General Assumptions

- We did not consider possible future requirements, or storing unnecessary information. We precalculated measurements when possible, to reduce the complexity of the schema according to the assignment specifications.
- Dimension hierarchies are collapsed to reduce join operations at query time.
- Surrogate keys for every dimension table and for each level in hierarchies, to detach natural keys from primary keys in dimension tables. This is important when these keys change their meaning over time. This is the *indyco* default behavior and we decided to keep it.

Assumptions about the *Flying Operations Fact Table*

- *Logbook counts*, *takeoff count*, *flight hours*, *delay count* and *cancellation count* are precalculated from the existing data, in a previous *ETL* stage.
- A flight produces a number ($n \geq 0$) of reports per maintainer, and another number of pilot reports. The total logbook count is the sum of these numbers.
- There is only one person responsible for the maintenance logbook reports.
- The airport value for all Pilots is "*No airport*".
- A constraint was placed to validate that *delay count* ≤ *takeoff count*

Assumptions about the *Aircraft Usage Fact Table*

- Number of days *in* and *out* of service are precalculated from the existing data.
- A constraint was placed to validate ADIS + ADOSU + ADOSS = 1, for a given day

About *Materialized Views*

- We populate materialized views immediately with `BUILD IMMEDIATE`
- We consider refreshing the data at an atomic level with `REFRESH FAST`, following the requirements for materialized views of aggregated data and general requirements are described in https://docs.oracle.com/cd/B19306_01/server.102/b14223/basicmv.htm#i1007028
- Materialized views are refreshed `ON DEMAND` daily and monthly depending on the data requested.
- We created three materialized views, `MV_RR` for report rates (*MRRh*, *PRRc*, *etc*), `MV_AMOS` for maintenance metrics (*ADOSS*, *ADOSU*, *ADOS*, *ADIS*) and `MV_AIMS` for air information management systems (*DYR*, *ADD*, *TDR*). These views take into account aggregated measures of all of the measurements available in each fact table.
- By using `ENABLE QUERY REWRITE`, we allow Oracle to rewrite queries in terms of these view objects. For this purpose, `VIEW LOG` queries were created for each of the tables present in the views.
- Using these materialized views it's possible to get the indicators requested using SQL queries. Some examples were provided in the *Oracle.sql* file.