Contract CO1: searchFlights

- Operation: searchFlights(source: Airport, destination: Airport)
- Cross References: Use Cases: View flights, given a source-destination pair.
- Pre-conditions:

    source and destination must be valid instances of Airport.

    source ≠ destination.

- Post-conditions:
    1. A list of Flight instances matching the source-destination pair was retrieved and stored in the Flight_Catalog. (instance creation and retrieval)
    2. Each Flight instance in the list maintains associations with its corresponding source Airport and destination Airport. (association validation)
    3. Only basic information (flight number, source, destination) is available for non-registered users, whereas registered users can access complete details if they query the flight further. (conditional information visibility)

Contract CO2: getFlightDetails

- Operation: getFlightDetails(flightNumber: String, user: User)
- Cross References: Use Cases: View flights, given a source-destination pair.
- Pre-conditions:

    A Flight identified by flightNumber exists.

    user is an instance of User.

- Post-conditions:
    1. The Flight instance corresponding to flightNumber was retrieved. (instance identification)
    2. If user is an instance of Registered_User, then the system returns full details from FlightDetails including airline and aircraft. (conditional association formed)
    3. If user is not a Registered_User, then only the basic details of the Flight are made available. (conditional information restriction)
    4. No changes are made to the Flight instance itself. (integrity maintenance)

Contract CO3: getPrivateFlightDetails

- Operation: getPrivateFlightDetails(flightNumber: String, user: Administrator)
- Cross References: Use Cases: View flights, given a source-destination pair.
- Pre-conditions:

    A Private Flight identified by flightNumber exists.

    user is an instance of Administrator with 'airport' type.

    The user is associated with either the source or destination airport of the flight.

- Post-conditions:
    1. The Private_Flight instance corresponding to flightNumber was retrieved. (instance identification)
    2. Full details of the Private_Flight are made available to the querying Administrator. (information access)
    3. The system ensures that the details of the Private_Flight are not accessible to non-authorized users. (privacy maintenance)