**Data layer or Database architecture:**

Snowflake schema has been chosen as database schema architecture for the onestop mobile application store’s Data Warehouse. In Snowflake schema, data table dimensions are normalized by removing low cardinality attributes and creating separate tables [18]. There are multiple dimension tables and single fact table as shown following in figure 3. So, a multidimensional data model has been implemented in the design of the onestop application store Data Mart. As shown in Figure 3, a snowflake schema has been implemented.

The primary reasons for selection of snowflake schema are as following:

- Dimension tables are in normalized form thus the database is well organized and provides flexibility with defined relationship between tables. For example, per category dimension tables are created and normalized to reduce the access time, allow flexibility, and improve storage space.
- Snowflake schema improves query performance due to minimized disk storage requirements and by joining smaller lookup tables. Given the disk storage
- No data redundancy is snowflake schema making it easier to support, maintain and extend with optimized performance.
- While the queries are generally complex, the overall query performance per amount of data accessed is very high.
- Snowflake schema is especially useful for complex relationships such as many:many. The application data/fields of App store and Play store exposes such complex relationship.
- Given the number of fields/data in applications from iOS App Store and the Android Play store, there is very possibility of large number of dimension tables and the snowflake schema provides very good flexibility of future extension and expansion of the database.
- Each set of applications and categories have specialized attributes (non-common) that needs to be maintained and snowflake schema is good in such scenarios.
At first redundancy is removed by normalizing on “search OS”. This groups the applications into two sets of tables. Further, each “OS” dimension is normalized on “category”. This leads to six lookup tables, each representing a specific category of applications in a specific operating system. Due to multilevel dimensional table hierarchy, a snowflake schema has been implemented. This results in simpler tables improving query performance due to minimized disk storage requirements and joining smaller lookup tables.
The one-stop mobile application data mart has one fact table and has multiple dimension tables. The fact table is “Search OS” and its dimension tables are “Android” and “iPhone”. Further “Android” table is normalized into six lookup tables of “Books”, “Music”, “Games”, “Business”, “Social” and “Shopping”. Similarly for “Iphone” dimension table is normalized into five lookup tables of “Books”, “Music”, “Games”, “Entertainment” and “Weather”. 