Heap Written Questions

1) *A socio-technical system is a system that includes technology and people. Besides visa and green card issuance, what are other examples of socio-technical priority queues?*

Socio-Technical priority queues are abundant in society, with one ardent example being organ transplantation lists. Due to the overwhelming patient demand and need for organ transplantation, there exist vast databases that are dedicated solely to maintaining a prioritized queue of which individuals need organ transplants and how severely they need them. These lists must take into account a variety of factors, such as expected remaining lifespan, severity of emergencies, and location. These queues impact thousands of families on a daily and monthly basis, and the technology that handles the prioritization of this queue must be created and maintained ethically. On a smaller scale, college dorm assignments are another form of a priority queue, where priority is given to older members, members with disabilities, and a slew of other factors.

2) *For two examples of socio-technical priority queues, discuss how different errors and bugs in the system would impact the people they process.*

For the example of organ transplants, errors and bugs in the system can quite literally be the difference between life and death for many individuals. Let's say, for example, that a bug in the system causes members that need instant medical transplants due to emergencies such as car accidents or gunshot wounds to be ranked lower than those with long-term debilitating illness. There would absolutely be a substantial rise in mortality, as those who need transplants the most would not be property prioritized by the system, with time not being taken into account. Another example would be a priority queue that tells firefighters which location they are needed at the most. Let's say, for example, that a bug in the system causes houses with minor gas leaks to be prioritized over buildings that have multiple activated fire alarms and smoke detectors. Needless to say, this bug would result in improper deployment of firefighters, leading to increased impact and devastation of fires that could have been prevented otherwise.