CS/SE 3GC3 - Computer Graphics Final Project

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Project Description

A cooking game that takes place in a 3-D simulating kitchen, where the player selects a recipe and must interact with ingredient objects and tool objects and follow the instructions given to create the dish.

Keyboard Commands

- q - quit
- 1 - View ingredients/objects to make salad recipe (default view)
- 2 - View ingredients/objects to make curry recipe
- 3 - View ingredients/objects to make steak recipe
- up arrow - zoom out
- down arrow - zoom in
- left arrow - rotate left around kitchen counter
- right arrow - rotate right around kitchen counter

Features from Prototype

One of the features that we have implemented is the room environment, that consists of a floor, walls, and lighting . Another implementation in our prototype is a obj reader function in the ingredients.cpp file that reads the obj file path passed to it, and extracts the appropriate information (mesh, texture, normals, faces) into c++ vectors. These vectors are then

used to load the objects into the room. The appropriate obj files for the ingredients/tools/textures were obtained from several sources (that are cited in the readme file), and edited as appropriate for our needs.

Summed Up:

- Basic room with floors, walls, lighting
- Basic meshes for each food object and tool object, and kitchen counter
- .obj file parser
- Loading object meshes and textures into the room

New Features

Key Features (Advanced Graphics Features)

- Lighting [5%]
- Textures [10%]
- Ray Casting [10%]
- Non-geometric primitives(bitmaps, pixel maps) [10%]
  - sdfsdfsd
- sdfsdfsd

Other Features

Some of the features that were implemented in the final implementation include the application of textures and materials on the objects. Depending on which recipe is chosen by the user, the appropriate instructions for the recipe and only the necessary ingredients for that object are loaded in. Once a recipe is chosen, a timer is displayed in the window indicating remaining time for that recipe. The scoring system is based on the amount of time left when the user completes the recipe.

In order to perform actions on the ingredients, we will implement ray casting. A 3D ray will be projected from the mouse position on click. This will allow the user to select an ingredient or tool, apply a tool to an ingredient (knife to orange for fruit salad recipe) or apply an ingredient to a tool (cut potatoes to pot for curry recipe). Functions will be constructed to determine

ingredient state changes if the appropriate tool is used on it (e.g. If a knife is used on the orange, the orange will automatically change to the "cut " orange mesh.) As well, when the correct combinations of ingredients are put together, the final recipe object will appear and the game will end. At the bottom left corner of the screen, the instructions of the recipe will be displayed.

Recipe Details

- Curry
  - Objects: Potato, Tomato, Onion, Knife, Pot
  - Use knife on Potato (whole)
  - Use Potato (cut) on Pot
  - Use knife on Tomato (whole)
  - Use Tomato (cut) on Pot
  - Use knife on Onion (whole)
  - Use Onion (cut) on Pot
  - Curry Complete
- Fruit Salad
  - Objects: Mango, Orange, Banana, Knife
  - Use Knife on Mango (whole)
  - Use Mango (cut) on Bowl
  - Use Knife on Orange (whole)
  - Use Orange (cut) on Bowl
  - Use Knife on Banana (whole)
  - Use Banana (cut) on Bowl
  - Fruit Salad Complete
- Steak
  - Objects: Steak, Pan
  - Use Steak on Pan
  - Wait 10 Seconds
  - Steak Complete