Mathematical Modeling
Project #4 The Art Gallery Problem
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Grade: A-

You have done some very nice work on this project. The 3-D renderings of the different gallery configurations contribute to the clarity of your presentation. Strengths of the paper include clarity in writing. Good use of tables and figures. Thoughtful discussion of strengths and weaknesses.

A few minor issues:

You don't say until page 6 that you are using a 3-D model. You should mention this in the abstract and early in the paper.

Instead of assuming people to be transparent, which is silly, just say that you are defining security in the empty room, since you have no way to determine the locations of the visitors as they move through the gallery.

Why assume 0 width walls? How did you use this? How different would the solution be to have 10 cm walls?

On page 3, you didn't *define* the painting on wall adjacent to the camera as unseen. They are unseen. That's reality.

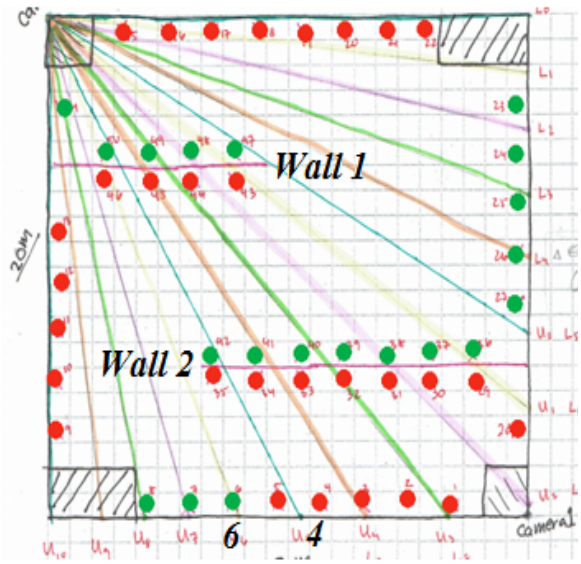
Your metric isn't the maximal average viewing time. Your metric is the average viewing time. You want to find a configuration that maximizes your metric.

Some more major issues:

You don't give any explanation for how you determined if the center of a painting could be seen by a camera. You wrote and program and (somehow) if determined what was viewable and for how long. How was this accomplished? What equations were used? How did the program perform its task? Without printing out the code, you need to give a clear description of the process used to make these determinations.

A diagram that illustrates what a camera could see would be very helpful.

Here is an example from another group illustrating this idea. The green dots represent paintings that



are visible to the camera at the upper left and the red dots are those that cannot be seen by this camera.

It would also be helpful to know where the paintings in the tables (Fig. 3 & 4) are on the walls. If you labeled the painting (1, 2, 3, …, 50) in the diagrams, it would enable the reader so see whether we agree on what is visible.