Final Spec Sheet – Caleb Flegel

**Data Analysis**

**Average Visit Time vs Frequency**

The graph seemed to form an exponential curve, which was a bit surprising for me. I expected a bit more of a linear increase. I wouldn't have been surprised if there was a bit of an exponential curve, but the slope was much more than I expected. Another surprising thing was the datapoints on the 40 and 50 person per hour frequencies. I can't explain why both seem to deviate from the trendline so much. If anything, it seems that the 50 person frequency is closer to the line and the 40 person datapoint is off somehow. The problem may lie in how I designed my algorithm that randomly selects people to become patients.

**Doctor and Nurse Comparisons-**

\*Note\*: frequency of visits was set to 30

1 Doctor, 1 Nurse: 1hr, 52min

1 Doctor, 2 Nurses: 0hr, 21min

2 Doctors, 1 Nurse: 0hr, 16min

The results of the doctor and nurse number comparison surprised me a bit. I expected that the 1 doctor, 2 nurse combination would be the most efficient as the nurses have a shorter average treatment time. But it seems like high-priority patients having to wait for one doctor outweighed the doctor's longer treat times. I was also a bit surprised on just how much of a difference is between having two and three providers. I expected maybe a 20- or 30-minute difference, but a difference of over and hour shows just how far a little extra help can go.

**Use Cases**

|  |  |  |
| --- | --- | --- |
| Step | User Action | Program Response |
| 1 | User starts program |  |
| 2 |  | Program asks for a visit rate |
| 3 | User enters number between 1 and 60 |  |
| 4 |  | Program accepts answer stores the infection rate |
| 5 |  | Program prompts user for the number of doctors |
| 6 | User enters number more than 0 |  |
| 7 |  | Program accepts answer and saves the requested number |
| 8 |  | Program prompts user for the requested number of nurses |
| 9 | User enters a number more than |  |
| 10 |  | Program accepts response for the number of nurses |
| 11 |  | Program starts the weekly simulation using the given variables |
| 12 |  | Program completes simulation |
| 13 |  | Program asks what the user wants to do with the records |
| 14 | User enters “see all records” |  |
| 15 |  | Program will print out all hospital records to the console |
| 16 | User enters “name lookup” |  |
| 17 |  | Program will prompt the user for a last name |
| 18 | User enters a name that exists the in the hospital records |  |
| 19 |  | Program prints all records with the inputted name |
| 20 | User enters a last name not in the record |  |
| 21 |  | Program tells user the last name wasn’t found |
| 22 | User enters “end” |  |
| 23 |  | The program is shut down |
| 24 | User enters an invalid input |  |
| 25 |  | Program tells the user their input doesn’t exist |