Project1

Chapter7:

---

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

---

2 The SQL command that lets you save your work to disk is _____.
a. UPDATE
b. INSERT
c. COMMIT
d. SELECT

---

3 The SQL command used to list the contents of a table is _____.
a. SELECT
b. UPDATE
c. INSERT
d. COMMIT

---

4 The SQL command that enables you to make changes in the data is _____.
a. COMMIT
b. INSERT
c. UPDATE
d. SELECT

---

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

---

6 _____ is/are SQL character data type(s).
a. VARCHAR2 only
b. ALPHANUMERIC
c. CHAR only
d. CHAR & VARCHAR2

---

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

---

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';

---

10 Which command is used to restore the table contents?
a. COMMIT; BACKUP;
b. COMMIT; RESTORE;
c. COMMIT; ROLLBACK;
d. ROLLBACK;

---

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';

---

12 Some RDBMSs (like Oracle) will automatically _____ data changes when issuing data definition commands.
a. INVOKE
b. UPDATE
c. COMMIT
d. ROLLBACK

---

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

---

14 Which command is used to select partial table contents?
a. SELECT P_CODE, P_DESCRIPT, V_CODE, FROM PRODUCT;
b. SELECT * FROM PRODUCT;
c. SELECT PARTIAL FROM PRODUCT;
d. SELECT P_CODE, P_DESCRIPT, V_CODE FROM PRODUCT;

---

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;

---

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;

---

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;

---

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';

---

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%;

---

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;

---

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

---

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;

---

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

---

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

---

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

Database Design Helper Video (LIS3784 P1): https://youtu.be/Zz03aqvsA7w

Deliverables

1. **ERD (MUST Forward-Engineer, otherwise *no* credit):**
   - 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.**
2. **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

i. 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:

ii. 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.

iii. 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.

iv. 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 **pf** 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

v. Alter account_history table to the following options:
action enum: insert, update, delete, NOT NULL DEFAULT 'insert' and COMMENT 'reflects changes to account'

vi. **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.
Loading Data Helper Video: https://www.youtube.com/watch?v=G2Vg5hUz5eg
Must log into MySQL using the following command: **`mysql -u fsuid -p --local-infile=1`**

```
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;
```