

Lab Two: CAP Database

1)

CAP=# select *
CAP=# from Customers;

cid	name	city	discountpct
c001	Tiptop	Duluth	10.00
c002	Tyrell	Dallas	12.00
c003	Eldon	Dallas	8.00
c004	ACME	Duluth	8.50
c005	Weyland	Risa	0.00
c006	ACME	Beijing	0.00

(6 rows)

CAP=# select *
CAP=# from Agents;

aid	name	city	commission
a01	Smith	New York	5.60
a02	Jones	Newark	6.00
a03	Perry	Hong Kong	7.00
a04	Gray	New York	6.00
a05	Otasi	Duluth	5.00
a06	Smith	Dallas	5.00
a08	Bond	London	7.07

(7 rows)

CAP=# select *
CAP=# from Products;

pid	name	city	qty	priceusd
p01	Heisenberg compensator	Dallas	111400	0.50
p02	universal translator	Newark	203000	0.50
p03	Commodore PET	Duluth	150600	1.00
p04	LCARS module	Duluth	125300	1.00
p05	pencil	Dallas	221400	1.00
p06	trapper keeper	Dallas	123100	2.00
p07	flux capacitor	Newark	100500	1.00
p08	HAL 9000 memory core	Newark	200600	1.25

(8 rows)

CAP=# select *
CAP=# from Orders;

ordno	month	cid	aid	pid	quantity	totalusd
1011	Jan	c001	a01	p01	1100	495.00
1012	Jan	c002	a03	p03	1200	1056.00
1015	Jan	c003	a03	p05	1000	920.00
1016	Jan	c006	a01	p01	1000	500.00
1017	Feb	c001	a06	p03	500	540.00
1018	Feb	c001	a03	p04	600	540.00
1019	Feb	c001	a02	p02	400	180.00
1020	Feb	c006	a03	p07	600	600.00
1021	Feb	c004	a06	p01	1000	457.50
1022	Mar	c001	a05	p06	450	810.00
1023	Mar	c001	a04	p05	500	450.00
1024	Mar	c006	a06	p01	880	400.00
1025	Apr	c001	a05	p07	888	799.20
1026	May	c002	a05	p03	808	711.04

(14 rows)

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2) Explain the distinctions among the terms primary key, candidate key, and super key.

A Super Key is one that can contain either one attribute or a set of attributes to uniquely identify a database record. It is possible it might contain extraneous attributes that are not necessary to uniquely identify records, however.

A Candidate Key is simply a Super Key in its furthest minimal form, containing no extraneous information; It cannot be reduced further and is also used to uniquely identify records. There are more than one possible Candidate Keys.

A Primary Key is a minimal Candidate Key that can be used to identify tuples uniquely within a relation.

3) Write a short essay on data types. Select a topic for which you might create a table. Name the table and list its fields (columns). For each Field, give its data type and whether or not it is nullable.

One might create a table to manage inventory of a media collection. The table could be named "Music Collection" and contain the fields "SongID" (A number value, unsigned int, perhaps. Is not nullable), "Title" (A Text Value, Not Nullable), "Artist" (Text Value, Not Nullable), "Rating" (TINYINT, nullable), "Release Date"(DATE, nullable), and "File Type" (Text, not nullable).

4) Explain the following relational "rules" with examples and reasons why they are important.

a. The "First normal form" rule

1NF establishes a set of rules one should follow to create an organized database. In accordance with 1NF, one must first define required data items, place related items in a table, confirm there are no redundant groups of data and make sure a primary key exists. This rule ensures that the information can be queried easily.

b. The "access rows by content only" rule

This rule implies that the user should access the contents of a row through the values of its columns. It means that the user cannot access the contents of a row by its row number and rather, through primary, candidate, or super keys.

c. The "all rows must be unique" rule

This rule ensures that multiple rows are not being referenced when using a primary, candidate, or super key. It states that there should be no duplicate tuples within a table, but really seems to simply reinforce the 1NF rules.