# Bank SQL Examples and Dashboard Report

## 1. Table Definitions

CREATE TABLE BANK\_BRANCH (  
 BCODE VARCHAR(10) PRIMARY KEY,  
 BNAME VARCHAR(100),  
 CITY VARCHAR(50)  
);  
  
CREATE TABLE ACCOUNT\_TYPE (  
 TYPE\_ID INT PRIMARY KEY,  
 TYPE\_NAME VARCHAR(50)  
);  
  
CREATE TABLE ACCOUNT (  
 ACC\_NO INT PRIMARY KEY,  
 CUST\_NAME VARCHAR(100),  
 BALANCE DECIMAL(10, 2),  
 BCODE VARCHAR(10),  
 TYPE\_ID INT,  
 FOREIGN KEY (BCODE) REFERENCES BANK\_BRANCH(BCODE),  
 FOREIGN KEY (TYPE\_ID) REFERENCES ACCOUNT\_TYPE(TYPE\_ID)  
);

## 2. Sample Data

-- Branches  
INSERT INTO BANK\_BRANCH VALUES ('B001', 'MG Road Branch', 'Mumbai');  
INSERT INTO BANK\_BRANCH VALUES ('B002', 'Park Street Branch', 'Kolkata');  
INSERT INTO BANK\_BRANCH VALUES ('B003', 'Brigade Road Branch', 'Bangalore');  
  
-- Account Types  
INSERT INTO ACCOUNT\_TYPE VALUES (1, 'Savings');  
INSERT INTO ACCOUNT\_TYPE VALUES (2, 'Current');  
INSERT INTO ACCOUNT\_TYPE VALUES (3, 'Fixed Deposit');  
  
-- Accounts  
INSERT INTO ACCOUNT VALUES (1001, 'Alice', 12000.00, 'B001', 1);  
INSERT INTO ACCOUNT VALUES (1002, 'Bob', 5000.00, 'B001', 2);  
INSERT INTO ACCOUNT VALUES (1003, 'Charlie', 30000.00, 'B002', 1);  
INSERT INTO ACCOUNT VALUES (1004, 'David', 100000.00, 'B003', 3);  
INSERT INTO ACCOUNT VALUES (1005, 'Eve', 15000.00, 'B001', 1);

## 3. SQL Query Examples

-- Number of Accounts per Branch  
SELECT BB.BNAME, COUNT(A.ACC\_NO) AS TOTAL\_ACCOUNTS  
FROM BANK\_BRANCH BB  
LEFT JOIN ACCOUNT A ON BB.BCODE = A.BCODE  
GROUP BY BB.BNAME;  
  
-- Total Balance per Branch  
SELECT BB.BNAME, SUM(A.BALANCE) AS TOTAL\_BALANCE  
FROM BANK\_BRANCH BB  
JOIN ACCOUNT A ON BB.BCODE = A.BCODE  
GROUP BY BB.BNAME;  
  
-- Number of Accounts per Branch and Account Type  
SELECT BB.BNAME, AT.TYPE\_NAME, COUNT(\*) AS NUM\_ACCOUNTS  
FROM ACCOUNT A  
JOIN BANK\_BRANCH BB ON A.BCODE = BB.BCODE  
JOIN ACCOUNT\_TYPE AT ON A.TYPE\_ID = AT.TYPE\_ID  
GROUP BY BB.BNAME, AT.TYPE\_NAME;  
  
-- Branches with No Accounts  
SELECT BB.BNAME  
FROM BANK\_BRANCH BB  
LEFT JOIN ACCOUNT A ON BB.BCODE = A.BCODE  
WHERE A.ACC\_NO IS NULL;  
  
-- Average Balance per Account Type  
SELECT AT.TYPE\_NAME, AVG(A.BALANCE) AS AVG\_BALANCE  
FROM ACCOUNT A  
JOIN ACCOUNT\_TYPE AT ON A.TYPE\_ID = AT.TYPE\_ID  
GROUP BY AT.TYPE\_NAME;  
  
-- Highest Balance per Branch  
SELECT BB.BNAME, MAX(A.BALANCE) AS MAX\_BALANCE  
FROM ACCOUNT A  
JOIN BANK\_BRANCH BB ON A.BCODE = BB.BCODE  
GROUP BY BB.BNAME;  
  
-- Customer Details by Account Type and Branch  
SELECT A.CUST\_NAME, BB.BNAME, AT.TYPE\_NAME, A.BALANCE  
FROM ACCOUNT A  
JOIN BANK\_BRANCH BB ON A.BCODE = BB.BCODE  
JOIN ACCOUNT\_TYPE AT ON A.TYPE\_ID = AT.TYPE\_ID  
ORDER BY BB.BNAME, AT.TYPE\_NAME, A.BALANCE DESC;

## 4. Advanced SQL

-- CTE: Top Customer by Balance per Branch  
WITH RankedCustomers AS (  
 SELECT A.CUST\_NAME, BB.BNAME, A.BALANCE,  
 RANK() OVER (PARTITION BY BB.BNAME ORDER BY A.BALANCE DESC) AS rnk  
 FROM ACCOUNT A  
 JOIN BANK\_BRANCH BB ON A.BCODE = BB.BCODE  
)  
SELECT \* FROM RankedCustomers WHERE rnk = 1;  
  
-- Window Function: Running Total of Balance per Branch  
SELECT A.CUST\_NAME, BB.BNAME, A.BALANCE,  
 SUM(A.BALANCE) OVER (PARTITION BY BB.BNAME ORDER BY A.BALANCE DESC) AS RunningTotal  
FROM ACCOUNT A  
JOIN BANK\_BRANCH BB ON A.BCODE = BB.BCODE;  
  
-- Procedure: Deposit Amount  
DELIMITER //  
CREATE PROCEDURE DepositAmount(IN accNo INT, IN depositAmt DECIMAL(10,2))  
BEGIN  
 UPDATE ACCOUNT SET BALANCE = BALANCE + depositAmt WHERE ACC\_NO = accNo;  
END //  
DELIMITER ;  
  
-- Procedure: Withdraw Amount with Balance Check  
DELIMITER //  
CREATE PROCEDURE WithdrawAmount(IN accNo INT, IN withdrawAmt DECIMAL(10,2))  
BEGIN  
 DECLARE currentBal DECIMAL(10,2);  
 SELECT BALANCE INTO currentBal FROM ACCOUNT WHERE ACC\_NO = accNo;  
 IF currentBal >= withdrawAmt THEN  
 UPDATE ACCOUNT SET BALANCE = BALANCE - withdrawAmt WHERE ACC\_NO = accNo;  
 ELSE  
 SIGNAL SQLSTATE '45000' SET MESSAGE\_TEXT = 'Insufficient balance';  
 END IF;  
END //  
DELIMITER ;  
  
-- Simulate Transfer Transaction  
START TRANSACTION;  
UPDATE ACCOUNT SET BALANCE = BALANCE - 1000 WHERE ACC\_NO = 1001;  
UPDATE ACCOUNT SET BALANCE = BALANCE + 1000 WHERE ACC\_NO = 1002;  
COMMIT;

## 5. Bank Manager Dashboard

-- Total Branches  
SELECT COUNT(\*) AS TOTAL\_BRANCHES FROM BANK\_BRANCH;  
  
-- Total Customers  
SELECT COUNT(\*) AS TOTAL\_CUSTOMERS FROM ACCOUNT;  
  
-- Total Deposits  
SELECT SUM(BALANCE) AS TOTAL\_DEPOSITS FROM ACCOUNT;  
  
-- Top 3 Customers by Balance  
SELECT CUST\_NAME, ACC\_NO, BALANCE FROM ACCOUNT ORDER BY BALANCE DESC LIMIT 3;  
  
-- Average Balance per Branch  
SELECT BB.BNAME, ROUND(AVG(A.BALANCE), 2) AS AVG\_BALANCE  
FROM ACCOUNT A JOIN BANK\_BRANCH BB ON A.BCODE = BB.BCODE GROUP BY BB.BNAME;  
  
-- Account Distribution by Type  
SELECT AT.TYPE\_NAME, COUNT(\*) AS NUM\_ACCOUNTS  
FROM ACCOUNT A JOIN ACCOUNT\_TYPE AT ON A.TYPE\_ID = AT.TYPE\_ID  
GROUP BY AT.TYPE\_NAME;  
  
-- Top Branch in Each City by Total Balance  
WITH CityBranchSums AS (  
 SELECT BB.CITY, BB.BNAME, SUM(A.BALANCE) AS TOTAL\_BALANCE,  
 RANK() OVER (PARTITION BY BB.CITY ORDER BY SUM(A.BALANCE) DESC) AS rnk  
 FROM ACCOUNT A JOIN BANK\_BRANCH BB ON A.BCODE = BB.BCODE  
 GROUP BY BB.CITY, BB.BNAME  
)  
SELECT CITY, BNAME, TOTAL\_BALANCE FROM CityBranchSums WHERE rnk = 1;