

# CSE 6730, Group 37 Proposal

## Discrete Event Simulation

### 1 Project Title:

Simulation of Disease Progression of Sexually Transmitted Diseases at Home Care Community.

### 2 Team Members:

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### 3 Problem Description and Purpose:

Sexually transmitted diseases (STD) is one of the problems troubling home care community. [need some fact].

Discrete Event Simulation (DES) was been used for long time in many healthcare simulation, ranging from health care system operation, disease progression modeling, screening modeling and health behavior modeling [1, 2]. In our project, we wish to do a DES on home care unit.

### 4 Methodology

We shall get the data from the Centers for Disease Control and Prevention (CDC) website for the related information on the related STDs. This includings

### 5 Development Platform

The programming language is Python 3. Depends on the suitability of the project, we plan to provide a Jupyter notebook for user interaction, or just a command line execution.

### 6 Data source

We plan to obtain our data from CDC. The data is used for the projection of the disease progression. Subsequently, we shall use the data for designing the interaction within population in our simulated home care.

### 7 Division of Labor

As we move forward on our project, we plan to work concurrently. The timeline is as below:

Task	Duration
Data collection	2 weeks
Modeling design and implementaion	4 weeks
Modeling revised	4 weeks

## References

- [1] Reda Lebcir, Eren Demir, Raheelah Ahmad, Christos Vasilakis, and David Southern. A discrete event simulation model to evaluate the use of community services in the treatment of patients with parkinson's disease in the united kingdom. *BMC Health Services Research*, 17(1):50, 2017.
- [2] Xiang Zhang. Application of discrete event simulation in health care: a systematic review. *BMC Health Services Research*, 18(1):687, 2018.