Data Warehousing: Dashboarding and Physical Design Lab

# Queries

* **FH and FC per month filtered by aircraft model**

A screenshot of a cell phone

Description automatically generated

* **A screenshot of a cell phone

  Description automatically generated ADOSS and ADOSU per year filtered by aircraft ID**
* **RRh, RRc, PRRh, PRRc, MRRh and MRRc per month filtered by aircraft model**

A screenshot of a social media post

Description automatically generated

* **MRRh and MRRc per aircraft model filtered by the reporting person airport**

**A screenshot of a social media post

Description automatically generated**

# Indexes

Given the fact that we can use up to 1900 blocks, we can’t use large indexes such as clustered B+, as this will go over the data limit. We also have low cardinality for the indexed columns compared to the absolute size of the data, e.g. there are much fewer values of *aircraftID* than there are rows in *AircraftUtilization*.

These rows are not unique, so a Hash index would not be applicable. This leaves bitmap indexes as the only realistic option: we are regularly selecting single elements from *AircraftUtilization*, so a bitmap index gives a large speedup.

Given the below reasons we have created these indexes:

A picture containing indoor

Description automatically generated

Our choice to use bitmap indexes over the foreign keys in the fact tables allowed us to use the ‘star-join-transformation’ in Oracle. This enables the DB to rewrite the queries that involve joining the fact and dimension tables, reducing the number of rows of the fact table to be scanned in the join by applying the selective predicate from the dimension table. This does not affect the size of the database, but will affect the access-plan for the queries, making them much faster.