

1 DESCRIPTION

This assignment has TWO parts:

- an *individual* part, worth 5 points, or 5% of your term grade—due on **October 19**
- a *group* part, worth 10 points, or 10% of your term grade—due on **October 26**

The purpose of this assignment is to implement some fundamental aspects of game programming, such as:

- definition of graphical game objects
- animation of graphical game objects
- interaction (e.g., collision) between graphical game objects
- user interaction with graphical game objects

(Do these look familiar? They should! You implemented them in HTML5 for your first assignment!)

For this **second assignment**, you will implement them in **Blender**.

2 INDIVIDUAL PART

The individual part of this assignment must be completed on your own. This part allows you to demonstrate your ability to use the fundamental aspects of Blender: rendering, manipulation, animation, physics and user interaction.

- Render a static (stationary) object in Blender. I'll refer to this as "Object A". It doesn't have to be very fancy, but it should be more interesting than the default cube. It should have different material properties than the flat grey default. *(1 point)*
- Object A should ANIMATE when the user clicks the mouse button. In "blender render" mode, you will need to create an animation, using the timeline, like you did in the first Blender lab. Then use the *Action Actuator* (Play option, set Start and End frame numbers) to activate the animation in response to the user's mouse click. *(1 point)*
- Make two additional objects: one object located up in the "air" ("Object B") and a "floor" object (cube that is low in the scene and thin). Give each object a different color. *(1 point)*
- Object B should fall (using game physics) when the game starts, and should bounce off of the floor. Make the object stop falling/bouncing when the user presses 'S' key, and resume falling/bouncing when the user presses the 'G' (for 'go') key. Make both the floor and the object "bouncy" (using high elasticity values and setting collision bounds appropriately)—then you can use the 'S' and 'G' keys to make the object Stop and Go, accordingly. Use the *Edit Object Actuator* (Dynamics option, Suspend and Resume Dynamics) to turn the physics for the object off and on in response to the user's key clicks. *(1 point)*
- Make one more object ("Object C"). Object C should move in response to the user pressing the 'U' (up), 'D' (down), 'F' (forward), 'B' (backward), 'L' (left) and 'R' (right) keys. *(1 point)*

3 GROUP PART

The group part of this assignment can be done with ONE OTHER PERSON. In this part, you and your partner will create a Rube Goldberg machine, like we discussed and demonstrated in class on Sep 27.

- Link in the two objects from the individual part of the assignment (i.e., yours and your partner's). You will incorporate these objects into your Rube Goldberg machine. (1 point)
- Create at least 4 other objects. These should be distinct objects—not copies of the ones you already have. You may also create copies of the objects you've defined. In other words, you can have more than 6 objects overall, but you should have at last 6 *different* objects. (Or 5 if you work alone—see note below.) (2 points)
- Define the physics of your objects and how they interact with each other. Remember the properties we discussed in class, like *elasticity* and *collision bounds*. (2 points)
- Place your objects so that they interact with each other in a “Rube Goldberg” way. In other words, your machine should start with one object moving, and that should set off a chain reaction that causes all the other objects in the scene to move, in a sequence. (3 points)
- Difficulty. Just making another dominoes-like game, as I did in class (with a row of bricks falling) is BORING. Be CREATIVE! Be ADVENTUROUS! Be EXCITING! (1 point)
- Instructions/Documentation. In a *Text Editor* window in your Blender file, create instructions for how to start the machine. Document each object and describe its properties. (1 point)
MAKE SURE YOU PUT BOTH YOUR NAME AND YOUR PARTNER'S NAME IN THE TEXT!!!

Note that you and your partner will receive the same grade, so choose your partner wisely :-)

Also note that you are not required to work with a partner, but if you choose to work alone, you will still be responsible for the same amount of work that two partners share. (Except that you only need to link in one object, so your total number of different objects will be a minimum of 5 instead of 6.)

4 SUBMISSION INSTRUCTIONS

Submit each part of the assignment using the on-line submission system, which is linked to the class web page.

- ZIP the Blender file(s) for your individual part of the assignment and submit that by itself (i.e., separately from the group part of the assignment).
DUE FRIDAY OCTOBER 19.
- ZIP the Blender file(s) for your group part of the assignment and submit that separately.
Note you and your partner should submit ONE group assignment together. It doesn't matter which of you submits. Just remember to put both your name and your partner's name in the Blender file documentation (Text Editor window), so that you both get the credit.
DUE FRIDAY OCTOBER 26.