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Final Project Proposal
Train System

For our final project, we will create a train system which will map the path of one train across multiple stations. Once the train reaches a station, it will stop promptly and allow all the passengers, to go onto the train in a priority-queue fashion. (disabled and pregnant people get maximum priority, for example) Once on the train, the passengers will be stored as a Linked List with passengers about to get off at their stop at the front and passengers who won't get off until the last few stops at the end. If the train's capacity is full, people just getting on the train will have to stand.

Our most fundamental class will be a Train class, in which you can change certain properties of the train, such as its current speed, its previous station and current station, its color, its route, and whether it is empty or whether it is full. In addition, a train can change its route in the middle of its journey as well as stopping properly when it encounters a station. A possible extension could be distinguishing between local and express trains.

Our next fundamental class will be a Passenger class, in which we will define properties of each person, such as age, gender, and whether they have disability. As stated earlier, we will priority queue the passengers of a given train station onto the bus based on the following order:

1. Disabled people(wheelchair, crunches)
2. Pregnant women
3. Seniors above retirement age(65 for our purposes)
4. Age

In addition, we will have methods such as isStanding() or isSitting() for when the passenger is on the train and isPlatform() and isTrain() to distinguish between when the passenger is on the train or on the platform waiting for the train to come.