

16.1 Databases

Notebook: How Computers Work [CM1030]

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Cornell Notes	Topic:	Course: BSc Computer Science
	16.1 Databases	Class: How Computer Work [CM1030]-Lecture
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Essential Question:		
What is a database?		
Questions/Cues:		
<ul style="list-style-type: none">• What is a database?• What is a database management system?• What is database model?• What is a relational database?• What is the name of the operation to get data from a particular tuple?• What is the name of the operation that accesses only some attributes of a table?• What is the join operation?		
Notes		
<ul style="list-style-type: none">• Database = collection of data stored in a structured way• Database management system (DMS) = software which controls how data is stored and accessed by other apps, provides abstraction of data to apps. In production system, database has its own database server• Database model = how the data is represented and accessed• Relational Database = stores all its data in tables like a spreadsheet, each row of the data table is a different entry called a Tuple, each column is a particular aspect of that entry called an attribute. Finally, every row of the table has exactly the same elements in it to make the data easy to handle. Each cell contain data itself, which is normally text or numbers<ul style="list-style-type: none">◦ More complex data like photo typically too big to store in database, so they stored in files and file names are stored in database◦ Most database systems add an extra attribute call an "id", typically a unique number. We can use this ID to identify an entry from one table to another◦ Relational DMS have a range of functions to access data in a database• Select = operation to get data from a particular tuple<ul style="list-style-type: none">◦ Select always doesn't return one result• Project = operation to access only some of the attributes of a table• Join = operation that takes data from one table and joins it with data in another table to create a new combines table		

- Many relational databases use a mini-programming lang called SQL (Structured Query Language) to access these commands/operations

Summary

In this week, we learned about what database is and the range of functions used to access data from a database.