

## Project1

### Chapter7:

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1 The SQL command that lets you insert data into a table, one row at a time, is \_\_\_\_\_.

- a. SELECT
- b. COMMIT
- c. UPDATE
- d. INSERT

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2 The SQL command that lets you save your work to disk is \_\_\_\_\_.

- a. UPDATE
- b. INSERT
- c. COMMIT
- d. SELECT

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3 The SQL command used to list the contents of a table is \_\_\_\_\_.

- a. SELECT
- b. UPDATE
- c. INSERT
- d. COMMIT

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4 The SQL command that enables you to make changes in the data is \_\_\_\_\_.

- a. COMMIT
- b. INSERT
- c. UPDATE
- d. SELECT

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5 The current fully approved version of standard SQL prescribed by the American National Standards Institute is \_\_\_\_\_.

- a. SQL2
- b. SQL-4
- c. SQL-99
- d. SQL-2003

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6 \_\_\_\_\_ is/are SQL character data type(s).

- a. VARCHAR2 only
- b. ALPHANUMERIC
- c. CHAR only
- d. CHAR & VARCHAR2

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7 To list all the contents of the PRODUCT table you would use \_\_\_\_\_.

- a. SELECT ALL FROM PRODUCT;
  - b. SELECT \* FROM PRODUCT;
  - c. DISPLAY \* FROM PRODUCT;
  - d. LIST \* FROM PRODUCT;
-

8 In Oracle, the \_\_\_\_\_ command is used to place a \$ in front of a numeric value.

- a. CHAR
- b. CONVERT
- c. DISPLAY
- d. FORMAT

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9 Using **MySQL**, which command would you use when changing the date in one record of the PRODUCT table?

- a. update PRODUCT set P\_INDATE='2011-18-02' where P\_CODE='13-Q2/P2';
- b. update PRODUCT set P\_INDATE='2011-02-18' where P\_CODE='13-Q2/P2';
- c. update PRODUCT set P\_INDATE='02-18-2011' where P\_CODE='13-Q2/P2';
- d. update PRODUCT set P\_INDATE='FEB-18-2011' where P\_CODE='13-Q2/P2';

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10 Which command is used to restore the table contents?

- a. COMMIT; BACKUP;
- b. COMMIT; RESTORE;
- c. COMMIT; ROLLBACK;
- d. ROLLBACK;

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11 Which command would be used to delete the table row where the P\_CODE = '2238/QPD'?

- a. DELETE ALL table WHEN '2238/QPD'=P\_CODE;
- b. DELETE FROM table WHERE P\_CODE='2238/QPD';
- c. DELETE table WHERE P\_CODE='2238/QPD';
- d. REMOVE FROM table WHERE P\_CODE='2238/QPD';

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12 Some RDBMSs (like Oracle) will automatically \_\_\_\_\_ data changes when issuing data definition commands.

- a. INVOKE
- b. UPDATE
- c. COMMIT
- d. ROLLBACK

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13 What happens when you issue the DELETE FROM tablename command without specifying a WHERE condition?

- a. no rows will be deleted
- b. all rows will be deleted
- c. the first row will be deleted
- d. the last row will be deleted

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14 Which command is used to select partial table contents?

- a. SELECT P\_CODE, P\_DESCRIPTOR, V\_CODE, FROM PRODUCT;
  - b. SELECT \* FROM PRODUCT;
  - c. SELECT PARTIAL FROM PRODUCT;
  - d. SELECT P\_CODE, P\_DESCRIPTOR, V\_CODE FROM PRODUCT;
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15 Which query would be used to output the table contents where the value of V\_CODE is equal to 21344?

- a. OUTPUT \* FROM table WHERE V\_CODE=21344;
- b. DISPLAY \* FROM table V\_CODE=21344;
- c. SELECT ALL FROM table WHERE V\_CODE=21344;
- d. SELECT \* FROM table WHERE V\_CODE=21344;

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16 Which query would be used to output the table contents where the value of V\_CODE is not equal to 21344?

- a. SELECT \* FROM table WHERE V\_CODE<>21344;
- b. SELECT \* FROM table WHERE V\_CODE =! 21344;
- c. SELECT FROM table WHERE V\_CODE != 21344;
- d. SELECT \* FROM table WHERE V\_CODE NOT EQUAL 21344;

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17 Which query would be used to output the table contents where the value of V\_CODE is less than or equal to 21344?

- a. SELECT \* FROM table WHERE V\_CODE <= 21344;
- b. SELECT \* FROM table WHERE V\_CODE >= 21344;
- c. SELECT \* FROM table WHERE V\_CODE =< 21344;
- d. SELECT \* FROM table WHERE V\_CODE => 21344;

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18 Which query would be used to output the table contents where the value of the character field P\_CODE is 1558-QW1?

- a. SELECT \* FROM table WHERE P\_CODE EQUAL TO '15558-QW1';
- b. SELECT \* FROM table WHERE P\_CODE=='1558-QW1';
- c. SELECT \* FROM table WHERE P\_CODE='1558-QW1';
- d. SELECT \* FROM table IF P\_CODE='1558-QW1';

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19 Which **MS Access** query command will list all the rows in which the inventory stock dates occur on or after January 20, 2006?

- a. SELECT \* FROM table WHERE P\_CODE >= '20-Jan-2006';
- b. SELECT \* FROM table WHERE P\_CODE => '20-Jan-2006';
- c. SELECT \* FROM table WHERE P\_CODE >= #20-Jan-06#;
- d. SELECT \* FROM table WHERE P\_CODE >= %20-Jan-2006%;

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20 Which command uses columns and column aliases to determine the total value of each of the products held on hand and displays the results in a column labeled TOTVALUE?

- a. SELECT P\_DESCRIPT, P\_QOH, P\_PRICE,P\_QOH/P\_PRICE AS TOTVALUE  
FROM PRODUCT;
- b. SELECT P\_DESCRIPT, P\_QOH, P\_PRICE,P\_QOH\*P\_PRICE AS TOTVALUE  
FROM PRODUCT;
- c. SELECT P\_DESCRIPT, P\_QOH, P\_PRICE,P\_QOH-P\_PRICE AS TOTVALUE  
FROM PRODUCT;
- d. SELECT P\_DESCRIPT, P\_QOH, P\_PRICE,P\_QOH=P\_PRICE AS TOTVALUE  
FROM PRODUCT;

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21 A(n) \_\_\_\_\_ is an alternate name given to a column or table in any SQL statement.  
a. data type  
b. alias  
c. trigger  
d. stored function

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22 What is the SQL syntax to list the table contents for either V\_CODE = 21344 or V\_CODE = 24288?  
a. SELECT P\_CODE FROM PRODUCT WHERE V\_CODE == 21344 OR V\_CODE == 24288;  
b. SELECT P\_CODE FROM PRODUCT WHERE V\_CODE = 21344 OR = 24288;  
c. SELECT P\_CODE FROM PRODUCT WHERE V\_CODE = 21344 OR V\_CODE = 24288;  
d. SELECT P\_CODE FROM PRODUCT WHERE V\_CODE = 21344 AND V\_CODE = 24288;

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23 The \_\_\_\_\_ operator is used to check whether an attribute value is null.  
a. LIKE  
b. IN  
c. BETWEEN  
d. IS NULL

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24 The \_\_\_\_\_ operator is used to define a range limit.  
a. BETWEEN  
b. NULL  
c. IN  
d. LIKE

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25 The \_\_\_\_\_ operator is used to check whether an attribute has a value.  
a. IN  
b. BETWEEN  
c. LIKE  
d. EXISTS

As the IT Director for *Financial Accountants Inc.*, your team was asked to create an online family finance database for clients who will record credits (income) as well as debits (expenses), in order to keep track of monthly/yearly budgets. The following **categories** should be included as examples of income and expenses:

**Credit (income): 19 generic categories – specifics indicated in “notes attribute”**  
salary, bonus, pension, social security, unemployment, disability, royalty, interest, dividend, tax return, gift, child support, alimony, award, grant, scholarship, inheritance, or misc.

**Debit (expense): 15 generic categories – specifics indicated in “notes attribute”**  
housing, food, transportation, charity, investment, insurance, clothing, saving, health, personal, recreation, debt, school, childcare, or misc.

**Note:** List “misc” only once in category. However, all transactions should record whether the transaction was a credit (income) or debit (expense), and from which category the credit or debit came.

#### **Business Rules:**

- A financial institution provides many types of \*accounts.
- Many types of accounts are available at many financial institutions.
- Many accounts can be associated with many users.
- Many users can have many accounts, but must have at least one.
- Many transactions are processed from many accounts.
- However, each transaction is processed from a specific account.
- Many users make many transactions.
- However, each transaction is processed by only one user.
- A budget category is used in many transactions.
- However, each transaction can only use one budget category.
- **\*Note:** “accounts” include (saving, checking, mortgage, loans, investment (e.g., CDs, 401Ks, etc.), credit, cards, etc.

**Note:** **\*Always\*** refer to the Assignment Guidelines (see Notes) for “regular” attributes that **\*must\*** be included. Additional attributes (**not including pks and fks**):

**category and account:** id, type (category types are listed above)

**source:** start\_date, end\_date

**transaction:** type (credit, debit), method (e.g., atm, pos, check number, transfer, bank, etc.), amt, date

#### **The following criteria are required for the ERD: Write all appropriate:**

- entities (include color)
- connectivities
- relationship strengths (use appropriate drawings of lines between entities)
- relationship participations (optional/mandatory)
- PKs, FKs, PFs (if used)
- suitable attributes (e.g., first name, last name, address, phone, email, url, etc.)
- relationships between entities (use of verbs) in the ERD

## Deliverables

### ERD (**MUST Forward-Engineer**):

- Include at least 5 "**unique**" records per table, and 10 "**unique**" transactions
- **Must match** data types

**You must submit an MWB file (not a PNG) to receive credit.**

**Data Dictionary** (see textbook, also **match the color of the ERD entities**):

### SQL Statements for Project1 (Using data from **\*your\*** ERD)

**Must include query result sets!**

**Joins \*must\* include all 4 types of Inner Joins (See Table 8.1)**  
**For each SELECT statement**

- List all financial institutions, full user names, account types and the date they were opened, only include checking accounts, group by institution, sort by institution name in ascending order and limit to two records displayed:
- List all user names, account types, transaction types, methods, amounts, and dates, group by user sort by transaction amount in desc order (format amounts to two decimal places, and include a dollar sign), limit to one record displayed.
- List full user names, account types, and total spending (debit) amount for each category type, group by user, and sort by category in descending order, format dollar amounts.
- Using only SQL, add an **account\_history** table inside of your database with the following attribute definitions (use prefix **aht\_** for each attribute, except **act\_id**), all should be not null except action and notes:

```
act_id pk tinyint unsigned,  
date pk date,  
action enum: insert, update, delete COMMENT 'indicates changes to account',  
notes varchar(255) DEFAULT NULL,  
CONSTRAINT `fk_account_history_account` FOREIGN KEY (act_id)  
REFERENCES account (act_id) ON DELETE RESTRICT ON UPDATE CASCADE,  
ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE utf8_general_ci
```

- Alter account\_history table to the following options:  
action enum: insert, update, delete, NOT NULL DEFAULT 'insert' and COMMENT 'reflects changes to account'
- Create an Excel file, with 10 records for the **transaction** table, and save as **transaction\_data.csv**. Insert data using the following LOAD DATA INFILE command.

```
LOAD DATA LOCAL INFILE 'db/transaction_data.csv'  
INTO TABLE transaction  
FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY ''''  
LINES TERMINATED BY '\r\n'  
(trn_id, src_id, cat_id, trn_type, trn_method, trn_amt, @date_variable, trn_notes)  
SET  
trn_date = STR_TO_DATE(@date_variable, '%c/%e/%Y %H:%i:%s');  
  
show warnings;
```