```sql
use VhclAcc
select * from vehicle
select * from accident
-- Do accidents often involve impacts on the left-hand side of vehicles?
select distinct(lefthand) from vehicle
SELECT COUNT(accidentindex) AS 'Number of Accidents', lefthand FROM vehicle
GROUP BY lefthand
```

97 %

Results | Messages

	Number of Accidents	lefthand
1	1346	Yes
2	1019	Data missing or out of range
3	255480	No

```sql
-- Are there any relationships between journey purposes and the severity of accidents?
-- FIRST SOLUTION
SELECT v.journeypurpose, COUNT(a.severity) AS 'Total Number of Severities',
COUNT(CASE WHEN a.severity = 'Slight' THEN a.severity ELSE NULL END) AS 'Total Number of Slight Severities',
COUNT(CASE WHEN a.severity = 'Serious' THEN a.severity ELSE NULL END) AS 'Total Number of Serious Severities',
COUNT(CASE WHEN a.severity = 'Fatal' THEN a.severity ELSE NULL END) AS 'Total Number of Fatal Severities'
from accident a
inner join vehicle v
on a.accidentindex = v.accidentindex
GROUP BY v.journeypurpose
ORDER BY 'Total Number of Severities' DESC
```

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Results | Messages

	journeypurpose	Total Number of Severities	Total Number of Slight Severities	Total Number of Serious Severities	Total Number of Fatal Severities
1	Not known	186046	171924	13108	1014
2	Journey as part of work	39785	36843	2632	310
3	Commuting to/from work	26966	25021	1833	112
4	Taking pupil to/from school	2634	2509	120	5
5	Other	1573	1573	0	0
6	Pupil riding to/from school	817	777	38	2
7	Data missing or out of range	24	24	0	0

```sql
-- Are there any relationships between journey purposes and the severity of accidents?
-- Second solution I am going to use the IF condition with values totally arbitrary
select v.JourneyPurpose, COUNT(a.severity) AS 'Total number of accidents' from accident a
inner join vehicle v on a.accidentindex = v.accidentindex
-- After joining the two tables I want to call a new column called LEVEL with values based on the number of accidents.
-- For doing this I want to use 'CASE WHEN THEN ELSE END AS'
select v.JourneyPurpose, COUNT(a.severity) AS 'Total number of accidents',
CASE
    WHEN COUNT(a.severity) BETWEEN 0 and 1000 THEN 'Low'
    WHEN COUNT(a.severity) BETWEEN 1001 and 3000 THEN 'Moderate'
    ELSE 'High'
END AS 'Level'
from accident a
inner join vehicle v on a.accidentindex = v.accidentindex
group by v.JourneyPurpose
order by COUNT(a.severity) DESC
```

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Results | Messages

	JourneyPurpose	Total number of accidents	Level
1	Not known	186046	High
2	Journey as part of work	39785	High
3	Commuting to/from work	26966	High
4	Taking pupil to/from school	2634	Moderate
5	Other	1573	Moderate
6	Pupil riding to/from school	817	Low
7	Data missing or out of range	24	Low

```sql
-- Are there any relationships between journey purposes and the severity of accidents?
-- Third solution. Pivoting into columns the No of accidents for each type of severity and using the IF condition to create a new column
select v.JourneyPurpose, COUNT(a.severity) AS 'Total number of accidents' from accident a
inner join vehicle v on a.accidentindex = v.accidentindex
-- After joining the two tables I want to calculate the No of accidents for each type of severity as well as call a new column
-- named LEVEL based on the Total Number of accidents
select v.JourneyPurpose, COUNT(a.severity) AS 'Total number of accidents',
COUNT(CASE WHEN A.SEVERITY = 'Slight' THEN a.severity ELSE NULL END) AS 'Total Number of Slight Severity',
COUNT(CASE WHEN A.SEVERITY = 'Serious' THEN a.severity ELSE NULL END) AS 'Total Number of Serious Severity',
COUNT(CASE WHEN A.SEVERITY = 'Fatal' THEN a.severity ELSE NULL END) AS 'Total Number of Fatal Severity',
CASE
    WHEN COUNT(a.severity) BETWEEN 0 and 1000 THEN 'Low'
    WHEN COUNT(a.severity) BETWEEN 1001 and 3000 THEN 'Moderate'
    ELSE 'High'
END AS 'Level'
from accident a
inner join vehicle v on a.accidentindex = v.accidentindex
group by v.JourneyPurpose
order by COUNT(a.severity) DESC
```

97 %

Results | Messages

	JourneyPurpose	Total number of accidents	Total Number of Slight Severity	Total Number of Serious Severity	Total Number of Fatal Severity	Level
1	Not known	186046	171924	13108	1014	High
2	Journey as part of work	39785	36843	2632	310	High
3	Commuting to/from work	26966	25021	1833	112	High
4	Taking pupil to/from school	2634	2509	120	5	Moderate
5	Other	1573	1573	0	0	Moderate
6	Pupil riding to/from school	817	777	38	2	Low
7	Data missing or out of range	24	24	0	0	Low

```sql
use VhclAcc
select * from vehicle
select * from accident
-- Calculate the average age of vehicles involved in accidents, considering Day light and point of impact
-- First solution grouping the AVG age vehicle by Pointimpact and Lightconditions
select v.pointimpact, a.lightconditions,
AVG(v.agevehicle) AS 'AVG Age Vehicle'
from vehicle v
inner join accident a on a.AccidentIndex = v.AccidentIndex
group by v.pointimpact, a.lightconditions
```

97 %

Results | Messages

	pointimpact	lightconditions	AVG Age Vehicle
1	Front	Daylight	8
2	Nearside	Darkness	7
3	Data missing or out of range	Daylight	8
4	Did not impact	Daylight	7
5	Front	Darkness	8
6	Offside	Daylight	7
7	Nearside	Daylight	7
8	Back	Daylight	7
9	Back	Darkness	7
10	Offside	Darkness	7
11	Did not impact	Darkness	6

```sql
-- Calculate the average age of vehicles involved in accidents, considering Day light and point of impact
-- Second solution. After grouping the AVG age vehicle by Pointimpact and Lightconditions, I want to filter the data using HAVING or WHERE clauses.
select v.pointimpact, a.lightconditions,
AVG(v.agevehicle) AS 'AVG Age Vehicle'
from vehicle v
inner join accident a on a.AccidentIndex = v.AccidentIndex
-- WHERE PointImpact = 'Front' and LightConditions = 'Darkness'
group by v.pointimpact, a.lightconditions
HAVING PointImpact = 'Front' and LightConditions = 'Darkness'

-- In order to have the AUTOMATIC VARIABLE I will need to define two variables and
-- set the data e.g. Pointimpact = 'Nearside' and Lightconditions = 'Daylight'
DECLARE @pointimpact VARCHAR (100)
DECLARE @lightconditions VARCHAR (100)
SET @pointimpact = 'Nearside'
SET @Lightconditions = 'Daylight'

select v.pointimpact, a.lightconditions,
AVG(v.agevehicle) AS 'AVG Age Vehicle'
from vehicle v
inner join accident a on a.AccidentIndex = v.AccidentIndex
-- WHERE PointImpact = 'Front' and LightConditions = 'Darkness'
group by v.pointimpact, a.lightconditions
HAVING PointImpact = @pointimpact and LightConditions = @lightconditions
```

7 %

Results | Messages

	pointimpact	lightconditions	AVG Age Vehicle
1	Nearside	Daylight	7