NAME: SHAIK MOHAMMED SAMEER ALI

Write SQL queries for the below mentioned requirements to

extract:

1.Countries and their continents. Order the results by continent names.

A. select cont.contid, cont.continent,cntry.countryid, cntry.countryname

from CONTINENTS cont

inner join COUNTRIES cntry on cont.contid=cntry.CONTINENT

order by cont.continent ;

2. Number of countries within each continent

A. SELECT cont.contid, cont.continent, COUNT(cntry.countryid) num\_countries

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.CONTINENT

GROUP BY cont.contid, cont.continent

order by 1,2;

3. countries with no car makers?

A. select con.continent, cntry.countryname, cm.maker, cm.fullname

from continents con

inner join COUNTRIES cntry on con.contid=cntry.continent

left join car\_makers cm on cntry.countryid=cm.country

where cm.country is null

order by 1;

4. List of Car makers from Japan

A. select cont.continent, cntry.countryname, cm.maker, cm.fullname

from CONTINENTS cont

inner join COUNTRIES cntry on cont.contid=cntry.continent

inner join CAR\_MAKERS cm on cntry.countryid=cm.country

where cntry.countryname ='japan'

order by 1,2,3;

5. List of Car makers from France and USA

A. select cont.continent, cntry.countryname, cm.maker, cm.fullname

from CONTINENTS cont

inner join COUNTRIES cntry on cont.contid=cntry.continent

inner join CAR\_MAKERS cm on cntry.countryid=cm.country

where cntry.countryname = 'france'

order by 1,2,3;

select cont.continent, cntry.countryname, cm.maker, cm.fullname

from CONTINENTS cont

inner join COUNTRIES cntry on cont.contid=cntry.continent

inner join CAR\_MAKERS cm on cntry.countryid=cm.country

where cntry.countryname ='usa'

order by 1,2,3;

6. Country and continent of Volvo car maker

A. SELECT cntry.countryname country, cont.continent continent, cm.maker, cm.fullname

FROM COUNTRIES cntry

INNER JOIN CONTINENTS cont ON cntry.continent = cont.contid

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

WHERE cm.maker = 'volvo';

7. Car models from 'Ford Motor Company'

A. select \* from CAR\_names cn

WHERE cn.model = 'ford';

8. How many car models are made by Germany?

A. SELECT COUNT(DISTINCT md.MODEL) AS num\_models

FROM car\_makers cm

INNER JOIN model\_details md ON cm.ID = md.MAKER

INNER JOIN countries c ON cm.COUNTRY = c.COUNTRYID

WHERE c.COUNTRYNAME = 'germany';

9. Car models made by Japan along with maker details.

A. SELECT md.MODEL, cm.\*

FROM car\_makers cm

INNER JOIN model\_details md ON cm.ID = md.MAKER

INNER JOIN countries c ON cm.COUNTRY = c.COUNTRYID

WHERE c.COUNTRYNAME = 'japan';

10. Which car models have highest and lowest values of below attributes. Extract the car maker and geography (country and continent) information also:

a. Mpg

--A. HIGHEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Max(cd.mpg)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Max(cd.mpg) desc

Fetch NEXT 2 row only;

--LOWEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model,cn.model, Min(cd.mpg)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Min(cd.mpg) asc

Fetch FIRST 1 row only;

--HIGHEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Max(cd.cylinders)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Max(cd.cylinders) desc

Fetch FIRST 1 row only;

--LOWEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker ,cn.model, Min(cd.cylinders)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Min(cd.cylinders) asc

Fetch FIRST 1 row only;

--c. Edispl

--A.HIGHEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker ,cn.model, Max(cd.edispl)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker ,cn.model

ORDER BY Max(cd.edispl) desc

Fetch FIRST 1 row only;

--LOWEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Min(cd.edispl)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Min(cd.edispl) asc

Fetch FIRST 1 row only;

--d. Horsepower

--A.HIGHEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Max(cd.horsepower)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Max(cd.horsepower) desc

Fetch FIRST 1 row only;

--LOWEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Min(cd.horsepower)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Min(cd.horsepower) asc

Fetch FIRST 1 row only;

--e. Weight

--HIGHEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Max(cd.weight)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Max(cd.weight) desc

Fetch FIRST 1 row only;

--LOWEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Min(cd.weight)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Min(cd.weight) asc

Fetch FIRST 1 row only;

--f. Accel

--HIGHEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model, Max(cd.accel)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Max(cd.accel) desc

Fetch FIRST 1 row only;

--LOWEST VALUE

SELECT cont.continent, cntry.countryname, cm.maker,cn.model,cn.model, Min(cd.accel)

FROM CONTINENTS cont

INNER JOIN COUNTRIES cntry ON cont.contid = cntry.continent

INNER JOIN CAR\_MAKERS cm ON cntry.countryid = cm.country

INNER JOIN MODEL\_DETAILS md ON cm.id = md.maker

INNER JOIN car\_names cn ON md.model = cn.model

INNER JOIN CAR\_DETAILS cd ON cn.id = cd.id

GROUP BY cont.continent, cntry.countryname, cm.maker,cn.model

ORDER BY Min(cd.accel) asc

Fetch FIRST 1 row only;

11. In which year most cars were made?

A. SELECT YEAR, COUNT(\*) AS num\_cars

FROM car\_details

GROUP BY YEAR

HAVING COUNT(\*) = (SELECT MAX(car\_count) FROM (SELECT COUNT(\*) AS car\_count FROM car\_details GROUP BY YEAR));

12.Which year had less cars made?

A. SELECT YEAR, COUNT(\*) AS num\_cars

FROM car\_details

GROUP BY YEAR

HAVING COUNT(\*) = (SELECT MIN(car\_count) FROM (SELECT COUNT(\*) AS car\_count FROM car\_details GROUP BY YEAR));

13. Min, Max and Average of below attributes around the year(s):

a. Mpg

b. Cylinders

c. Edispl

d. Horsepower

e. Weight

f. Accel

A. SELECT

MIN(MPG), MAX(MPG), AVG(MPG),

MIN(CYLINDERS), MAX(CYLINDERS), AVG(CYLINDERS),

MIN(EDISPL), MAX(EDISPL), AVG(EDISPL),

MIN(HORSEPOWER), MAX(HORSEPOWER), AVG(HORSEPOWER),

MIN(WEIGHT), MAX(WEIGHT), AVG(WEIGHT),

MIN(ACCEL), MAX(ACCEL), AVG(ACCEL)

FROM car\_details;

14. Please carry out a small statistical analysis around (c) Horsepower (2) Weight (3) Accel. Try calculating the mean, median and standard deviation. Use SQL queries to extract these measures. What do these measures convey about horsepower and weight of the cars data? Share SQLS and few bullets on your understanding on the values captured for mean, median and standard deviation.

A. --mean--

SELECT

AVG(horsepower) AS avg\_horsepower,

AVG(weight) AS avg\_weight,

AVG(accel) AS avg\_accel

FROM car\_details;

--median--

SELECT

MEDIAN(horsepower) AS median\_horsepower,

MEDIAN(weight) AS median\_weight,

MEDIAN(accel) AS median\_accel

FROM car\_details;

--standard deviation--

SELECT

STDDEV(horsepower) AS stddev\_horsepower,

STDDEV(weight) AS stddev\_weight,

STDDEV(accel) AS stddev\_accel

FROM car\_details;

* Horsepower: While the average car has around 105 horsepower, the median of 95 suggests more cars sit below this mark, highlighting a potential skew towards higher-powered vehicles.
* Weight: Cars in the dataset seem evenly distributed around the average weight of 3000 pounds, with the median weight also close at 2822.5 pounds.
* Variability: Standard deviations for both horsepower (38.77) and weight (470.04) indicate a moderate spread of values, meaning there's a diverse range of car sizes and power levels present.

15. Draw the entity-relationship (ER) model depicting car database tables, PK and FK (i.e., relationships between them) on a plain paper using pen/pencil. Share the screenshot (ensure picture is clearly visible) and share.

A. 