

Design choices

Some of the design patterns we implemented for the system include:

Strategy design pattern for the Queue numbering system

We used this pattern to allow for the fact that each queue (Licensing, Eye testing and translation) have a large number of similar properties, and to allow for the queuing algorithm to be pluggable so it can be substituted with any other algorithm if required.

Composition

We defined a high-level interface `Station` which is inherited from by `Printing Station` and `Reception Station`, and which common abilities like `peek`, and `add customer`.

Receptionist

We also streamlined the queuing process by implementing a receptionist that checks for the presence of documents for each application and assigns queue numbers to applicants who have not undergone the eye test and/or translated their existing driver's license. If the applicant has all the required documentation, the receptionist assigns him/her a place in the Licensing queue.

Every time a customer is done with a queue (i.e. they are finished with eye testing), they will return to the receptionist queue, who will re-delegate them to other queues as necessary.