

**Contract CO1:** loadConnectionData

**Operation:** loadConnectionData (filePath)

**Cross References:** Use Case: Load Records from CSV

**Preconditions:**

- The system is operational.
- CSV Data Source is present and available to use in the correct structure.
- Admin has access to the data source and permissions to load data.

**Postconditions:**

- A new Connection is created for every valid CSV record. (instance creation)
  - New City objects are created given that the City object has not already been created.
  - Train objects are created if a train type was not previously seen. (instance creation)
  - Attributes for Connection are set: routeId, departureTime, arrivalTime, daysOfOperation, ticket prices, and train Type. (attribute modification)
  - Each Connection is associated with its departure City and arrival City. (assoc. formed)
  - Each Connection is associated to a Train according to its trainType. (assoc. formed)
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**Contract CO2:** searchConnections

**Operation:** searchConnections (departureCity, arrivalCity, departTime, arriveTime, trainType, daysOfOperation)

**Cross References:** Use Case: Search for Connection

**Preconditions:**

- The system is operational.
- CSV Data has been loaded into the system memory.

**Postconditions:**

- For each result that matches with the input parameters, a Trip instance **t** was created. (instance creation)
- For each **t** that requires transfers, 1-3 Segment, **s**, instances were created. (instance creation)
- Each **s** was associated with one matching Connection **c** (train used by the segment). (assoc. formed)
- **t** was composed of its Segment instance(s). (assoc. formed)
- **s.connectionDuration** was computed from instance **c**'s arrival and departure times. (attribute modification).
- **t.totalTime**, **t.totalTransferTime**, and **t.price** were computed from the included Segment(s) and selected class prices. (attribute modification).
- Note: If there are no matches, the operator returns an empty list. No instances are created

**Contract CO3:** sortResults

**Operation:** sortResults (trip or price)

**Cross References:** Use Case: Sort Results

**Preconditions:**

- A list of Trips (non-empty) from the most recent search is available.

**Postconditions:**

- The list of trip instances was re-ordered according to duration or price.
- No instances were created or deleted.
- No associations were formed or broken.