# CSCI_4400_NOTES_1_22_2019.md

- Data consisits of raw facts
- Info results in processing data reveal meaning
    - requires context
    - Bedrock knowledge
    - Should be accurate, relevant, and timely
- Learn how to form info from data

## What is a database

- Shared, integrated computer that stores data
    - End-user data: raw facts of interest to end user
    - Matadata: data about data, through which we understand data
- DBMS
    - collection of programs
    - Manages the database stucture
    - Controls access to data stored

## Why databases?

- DBMS intermediary between the user and the database
    - Enables data to be processed
    - Presents the end user with an integrated

## Roles

- You interact with the DBMS
- Many users are web user

## Types of DBs

- Single user
- Multiuser
- Location
    - Cloud
- Purpose
    - General
    - Discipline focused
- Structure
    - Our data is going to be structured

## Why is design important

- Focuses on design
- Ad-hoc is an often occurance
    - Any question, you have to be able to answer

- Good Design
- Bad Design
    - difficult to trace errors
    - may lead to poor performance

## Evolution of Data Processing

- Manual file systems
- Computer file systems
    - Data processing (DP) specialist created a computer-based system to track data and produce required reports
- File system redux: modern tools
    - Spreadsheet

## Terminology

- TERM - definition
- Data - raw facts
- Field -
- Record -
- File -

## Evol of Data Processing (3 of 3)

- Avoid info stored in more than one place

## problems of data dependence

- Data dependence
- Data independence

## Data redundancy

- What is it? ... When you store info more than one time
- when you look it up, it can majically change states (value)
- Islands of info
    - data in parts in many locations

## Data redundancy Pt 2

- Results
    - poor data security
    - poor data consisitency
    - errors with data entry
    - data integrity
        - it is as it says it is
        - True is True
        - False is False
- "Don't want to do that"

## Data Anomalies

- Develop when not all data is kept away from redudancy
    - Updata Anomalies
    - Insertion Anomalies
    - Delete Anomalies
- Pg 15 in the textbook
    - On the 3rd, row we have a typo
    - The only way you know they are an agent is when they have a client
        - Insert Anomaly
    - What if we delete all customer from an agent
        - If we store redundant data this happens
        - We need a table
        - Delete Anomoly

## DB System Environment pt1

- Procedures
- data

## "" "" "" pt2

- image from book, DB system environment
- don't pay attention to job titles
- DB admin, then System Admin
    - same thing probably

## DBMS

- many user access control

## Manage the DB Shift in focus

- costs money
- time

## Summary

- Data consists of raw facts

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break time
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## Access

Where X is ____

- Location is Madrid OR Berlin
- You have the use of AND and OR and NOT
    - Logical "Connectives"

    - just like in programming
- All Customers who purchased an item in category 2

## Foreign Key

"The more you can push stuff to the user, the better off you are"