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--=============================================================================
--============================= CIS310 ASSIGNMENT 8 ===========================
--=============================================================================

/*
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SUBMISSION DATE: 04/07/2024


--** YOU MUST USE THE PROPER JOIN KEYWORD FOR TABLE JOINS. Or the query will be considered unexecutable**
--** e.g. INNER JOIN/LEFT OUTER JOIN/RIGHT JOIN/ CROSS JOIN**

For each of the following business question, PROVIDE THE SQL Query that adequtely output the requested information
**These queries are based on STAYWELL DB Tables and their data contents**
**The Expected Output Tables are at the end of file, to help you check your queries**

Grading:
Proper Code Formatting is 20% of homework grade
Executable code can earn up to 100% of the grade
Unexecutable code can only earn up to a max of 50% of the grade
*/


--=============================================================================
--============================= CIS310 ASSIGNMENT 8 ===========================
--=============================================================================
--==================================SOLUTION===================================
--=============================================================================


--1.        For every property, list the management office number, property address, monthly rent,
--owner number, owner's first name, and owner's last name.
SELECT O.OFFICE_NUM, P.ADDRESS, P.MONTHLY_RENT, P.OWNER_NUM, OW.FIRST_NAME, OW.LAST_NAME
        FROM OFFICE O INNER JOIN PROPERTY P ON O.OFFICE_NUM = P.OFFICE_NUM
                INNER JOIN OWNER OW ON P.OWNER_NUM = OW.OWNER_NUM;


--2.        For every service request for 'Furniture Replacement', list the property ID,
--management office number, address, estimated hours, spent hours, owner number,
--and owner's last name.
--HINT: similar to last homework, be sure to use the specified keyword phrases in your querying (nested query)
SELECT P.PROPERTY_ID, P.OFFICE_NUM, P.ADDRESS, S.EST_HOURS, S.SPENT_HOURS, O.OWNER_NUM, O.LAST_NAME
        FROM PROPERTY P
                WHERE PROPERTY_ID IN (SELECT PROPERTY_ID
                                                                FROM SERVICE_REQUEST S
                                                                        WHERE DESCRIPTION = 'Furniture Replacement'
                                                                        AND P.PROPERTY_ID = S.PROPERTY_ID);

--3.        List the owner's id, first and last names of all owners who own a two-bedroom property.
--Use the IN operator in your query.
SELECT OWNER_NUM, FIRST_NAME, LAST_NAME
        FROM OWNER
                WHERE OWNER_NUM IN (SELECT OWNER_NUM
                                                                FROM PROPERTY
                                                                        WHERE BDRMS = 2);

--4.        Repeat above request, but this time use the EXISTS operator in your query.
SELECT OWNER_NUM, FIRST_NAME, LAST_NAME
        FROM OWNER O
                WHERE EXISTS (SELECT *
                                                        FROM PROPERTY P
                                                                WHERE BDRMS = 2
                                                                AND O.OWNER_NUM = P.OWNER_NUM);

--5.        List the property IDs of any pair of properties that have the same number of bedrooms.
--For example, one pair would be property ID 2 and property ID 6,
--because they both have four bedrooms. The first property ID listed should be the major sort key
--and the second property ID should be the minor sort key.
SELECT DISTINCT P1.PROPERTY_ID, P2.PROPERTY_ID, P1.BDRMS
        FROM PROPERTY AS P1
                INNER JOIN PROPERTY AS P2 ON P1.BDRMS = P2.BDRMS
                        ORDER BY P1.PROPERTY_ID, P2.PROPERTY_ID ASC;


--6.        List the office number, address, and monthly rent for properties
--whose owners live in Washington State or own two-bedroom properties.
SELECT OFFICE_NUM, ADDRESS, MONTHLY_RENT
        FROM PROPERTY
                WHERE BDRMS = 2 OR
                OWNER_NUM IN (SELECT OWNER_NUM
                                                        FROM OWNER
                                                                WHERE STATE = 'WA');

--7.        List the office number, address, monthly rent, bedroom count, and state for properties
--whose owners live in Washington State but do not own two-bedroom properties.
```

```sql
SELECT OFFICE_NUM, ADDRESS, MONTHLY_RENT, BDRMS
        FROM PROPERTY
                WHERE BDRMS != 2 AND OWNER_NUM IN (SELECT OWNER_NUM
                                                                                                FROM OWNER
                                                                                                        WHERE STATE = 'WA');


--8.        Find the service ID and property ID for each service request
--whose estimated hours is greater than the number of estimated hours of at least
--one service request on which the category number is 5.
--MUST USE ANY/ALL OPERATOR
SELECT SERVICE_ID, PROPERTY_ID
        FROM SERVICE_REQUEST
                WHERE EST_HOURS > ALL (SELECT MIN (EST_HOURS)
                        FROM SERVICE_REQUEST
                                WHERE CATEGORY_NUMBER = 5);


--9.        List the address, square footage, owner number, service ID, number of estimated hours,
--and number of spent hours for each service request on which the category number is 4.
SELECT P.ADDRESS, P.SQR_FT, P.OWNER_NUM, S.SERVICE_ID, S.EST_HOURS, S.SPENT_HOURS, S.CATEGORY_NUMBER
        FROM SERVICE_REQUEST S
                INNER JOIN PROPERTY P ON P.PROPERTY_ID = S.PROPERTY_ID
                        WHERE S.CATEGORY_NUMBER = 4;


--10.        Output the same list of information above request, but this time be sure each property is included
--regardless of whether the property currently has any service requests.
--*Hint: Consider a different join type.
SELECT P.ADDRESS, P.SQR_FT, P.OWNER_NUM, S.SERVICE_ID, S.EST_HOURS, S.SPENT_HOURS, S.CATEGORY_NUMBER
        FROM SERVICE_REQUEST S
                RIGHT OUTER JOIN PROPERTY P ON P.PROPERTY_ID = S.PROPERTY_ID
                AND S.CATEGORY_NUMBER = 4;




--============================================================================
--========================== Expected Output Tables ==========================
--=============Best used *AFTER* you've come up with your queries ============
--============================================================================



/*
Q1:
OFFICE_NUM        ADDRESS                        MONTHLY_RENT        OWNER_NUM        FIRST_NAME        LAST_NAME
1                30 West Thomas Rd.        1400                BU106                Ernest                Burke
1                782 Queen Ln.                1900                AK102                Ceyda                Aksoy
1                9800 Sunbeam Ave.        1200                BI109                Nicole                Bianchi
1                105 North Illinois Rd.        1650                KO104                Jakub                Kowalczyk
1                887 Vine Rd.                1160                SI105                Haydon                Sims
1                8 Laurel Dr.                2050                MO100                Elle-May        Moore
2                447 Goldfield St.        1700                CO103                Meerab                Cole
2                594 Leatherwood Dr.        2750                KO104                Jakub                Kowalczyk
2                504 Windsor Ave.        1050                PA101                Makesh                Patel
2                891 Alton Dr.                1600                LO108                Janine                Lopez
2                9531 Sherwood Rd.        1100                JO110                Ammarah                Jones
2                2 Bow Ridge Ave.        1700                RE107                Seth                Redman



Q2:
PROPERTY_ID        OFFICE_NUM        ADDRESS                        EST_HOURS        SPENT_HOURS        OWNER_NUM        LAST_NAME
12                2                2 Bow Ridge Ave.        2                0                RE107                Redman

OWNER_NUM        LAST_NAME
BI109                Bianchi
JO110                Jones
PA101                Patel
SI105                Sims

Q3:
OWNER_NUM        FIRST_NAME        LAST_NAME
BI109                Nicole                Bianchi
JO110                Ammarah                Jones
PA101                Makesh                Patel
SI105                Haydon                Sims

Q4:
OWNER_NUM        FIRST_NAME        LAST_NAME
BI109                Nicole                Bianchi
JO110                Ammarah                Jones
PA101                Makesh                Patel
SI105                Haydon                Sims

Q5:
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```
PROPERTY_ID        PROPERTY_ID        BDRMS
1                  4                  3
1                  7                  3
1                  10                 3
1                  12                 3
2                  6                  4
3                  5                  2
3                  9                  2
3                  11                 2
4                  7                  3
4                  10                 3
4                  12                 3
5                  9                  2
5                  11                 2
7                  10                 3
7                  12                 3
9                  11                 2
10                 12                 3

Q6:
OFFICE_NUM         ADDRESS                        MONTHLY_RENT
1                  105 North Illinois Rd.         1650
1                  782 Queen Ln.                  1900
1                  887 Vine Rd.                   1160
1                  9800 Sunbeam Ave.              1200
2                  2 Bow Ridge Ave.               1700
2                  447 Goldfield St.              1700
2                  504 Windsor Ave.               1050
2                  594 Leatherwood Dr.            2750
2                  891 Alton Dr.                  1600
2                  9531 Sherwood Rd.              1100


Q7:
OFFICE_NUM         ADDRESS                        MONTHLY_RENT         BDRMS         STATE
1                  105 North Illinois Rd.         1650                 3             WA
1                  782 Queen Ln.                  1900                 4             WA
2                  2 Bow Ridge Ave.               1700                 3             WA
2                  447 Goldfield St.              1700                 3             WA
2                  594 Leatherwood Dr.            2750                 5             WA
2                  891 Alton Dr.                  1600                 3             WA

Q8:
SERVICE_ID         PROPERTY_ID
5                  8
6                  4
8                  9

Q9:
ADDRESS                        SQR_FT         OWNER_NUM         SERVICE_ID         EST_HOURS         SPENT_HOURS         CATEGORY_NUMBER
30 West Thomas Rd.             1600           BU106             2                  1                 0                   4
782 Queen Ln.                  2100           AK102             4                  1                 0                   4


Q10:
ADDRESS                        SQR_FT         OWNER_NUM         SERVICE_ID         EST_HOURS         SPENT_HOURS         CATEGORY_NUMBER
30 West Thomas Rd.             1600           BU106             2                  1                 0                   4
782 Queen Ln.                  2100           AK102             4                  1                 0                   4
782 Queen Ln.                  2100           AK102             7                  1                 0                   2
9800 Sunbeam Ave.              1005           BI109             NULL               NULL              NULL                NULL
105 North Illinois Rd.         1750           KO104             6                  4                 2                   1
887 Vine Rd.                   1125           SI105             NULL               NULL              NULL                NULL
8 Laurel Dr.                   2125           MO100             3                  3                 1                   5
447 Goldfield St.              1675           CO103             NULL               NULL              NULL                NULL
594 Leatherwood Dr.            2700           KO104             5                  10                0                   3
504 Windsor Ave.               700            PA101             8                  6                 2                   1
891 Alton Dr.                  1300           LO108             NULL               NULL              NULL                NULL
9531 Sherwood Rd.              1075           JO110             1                  2                 1                   2
2 Bow Ridge Ave.               1400           RE107             9                  2                 0                   6


*/
```