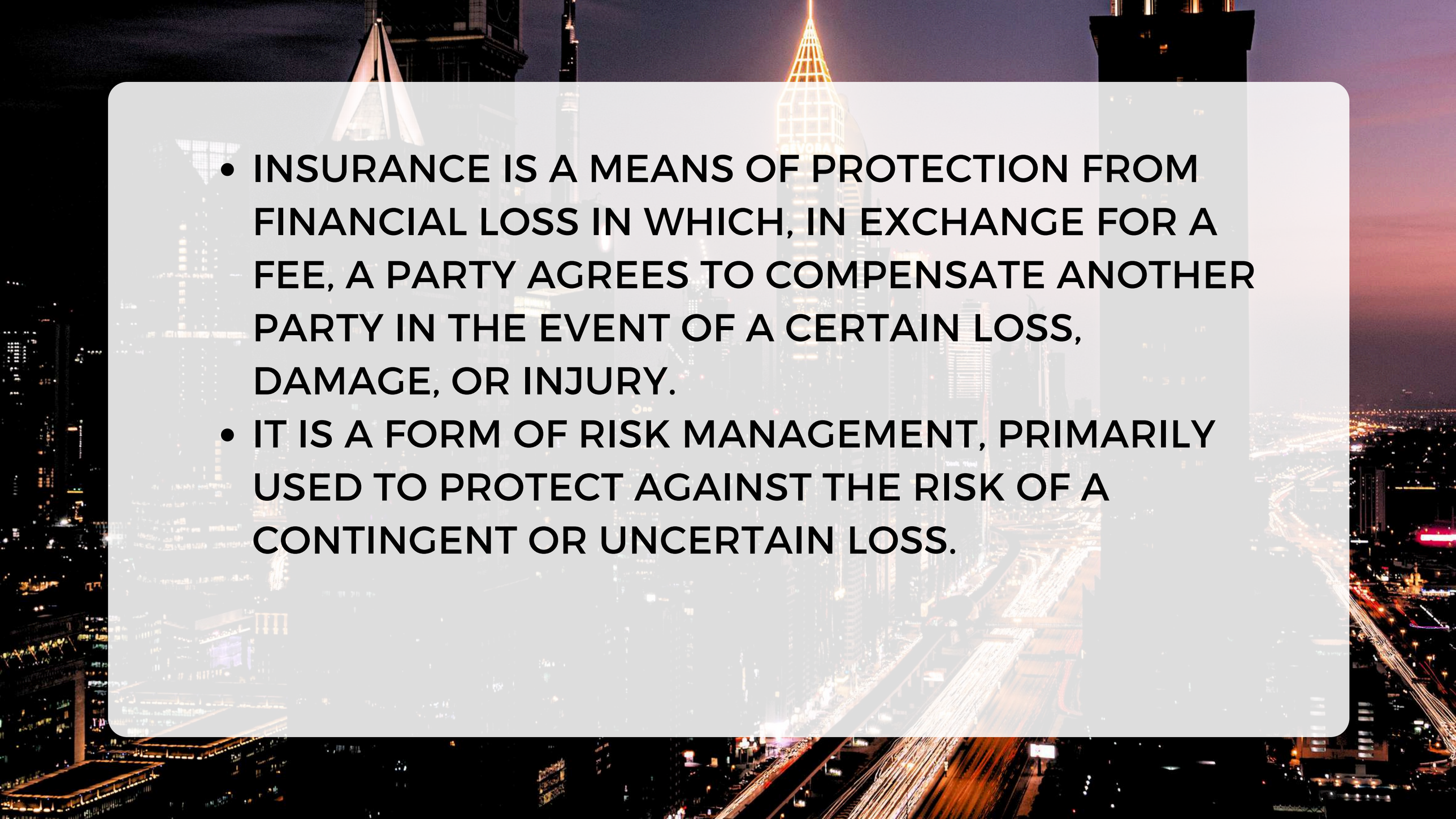
SQL PROJECT ON
INSURANCE

CONTENTS

- WHAT IS INSURANCE
- SQL QUERIES TO SOLVE FEW INSIGHTS



- INSURANCE IS A MEANS OF PROTECTION FROM FINANCIAL LOSS IN WHICH, IN EXCHANGE FOR A FEE, A PARTY AGREES TO COMPENSATE ANOTHER PARTY IN THE EVENT OF A CERTAIN LOSS, DAMAGE, OR INJURY.
- IT IS A FORM OF RISK MANAGEMENT, PRIMARILY USED TO PROTECT AGAINST THE RISK OF A CONTINGENT OR UNCERTAIN LOSS.

Creation of Database & Importing the table

Limit to 1000 rows

```
CREATE DATABASE insurance;
USE insurance;
SELECT * FROM insurance_data;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

index	PatientID	age	gender	bmi	bloodpressure	diabetic	children	smoker	region	claim
0	1	39	male	23.2	91	Yes	0	No	southeast	1121.87
1	2	24	male	30.1	87	No	0	No	southeast	1131.51
2	3	23	male	33.3	82	Yes	0	No	southeast	1135.94
3	4	34	male	33.7	80	No	0	No	northwest	1136.4
4	5	30	male	34.1	100	No	0	No	northwest	1137.01
5	6	29	male	34.4	96	Yes	0	No	northwest	1137.47
6	7	25	male	37.3	86	Yes	0	No	northwest	1141.45
7	8	19	male	41.1	100	No	0	No	northwest	1146.8
8	9	20	male	43	86	No	0	No	northwest	1149.4
9	10	30	male	53.1	97	No	0	No	northwest	1163.46
10	11	36	male	19.8	88	Yes	0	No	northwest	1241.57
11	12	37	male	20.3	90	Yes	0	No	northwest	1242.26
12	13	19	male	20.7	81	No	0	No	northwest	1242.82

Display the average claim amount for patients in each region

```sql
SELECT
    region, ROUND(AVG(claim), 2) AS 'Avg_Claim'
FROM
    insurance_data
GROUP BY region;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

region	Avg_Claim
southeast	13058.52
northwest	11612.72
southwest	12686.73
northeast	16889.04

Select maximum and minimum BMI values in the table

```sql
SELECT
    MAX(bmi) AS 'Max_BMI', MIN(bmi) AS 'Min_BMI'
FROM
    insurance_data;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	Max_BMI	Min_BMI
▶	53.1	16

Select patient id, age and BMI for patients with BMI between 40 and 50

```sql
SELECT
    PatientID, age, bmi
FROM
    insurance_data
WHERE
    bmi BETWEEN 40 AND 50;
```

Result Grid | Filter Rows: | Export: | Wrap

PatientID	age	bmi
8	19	41.1
9	20	43
26	23	43
41	29	40.3
69	26	40.5
76	30	41.9
92	20	40.5
124	55	40.2
125	33	40.3
191	28	46.5
208	48	40.2
213	46	42.1
228	34	42.4

Select the number of smokers in each region

```sql
SELECT
    region, COUNT(*) AS 'No_Smokers'
FROM
    insurance_data
WHERE
    smoker = 'Yes'
GROUP BY region;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

region	No_Smokers
northeast	67
southwest	58
northwest	58
southeast	91

What is the average claim amount for patients who are both diabetics and smokers

```sql
SELECT
    ROUND(AVG(claim), 3) AS 'Avg_Claim'
FROM
    insurance_data
WHERE
    diabetic = 'Yes' AND smoker = 'Yes';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Avg_Claim
31277.55

Retrieve all patients who have BMI greater than the average BMI of patients who are smokers

```sql
SELECT
    *
FROM
    insurance_data
WHERE
    smoker = 'Yes'
        AND bmi > (SELECT
            AVG(bmi)
        FROM
            insurance_data
        WHERE
            smoker = 'Yes');
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

index	PatientID	age	gender	bmi	bloodpressure	diabetic	children	smoker	region	claim
1192	1193	47	male	31.7	129	Yes	0	Yes	northeast	33732.69
1193	1194	46	male	31.9	82	Yes	0	Yes	northwest	33750.29
1196	1197	36	female	31.4	136	Yes	0	Yes	southwest	34166.27
1197	1198	30	male	31.1	136	No	0	Yes	northeast	34254.05
1198	1199	22	male	31.7	115	No	2	Yes	southeast	34303.17
1199	1200	30	female	33.1	93	Yes	0	Yes	southeast	34439.86
1200	1201	40	male	32.7	98	No	0	Yes	southwest	34472.84
1201	1202	45	male	33.5	81	No	0	Yes	northeast	34617.84
1202	1203	32	male	31.7	125	No	0	Yes	southeast	34672.15
1203	1204	26	male	34.8	94	Yes	0	Yes	southwest	34779.62
1204	1205	32	male	31.1	114	Yes	1	Yes	southeast	34806.47
1205	1206	20	male	34.9	124	Yes	0	Yes	southwest	34828.65
1206	1207	46	female	31.4	111	No	0	Yes	southwest	34838.87
1210	1211	25	male	30.8	140	Yes	0	Yes	southwest	35491.64

Select the average claim amount for patients in each group

```sql
SELECT
    CASE
        WHEN age < 18 THEN 'Under 18'
        WHEN age BETWEEN 18 AND 30 THEN '18-30'
        WHEN age BETWEEN 31 AND 50 THEN '31-50'
        ELSE 'Over 50'
    END AS 'Age_Group',
    ROUND(AVG(claim), 3) AS 'Avg_claim'
FROM
    insurance_data
GROUP BY Age_Group;
```

Result Grid | Filter Rows: | Export:

Age_Group	Avg_claim
31-50	12981.089
18-30	14004.48
Over 50	12744.961

Retrieve the total claim amount for each patient, along with the average claim amount across all patients

```sql
SELECT PatientID, SUM(claim) OVER(PARTITION BY PatientID) AS "Total_claim",
ROUND(AVG(claim) OVER(), 2) AS "Avg_Claim"
FROM insurance_data;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

PatientID	Total_claim	Avg_Claim
1	1121.87	13252.75
2	1131.51	13252.75
3	1135.94	13252.75
4	1136.4	13252.75
5	1137.01	13252.75
6	1137.47	13252.75
7	1141.45	13252.75
8	1146.8	13252.75
9	1149.4	13252.75
10	1163.46	13252.75
11	1241.57	13252.75
12	1242.26	13252.75
13	1242.82	13252.75

Retrieve the top 3 patients with the highest claim amount, along with their respective claim amounts and the total claim amount for all patients.

```sql
SELECT PatientID, claim, ROUND(SUM(claim) OVER(), 2) AS "Total_Claim"
FROM insurance_data
ORDER BY claim DESC
LIMIT 3;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

PatientID	claim	Total_Claim
1340	63770.43	17758679.16
1339	62592.87	17758679.16
1338	60021.4	17758679.16

Select the details of patients who have a claim amount greater than the average claim amount for their region

```sql
SELECT
    *
FROM
    insurance_data t1
WHERE
    claim > (SELECT
            AVG(claim)
        FROM
            insurance_data t2
        WHERE
            t2.region = t1.region);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

index	PatientID	age	gender	bmi	bloodpressure	diabetic	children	smoker	region	claim
824	825	29	male	28.6	85	Yes	0	No	northwest	11735.88
828	829	29	male	34.4	108	No	0	No	northwest	11743.93
830	831	50	female	23.2	89	No	0	No	northwest	11830.61
833	834	25	female	30.5	110	No	0	No	northwest	11840.78
835	836	33	female	31.8	95	No	0	No	northwest	11842.62
845	846	48	male	33.6	97	No	1	No	northwest	11945.13
850	851	31	female	26.6	90	Yes	1	No	northwest	12044.34
854	855	50	male	25.5	87	No	0	No	northwest	12124.99
855	856	23	male	28.8	86	No	0	No	northwest	12129.61
858	859	34	female	27.2	96	No	0	No	northwest	12222.9
859	860	33	female	28.2	96	Yes	0	No	northwest	12224.35
860	861	37	female	33.4	84	Yes	0	No	northwest	12231.61
862	863	26	female	36.5	80	Yes	0	No	northwest	12235.84
865	866	50	female	32.8	86	No	2	No	northwest	12268.63

Retrieve the rank of each patient based on their claim amount

```sql
SELECT * ,
RANK() OVER(ORDER BY claim DESC) AS "Rank_Patient"
FROM insurance_data;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

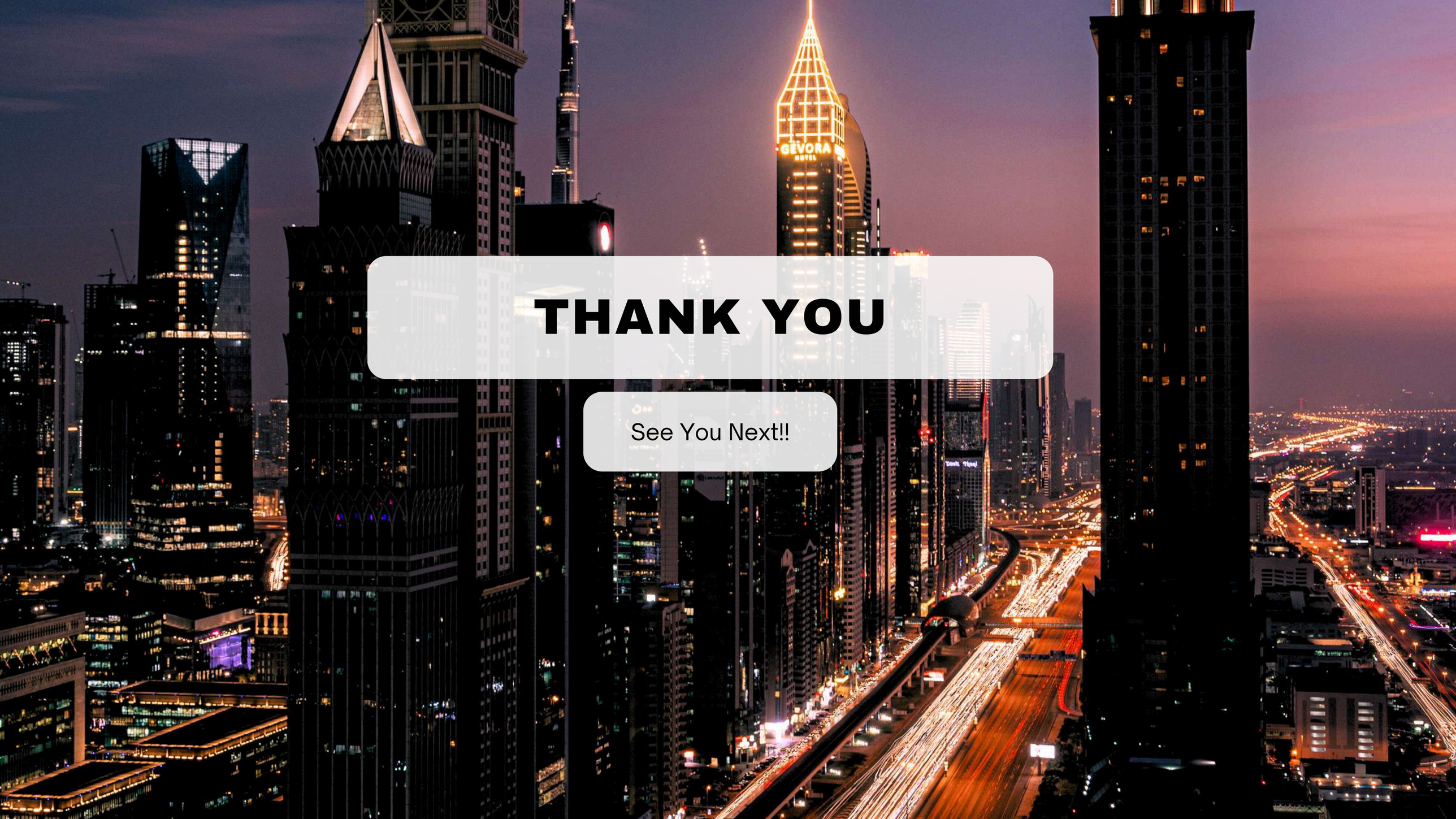
index	PatientID	age	gender	bmi	bloodpressure	diabetic	children	smoker	region	claim	Rank_Patient
1339	1340	30	female	47.4	101	No	0	Yes	southeast	63770.43	1
1338	1339	37	male	30.4	106	No	0	Yes	southeast	62592.87	2
1337	1338	30	male	34.5	91	Yes	3	Yes	northwest	60021.4	3
1336	1337	59	female	38.1	120	No	1	Yes	northeast	58571.07	4
1335	1336	44	female	35.5	88	Yes	0	Yes	northwest	55135.4	5
1334	1335	43	male	32.8	125	No	0	Yes	southwest	52590.83	6
1333	1334	44	male	36.4	127	No	1	Yes	southwest	51194.56	7
1332	1333	26	male	37	120	No	2	Yes	southeast	49577.66	8
1331	1332	18	male	41.1	104	No	1	Yes	southeast	48970.25	9
1330	1331	25	female	38.1	111	No	0	Yes	southeast	48885.14	10
1329	1330	52	female	37.7	109	Yes	0	Yes	southwest	48824.45	11
1328	1329	45	male	42.1	117	No	1	Yes	southeast	48675.52	12
1327	1328	49	male	40.9	107	No	0	Yes	southeast	48673.56	13

Select the details of patients along with their claim amount, and their rank based on claim amount within their region.

```sql
SELECT *,
RANK() OVER(PARTITION BY region ORDER BY claim DESC) AS "Ranks"
FROM insurance_data;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

index	PatientID	age	gender	bmi	bloodpressure	diabetic	children	smoker	region	claim	Ranks
1336	1337	59	female	38.1	120	No	1	Yes	northeast	58571.07	1
1326	1327	26	male	40.6	113	Yes	3	Yes	northeast	48549.18	2
1325	1326	52	female	36.4	133	Yes	1	Yes	northeast	48517.56	3
1322	1323	33	female	36.8	117	Yes	1	Yes	northeast	47896.79	4
1310	1311	26	female	37.1	95	No	3	Yes	northeast	46255.11	5
1304	1305	42	male	32	83	Yes	0	Yes	northeast	45710.21	6
1301	1302	60	female	35	92	Yes	2	Yes	northeast	44641.2	7
1290	1291	47	male	41.9	140	Yes	3	Yes	northeast	43753.34	8
1288	1289	22	male	34.1	108	No	0	Yes	northeast	43254.42	9
1282	1283	42	male	30.7	117	Yes	0	Yes	northeast	42303.69	10
1278	1279	35	female	35.5	135	No	0	Yes	northeast	42111.66	11
1275	1276	37	male	32.3	115	No	1	Yes	northeast	41919.1	12
1272	1273	31	male	31.8	95	No	0	Yes	northeast	41097.16	13
1271	1272	35	male	35	109	No	1	Yes	northeast	41034.22	14



THANK YOU

See You Next!!