**Users of the DBMS:**

Broadly, there are three types of DBMS users:



 The application programmer



 The end user



 The database administrator (DBA)The application programmer writes application programs thatuse the database. These programs operate on the data in thedatabase. These operations include retrieving information, insertingdata, deleting or changing data. The end user interacts with the system either by invoking anapplication program or by writing their queries in a database querylanguage. The database query language allows the end user toperform all the basic operations (retrieval, deletion, insertion andupdating) on the data.The DBA has to coordinate the functions of collecting informationabout the data to be stored, designing and maintaining thedatabase and its security. The database must be designed andmaintained to provide the right information at the right time toauthorized people. These responsibilities belong to the DBA and hisstaff.

**ADVANTAGES OF A DBMS**

 The major advantage that the database approach has over theconventional approach is that a database system providescentralized control of data. Most benefits accrue from this notion of centralized control.

**REDUNDANCY CAN BE CONTROLLED**

Unlike the conventional approach, each application does nothave to maintain its own data files. Centralized control of databy the DBA avoids unnecessary duplication of data andeffectively reduces the total amount of data storage required.It also eliminates the extra processing necessary to trace therequired data in a large mass of data present. Anyredundancies that exist in the DBMS are controlled and the

system ensures that these multiple copies are consistent.

**INCONSISTENCY CAN BE AVOIDED**

Since redundancy is reduced, inconsistency can also beavoided to some extent. The DBMS guarantee and that thedatabase is never inconsistent, by ensuring that a changemade to

any entry automatically applies to the other entriesas well. The process is known as propagating update.

**THE DATA CAN BE SHARED**

A database allows the sharing of data under its control by anynumber of application program or users. Sharing of data doesnot merely imply that existing applications can share the datain the database, it also means that new applications can bedeveloped to operate using the same database.

**STANDARDS CAN BE ENFORCED**

Since there is centralized control of data, the databaseadministrator can ensure that standards are maintained in therepresentation of the stored data formats. This is particularlyuseful for data interchange, or migration of data between twosystems.

**SECURITY RESTRICTIONS**

**CAN BE APPLIED**

 The DBMS guarantees that only authorized persons canaccess the database. The DBA defines the security checks tobe carried out. Different checks can be applied to differentoperations on the same data. For instance, a person may havethe access rights to query on a file, but may not have the rightto delete or update that file. The DBMS allows such securitychecks to be established for each piece of data in thedatabase.

**I**