SQL exercises, based on dreamhome database

Database system:

1. Login to mysql database server imc.kean.edu using xxx account
2. Switch to database dreamhome
3. Show all tables in dreamhome database
4. Show the table structure (column name, datatype, keys, etc) of Staff table

SELECT:

5. Show all the rows and all the columns of Staff table
6. Produce a list of salaries for all staff, showing only the staff number, the first and last names, and the salary details.
7. List full details of all hotels in London.
8. List the unique property numbers of all properties that have been viewed.
9. Write a SQL query to list the staff who work in London. Please show their first name, last name and branchno.
10. Produce a list of monthly salaries for all staff, showing the staff number, the first and last names, and the salary details.
11. List all staff with a salary greater than $10,000.
12. Write a SQL query to display the name for vendor lives in New York with zipcode 07811. (refer to A_Vendors)
13. Write a SQL query to list the unique position for female staff with salary less than 10000.
14. List the addresses of all branch offices in London or Glasgow.
15. Write a SQL query to display product names that make profit < 20. (refer to A_Products)
16. List all staff with a salary between $20,000 and $30,000.
17. List all managers and supervisors.
18. What is the output of the following SQL query?
    SELECT clientno, propertyno FROM Viewing WHERE comment!='';
19. List all double or family rooms with a price below 40.00 per night, in ascending order of price.
20. Find all owners with the string 'Glasgow' in their address.
21. Write a SQL query to display the total number of Customers living in Union.
22. List the details of all viewings on property PG4 where a comment has not been supplied.
23. Produce a list of salaries for all staff, arranged in descending order of salary.
24. Produce an abbreviated list of properties arranged in order of property type.
25. List the names and addresses of all guests in London, alphabetically ordered by name.

AGGREGATE FUNCTIONS, GROUP BY:

26. Write a SQL query to display the number of unique products been reviewed (A_Reviews table)**.**
27. Write a SQL query to display the total salary of all staff.
28. What is the output of the following SQL query?
    SELECT max(price) as myMax FROM Room WHERE type='family';
29. What is the output of the following SQL query?
    SELECT type, count(*) as ct,max(price) FROM Room group by type having ct > 3;
30. Write a SQL query to list the unique branchno that branch has at least two female staff.
31. Write a SQL query to display the total revenues of all products. The output column name should be "revenue".
32. Write the SQL query to show the branchno and the maximum salary for each branch in the Staff table. The output should be sorted from low to high based on the max salary of each branch.
33. Can we run the following SQL query without any problem?
    SELECT fname FROM Staff WHERE salary > max(salary);
34. Write a SQL query to find the staff name (first name, last name) who has salary higher than the average salary of branchno ='B003';
35. Write the SQL query to find how many properties cost more than $350 per month to rent?
36. How many different properties were viewed in May 2013?
37. Find the total number of Managers and the sum of their salaries.
38. Find the minimum, maximum, and average staff salary.
39. What is the total **revenue** per night from all **double** type rooms if all rooms are booked?
40. Find the number of staff working in each branch and the sum of their salaries.

41. For each branch office with more than one member of staff, find the number of staff working in each branch and the sum of their salaries.
42. List the hotel name and the number of rooms in each hotel.
43. What is the output of the following SQL statement?
    SELECT count(comment) FROM Viewing;
44. Show the total revenue per night for the double type room if all rooms are booked.

SUBQUERY:

45. Can we run the following query without any problem?
    SELECT city FROM Branch WHERE branchNo = (SELECT branchNo FROM Staff where sex='F');
46. What is the output of the following SQL query?
    SELECT c.name FROM A_Customers c WHERE c.id NOT in (SELECT c_id FROM A_Reviews);
47. What is the output of the following SQL query?
    SELECT count(distinct(city)) as myCt FROM Hotel WHERE hotelno in (SELECT hotelno FROM Room WHERE type='single');
48. Write a SQL query to display the staffno and working branch city for the staff who has the lowest salary.
49. List the staff who work in the branch at '163 Main St'.
50. List all guests staying at the Grosvenor Hotel from April 1st to August 31st, 2004.
51. List all staff whose salary is greater than the average salary, and show by how much their salary is greater than the average.
52. List the properties that are handled by staff who work in the branch at '163 Main St'.
53. Find all staff whose salary is larger than the salary of at least one member of staff at branch B003.
54. Find all staff whose salary is larger than the salary of every member of staff at branch B003.
55. Write a SQL query to show client names who didn't give reviews (Viewing table).
56. What is the most commonly booked room type for each hotel in London?
57. Write a SQL query to display the cheapest product name (A_Products table) and its price.

(INNSER) JOIN

58. How many rows and columns will be generated from the following SQL query?
    SELECT * FROM A_Students, A_Courses;
59. Write a SQL statement to show the product names provided by vendor "James".
    (refer to A_Products, A_Vendors tables)
60. Write a SQL query to show the first name who works at London and has salary higher than 10000.
61. List the names of all clients who have viewed a property, along with any comments supplied.
62. Write a SQL query to list employee names (first name, last name) and their supervisor names. The output header must clearly indicates who is employee and Supervisor. (refer to A_Employee table)
63. For each branch office, list the staff numbers and names of staff who manage properties and the properties that they manage.
64. For each branch, list the staff numbers and names of staff who manage properties, including the city in which the branch is located and the properties that the staff manage.
65. Display the product names and the comments that customer BJ1 gave.
    (refer to A_Cusomters, A_Reviews, A_Products)
66. Find the number of properties handled by each staff member, along with the branch number of the member of staff.
67. List all branch offices and any properties that are in the same city.
68. List all properties and any branch offices that are in the same city.
69. List the branch offices and properties that are in the same city along with any unmatched branches or properties.
70. Find all staff who work in a London branch office.

OUTER JOIN:

71. How many rows will be generated from the following SQL statement:
    SELECT * FROM Staff s RIGHT JOIN Branch b ON s.branchno=b.branchno;
72. Write a SQL query to display **all customer names** (A_Customers) and their number of Reviews (A_Reviews). If a customer didn't give review, his/her number of review will be 0. The output should have customer name in alphabetic order from A to Z.

SET (UNION, INTERSECT, EXCEPT):

73. Construct a list of all cities where there is either a branch office or a property.
74. Construct a list of all cities where there is both a branch office and a property.
75. Write a SQL query to find the vendor names not providing any products.
    (refer to A_Vendors, A_Products tables)
76. Construct a list of all cities where there is a branch office but no properties.

INSERT:

77. Insert a new row into the Staff table supplying data for all columns.
78. Insert a new row into the Staff table supplying data for all mandatory columns: staffNo, fName, lName, position, salary, and branchNo.
79. Assume that there is a table StaffPropCount that contains the names of staff and the number of properties they manage: StaffPropCount(staffNo, fName, lName, propCount)
    Write a SQL to populate the StaffPropCount table using details from the Staff and PropertyForRent tables.

UPDATE:

80. Give all staff a 3% pay increase.
81. Give all Managers a 5% pay increase. (Refer to Staff table)
82. Promote David Ford (staffNo = 'SG14') to Manager and change his salary to $18,000. (Refer to Staff table)

DELETE:

83. Delete all viewings that relate to property PG4.
84. Delete all rows from the Viewing table.
85. Delete the record that has the NULL value in QTY field in the A_Sales table.
86. Create the Staff table with proper data type for each field and staffno is the primary key, branchno is a foreign key reference to the primary key branchno in the Branch table. All the fields cannot be NULL.

ALTER:

87. Add a new column TEL varchar(20) to the staff table;
88. Change the Staff table by removing the default of 'Assistant' for the position column and setting the default for the sex column to female ('F').

VIEW:

89. Create a view vTest listing all double or family rooms with a price below 40.00 per night, in ascending order of price.
90. Create a view vTest to list the number of rooms in each hotel.
91. Create a view vTest to list the hotel name and the total number of rooms with price per room below 40.00 per night.
92. Create a view so that the manager at branch B003 can see the details only for staff who work in his or her branch office.
93. Create a view of the staff details at branch B003 that excludes salary information, so that only managers can access the salary details for staff who work at their branch.
94. Create a view vTest to show the first name and the working city for staff who was born after January first 1960.
95. Create a view vTest to find the total revenue per night for each hotel and the revenue is higher than 85 dollars. Assume all rooms are booked. Your output needs to show the hotel name and the amount of revenue.
96. Create a view of staff who manage properties for rent, which includes the branch number they work at, their staff number, and the number of properties they manage.

GRANT, REVOKE:

97. Give the user with authorization identifier Manager all privileges on the Staff table.
98. Give users Personnel and Director the privileges SELECT and UPDATE on column salary of the Staff table.
99. Give user xyz from IP '10.20.30.40' the privileges SELECT on column salary of the Staff table.
100. Remove user xyz's SELECT privilege from test the test table.
101. Remove user xyz's all privileges from test the test table.

DROP:

102. Remove a table Data from the database.
103. Remove a view vData from the database.

104. Remove a stored procedure pTest() from the database.
105. Remove a stored function fTest() from the database.
106. Remove a user xyz from the database.

SQL Syntax and runtime issues:

107. Can the following SQL be run without error? SELECT staffNo, COUNT(salary) FROM Staff;
108. Is the following view updatable? CREATE VIEW vTest AS SELECT count(*) as ct FROM Staff;
109. Is the following view updatable? CREATE VIEW vTest AS SELECT fname, lname as ct FROM Staff;
110. Is the following view updatable? CREATE VIEW vTest AS SELECT distinct branchno FROM Staff;
111. Is the following view updatable?
     CREATE VIEW vTest AS SELECT sex FROM Staff GROUP BY sex;
112. Is the following view updatable?
     CREATE VIEW vTest AS SELECT branchno, sum(salary) FROM Staff GROUP BY branchno;
113. Is the following view updatable?
     CREATE VIEW vTest AS SELECT staffno,salary from Staff order by salary;

VARIABLE, ASSIGNMENTS, COMPARISON:

114. What is the output for the following SQL:
     SELECT 2=2,3=2,1=NULL, NULL=NULL, NULL IS NULL;
115. What is the output for the following SQL:
     SELECT @a1:=3, @a2=4, @a3=@a2+1;
116. What is the output for the following SQL:
     SELECT @a1:=3, @a2:=4, @a3:=@a2+@a1;
117. What is the output for the following SQL:
     SELECT null and 1, null and 0, 1 and 0, null or 1, null or 0, 1 or 0, not null;

STORED ROUTINES:

118. Write the SQL statement to run a stored function named fMaxSalary()which will return the staff's highest salary.
119. Write a stored function named fMaxSalary() which will return the staff's highest salary.
120. Write a stored function named fMaxSalary(bno) which will return the staff's highest salary for a given branch no bno.
121. Write a stored function named fMaxSalary(n) which will return the staff's highest salary for a given input that is a partial string in the first name field.
122. Write the SQL statement to run a stored procedure named **pGetNames**() which will display the Staff's first name and last name who work at branch located at a given city 'London'.
123. Write a stored procedure named **pGetNames (bcity)** which will display the Staff's first name and last name who work at branch located at a given city bcity.
124. Write a stored procedure named **pGetNames (bcity)** which will display the Staff's first name and last name who work at branch located at a given city bcity. If the bcity is empty '', please print a message saying "The input city cannot be empty."

```
call pGetNames('');
+----------------------------+
| message                    |
+----------------------------+
| Input city cannot be empty. |
+----------------------------+
```

```
call pGetNames('London');
+-------+-------+
| fname | lname |
+-------+-------+
| John  | White |
| Julie | Lee   |
+-------+-------+
```