

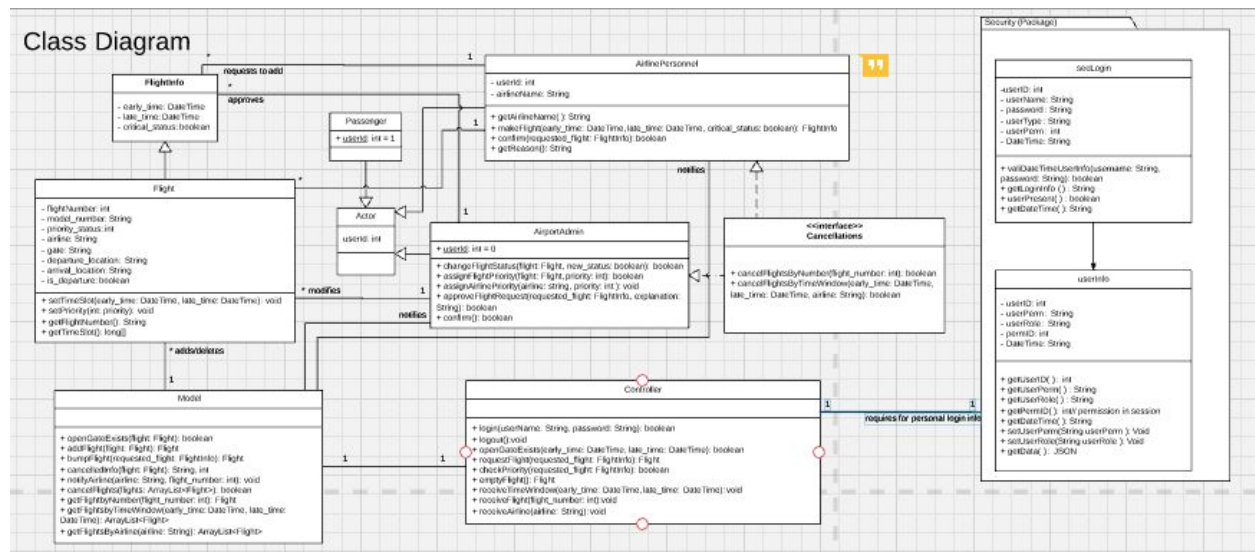
OOP Project Fall 2017

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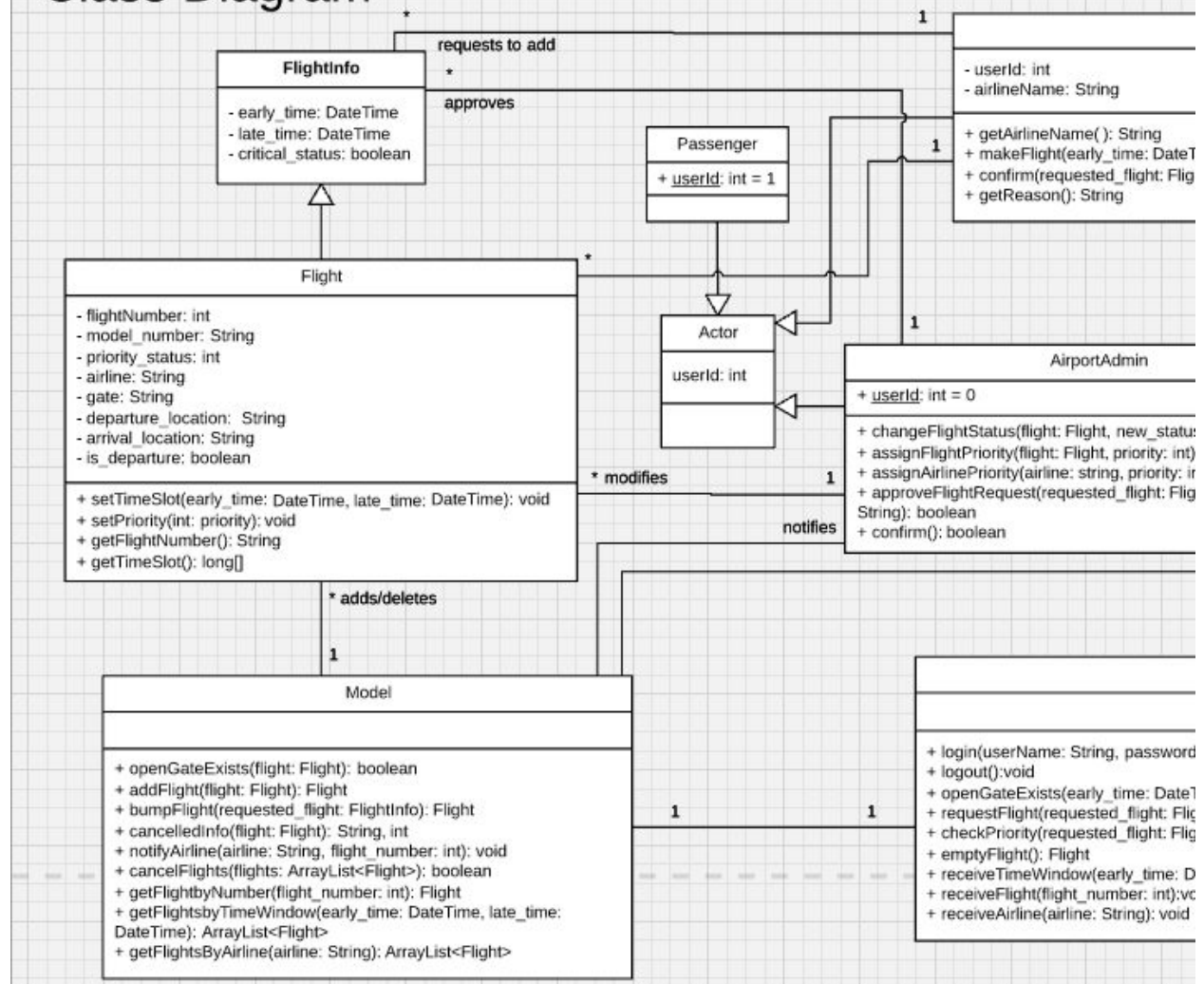
Part 2 Class Diagram

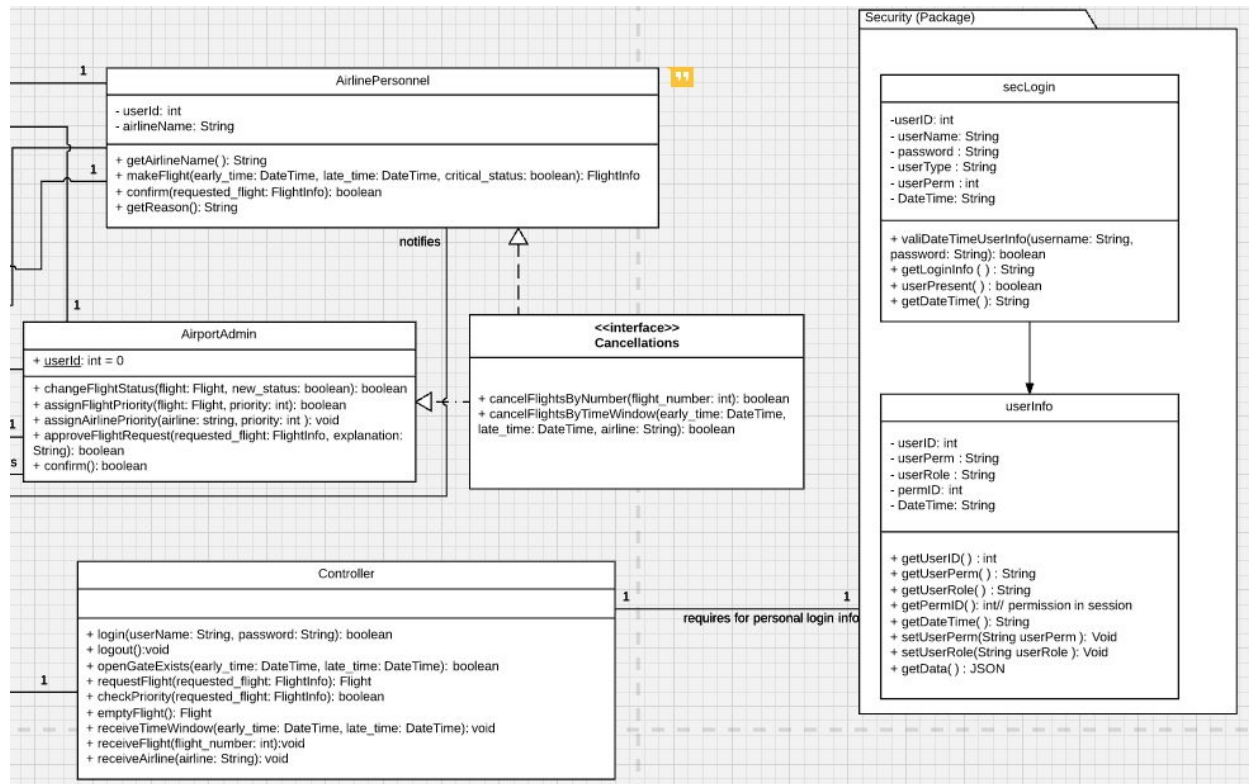
Full Class Diagram



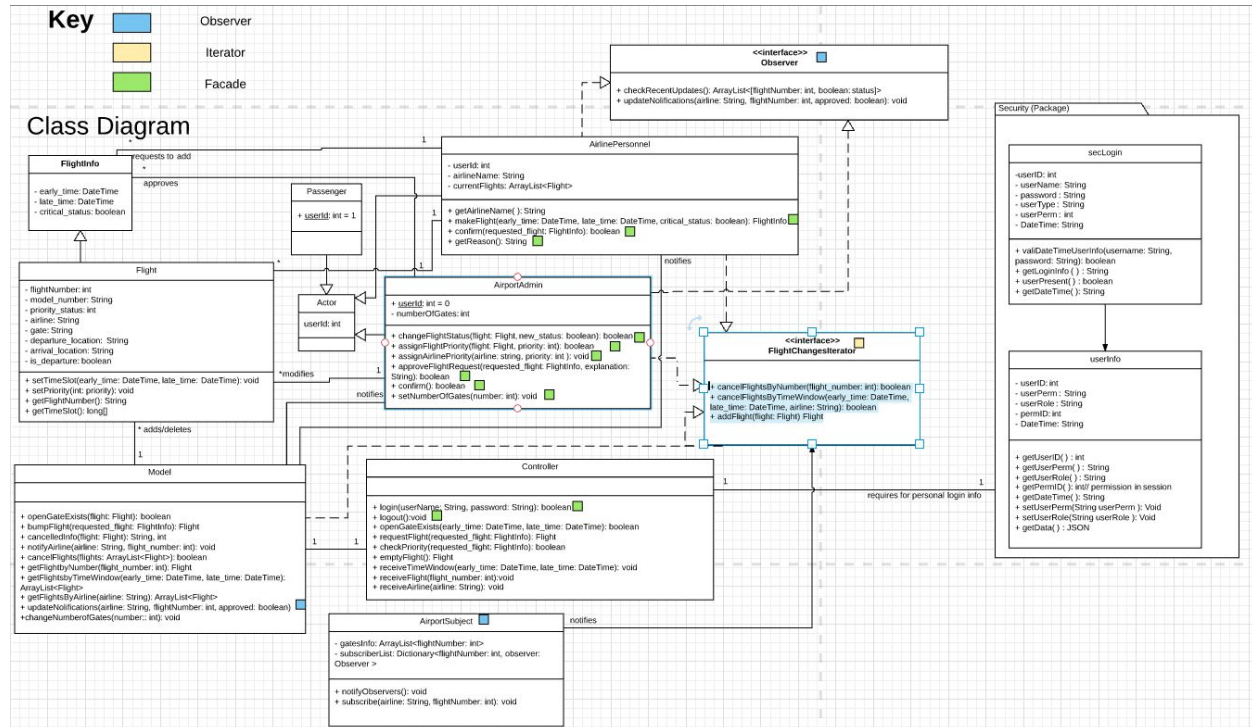
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Class Diagram

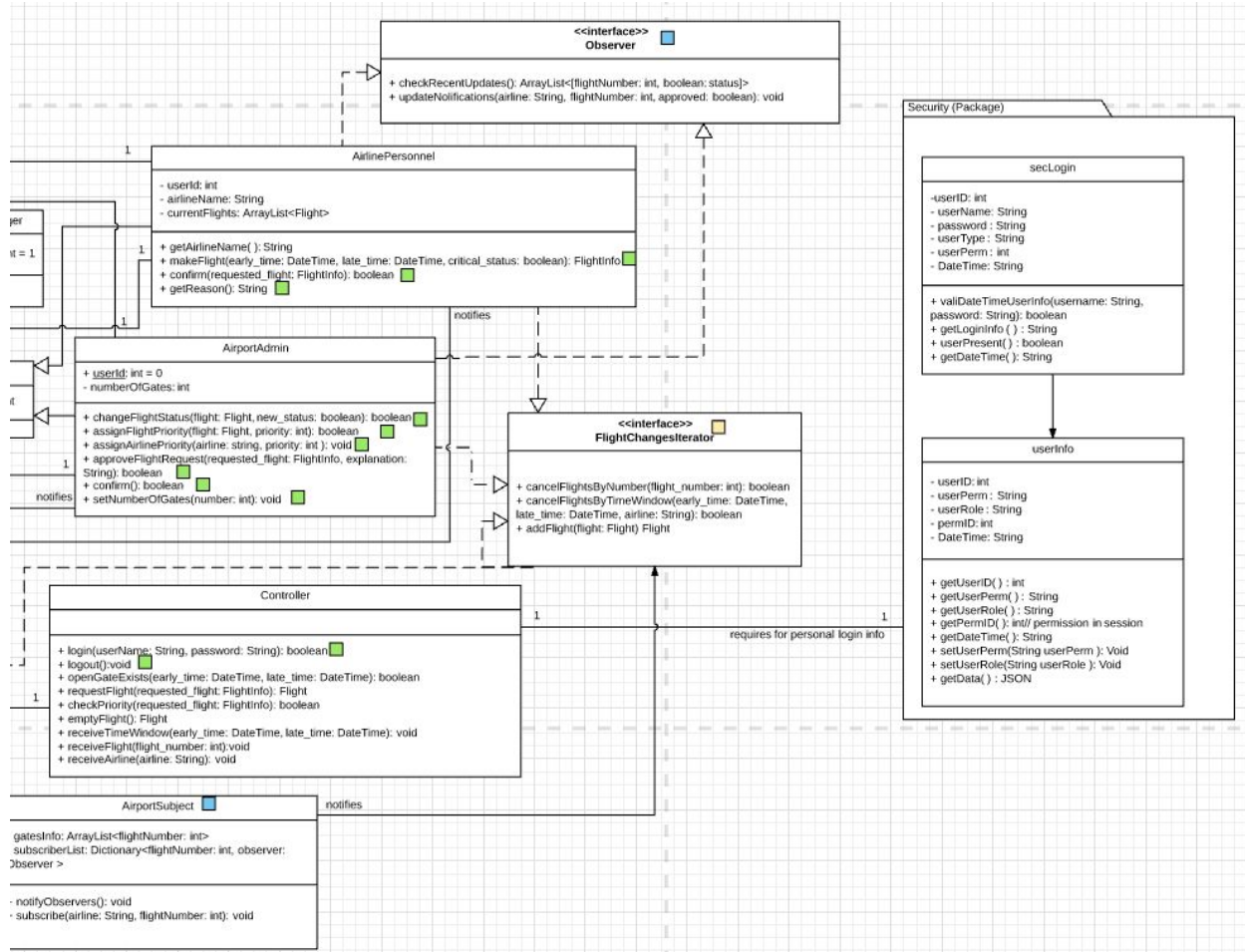




Part 3 Class Diagram (Refactored)



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Patterns Added

1. **Observer** - we are using the Observer design pattern (blue square) to allow airline personnel and the airport admin to subscribe to various flights when they request to add a flight. The AirportSubject class has been added, which keeps a subscriber list of observers and their flight numbers, as well as a lookup of gate info for the airport. The AirportSubject will call notifyObservers() when a change is made to a flight that has been subscribed to, which will both send an immediate notification to the observer airline personnel and airport admin, as well as send this notification to the model, which through updateNotifications() will add the change information to a recently updated list in the database, that can be pinged by the observer with checkRecentUpdates() upon logging in (this way the observer will not miss out on a notification if it was logged out when the change happened).
2. **Iterator** - We are using the Iterator design pattern (yellow square) via the interface FlightChangesIterator which is implemented in AirportAdmin and AirlinePersonnel. This iterator will allow the ability for looping over a collection of flights for three different functions. Mainly being when the program is searching for flights to cancel either by flight number or to cancel flights within a time period and then additionally when adding a new flight to the existing collection of flights.
3. **Facade** - the Facade design pattern (green square) was already used in the previous iteration of our class diagram, and essentially encompasses the higher level functions that “automate” many of the necessary actions that each user needs to make. For example, when the airline personnel confirms information for adding a flight, the addFlight() function has been abstracted into the iterator interface, which is called by the confirm() function. Additionally, the approveFlightRequest() has abstracted the replacement flight out of the direct role of the airport admin by putting bumpFlight() into the model class. Therefore, we can see that these higher level functions provide a simplified interface for the clients to interact with.