**MiniProject 4: Interactive Programming**

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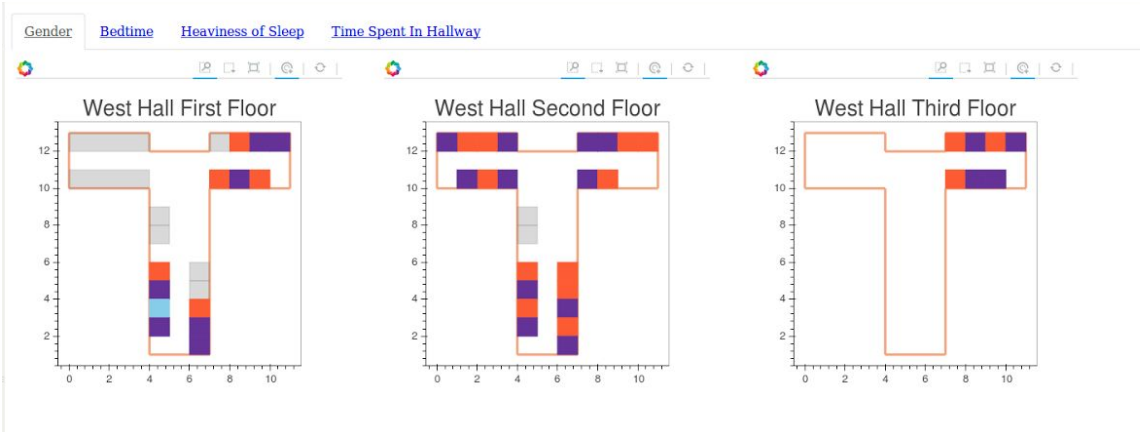
March 11, 2016 - SoftDes Section 1

## Project Overview

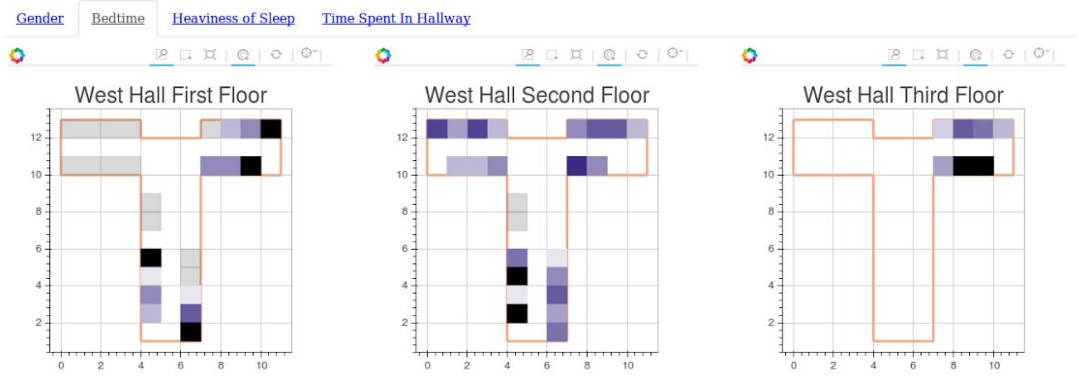
For our project, we made an interactive map of the freshman rooms in West Hall to investigate the coherence with which first years are placed into hallways, and if hallway culture is even a thing in our first year at Olin. We accomplished this by making color coded maps of each floor with clickable tabs to change this color coding based on gender, average bedtime, lightness of sleep and time spent in the hallway where they live.

## Results

We made map with 4 tabs that color code the rooms in West Hall based on different factors. The gray areas show rooms that do not belong to first years, and the black areas are first year rooms from whom we did not get a response. If both roommates answered, we averaged their answer, if only one did, we used that value for the whole room.

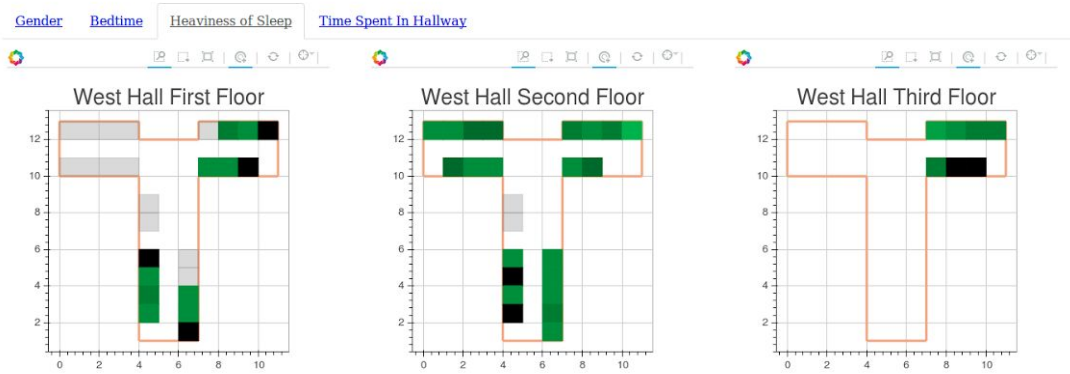



The first tab, gender, shows men in purple, women in orange, and other/non-binary in light blue.

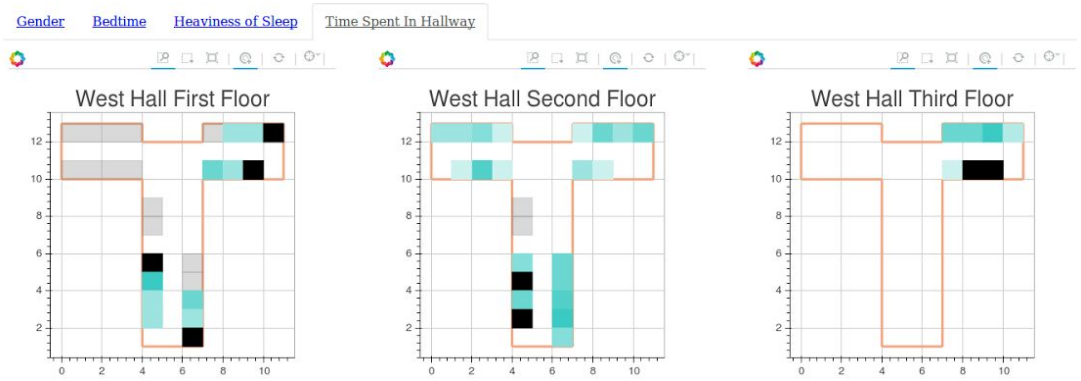



The second, bedtime, shows rooms' average bedtimes in different shades of purple, with darker shades being later bedtimes and lighter shades being earlier. There weren't any obvious patterns in where the night owls live, but most of the super early bedtimes were in the North

side of the building.




The third, how heavy/light people sleep, shows in varying shades of green; the lightest colors will wake up if someone breathes too loud and the darkest colors could sleep through the apocalypse. There is not a whole lot of variety in this; most people said they were in the middle or heavy sleepers, but there are more light sleepers in the west side of the building.One interesting thing that this revealed, however, is that although WH2E is seen as being a generally more quiet hallway, this doesn't necessarily carry over to sleeping patterns, as room averages tended towards the medium to heavier sleepers.




The last tab is time spent in hallway, either in their own room or their neighbors. Dark colors represent spending more time in their hallway, while lighter colors mean hardly ever spending time there. One interesting result is that 2 North is overall more darkly colored than the rest of the hallways. This could be partially because there are more hangout spots in 2 North, like the nook, and the two R2 rooms.

Overall, there weren't any super distinctive conclusions, which makes sense. The roommate surveys that were sent out in the spring were only three questions, which was far from exhaustive. In future years, we would expect these diagrams to change -- particularly the last tab, for time spent in hallway -- as people begin to choose their roommates and hallways based on personality and fit, which will be interesting to see.

**Implementation**

Our implementation is all structured around our Room object, which has attributes that designate the data assigned to it, the colors assigned to that data, and the location and how to draw the room itself. It also has methods to draw the room, find the colors based on the given data, and find the coordinates of the room based on the room number.

Another major structure that our code relies on is the csv file that we translate all of our collected data that we originally get into, and that we pull data out of in our code. This csv file was manually generated from a survey we sent out to the first year class, and we got a really good spread of information from -- as you can see, there are very few rooms shaded black (representing a lack of response in our data sheet).

In terms of our actual output, we used the python library *bokeh* to implement our interactive map. This ended up not being the best decision -- see “Reflections” below -- but allowed us to color code rooms when we drew them, have tab functionality to show our various results, and output this all to a generated html file which is clickable and zoomable.

**Reflection**

From a coding point of view, our code is really redundant. This resulted from the fact that each of the figure creations required its own variable and figure assignments, and making them more efficient required pretty high level thinking from a code standpoint that we weren’t prepared for (especially given how late at night we had to be working on this project -- this week has been really busy).

We think our project was appropriately scoped, and the only implementation problems we ran into were due to the documentation for our library, bokeh, being pretty terrible. If we tell one thing to our past selves who hadn’t started this project yet, it would be to not use bokeh, to be honest. It just didn’t end up being the right library for what we wanted to do, given our difficulties with hovering functions due to our data type and lack of legends to describe what each color meant. We did learn a lot about implementation of things that we just couldn’t make work, which although is disappointing that they aren’t reflected in our final code, is definitely beneficial in terms of the scope of our learning.

In terms of the logistics of how our partner programming went, we definitely hit a couple of stumbling blocks where we ended up working on similar parts of our code without realizing it, but I think we generally did pretty well with communicating and splitting things up, but also using each other as resources when we got stuck.