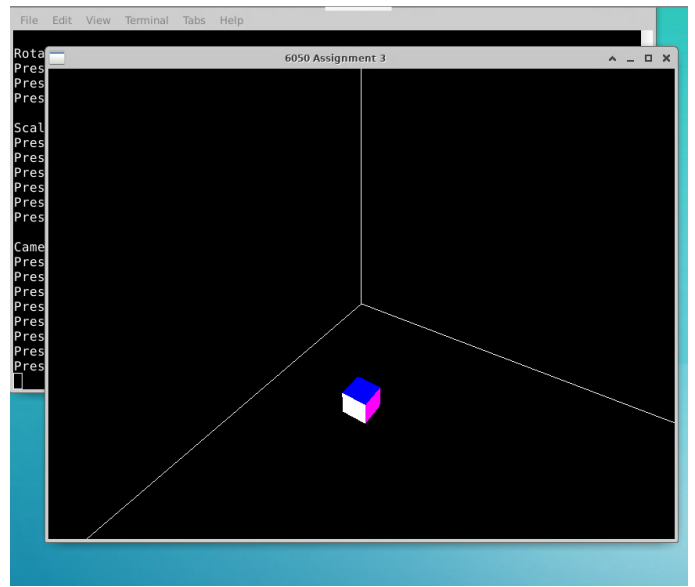
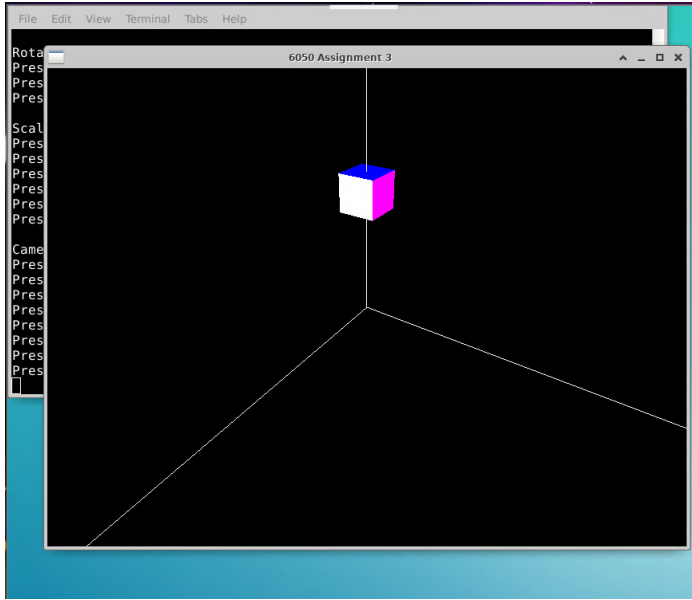
**Original Cube (in perspective)**



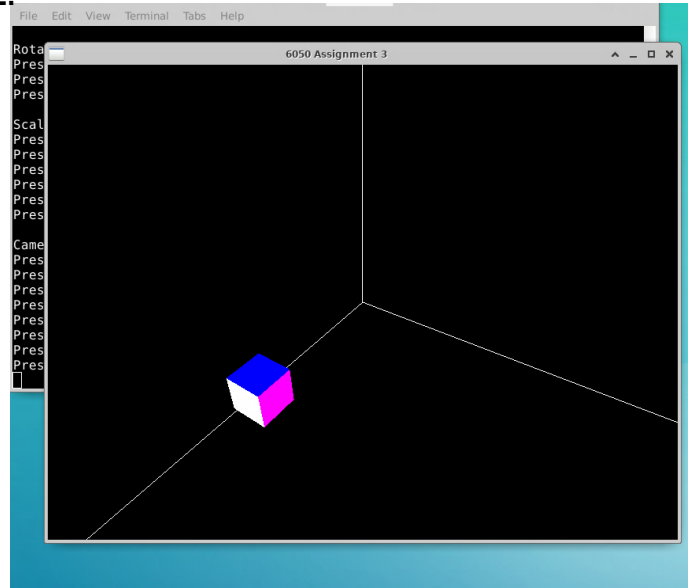
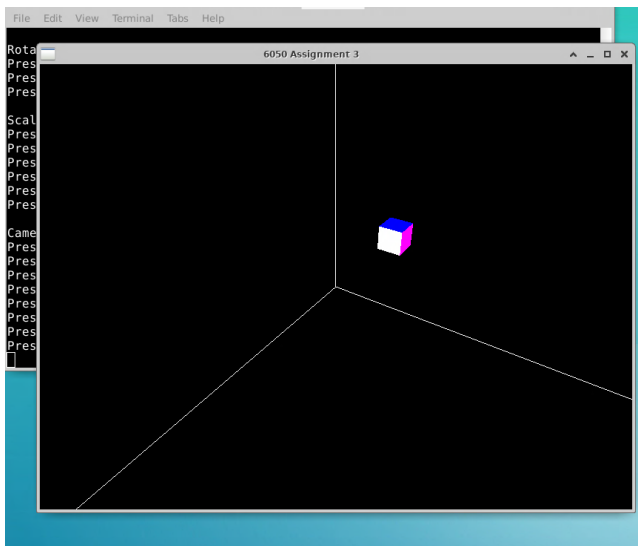
**Translate X:**



**Translate Y:**

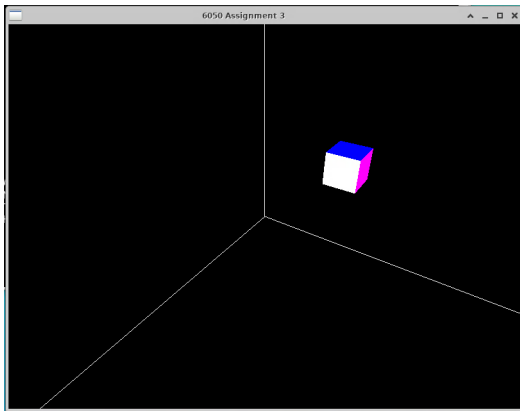


**Translate Z:**

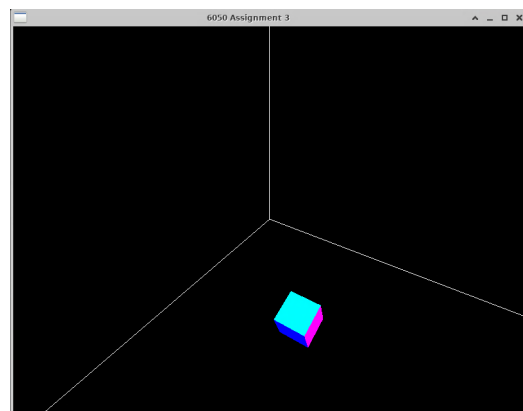


### Rotate X:

Before

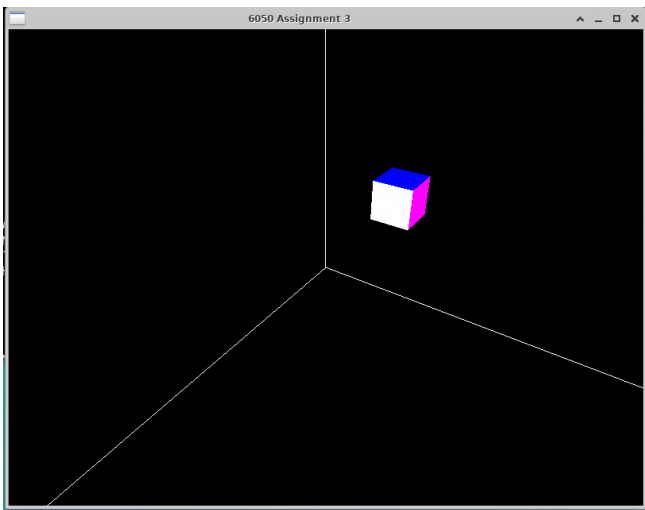


After

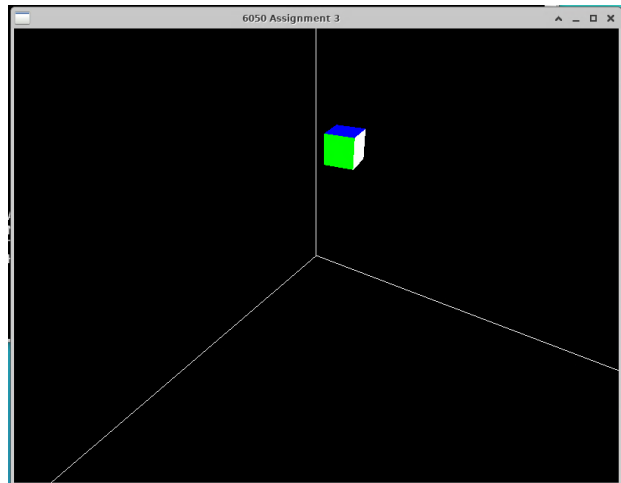


### Rotate Y:

Before

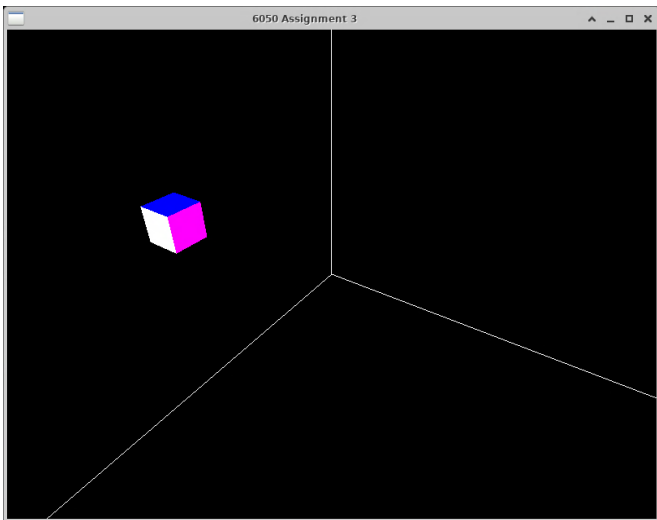


After

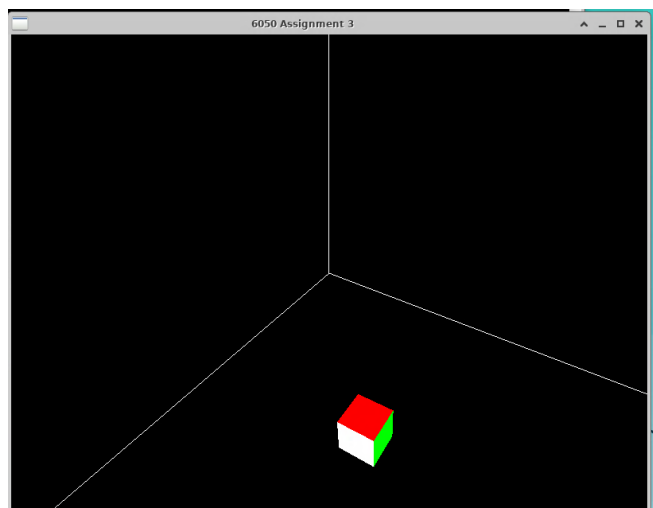


### Rotate Z:

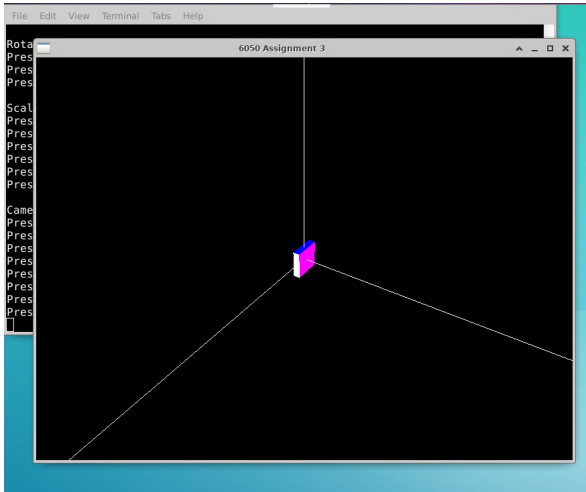
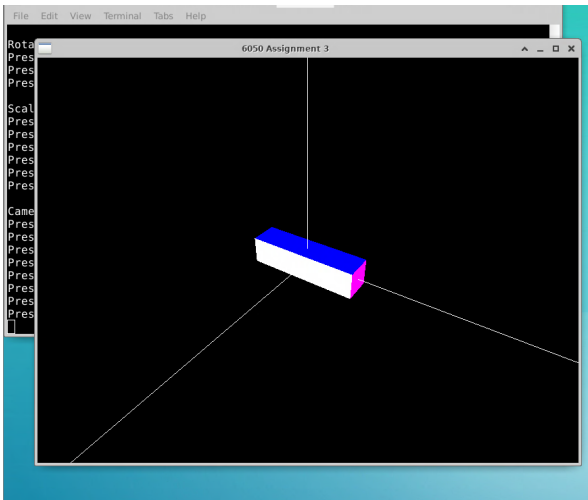
Before



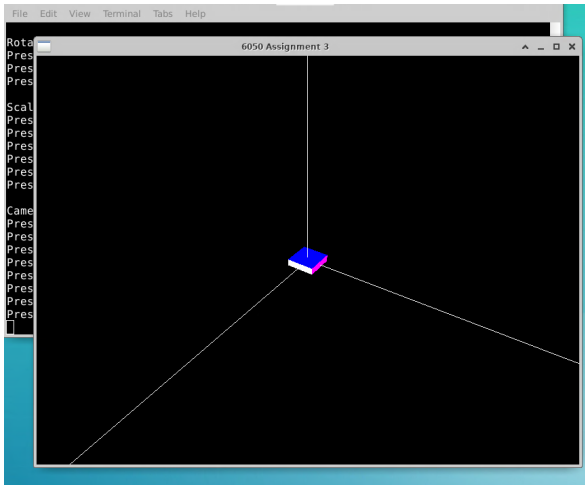
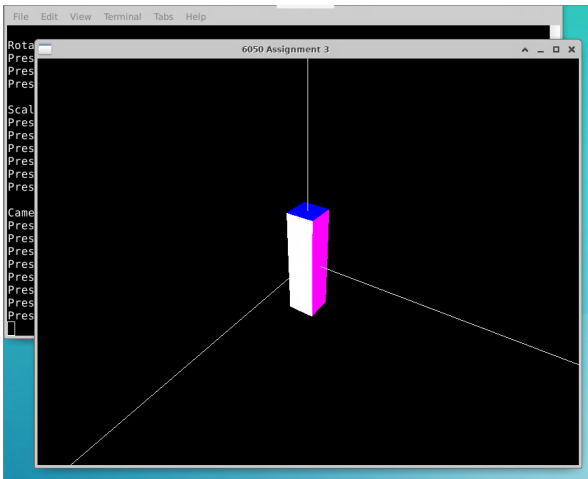
After



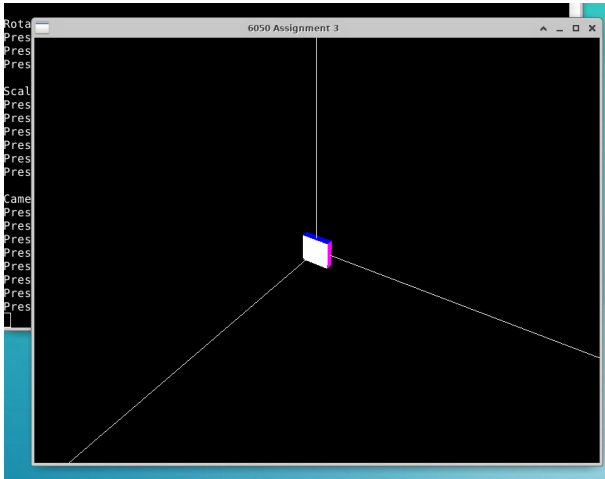
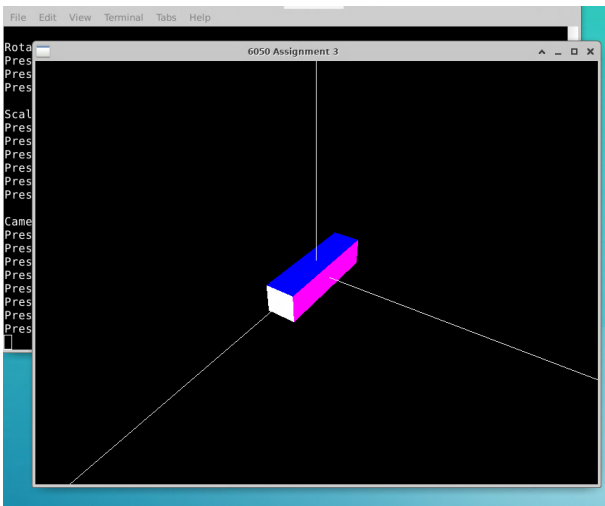
Scale X:



Scale Y:

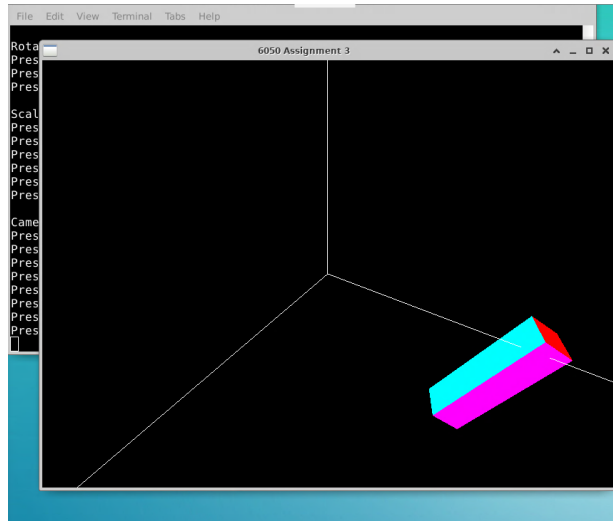


Scale Z:



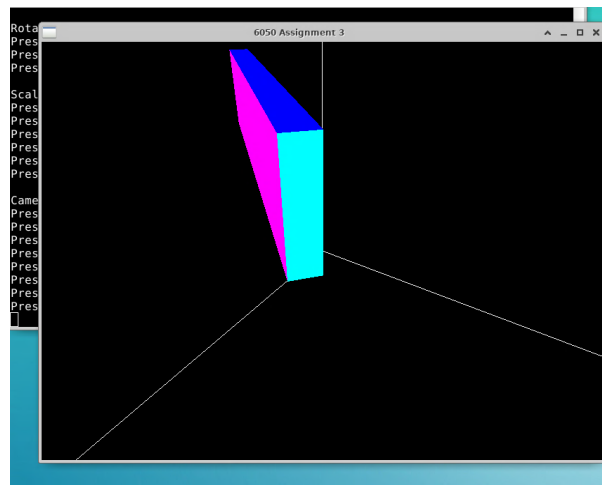


### Scaled, Translated, then Rotated:

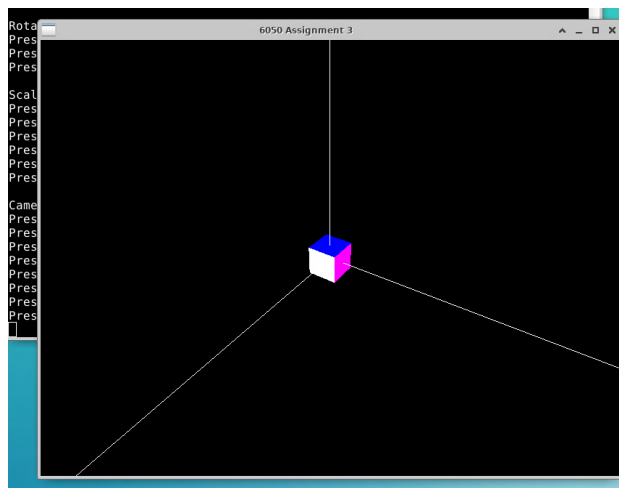


### Part F:

**Before pressing esc**

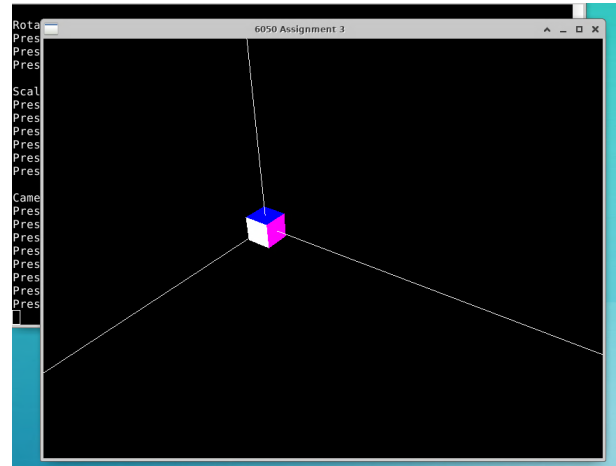
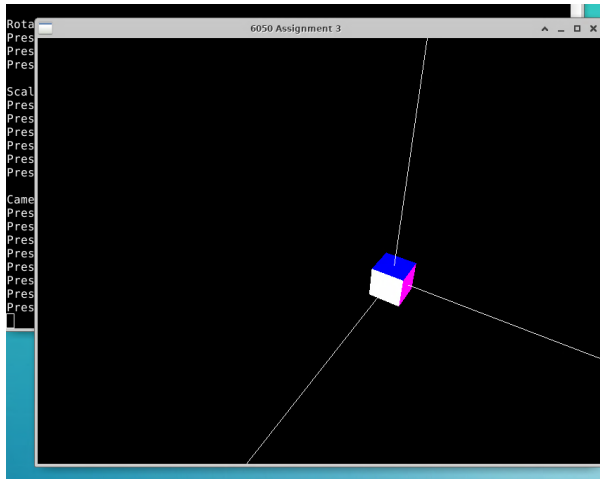


**After esc:**

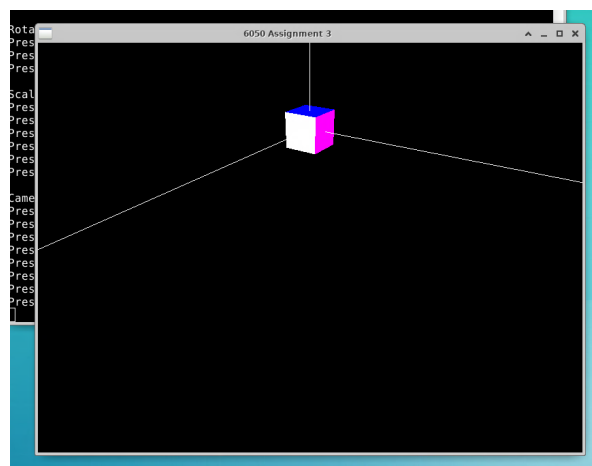
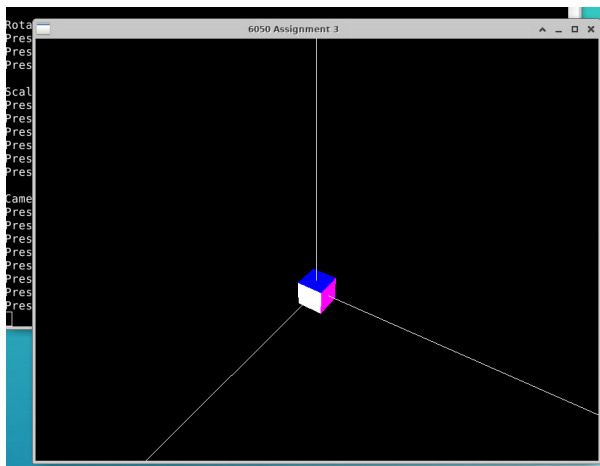


## Part H:

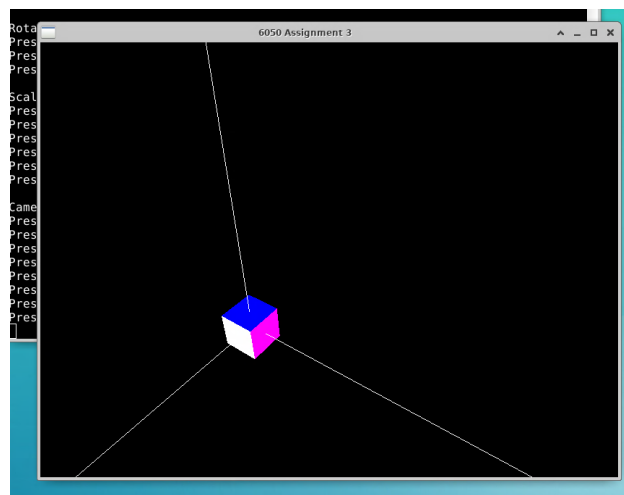
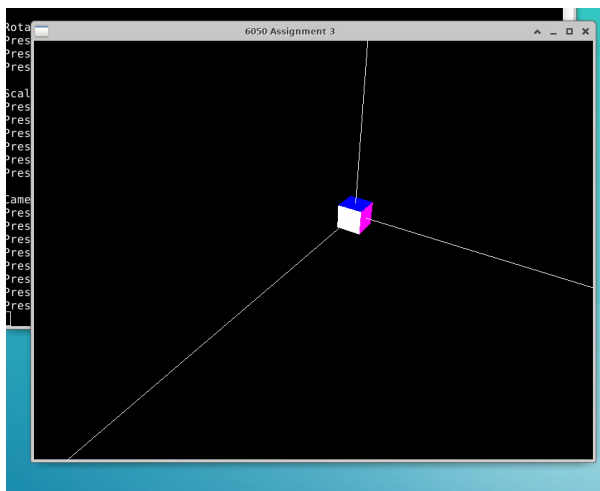
### Translate camera along X axis (left and right)



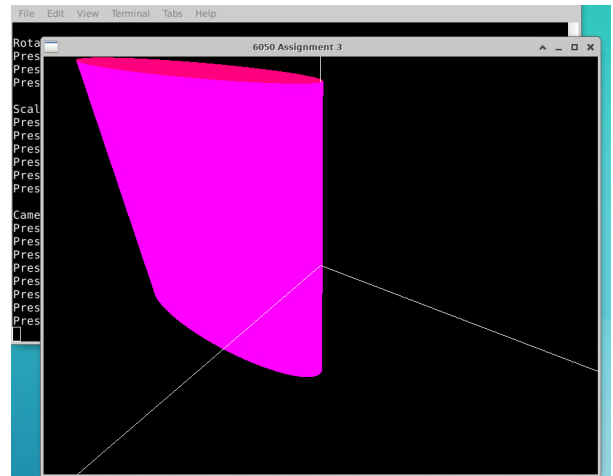
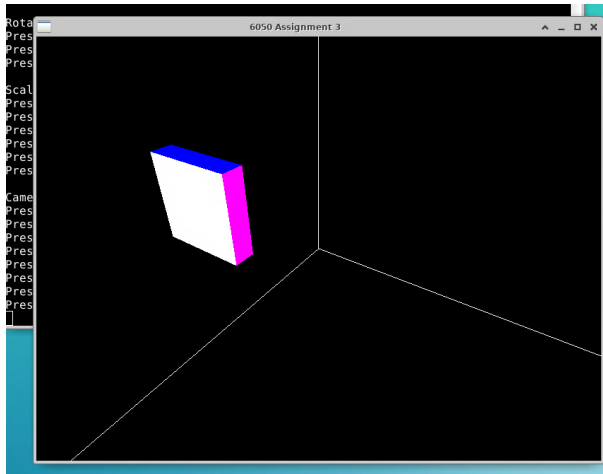
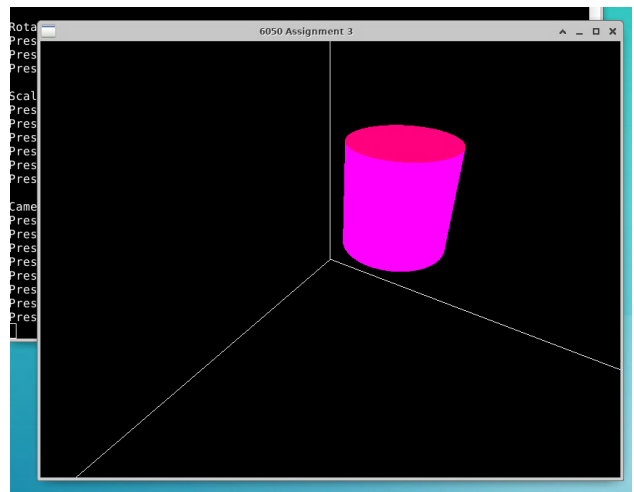
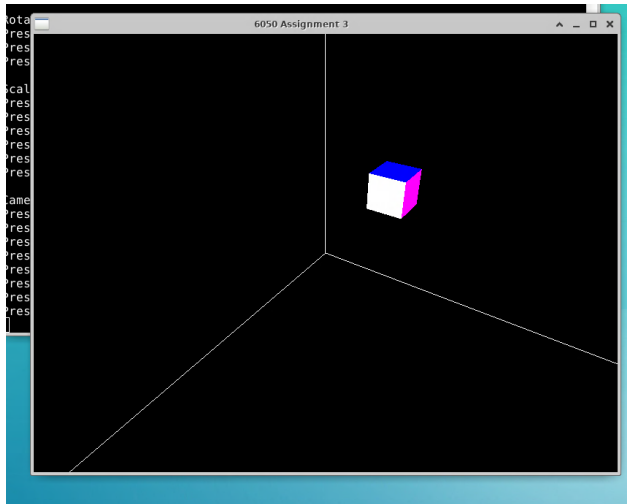
### Translate Camera along Y axis (up and down)



### Translate Camera along Z axis (closer and further away from WCS)



**Bonus: Repace Cube with Cylinder - press 3 to toggle**



**Bonus: Change Field of View - press '+' and '-' to change  
Original Field of View**

