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Cpsc 6050
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Project Report cg04

The purpose of this project is to successfully produce a 3d vase using a bezier curve and robot that can move its arm. Unfortunately I had issues with asking for user input on the vase. However, it generates a premade vase using the bezier curve and if you press certain keys you can adjust the vase.

Files included:

Makefile
cg04.cpp
Report

To compile my and run my code:

1. Type make or g++ cg04.cpp -lGL -lGLU -lglut -o vase
2. ./vase

Items completed Noah:

- Create and display the window.
- Create a vase using the bezier curve.
- Allow the user to change the vase shape.
- Create a user interactive menu.
- Create a robot with cylinders as arms.
- Make the head of the robot a sphere.
- Move the robot's arm up/down as well as left/right.
- Translate, rotate, and scale the robot.
- Code to clear out the transformations and return the robot to the original way.

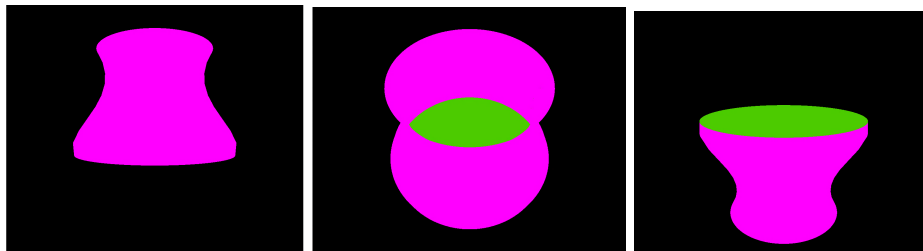
Menu buttons for the user:

#	Operation	Detail	Shortcut-key/key-combination
1	rotate	Press the x key to rotate the x axis.	x key
2	rotate	Press the y key to rotate the y axis	y key
3	rotate	Press the z key to rotate the z axis	z key
4	scale	Press the j key to scale the vase/robot up on x axis (expand)	j key
5	scale	Press the k key to scale the vase/robot up on y axis (expand)	k key
6	scale	Press the l key to scale the vase/robot up on z axis (expand)	l key

7	scale	Press the u key to scale the vase/robot down on x axis (shrink)	u key
8	scale	Press the i key to scale the vase/robot down on y axis (shrink)	i key
9	scale	Press the o key to scale the vase/robot down on z axis (shrink)	o key
10	translate	Press the w key to translate the vase/robot up on y axis.	w key
11	translate	Press the s key to translate the vase/robot down on y axis.	s key
12	translate	Press the a key to translate the vase/robot left on the x axis.	a key
13	translate	Press the d key to translate the vase/robot right on the x axis.	d key
14	translate	Press the n key to translate the vase/robot closer on the z axis.	n key
15	translate	Press the m key to translate the vase/robot away on the z axis.	m key
16	Return to original	Press the spacebar for the robot to go back to the original.	spacebar
17	Translate camera	Press the up arrow key to translate the camera up on y axis.	Up arrow key
18	Translate camera	Press the down arrow key to translate the camera down on y axis.	Down arrow key
19	Translate camera	Press the left arrow key to translate the camera left on the x axis.	Left arrow key
20	Translate camera	Press the right arrow key to translate the camera right on the x axis.	Right arrow key
21	Translate camera	Press the f1 key to translate the camera away on the z axis.	F1 key
22	Translate camera	Press the f2 key to translate the camera closer on the z axis.	F2 key
23	Increase fov	Press the f3 key to increase the camera's field of view.	F3 key
24	Decrease fov	Press the f4 key to decrease the camera's field of view.	F4 key
25	Increase vase at first point on curve	Press the f5 key to Increase vase at the first point on the curve.	F5 key

26	Increase vase at second point on curve	Press the f6 key to Increase vase at the second point on the curve.	F6 Key
27	Increase vase at third point on curve	Press the f7 key to Increase vase at the third point on the curve.	F7 key
28	Increase vase at fourth point on curve	Press the f8 key to Increase vase at the fourth point on the curve.	F8 key
29	Increase vase at fifth point on curve	Press the f9 key to Increase vase at the fifth point on the curve.	F9 key
30	Increase vase at sixth point on curve	Press the f10 key to Increase vase at the sixth point on the curve.	F10 key
31	Return camera to original form	Press the f11 key to return the camera to its original position and return the vase to its original shape.	F11 key
32	Switch to vase	Press the 1 key to switch display to vase.	1 key
33	Switch to robot	Press the 2 key to switch the display to the robot.	2 key
34	Lift robot arm up	Press the 3 key to lift the robot arm up.	3 key
35	Lift robot arm forwards	Press the 4 key to lift the robot arm forwards.	4 key
36	Lift robot arm down	Press the 5 key to lift the robot arm down.	5 key
37	Lift robot arm backwards	Press the 6 key to lift the robot arm backwards.	6 key
38	Exit the program	Press q to exit the program.	q key

Vase:



Robot:

