1.6

1. PostgreSQL
2. Google Disk
3. GitHub
4. Instagram

1.7

| DBMS | File-processing system |
| --- | --- |
| store and retrieve database information that is both convenient and efficient | Difficulty in accessing data |
| designed to manage large bodies of information | Data redundancy and inconsistency |
| must ensure the safety of the information stored | Data isolation |
| the system must avoid possible anomalous results | Integrity problems. |
|  |  |

1.8

Physical Data Independence is defined as the ability to make changes in the structure of the lowest level of the Database Management System (DBMS) without affecting the higher-level schemas. Hence, modification in the Physical level should not result in any changes in the Logical or View levels.  
  
Physical data independence helps you to separate conceptual levels from the internal/physical levels. It allows you to provide a logical description of the database without the need to specify physical structures. Compared to Logical Independence, it is easy to achieve physical data independencePhysical data independence helps you to separate conceptual levels from the internal/physical levels. It allows you to provide a logical description of the database without the need to specify physical structures. Compared to Logical Independence, it is easy to achieve physical data independence

1.9

* Interaction with the File Manager.
* Integrity Enforcement.
* Security Enforcement.
* Backup and Recovery.
* Concurrency Control.

**Interaction with the file manager**

if there is no file manager interaction then nothing stored in the files can be retrieved.

**Integrity Enforcement**   
Consistency constraints may not be satisfied, account balances could go below the minimum allowed, employees could earn too much overtime (e.g., hours > 80) or, airline pilots may fly more hours than allowed by law.

**Security Enforcement:**

* Unauthorized users may access the database, or users authorized to access part of the database may be able to access parts of the database for which they lack authority.
* For example, a high school student could get access to national defense secret codes, or employees could find out what their supervisors earn.

**Backup and Recovery:**

* Data could be lost permanently, rather than at least being available in a consistent state that existed prior to a failure.

**Concurrency Control:**

* Consistency constraints may be violated despite proper integrity enforcement in each transaction.
* For example, incorrect bank balances might be reflected due to simultaneous withdrawals and deposits, and so on.

1.11  
The Transaction Isolation concept makes this possible. It ensures that only one student's registration request is fulfilled and database maintains accuracy and consistency.

1.15

User Table

| Username | First name | Surname | BirthDate | Gender |
| --- | --- | --- | --- | --- |

Feed table

| Posts | Images | Stories |
| --- | --- | --- |

Subscribes

| Friends | Groups | Channels |  |
| --- | --- | --- | --- |