

3. Indexes

The following includes two possible indexes:

(FlightNo, DeptDate) on `ScheduledFlight` table

- Attributes: (FlightNo, DeptDate) on `ScheduledFlight` table
- Properties: composite index on both attributes , clustered index respectively
- Benefits
 - Q3, Q4, Q7b given these queries heavily join with ScheduledFlight and filter on departure dates
 - composite nature supports queries that use both FlightNo and DepDate in joins (frequently due to the foreign key relationship with Ticket table)
 - Since these fields are part of the primary key of ScheduledFlight and are frequently used in joins with Ticket
 - help with range scan on DepDate

(RouteID, AirlineAlias) on `Use` table

- Attributes: (RouteID, AirlineAlias) on `Use` table
- Properties: composite index., unclustered index respectively
- Benefits:
 - Q5a, Q5b, Q7a and indirect Q4
 - given these rely on route-airline relationship
 - Q5a needs to count distinct airlines per route, so this index eliminate this scan
 - Q7a looks for ACA airline routes, so this will provide direct access

- Being unclustered is appropriate as **Use** is frequently accessed for lookups but doesn't require physical ordering