Project 4: Influence Maps

# **Due: Sunday 11/18 by 11:59 PM**

# **Introduction:**

For this project you will be using the terrain that you created earlier in the course. You will be placing different units on the map and will generate an influence map based on where those units are located.

# **Requirements:**

1. Define four different types of units. To make it easier for me to recognize the different units, color code them black, yellow, blue, and white. They can be any model that you want or just plain colored cubes. In order to indicate the effects of each unit we will assign them a strength value. This could be considered an attack value for combat purposes. Each unit will have a strength as seen in the chart below:

|  |  |
| --- | --- |
| Color | Strength |
| Black | 4 |
| Yellow | 3 |
| Blue | 2 |
| White | 1 |

1. Provide a mechanism for placing the units on the terrain. Ideally, this would be done by moving the mouse to a desired location and pressing a key to place a unit.
2. Provide a way to generate the influence map, preferably as a keyboard command. This map should be displayed on the screen. It should be a top-down view so I can look at the original terrain in units and then see the influence map when I press the key to generate it.
3. Use a grid system to represent the different areas of influence. I would suggest computing the Cartesian distance to the center of a grid location and the original unit as a way of determining the influence. You can make the grids as large or as small as you want, with the restriction that I should see a minimum of 100 individual grid locations displayed on your influence map.
4. Since your terrain is divided into two sides, make one team the green team, and the other team the red team. When you display your map, for each grid location display the influence value using the color of the team that holds influence on that location. If there is no winner for a given location, display the influence value in grey.
5. If your original terrain model does not provide the ability for me to zoom in/out or move the camera around independent of a unit, you need to add those features.
6. Generate your influence map assuming a linear drop-off in strength as we move away from a given unit. So for example the red unit would have a strength of 4 right at the unit location, but that strength would drop off linearly as we moved away from the unit.
7. Hopefully this should be fairly obvious but I’ll say it just to make sure everyone’s on the same page: we are dealing with a 2-D top-down view of the terrain as an influence map. (We will not worry about the third dimension, even though the tools that we use to support that feature.)
8. I should be able to add some units and generate an influence map, and then add some more units and regenerate the influence map showing the changed situation. (i.e. If I change something, I should be able to display a new influence map that shows the changes. The newly created map would replace the last one on the screen.)

# **Team: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

# **Grading Rubric:**

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| --- | --- | --- |
| Criteria | Max Pts. | Earned Pts. |
| Four different units provided | 5 |  |
| A way to place units on the terrain provided | 15 |  |
| Uses a grid system of at least 100 locations for the influence map | 15 |  |
| Units use a linear drop off of strength | 5 |  |
| Correctly generates an influence map | 25 |  |
| Provides a top down view of the influence map | 10 |  |
| Can zoom in/out and move the camera to examine the map | 15 |  |
| Influences are indicated for each team using red/green/grey | 5 |  |
| Can generate a new influence map after making changes | 5 |  |
| Total Grade: | 100 |  |