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Lab 1

2. Short essay: data vs information
   Google is a database that stores a countable infinity of information on every topic that could be thought of, however this information would only be data if Google did not turn it into information. The data that Google collects is just a bunch of numbers and facts that mean nothing if they have no meaning to them which would make them information. The databases at Google sort and arrange the data into useable information giving it context an meaning. Without the context the data is useless, what does something such as 42 even mean. With some context it is the answer to the universe, but who would have known that without context.

3. Short essay: data models

   Hierarchical data model:
   Every leaf on the tree has a root going back to the previous and wastes memory because they are duplicated as in the example below, B comes up twice. If B has to be changed, it must be done once for each instance it is referenced.

```
                Game
               /     \
         player 1        player 2
         /     \         /     \
        A       B       B       C
```
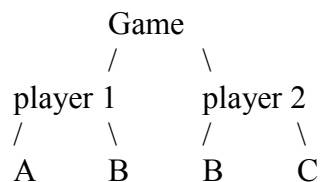
   Network Data Model:
   This is similar to the hierarchical model, however it saves some memory by allowing for B to be referenced twice from each player of the game if they have it in their possession allowing for easier editing if it needs to be changed.

```
             Game
            /     \
      player 1      player 2
      /        \ /         \
     A          B           C
```
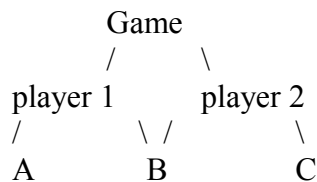
   Relational Data Model:
   This model allows for a much easier system to be implemented using a pointer system which can have many types of relationships between the players, items, and inventory. This model is superior to the previous two because it allows for many to many relationships.

Players	Items	Inventory	
ID	ID	PID	IID
1	A	1	A
2	B	1	B
	C	2	B
	D	2	C

XML is not a good database tool because of its nested structure it slows down fast retrieval of data because it scans through the mass of data for the specific result rather than saying "SELECT" and specifying where.