THE DATABASE SYSTEM ENVIRONMENT

The DBMS is a complex software system.
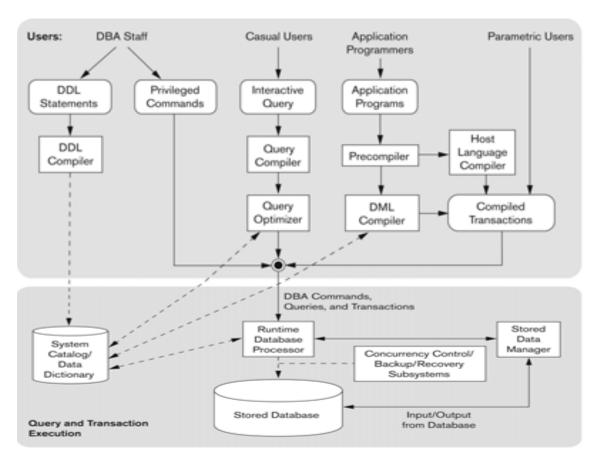
Typical DBMS Component Modules

Figure 2.3
Component modules of a DBMS and their interactions.

The figure is divided into two halves. The top half of the figure refers to the various users of the database environment and their interfaces. The lower half shows the internals of the DBMS responsible for storage of data and processing of transaction.

The database and the DBMS catalog are usually stored on disk.Access to the disk is primarily controlled by operating system(OS).which inclues disk input/Output.A higher level stored data manager module of DBMS controls access to DBMS information that is stored on the disk.

If we consider the top half of the figure, It shows interfaces to DBA staff, casual users, application programmers and parametric users

The DDL compiler processes schema definitions, specified in the DDL,and stores the description of the schema in the DBMS Catalog..The catalog includes information such as names and sizes of the sizes of the files, data types of data of data items. Storage details of each file, mapping information among schemas and constraints.

Casual users and persons with occasional need of information from database interact using some for of interface which is interactive query interface. The queries are parsed, analysed for correctness of the operations for

 the model. the names of the data elements and so on by a query compiler that compiles them into internal form. The internal query is subjected to query optimization..The query optimizer is concerned with rearrangement and possible recording of operations, eliminations of redundancies.

Application programmer writes programs in host languages. The precompiler extracts DML commands from an application program

Centralized DBMS:

- Combines everything into single system including- DBMS software, hardware, application programs, and user interface processing software.
- User can still connect through a remote terminal – however, all processing is done at centralized site.

Source : http://elearningatria.files.wordpress.com/2013/10/introduction.pdf