

① Mobile Databases & They are separate from the main database and can easily be transported to various places. Even though they are not connected to main database, they can still communicate with the database to share and exchange data.

Advantages & i) The data in the database can be accessed from anywhere using a mobile database. It provides wireless database access.

ii) The database systems are synchronized using mobile databases and multiple users can access the data with seamless delivery process.

iii) Mobile databases require very little support and maintenance.

iv) The mobile database can be synchronized with multiple devices such as mobiles, computer devices, laptop etc.

Disadvantages & i) The mobile data is less secure than data that is stored in a conventional stationary database. This presents a security hazard.

ii) The mobile unit that houses a mobile database may frequently lose power because of limited battery. This should not lead to loss of data in database.

② Multimedia Databases & They are used to store multimedia data such as

images, animation, audio, video along with text. This data is stored in the form of multiple file types like .txt, .jpg, .mp3 etc.

Challenges Of Multimedia Database :- i) Multimedia Databases

Contains data in large type of formats such as .txt, .jpeg, .mp3, .mp4 etc. It is difficult to convert one type of data format to another.

ii) The multimedia database requires a large size as the multimedia data is quite large and needs to be stored successfully in the database.

iii) It takes a lot of time to process multimedia data so multimedia database is slow.

3) Genome Data Management :- i) There is a high amount and range of variability in data. There should be a flexibility in biological systems so that it can handle data types and values. Placing constraints on data types must be limited with such a wide range of possible data values. There can be a loss of information when there is exclusion of such values.

ii) There will be a difference in representation of the same data by different biologists. This can be done even using the same system. There is a multiple ways to model any

given entity with the results often reflecting the particular focus of the scientist. There should be a linking of data elements in a network of schemas.

- iii) Access to old values of the data are required by the users of biological data most often while verifying the previously reported results. Hence system of archives must support the changes to the values of the data in the database. Access to both the most recent version of data value and its previous version are important in the biological domain.

④ Geographical Information System & It is basically defined as a systematic integration of hardware and software for capturing, storing, displaying, updating manipulating and analyzing spatial data. GIS can also be viewed as an interdisciplinary area that incorporates many distinct fields of study such as: Remote Sensing, Photogrammetry, Environmental Science, City Planning and Cognitive Science.

Components & i) Hardware and Software & Hardware relates to device used by end users such as graphic devices or plotters and scanners. Data storage and manipulation is done using a range of processor. Software parts relates to the processes used to define, store and

manipulate the data hence it is akin to DBMS

ii) Data & Geographic data is divided into two main groups are -

a) Vector data in GIS refer to discrete objects represented by points, lines and polygons. Lines are formed by connecting two or more points and polygons are closed set of lines. Vector sources include digitized maps, feature extracted from image surveys and many more.

b) Raster data is continuous grid of cells in two dimension or the equivalent of cubic cells in three dimension. Raster data are divided conceptually into categorical and continuous. Sources of raster data are aerial images, satellite images and scanned map images.

iii) People & People are involved in all phases of development of a GIS system and in collecting data. They include cartographers and surveyors who create the maps and survey the land and the geographical features. They also include system users who collect the data, upload the data to system, manipulate the system and analyze the result.