

SQL

Loan Analysis

Find the total number of individuals who are married

```
SELECT
    COUNT(*) AS married_Count
FROM
    loan_data
WHERE
    Marriage_status = 'married'
;
```

married_Count
333

List all distinct professions from the dataset.

```
SELECT DISTINCT  
    (profession)  
FROM  
    loan_data;
```

profession
Civil_servant
Librarian
Economist
Flight_attendant
Architect
Designer
Physician
Financial_Analyst
Air_traffic_controller
Politician
Police_officer
Artist
Surveyor
Design_Engineer
Chemical_engineer
Hotel_Manager
Dentist

Find all records where the Car Owner status is yes

```
SELECT
*
FROM
loan_data
WHERE
Car_Ownership = 'yes';
```

Id	Income	Age	Experience	Marriage_status	House_Ownership	Car_Ownership	Profession	CITY	STATE	CURRENT_JOB_YRS	CURRENT_HO
4	6256451	41	2	single	rented	yes	Software_Developer	Bhubaneswar	Odisha	2	12
9	7566849	24	17	single	rented	yes	Flight_attendant	Kota[6]	Rajasthan	11	11
16	5694236	39	2	married	rented	yes	Economist	Anantapuram[24]	Andhra_Pradesh	2	10
23	9157379	72	13	single	rented	yes	Design_Engineer	Ajmer	Rajasthan	9	10
31	3939397	52	19	single	rented	yes	Flight_attendant	Chennai	Tamil_Nadu	3	10
34	5023035	26	10	single	rented	yes	Petroleum_Engineer	Madurai	Tamil_Nadu	9	13
41	3217258	23	12	single	rented	yes	Petroleum_Engineer	Hospet	Karnataka	8	10
50	4043791	48	18	single	rented	yes	Architect	Malda	West_Bengal	13	14
62	8773158	58	18	single	rented	yes	Firefighter	Serampore	West_Bengal	5	13
63	9724250	67	17	single	rented	yes	Dentist	Bathinda	Punjab	3	13
64	1729774	28	6	married	rented	yes	Technical_writer	Nadiad	Gujarat	5	10
65	6178223	46	19	single	owned	yes	Architect	Kanpur	Uttar_Pradesh	11	13
68	9576258	79	18	single	rented	yes	Air_traffic_controller	Jamshedpur	Jharkhand	6	11
74	9585696	42	13	single	rented	yes	Official	Anantapuram[24]	Andhra_Pradesh	3	13
75	2116007	24	5	single	rented	yes	Analyst	Suryapet	Telangana	5	13
76	3798306	42	11	single	rented	yes	Geologist	Aizawl	Mizoram	11	14



Find the average age of individuals who own a car.

```
SELECT
    AVG(Age) AS car_owners_avg_age
FROM
    loan_data
WHERE
    Car_Ownership = 'yes';
```

car_owners_avg_age
50.4739

Write a query to count how many people are "rented" vs "owned" in their house ownership status.

```
SELECT
    House_Ownership, COUNT(*) AS owner_status
FROM
    loan_data
GROUP BY House_Ownership;
```

House_Ownership	owner_status
rented	2800
norent_noown	83
owned	159

Find all professions where the average age of individuals is greater than 50.

```
SELECT
    Profession, AVG(age) AS avg_Age
FROM
    loan_data
GROUP BY Profession
HAVING AVG(age) > 50;
```

Profession	avg_Age
Mechanical_engineer	51.8235
Software_Developer	50.0820
Technical_writer	50.1690
Civil_servant	53.4200
Economist	51.6964
Designer	50.5833
Physician	51.3537
Financial_Analyst	52.6866
Air_traffic_controller	50.3623
Politician	50.2537
Artist	51.1481
Surveyor	50.2281
Design_Engineer	51.4898
Chemical_engineer	53.8077
Hotel_Manager	52.0806
Dentist	53.5000
Comedian	50.0139

Identify the state with the highest average income for individuals aged over 40.

```
SELECT
    state, AVG(Income) AS avg_income
FROM
    loan_data
WHERE
    age > 40
GROUP BY state
ORDER BY avg_income DESC
LIMIT 1;
```

state	avg_income
Sikkim	5817501.0000

Write a query to find the top 3 professions where the majority of individuals are unmarried.

```
SELECT
    Profession, COUNT(*) AS count
FROM
    loan_data
WHERE
    Marriage_status = 'Single'
GROUP BY Profession
ORDER BY count DESC
LIMIT 3;
```

Profession	count
Physician	78
Drafter	66
Flight_attendant	65

Create a query that combines multiple conditions: List individuals who are married, own a car, and live in Karnataka.

```
SELECT
    *
FROM
    loan_data
WHERE
    Marriage_status = 'married'
    AND Car_ownership = 'yes'
    AND state = 'karnataka';
```

Id	Income	Age	Experience	Marriage_status	House_Ownership	Car_Ownership	Profession	CITY	STATE	CURRENT_JOB_YRS	CURRENT_HOUSE_YRS
561	6298839	34	19	married	rented	yes	Petroleum_Engineer	Bidar	Karnataka	5	13
725	9855166	72	5	married	rented	yes	Drafter	Bidar	Karnataka	5	13
972	4136252	79	12	married	rented	yes	Fashion_Designer	Tumkur	Karnataka	12	14
1708	1896404	66	17	married	rented	yes	Designer	Davanagere	Karnataka	13	14
2846	3854933	59	10	married	rented	yes	Police_officer	Hospet	Karnataka	5	11

Create a query to calculate the total income for individuals who are both car and house owners, grouped by state.

```
SELECT
    House_Ownership,
    Car_Ownership,
    state,
    SUM(Income) AS total_income
FROM
    loan_data
WHERE
    House_Ownership = 'owned'
    AND Car_Ownership = 'yes'
GROUP BY state;
```

House_Ownership	Car_Ownership	state	total_income
owned	yes	Uttar_Pradesh	54982674
owned	yes	Tamil_Nadu	23269701
owned	yes	Bihar	25559081
owned	yes	West_Bengal	37023169
owned	yes	Maharashtra	34033941
owned	yes	Karnataka	13157964
owned	yes	Chhattisgarh	2174359
owned	yes	Madhya_Pradesh	18951039
owned	yes	Punjab	7198404
owned	yes	Andhra_Pradesh	5240177
owned	yes	Kerala	14337557
owned	yes	Odisha	7765949
owned	yes	Rajasthan	18523509
owned	yes	Haryana	4439374
owned	yes	Assam	191452
owned	yes	Gujarat	19507212
owned	yes	Jharkhand	6708498

Write a query that shows all individuals whose income is within 20% of the average income for their city.

SELECT

*

FROM

loan_data AS d

WHERE

Income BETWEEN (SELECT
AVG(income) * 0.8

FROM

loan_data

WHERE

city = d.city) AND (SELECT
AVG(income) * 1.2

FROM

loan_data


WHERE

city = d.city);

Id	Income	Age	Experience	Marriage_status	House_Ownership	Car_Ownership	Profession	CITY	STATE	CURRENT_JOB_YRS	CURRENT_HO
3	3991815	66	4	married	rented	no	Technical_writer	Alappuzha	Kerala	4	10
7	3954973	58	14	married	rented	no	Librarian	Tiruppur	Tamil_Nadu	8	12
11	4634680	78	7	single	rented	no	Flight_attendant	Hajipur[31]	Bihar	7	12
12	6623263	22	4	single	rented	no	Designer	Adoni	Andhra_Pradesh	4	14
16	5694236	39	2	married	rented	yes	Economist	Anantapuram[24]	Andhra_Pradesh	2	10
20	5431918	40	1	single	rented	no	Artist	Amaravati	Andhra_Pradesh	1	14
22	6506739	50	4	single	rented	no	Politician	Ahmedabad	Gujarat	4	11
27	6063428	38	6	married	rented	no	Dentist	Ambattur	Tamil_Nadu	6	13
30	4386333	31	16	single	rented	no	Physician	Shimoga	Karnataka	3	12
32	6944134	59	5	single	owned	no	Graphic_Designer	Gulbarga	Karnataka	5	11
33	4128828	21	10	single	rented	no	Computer_hard...	Khammam	Telangana	10	12
34	5023035	26	10	single	rented	yes	Petroleum_Engin...	Madurai	Tamil_Nadu	9	13
39	3540135	78	4	single	rented	no	Biomedical_Engin...	Howrah	West_Bengal	4	11

Using a subquery, find the cities where individuals have the highest average "experience" level.

```
SELECT
    MAX(avg_exprience)
FROM
    (SELECT
        AVG(Experience) AS avg_exprience
    FROM
        loan_data
    GROUP BY city) AS subquery;
```



MAX(avg_exprience)
15.2222

Find the top 5 cities with the highest variation (standard deviation) in individual income

```
SELECT
    city, STDDEV(Income) AS standard_deviation
FROM
    loan_data
GROUP BY city
ORDER BY standard_deviation DESC
LIMIT 5;
```

city	standard_deviation
Aurangabad	4181271.6564953625
Haldia	3921836.970051311
Delhi_city	3864248.958590093
Jalgaon	3751576.980435283
Bathinda	3743397.027859583

Find Individuals with Unusual Age-Income Patterns

List individuals whose income is more than 150% of the average income for their age group

```
SELECT
    *
FROM
    loan_data AS d
WHERE
    income > (SELECT
        AVG(income) * 1.5
```

```
FROM
    loan_data
WHERE
    age = d.age);
```

Id	Income	Age	Experience	Marriage_status	House_Ownership	Car_Ownership	Profession	CITY	STATE	CURRENT_JOB_YRS	CURRENT_H
6	6915937	64	0	single	rented	no	Civil_servant	Jalgaon	Maharashtra	0	12
10	8964846	23	12	single	rented	no	Architect	Karimnagar	Telangana	5	13
13	9120988	28	9	single	rented	no	Physician	Erode[17]	Tamil_Nadu	9	12
14	8043880	57	12	single	rented	no	Financial_Analyst	Kollam	Kerala	8	10
15	9420838	48	6	single	rented	no	Technical_writer	Madurai	Tamil_Nadu	6	10
21	9225468	54	14	single	rented	no	Surveyor	Secunderabad	Telangana	8	10
22	6506739	50	4	single	rented	no	Politician	Ahmedabad	Gujarat	4	11
23	9157379	72	13	single	rented	yes	Design_Engineer	Ajmer	Rajasthan	9	10
24	9236505	36	19	single	rented	no	Chemical_engineer	Ongole	Andhra_Pradesh	6	14
28	9643150	24	13	single	rented	no	Comedian	Indore	Madhya_Pradesh	6	14
29	8832725	64	5	single	rented	no	Biomedical_Engineer	Pondicherry	Puducherry	5	11
35	9086933	55	7	single	rented	no	Air_traffic_controller	Saharanpur	Uttar_Pradesh	7	13

Identify individuals whose income-to-experience ratio deviates by more than 50% from the average ratio for their city.

```
SELECT
    *
FROM
    loan_data AS d
WHERE
    (income / Experience) NOT BETWEEN (SELECT
        AVG(income / Experience) * 0.5
    FROM
        loan_data
    WHERE
        city = d.city) AND (SELECT
        AVG(income / Experience) * 1.5
    FROM
        loan_data
    WHERE
        city = d.city);
```

Id	Income	Age	Experience	Marriage_status	House_Ownership	Car_Ownership	Profession	CITY	STATE	CURRENT_JOB_YRS	CURRENT_HO
4	6256451	41	2	single	rented	yes	Software_Developer	Bhubaneswar	Odisha	2	12
7	3954973	58	14	married	rented	no	Librarian	Tiruppur	Tamil_Nadu	8	12
11	4634680	78	7	single	rented	no	Flight_attendant	Hajipur[31]	Bihar	7	12
12	6623263	22	4	single	rented	no	Designer	Adoni	Andhra_Pradesh	4	14
15	9420838	48	6	single	rented	no	Technical_writer	Madurai	Tamil_Nadu	6	10
16	5694236	39	2	married	rented	yes	Economist	Anantapuram[24]	Andhra_Pradesh	2	10
19	2241112	28	8	single	rented	no	Police_officer	Sirsa	Haryana	6	14
20	5431918	40	1	single	rented	no	Artist	Amaravati	Andhra_Pradesh	1	14
24	9236505	36	19	single	rented	no	Chemical_engineer	Ongole	Andhra_Pradesh	6	14
25	1065465	23	15	married	rented	no	Hotel_Manager	Miryalaguda	Telangana	4	12
26	1797876	76	20	single	norent_noown	no	Mechanical_engineer	Erode[17]	Tamil_Nadu	11	14
29	8832725	64	5	single	rented	no	Biomedical_Engineer	Pondicherry	Puducherry	5	11
30	4386333	31	16	single	rented	no	Physician	Shimoga	Karnataka	3	12
31	3939397	52	19	single	rented	yes	Flight_attendant	Chennai	Tamil_Nadu	3	10
33	4128828	21	10	single	rented	no	Computer_hardwar...	Khammam	Telangana	10	12

Rank cities based on the total income of individuals in the "Software_developer" profession.

```
select city,sum(income) as total_income , rank() over(order by sum(income) desc) as rnk
from loan_data where Profession = "Software_developer"
group by city order by rnk;
```

city	total_income	rnk
Avadi	15746638	1
Parbhani	12113926	2
Bhubaneswar	10771379	3
Kharagpur	10736751	4
Bidhannagar	9899664	5
Bhavnagar	9364159	6
Giridih	8806392	7
Bokaro	8613069	8
Siwan[32]	7845861	9
Bahraich	7790773	10
Ambattur	7533473	11
Bhalswa_Jah...	7040268	12
Gaya	6817905	13
Ballia	6814983	14
Dharmavaram	6250439	15
Cuttack	6144152	16
Hajipur[31]	6120219	17

Identify the youngest individuals in each state who are among the top 10% of earners in their state.

```
with rankeddata as(select *, ntile(10) over(partition by state order by income desc) as Income_Percentile
from loan_data)
select state,min(age) as young_age
from rankeddata where
Income_Percentile = 1
group by state;
```

state	young_age
Andhra_Pradesh	23
Assam	29
Bihar	21
Chandigarh	60
Chhattisgarh	24
Delhi	22
Gujarat	22
Haryana	33
Himachal_Pradesh	23
Jammu_and_Kashmir	51
Jharkhand	29
Karnataka	22
Kerala	30
Madhya_Pradesh	22
Maharashtra	21
Manipur	25
Mizoram	27

Group individuals into age brackets (e.g., 20-29, 30-39, etc.) and calculate: Average income, Average experience, Count of individuals in each bracket.

```
select
floor(Age/10)* 10 as age_group,
avg(income) as avg_income,
avg(Experience) as avg_exprience,
count(*) as count
from loan_data
group by age_group;
```

age_group	avg_income	avg_exprience	count
20	5193999.9537	10.2291	454
40	5043277.8638	9.5410	536
60	4991187.3628	10.3271	532
50	5026802.8984	10.2305	512
30	4884163.5311	10.3734	482
70	4934131.3308	9.7966	526

Identify individuals at high financial risk based on, Income below the average for their profession, Experience less than 5 years, Age below 25 or above 60.

```
SELECT *
FROM loan_data AS d
WHERE Experience < 5
      AND (age < 25 OR age > 60)
      AND income < (SELECT AVG(income)
                     FROM loan_data
                     WHERE city = d.city);
```



Id	Income	Age	Experience	Marriage_status	House_Ownership	Car_Ownership	Profession	CITY	STATE	CURRENT_JOB_YRS	CURRENT_HOU
1	1303834	23	3	single	rented	no	Mechanical_engineer	Rewa	Madhya_Pradesh	3	13
3	3991815	66	4	married	rented	no	Technical_writer	Alappuzha	Kerala	4	10
39	3540135	78	4	single	rented	no	Biomedical_Engineer	Howrah	West_Bengal	4	11
52	3634814	74	4	single	rented	no	Fashion_Designer	Durgapur	West_Bengal	4	11
91	826681	78	4	married	rented	yes	Analyst	Ongole	Andhra_Pradesh	4	14
120	245844	67	4	married	rented	no	Economist	Bhatpara	West_Bengal	3	11
127	3159260	62	4	single	rented	no	Petroleum_Engineer	Panihati	West_Bengal	4	10
150	799233	72	4	single	rented	yes	Hotel_Manager	Udupi	Karnataka	4	14
160	1134496	77	3	single	rented	no	Surgeon	Jehanabad[38]	Bihar	3	10
173	233888	64	1	single	rented	no	Psychologist	Tumkur	Karnataka	1	10
221	1532701	79	2	single	rented	no	Graphic_Designer	Hapur	Uttar_Pradesh	2	12
247	2252443	77	0	single	rented	no	Surgeon	Chandigarh_city	Chandigarh	0	11
248	4525338	23	1	single	rented	no	Graphic_Designer	Ongole	Andhra_Pradesh	1	12
253	2370396	69	4	married	rented	no	Comedian	Shivpuri	Madhya_Pradesh	4	10
254	3426695	73	4	single	rented	no	Firefighter	Unnao	Uttar_Pradesh	4	14
263	461499	68	2	married	rented	no	Official	Allahabad	Uttar_Pradesh[5]	2	11