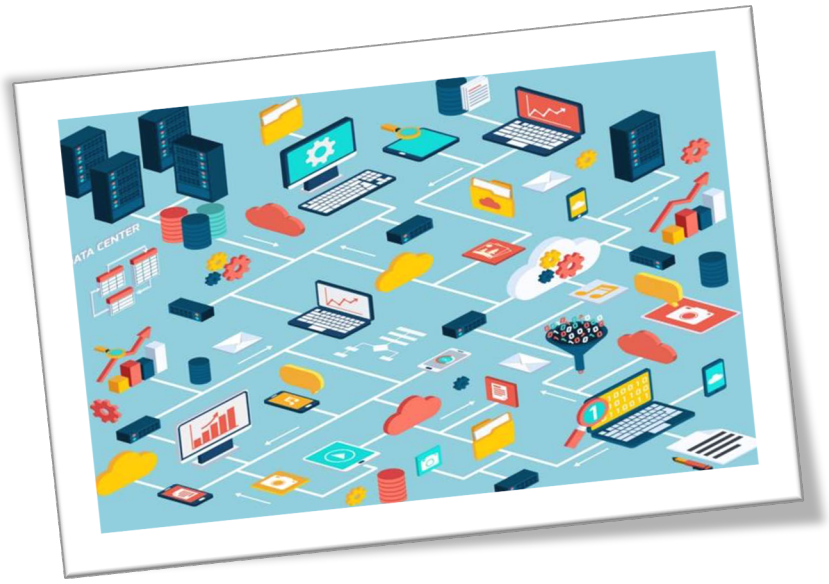
CS 2300 Assignment #1



Total points possible: 100 points

Practical Outcomes

- Demonstrate a good understanding of the fundamental design principles of a DBMS
- Be familiar with the various kinds of users of a DBMS, including workers behind and front of the scene. Understand the role of Computer Science in DBMS design and planning, both practically and professionally.
- Explore the different kinds of database design due to the advances in technology and new application usage.
- Demonstrate a good understanding of basic DBMS concepts and architecture

---

Instructions

- Upload your answers in a single file to Canvas
- Your solution must be properly typed, not handwritten.

Assigned Problems

1. Discuss/list the core capabilities that should be provided by a DBMS. [20 pts]

A DBMS is a database management system. It is a software package used to facilitate the creation of a computerized DB.

- It defines a database.
  - Such as specifying data types and constraints.
- It constructs a database
  - Storing the database in some storage medium
- It manipulates a database
  - query, update, even generate reports
- Sharing
  - allow multiple users & programs to access the DB simultaneously

2. Discuss the differences between the database approach and the traditional file system processing method. [20 pts]

database approach: uses a DBMS to organize and maintain files

file processing: user defines & implements a more specific approach rather than having a giant DBMS

3. Give examples of systems in which it may make sense to use traditional file processing instead of a database approach. [20 pts]

- a system where price is a concern
- a system where the amount of data is ≤ 100 MB
- a system where there is no intention for multiple people to access the data at one time.

4. In class, we discussed that different DBMSs exist because some applications may have special needs that a universal DBMS could not fully support. Compare and contrast at least two different types of DBMS that are developed based on different data models by doing some research, one example would be a traditional relational database system with an object-oriented database system (OODS). Clearly elaborate on the main motivations of why they are created for each DBMS that you found. [20 pts]

RDMS:
- Based on the Relational Model.
- A bunch of collected interrelated tables
- Main objective is data independence from the application

OODS:
- Data is represented as objects
- Capable of inheretence/poly morphism
- Main objective is data encapsulation

5. In class, we briefly discussed about the types of data processed by DBMSs. Compare and contrast "structured data", "unstructured data", and "semi-structured data" by doing some research on the web. Which one is usually well-accommodated by a relational DBMS? Why? [20 pts]

Structured Data:
- data whose elements are addressable for effective analysis.
- formatted like a typical database.
- Relational Data

Semi-Structured:
- has some relational properties
- Ex. XML Data

Unstructured:
- Not Organized @ all
- no organizational properties

Structured is Best for RDMS