

CAP2 DATABASE

Customers					
	cid character(4)	name text	city text	discount numeric(5,2)	
1	c001	Tiptop	Duluth	10.00	
2	c002	Basics	Dallas	12.00	
3	c003	Allied	Dallas	8.00	
4	c004	ACME	Duluth	8.00	
5	c005	Weyland-Yutani	Acheron	0.00	
6	c006	ACME	Kyoto	0.00	
Agents					
	aid character(3)	name text	city text	percent real	
1	a01	Smith	New York	6	
2	a02	Jones	Newark	6	
3	a03	Brown	Tokyo	7	
4	a04	Gray	New York	6	
5	a05	Otasi	Duluth	5	
6	a06	Smith	Dallas	5	
7	a08	Bond	London	7	
Products					
	pid character(3)	name text	city text	quantity integer	priceusd numeric(10,2)
1	p01	comb	Dallas	111400	0.50
2	p02	brush	Newark	203000	0.50
3	p03	razor	Duluth	150600	1.00
4	p04	pen	Duluth	125300	1.00
5	p05	pencil	Dallas	221400	1.00
6	p06	folder	Dallas	123100	2.00
7	p07	case	Newark	100500	1.00
8	p08	clip	Newark	200600	1.25
Orders					

	ordno integer	mon character(3)	cid character(4)	aid character(3)	pid character(3)	qty integer	dollars numeric(12,2)
1	1011	jan	c001	a01	p01	1000	450.00
2	1013	jan	c002	a03	p03	1000	880.00
3	1015	jan	c003	a03	p05	1200	1104.00
4	1016	jan	c006	a01	p01	1000	500.00
5	1017	feb	c001	a06	p03	600	540.00
6	1018	feb	c001	a03	p04	600	540.00
7	1019	feb	c001	a02	p02	400	180.00
8	1020	feb	c006	a03	p07	600	600.00
9	1021	feb	c004	a06	p01	1000	460.00
10	1022	mar	c001	a05	p06	400	720.00
11	1023	mar	c001	a04	p05	500	450.00
12	1024	mar	c006	a06	p01	800	400.00
13	1025	apr	c001	a05	p07	800	720.00
14	1026	may	c002	a05	p03	800	740.00

2. Explain the distinctions among the terms primary key, candidate key, and superkey.
 - a. A primary key is a candidate key that is the main reference key for the table. It is used to establish relationships with other tables and like any candidate key, it must contain unique values, can never be null, and uniquely identify each record in the table. A candidate key is basically a field of the table that uniquely identifies each record in the table. A table must have at least one candidate key, but can have many candidate keys at the same time. A candidate key must contain unique values, must not contain null values, and must uniquely identify each record in the table. A superkey is any combination of columns with that combination of values being unique across all rows in a table with no duplicate. In other words, A Super key is any combination of fields within a table that uniquely identifies each record within that table. These are the distinctions among primary key, candidate key, and superkey.
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.
 - a. If i was creating a to-do list script to help me manage my life and things i had to do, a database will be required. I'll create a database with the name "ToDo" and within the database, there will be a table called "items." In the items table, there will be 4 columns. The first column will be called "id" and have a data type of an integer, be auto incremented, and won't have a null. This is to give each information in the data it's own unique id. The second column will be called "description" with a data type of text and can have a null value. The third column will basically be a field called 'done' with a datatype of a tinyint, which will be treated as a boolean. I will use this to figure out whether each to do list is completed or uncompleted. It will also hold a null

value. Lastly, my last field, called "created" will have a data type of datetime and will accept nulls. This will store the date and time of when each to do list was created.

4. Explain the following relational “rules” with examples and reasons why they are important.

a. The “First normal form” rule

- 1) Sets the organizational rules for database and relates to a single table within a relational database system. The first normal form states that every column in the table must be unique, separate tables must be created for each set of related data, each table must be identified with a unique column or concatenated columns called the primary key, no rows may be duplicated, no columns may be duplicated, no row/column intersections contain a null value, no row/column intersections contain a multivalued fields.

b. The “access rows by content only” rule

- 1) Most databases make it hard to access rows by reference, so using SQL, this is the easiest method.

c. The “all rows must be unique” rule

- 1) Rows must be unique, no duplicate primary keys to guarantee row accessibility and to preserve entity integrity.