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Database Management

Lab 2

2. Candidate Key: The smallest combination of fields that can uniquely identify records in a table.

Primary Key: A Candidate key that is used as the main point of unique reference and identification for records in a table, which is also used to refer to those records throughout the rest of the database.

Super Key: Any combination of fields in a table that identifies all records within the table.

3. SQL contains a large number of data types, among them char, text, int and datetime. Each of these specific types deals with a different category of data, such as strings, numbers, and the time of day. However, char and text are both subtypes of the character strings data category. These types can be well defined and explained in a scenario involving a table for letters received from certain people over the course of a week. In this instance, char could be used to denote the delivering names or addresses of each individual sender, int could be used to denote the number of letters received from those people, and datetime could be used to define what specific time each letter was received at. The char and datetime segments obviously can't be null, as a letter must be received at a time and must have a sender. However, in this instance int can be null, as it is possible to receive no letters from a person you may be tracking letters received from.

4. Normal form rule: Databases should be comprised of tables consisting of rows and columns, following the convention of atomicity.

Access rows by content only rules: One should never be concerned of the location of an element within the database, but rather only the content of the element.

All rows must be unique rule: All rows should be unique in their combination of keys/ identifiers, as if all those identifiers of a record were the same as another, they might as well be the same.

| Output pane |                  |                     |                     |                     |                     |                |                          |
|-------------|------------------|---------------------|---------------------|---------------------|---------------------|----------------|--------------------------|
| Data Output |                  |                     |                     |                     |                     |                |                          |
|             | ordno<br>integer | mon<br>character(3) | cid<br>character(4) | aid<br>character(3) | pid<br>character(3) | qty<br>integer | dollars<br>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                   |

| Output pane |                     |                |              |                          |
|-------------|---------------------|----------------|--------------|--------------------------|
| Data Output |                     |                |              |                          |
|             | cid<br>character(4) | name<br>text   | city<br>text | discount<br>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                     |

|   | <b>aid</b><br>character(3) | <b>name</b><br>text | <b>city</b><br>text | <b>percent</b><br>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                      |

Output pane

|   | <b>pid</b><br>character(3) | <b>name</b><br>text | <b>city</b><br>text | <b>quantity</b><br>integer | <b>priceusd</b><br>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                             |

Output pane

|    | <b>ordno</b><br>integer | <b>mon</b><br>character(3) | <b>cid</b><br>character(4) | <b>aid</b><br>character(3) | <b>pid</b><br>character(3) | <b>qty</b><br>integer | <b>dollars</b><br>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                          |

