

Contract CO1: registerFlight

- Operation: registerFlight(f_number: String, source: Airport, destination: Airport, airline: Airline, aircraft: Aircraft, scheduledDep: String, scheduledArr: String)
- Cross References: Use Cases: Register a flight.
- Pre-conditions:
 1. airline must be a valid instance within the Airline_Catalog.
 2. source and destination must be valid instances within the Airport_Catalog and must not be the same.
 3. flightDetails must include valid, non-conflicting scheduled departure and arrival times, and all required fields must be filled.
 4. No flights (private or non-private) should be scheduled to depart or arrive at the same times at the source and destination airports, respectively.
 5. There must be an available aircraft in the airline's fleet at the source airport.
- Post-conditions:
 1. A new Flight instance is created and added to the Flight_Catalog. (instance creation)
 2. The Flight instance is associated with the specific Airline, source Airport, and destination Airport. (association formed)
 3. The flight is registered as a non-private flight.

Contract CO1: registerPrivateFlight

- Operation: registerPrivateFlight(f_number: String, source: Airport, destination: Airport, airline: Airline, aircraft: Aircraft, scheduledDep: String, scheduledArr: String)
- Cross References: Use Cases: Register a flight.
- Pre-conditions:
 1. airline must be a valid instance within the Airline_Catalog.
 2. source and destination must be valid instances within the Airport_Catalog and must not be the same.
 3. flightDetails must include valid, non-conflicting scheduled departure and arrival times, and all required fields must be filled.
 4. No flights (private or non-private) should be scheduled to depart or arrive at the same times at the source and destination airports, respectively.
 5. There must be an available aircraft in the airline's fleet at the source airport.
- Post-conditions:
 1. A new Flight instance is created and added to the Flight_Catalog. (instance creation)
 2. The Flight instance is associated with the specific Airline, source Airport, and destination Airport. (association formed)
 3. The flight is registered as a private flight.