What is Relational Database ?

Collection of information organized in **tables**

Tables are constructed and associated to each other through shared **fields**

A set of attributes comprises a **record**

Tables are related through common fields designed as **primary** and **foreign** keys

Allow us to **find**, **update** and **delete** data quickly, and help to ensure accuracy

Primary key fields

Fields must be **unique** and can't contain NULL value

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Each **table** should have a primary key field

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Concatenated keys, using more than one field

Foreign key fields

Fields in a table that **refer to the primary key** in another table

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The data in this field **must exactly match data** contained in the **primary key** field

Workshop

Normalization ?

Nomalization

Eliminating redundancy

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Ensuring data is stored in the correct table

Nomalization

Eliminating redundancy

Ensuring data is stored in the correct table

Eliminating need for restructing database

when data is added

Five level of normal form !!

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Third normal form is sufficient for most database apps

First normal form (1NF)

No repeating or duplicate fields

Each cell contains only a single value

Each record is unique

First normal form (1NF)

item	colors	price	tax
T-shirt	red, blue	12.00	0.60
polo	red, yellow	12.00	0.60
T-shirt	red, blue	12.00	0.60
sweatshirt	blue, black	25.00	1.25

First normal form (1NF)

item	color	price	tax
T-shirt	red	12.00	0.60
T-shirt	blue	12.00	0.60
polo	red	12.00	0.60
polo	yellow	12.00	0.60
sweatshirt	blue	25.00	1.25
sweatshirt	black	25.00	1.25

Second normal form (2NF)

All non-key fields depend on all components of the primary key

Second normal form (2NF)

item	color	price	tax
T-shirt	red	12.00	0.60
T-shirt	blue	12.00	0.60
polo	red	12.00	0.60
polo	yellow	12.00	0.60
sweatshirt	blue	25.00	1.25
sweatshirt	black	25.00	1.25

Second normal form (2NF)

item	color
T-shirt	red
T-shirt	blue
polo	red
polo	yellow
sweatshirt	blue
sweatshirt	black

item	price	tax
T-shirt	12.00	0.60
polo	12.00	0.60
sweatshirt	25.00	1.25

Third normal form (3NF)

No non-key fields depends upon another

Third normal form (3NF)

item	color
T-shirt	red
T-shirt	blue
polo	red
polo	yellow
sweatshirt	blue
sweatshirt	black

item	price	tax
T-shirt	12.00	0.60
polo	12.00	0.60
sweatshirt	25.00	1.25

Third normal form (3NF)

item	color
T-shirt	red
T-shirt	blue
polo	red
polo	yellow
sweatshirt	blue
sweatshirt	black

item	price
T-shirt	12.00
polo	12.00
sweatshirt	25.00

price	tax
12.00	0.60
25.00	1.25

Workshop

Name	Assignment 1	Assignment 2
Jeff Smith	Article Summary	Poetry Analysis
Nancy Jones	Article Summary	Reaction Paper
Jane Scott	Article Summary	Poetry Analysis

Workshop

Assignment ID	Description
1	Article Summary
2	Poetry Analysis
3	Reaction Paper

Student ID	First Name	Last Name
1	Jeff	Smith
2	Nancy	Jones
3	Jane	Scott

Assignment ID	Student ID
1	1
1	2
1	3
2	1
2	3
3	2

Relationships ?