

Instance of the *DreamHome* rental database.

Branch

Bno	Street	Area	City	Pcode	Tel_No	Fax_No
B5	22 Deer Rd	Sidcup	London	SW1 4EH	0171-886-1212	0171-886-1214
B7	16 Argyll St	Dyce	Aberdeen	AB2 3SU	01224-67125	01224-67111
B3	163 Main St	Partick	Glasgow	G11 9QX	0141-339-2178	0141-339-4439
B4	32 Manse Rd	Leigh	Bristol	BS99 1NZ	0117-916-1170	0117-776-1114
B2	56 Clover Dr		London	NW10 6EU	0181-963-1030	0181-453-7992

National Insurance Number

Staff

Sno	FName	LName	Address	Tel_No	Position	Sex	DOB	Salary	NIN	Bno
SL21	John	White	19 Taylor St, Cranford, London	0171-884-5112	Manager	M	01/10/1980	30000	WK442011B	B5
SG37	Ann	Beech	81 George St, Glasgow PA1 2JR	0141-848-3345	Snr Asst	F	10/11/1960	12000	WL432514C	B3
SG14	David	Ford	63 Ashby St, Partick, Glasgow G11	0141-339-2177	Deputy	M	24/03/1970	18000	WL220658D	B3
SA9	Mary	Howe	2 Elm Pl, Aberdeen AB2 3SU		Assistant	F	19/02/1992	9000	WM532187D	B7
SG5	Susan	Brand	5 Gt Western Rd, Glasgow G12	0141-334-2001	Manager	F	03/06/1977	24000	WK588932E	B3
SL41	Julie	Lee	28 Malvern St, Kilburn NW2	0181-554-3541	Assistant	F	13/06/1995	9000	WA290573K	B5

Property_For_Rent

Pno	Street	Area	City	Pcode	Type	Rooms	Rent	Ono	Sno	Bno
PA14	16 Holhead	Dee	Aberdeen	AB7 5SU	House	6	650	CO46	SA9	B7
PL94	6 Argyll St	Kilburn	London	NW2	Flat	4	400	CO87	SL41	B5
PG4	6 Lawrence St	Partick	Glasgow	G11 9QX	Flat	3	350	CO40	SG14	B3
PG36	2 Manor Rd		Glasgow	G32 4QX	Flat	3	375	CO93	SG37	B3
PG21	18 Dale Rd	Hyndland	Glasgow	G12	House	5	600	CO87	SG37	B3
PG16	5 Novar Dr	Hyndland	Glasgow	G12 9AX	Flat	4	450	CO93	SG14	B3

Yearly Salary

Renter

Rno	FName	LName	Address	Tel_No	Pref_Type	Max_Rent	Bno
CR76	John	Kay	56 High St, Putney, London SW1 4EH	0171-774-5632	Flat	425	B5
CR56	Aline	Stewart	64 Fern Dr, Pollock, Glasgow G42 0BL	0141-848-1825	Flat	350	B3
CR74	Mike	Ritchie	18 Tain St, Gourrock PA1G 1YQ	01475-392178	House	750	B3
CR62	Mary	Tregear	5 Tarbot Rd, Kildary, Aberdeen AB9 3ST	01224-196720	Flat	600	B7

Owner

Ono	FName	LName	Address	Tel_No
CO46	Joe	Keogh	2 Fergus Dr, Banchory, Aberdeen AB2 7SX	01224-861212
CO87	Carol	Farrel	6 Achray St, Glasgow G32 9DX & 9DY	0141-357-7419
CO40	Tina	Murphy	63 Well St, Shawlands, Glasgow G42	0141-943-1728
CO93	Tony	Shaw	1/2 Park Pl, Hillhead, Glasgow G4 0QR	0141-225-7025

Monthly Rental

Viewing

Rno	Pno	VDate	VComment
CR56	PA14	24-May-98	too small
CR76	PG4	20-Apr-98	too remote
CR56	PG4	26-May-98	
CR62	PA14	14-May-98	no dining room
CR56	PG36	28-Apr-98	

Branch (Bno, Street, Area, City, Pcode, Tel_No, Fax_No)

Staff (Sno, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)

Property_For_Rent (Pno, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)

Renter (Rno, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)

Owner (Ono, FName, LName, Address, Tel_No)

Viewing (Rno, Pno, VDate, VComment)

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)

Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)

Property_For_Rent(**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)

Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)

Owner (**Ono**, FName, LName, Address, Tel_No)

Viewing (**Rno**, **Pno**, VDate, VComment)

Consider the above DreamHome rental database, write a Structured Query Language (SQL) statement for each of the following operations:

Retrieve All Columns, All Rows

Q01. List full details of all staff.

Retrieve Specific Columns, All Rows

Q02. List staff number, first name, last name and salary details for all staff.

Retrieve Specific Columns, Some Rows

Q03. List staff number, first name, last name and salary details for staff with staff number'SL21'.

Calculate Fields

Q04. Produce a list of monthly salaries for all staff, showing the staff number, first name, last name and the salary details.

Sorting Results (Ascending - ASC)

Q05. Produce a list of salaries for all staff, arranged in ascending order of salary.

Sorting Results (Descending - DESC)

Q06. Produce a list of salaries for all staff, arranged in descending order of salary.

Sorting Results (Multiple Columns)

Q07. Produce an abbreviated list of properties arranged in order of property type and in descending order of rent within the same property type.

Joining Database Tables (Retrieve Data)

Q08. List the names of all renters who have viewed a property along any comment supplied.

Joining Database Tables (Check Condition)

Q09. List the staff who work in the branch at street '163 Main St'.

Joining Database Tables (Sorting Results – 2Tables)

Q10. For each branch office, list the names of staff who manage properties, and the properties they manage. Arrange the branch number, staff number and property number in ascending order.

Joining Database Tables (Sorting Results –3 Tables)

Q11. For each branch, list the staff who manage properties, including the city in which the branch is located and the properties they manage. Arrange the branch number, staff number and property number in ascending order.

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)
Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)
Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)
Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)
Owner (**Ono**, FName, LName, Address, Tel_No)
Viewing (**Rno**, **Pno**, VDate, VComment)

Using Comparison Operator on Character Field

Q12. List all staff with a staff number less than or equal to 'SG37'.

Using Comparison Operator on Numeric Field

Q13. List all staff with a salary greater than \$10000.

Using Comparison Operator on Date Field

Q14. List the details of all viewings made on May 1998.

Logical Operators (OR)

Q15. List the address of all branch offices in 'London' or 'Glasgow'.

Logical Operators (AND)

Q16. List the address of branch office in Sidcup, London.

Logical Operators (NOT)

Q17. List all staff with a staff number that not equal to 'SG37'.

Logical Operators (AND, OR)

Q18. List all female managers and assistants.

Special Operators (DISTINCT)

Q19. List the property numbers of all properties that have been viewed.

Special Operators (BETWEEN)

Q20. List all staff with a salary between \$20000 and \$30000.

Special Operators (NOT BETWEEN)

Q21. List all staff with a salary not between \$20000 and \$30000.

Special Operators (IS NULL)

Q22. List the details of all viewings on property PG4 where a comment has not been supplied.

Special Operators (IS NOT NULL)

Q23. List the details of all viewings on property PG4 where a comment has been supplied.

Special Operators (LIKE)

Q24. Find all staff with the string 'Glasgow' in their address.

Special Operators (NOT LIKE)

Q25. List all owner details without the starting string '0141-' in their telephone number.

Special Operators (IN / EXISTS) - Subquery

Q26. List the staff who work in the branch at street '163 Main St' or '22 Deer Rd'.

Special Operators (NOT IN / NOT EXISTS) - Subquery

Q27. Find all the staff that not handles any property.

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)
Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)
Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)
Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)
Owner (**Ono**, FName, LName, Address, Tel_No)
Viewing (**Rno**, **Pno**, VDate, VComment)

Aggregate Functions: COUNT (*)

Q28. How many properties cost more than \$350 per month to rent?

Aggregate Functions: COUNT (DISTINCT)

Q29. How many different properties were viewed in May 1998?

Aggregate Functions: COUNT(), SUM()

Q30. Find the total number of Managers and the sum of their salaries.

Aggregate Functions: SUM (Expression)

Q31. Project the total amount of monthly rental collections before and after 10% increment, and include the different value between them, if all the properties are rented out.

Aggregate Functions: MIN(), MAX(), AVG()

Q32. Find the minimum, maximum and average staff salary.

Aggregate Functions: Subqueries - MAX()

Q33. List the staff number, first name, last name, position and salary of staff who get the highest salary.

Aggregate Functions: Subqueries - MIN()

Q34. List the staff number, first name, last name and his/her monthly salary which is the lowest.

Aggregate Functions: Subqueries - AVG()

Q35. List all staff whose salary is greater than the average salary, and list by how much their salary is greater than average.

Grouping Result: GROUP BY – Single Grouping Column

Q36. Find the number of staff working in each branch and the sum of their salaries. Arrange the result in ascending order of branch number.

Grouping Result: GROUP BY – Multiple Grouping Columns

Q37. Find the number of properties handled by each staff member from different branches. Arrange the result in ascending order of branch number and staff number.

Restricting GROUP BY Using HAVING

Q38. For each branch office with more than one member of staff, find the number of staff working in the branch and the sum of their salaries. Arrange the result in ascending order of branch number.

Special Function (TRUNC()): Cut off the decimal point)

Q39. List all the staff name and his/her age between the age of 30 to 50 years old.

Special Function (EXTRACT()): Extract the value)

Q40. List all the staff name (full name = first name + last name) and his/her age that more than 21 years old.

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)

Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)

Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)

Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)

Owner (**Ono**, FName, LName, Address, Tel_No)

Viewing (**Rno**, **Pno**, VDate, VComment)

Special Keyword (ROWNUM)

Q41. List the top 3 highest salary' staff with their staff number, first name, last name and salary amount.

EXTRA EXERCISE (Homework):

E01. List all the staff with his/her staff number, staff name and position who work at London.

E02. For each staff, list the staff number, first name, last name, number of property handled for those staff that handles any properties.

E03. For each staff, list the staff number, first name, last name, number of property handled for those staff that handles more than 1 property.

E04. For each staff, list the staff number, first name, last name for those staff that did not handles any properties.

E05. For each staff, list the staff number, first name, last name, number of property handled for those staff that handles any properties. Arrange your output for number of property handled in descending order.

E06. For each staff, list the staff number, first name, last name, number of property handled for those staff that handles more than 1 property. Arrange your output for first name in ascending order.

E07. List the renter number, renter name, property number, property address, property owner name, date viewed and comment for property that being viewed.

E08. For each branch, list the branch number, branch city and its total monthly salary for all its staff.

E09. For each branch, list the branch number, branch city and its total monthly salary for all its staff which more than 3000.

E10. List all the staff name and his/her age between the age of 40 to 60 years old and the salary between 5,000 to 20,000.

E11. List all the area and city of branch with post code that end with 'H','U','X'.

E12. List all staff details with the salary more than or equals to average.

E13. How many staff earn more than David Ford.

E14. Find the different between the higher salary and lowest salary.

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)
Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)
Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)
Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)
Owner (**Ono**, FName, LName, Address, Tel_No)
Viewing (**Rno**, **Pno**, VDate, VComment)

Single Row Insertion (INSERT INTO VALUES): Supply all values

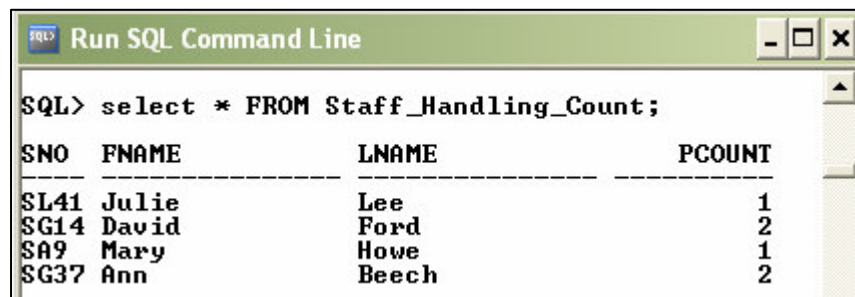
Q42. Insert a new record into the staff table supplying data for all columns.

Single Row Insertion (INSERT INTO VALUES): Supply some values

Q43. Insert a new record into the staff table supplying data for all mandatory columns: Sno, FName, LName, Position, Sex, Salary and Bno.

Multiple Rows Insertion (INSERT INTO SELECT)

Q44. Populate the Staff_Handling_Count table using details from the Staff and Property_For_Rent tables.



The screenshot shows a window titled "Run SQL Command Line" with a green header. The command entered is "SQL> select * FROM Staff_Handling_Count;". The results are displayed in a table with four columns: SNO, FNAME, LNAME, and PCOUNT. The data rows are: SL41 Julie Lee 1, SG14 David Ford 2, SA9 Mary Howe 1, and SG37 Ann Beech 2.

SNO	FNAME	LNAME	PCOUNT
SL41	Julie	Lee	1
SG14	David	Ford	2
SA9	Mary	Howe	1
SG37	Ann	Beech	2

NOTE: Assume Staff_Handling_Count table already created in DreamHome database.

UPDATE All Rows

Q45. Give all staff a 3% pay increase.

UPDATE Specific Rows

Q46. Give all managers a 5% pay increase.

UPDATE Multiple Columns

Q47. Promote David Ford (Sno = 'SG14') to manager and change his salary to RM 18000.

UPDATE By Reference

Q48. Give all staff that works at London a 5% pay increase.

DELETE All Rows

Q49. Delete all records from the viewing table.

DELETE Specific Rows

Q50. Delete all viewings that relate to property PG4.

DELETE By Reference

Q51. Delete all viewings that relate to any property at Glasgow.

ALTER TABLE: Changing Column Characteristics

Q52. Change the characteristic of Tel_No attribute on Branch table from VARCHAR(13) to VARCHAR(14).

Branch (Bno, Street, Area, City, Pcode, Tel_No, Fax_No)
Staff (Sno, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)
Property_For_Rent (Pno, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)
Renter (Rno, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)
Owner (Ono, FName, LName, Address, Tel_No)
Viewing (Rno, Pno, VDate, VComment)

ALTER TABLE: Adding a Column to the Table

Q53. Add the Branch_Email attribute on Branch table with data type VARCHAR(50).

ALTER TABLE: Dropping a Column from the Table

Q54. Delete the Fax_No attribute on Branch table.

ALTER TABLE: Set and Drop the Default Value

Q55. Change the Staff table by removing the default of 'M' for the Sex column and setting the default for the Position column to 'Assistant'.

DROP TABLE: Removing the Table

Q56. Delete the Branch table.