

Table Schema Consideration in RDBMS

Goal:

Precisely Representing Real World
Determine Relations, Attributes of each Relation
Identifying Attributes and Relationships
Data Dependency
Efficient Data Management
Lossless Data Representation
Minimal Data Redundancy

Relational Database Table

What is the key?

Customer_ID	First Name	Surname	Telephone Number
123	Robert	Ingram	555-861-2025
456	Jane	Wright	555-403-1659
789	Maria	Fernandez	555-808-9633
234	Mary	Brown	123-209-4675
356	Eugene	Kim	123-457-7364
567	Eunsun	Park	777-374-7384

..... **Several Million Customer Rows**

Relational Database Table

Is this a good table?

Customer ID	First Name	Surname	Telephone Number
123	Robert	Ingram	555-861-2025
456	Jane	Wright	555-403-1659 555-776-4100
789	Maria	Fernandez	555-808-9633
234	Mary	Brown	123-209-4675
356	Eugene	Kim	123-457-7364
567	Eunsun	Park	777-374-7384

Several Million Customer Rows

Try to divide the given table.

the key of each table?

Find Update Anomaly

What is the key?

Employee	Skill	Current Work Location
Jones	Typing	114 Main Street
Jones	Shorthand	114 Main Street
Jones	Whittling	114 Main Street
Bravo	Light Cleaning	73 Industrial Way
Ellis	Alchemy	73 Industrial Way
Ellis	Flying	73 Industrial Way
Harrison	Light Cleaning	73 Industrial Way

The Problem of This Table

Tables Split into Two Parts

A large, light blue rounded rectangle with a dark blue border, centered on a white background.

A large, light blue rounded rectangle placeholder for a photo or diagram. It is positioned on the left side of the slide, occupying most of the available space. The background behind it is a dark blue header and a light blue footer.

Tournament Winners

Tournament	Year	Winner	Winner Date of Birth
Des Moines Masters	1998	Chip Masterson	14 March 1977
Indiana Invitational	1998	Al Fredrickson	21 July 1975
Cleveland Open	1999	Bob Albertson	28 September 1968
Des Moines Masters	1999	Al Fredrickson	21 July 1975
Indiana Invitational	1999	Chip Masterson	14 March 1977

Find the key. Any problem in this table?

Tournament	Year	Winner
Indiana Invitational	1998	Al Fredrickson
Cleveland Open	1999	Bob Albertson
Des Moines Masters	1999	Al Fredrickson
Indiana Invitational	1999	Chip Masterson
Des Moines Masters	1998	Chip Masterson

Player	Date of Birth
Chip Masterson	14 March 1977
Al Fredrickson	21 July 1975
Bob Albertson	28 September 1968

Find anomaly.

(Electric Toothbrush Models)

Manufacturer	Model	Model Full Name	Manufacturer Country
Forte	X-Prime	Forte X-Prime	Italy
Forte	Ultraclean	Forte Ultraclean	Italy
Dent-o-Fresh	EZbrush	Dent-o-Fresh BananaBrush-2000	USA
Kobayashi	ST-60	Kobayashi ST-60	Japan
Hoch	Toothmaster	Hoch Toothmaster	Germany
Hoch	X-Prime	Hoch X-Prime	Germany

Try to divide the given table.

Course Taking Advising

Student ID	AdvisorProf.	Department	Course ID	Grade
100	AAA	CE	C413	A
100	AAA	CE	E412	A
200	BBB	EE	C123	B
300	CCC	CE	C312	A
300	CCC	CE	C324	C
300	CCC	CE	C413	A
400	AAA	CE	C312	A
400	AAA	CE	C324	A
400	AAA	CE	C413	B
400	AAA	CE	E412	C

Try to make a table division