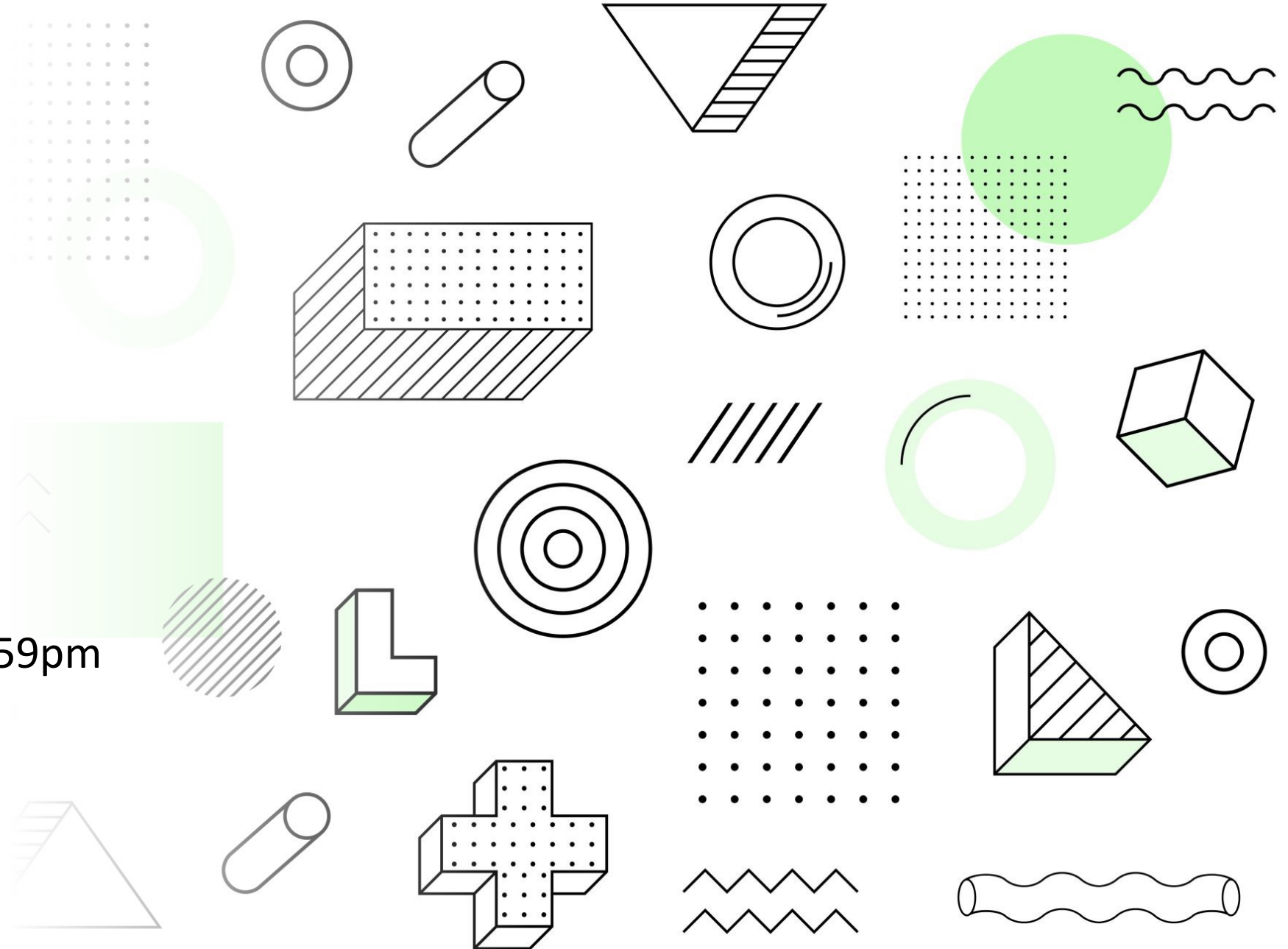# Info 5001

Prof Bugrara
Final Project

Deadline Apr 22, 11:59pm

- Please select one of the following 2 options for your final project.

- You can work as a team of 1, 2, or 3 max.

- Deliverables: Running application and presentation describing your problem statement, approach, design, and implementation detail. In addition, you must show how every aspect of your application map to the 4-step methodology we discussed in class on 4/4/2023.

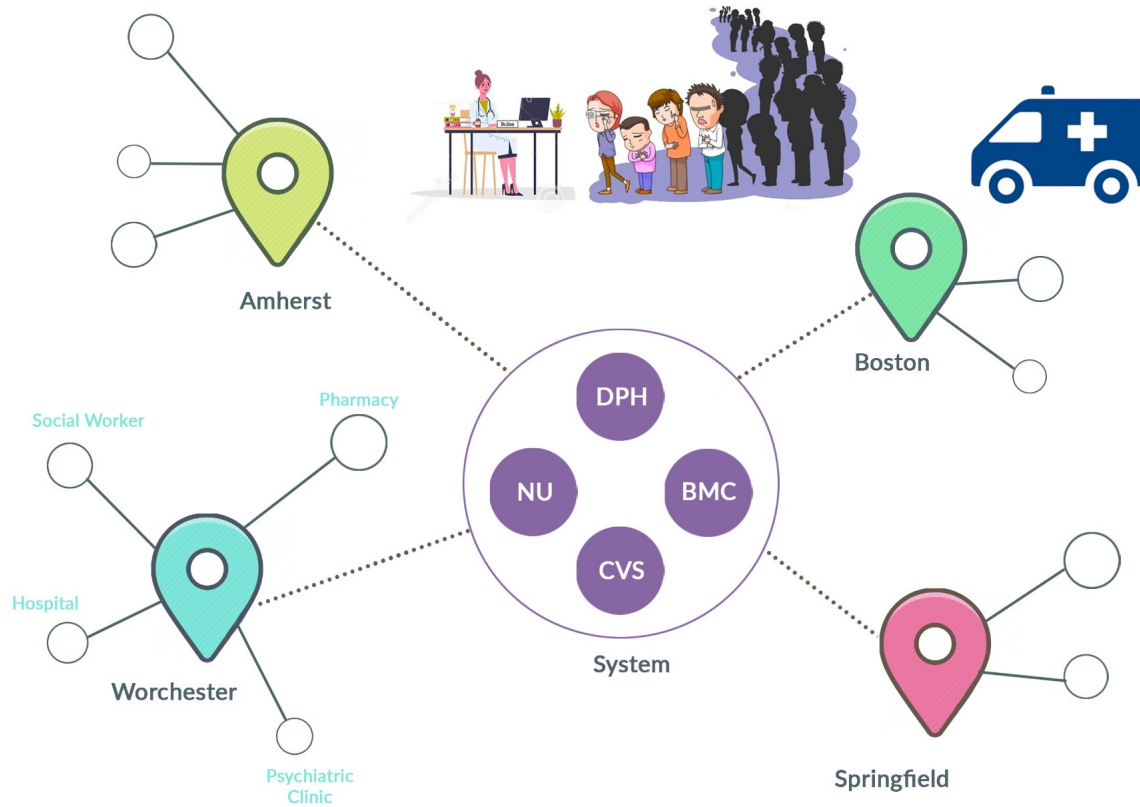# Option 1: Mobile clinical app for the care of the homeless-state-wide

- Objective
  - Develop an app for a mobile clinic that moves between towns providing healthcare services to the homeless and in the process monitoring the spread of contiguous disease (such as HIV) in the community.

- The clinical team setup their mobile clinic in different cities and towns

- A nurse/receptionist receives the patient and opens their healthcare record, browses the encounter history for potential ongoing conditions, vaccination status, etc. The nurse continues by generating a new encounter and record the vital signs, update allergy and medication records if need be. Lab work is requested for contiguous disease (e.g., HIV) and the result of the test is recorded.

- Your job is to complete the design of the system and populate it the system with clinical for many patients with various illness scenarios that could put the community at risk. Here are some questions to consider:
  - Is there an easy we to find sick patients and locations were last seen?
  - Is there a way to find patients that might have infected others in other locations?
  - Is there a way to show the number of infection incidents by location. How diagnosed incidents are trending by location?
  - What if we want to include local services completing the mobile clinic such as local mental health care services to be leveraged in response to sick patients?
  - Other questions/ideas you might find interesting

An App for A mobile van system

Amherst

Boston

Social Worker

Pharmacy

DPH

NU   BMC

CVS

Hospital

System

Worchester

Psychiatric Clinic

Springfield

Option 2: Conversational ePatient Chatbot

- Imagine that you receive a call from your primary doctor asking to come immediately to the office because your health is trending in the wrong direction. You ask: I feel fine but what made you think I need help? The Doctor responds: your ePatient-self messaged us and requested to setup an appointment to see you. Its internal clinical data such as blood pressure and other disease conditions, show you are not feeling well or on your way to being sick. This is a future where your clinical data is an exact mirror image of your physical being.

Conversational ePatient Chatbot

- The objective of the problem is to build a chatbot where a person will interact with their digital clinical self in-health related conversations. Example, include:
  - Person: How are you feeling today?
  - ePatient: I am not feeling well
  - Person: Why?
  - ePatient: Your BP is rising over the last few moths and that is not good. You continue to be pre-diabetic and you need to do something about that. Will you?
  - Person: What you think I should do? ….

- Your job is to expand on the clinical model we have studied the last 2 lectures and map it to programming code to enable these healthcare conversations to happen. You will need to populate the model with longitudal clinical data to enable interesting healthcare dialogs.

- As for the question language format, please encode messages by numbers to know what they standup for. There is no need to interpret the language.