# Formula1 Problem Set- SQL Code

21) How many drivers participated in 2022 season?

```
select count(distinct driverid) as no_of_drivers_in_2022
from driver_standings
where raceid in (select raceid from races r where year=2022);
```

**1) Identify the country which has produced the most F1 drivers.**

```
select nationality, count(1)
from drivers
group by nationality
order by 2 desc
limit 1;
```

**2) Which country has produced the most no of F1 circuits?**

```
select country, count(1)
from circuits
group by country
order by 2 desc
limit 1;
```

**3) Which countries have produced exactly 5 constructors?**

```
select nationality, count(1)
from constructors
group by nationality
having count(1) = 5;
```

**4) List down the no of races that have taken place each year?**

```
select year, count(1)
from races
group by year
order by year desc;
```

**5) Who is the youngest and oldest F1 driver? This code cycles over the driver data ordered by dob, assigning a rn number.**

For the solution we want a column output for the oldest driver and the yongest. That requires a case statement. The oldest is when rn = 1, and the youngest is the last one when rn = cnt

```
select max(case when rn=1 then forename||' '||surname end) as oldest_driver
        , max(case when rn=cnt then forename||' '||surname end) as youngest_driver
from (
                select *, row_number() over (order by dob ) as rn, count(*) over() as cnt
                from drivers) x
where rn = 1 or rn = cnt
```

**6) List down the no of races that have taken place each year and mentioned which was the first and the last race of each season.**

```
select distinct year
	,first_value(name) over(partition by year order by date) as first_race
	, last_value(name) over(partition by year order by date
range between unbounded preceding and unbounded following) as last_race
	, count(*) over(partition by year) as no_of_races
from races
order by year desc
```

**7) Which circuit has hosted the most no of races. Display the circuit name, no of races, city and country.**

```
with cte as
		(select c.name as circuit_name, count(1) no_of_races
		, rank() over(order by count(1) desc) as rnk
		from races r
		join circuits c on c.circuitid=r.circuitid
		group by c.name)
select circuit_name, no_of_races, c.location as city, c.country
from circuits c
join cte on cte.circuit_name=c.name
where rnk=1;
```

**8) Display the following for 2022 season:** year, race_no, circuit name, driver name, driver race position, driver race points, flag to indicate if winner , constructor name, constructor position, constructor points, , flag to indicate if constructor is winner , race status of each driver, flag to indicate fastest lap for which driver, total no of pit stops by each driver

```
select r.raceid, r.year, r.round as race_no, r.name as circuit_name, concat(d.forename,' ',d.surname) as driver_name
		, ds.position as driver_position, ds.points as driver_points, case when ds.position=1 then 'WINNER' end as winner_flag
		, c.name as constructor_name, cs.position as constructor_position, cs.points as constructor_points
		, case when cs.position=1 then 'WINNER' end as cons_winner_flag, sts.status
		, case when lp.driverid is not null then 'Faster Lap' end as fastest_lap_indi, pt.no_of_stops
from races r
join driver_standings ds on ds.raceid=r.raceid
join drivers d on d.driverid = ds.driverid
join constructor_standings cs on cs.raceid=r.raceid
join constructors c on c.constructorid=cs.constructorid
```

```
join results res on res.raceid=r.raceid and res.driverid=ds.driverid and res.constructorid=cs.constructorid
join status sts on sts.statusid=res.statusid
left join (	select lp.raceid, lp.driverid 			--Left joins used because some of the
data is missing for lap times
			from lap_times lp
			join (	select raceid, min(time) as fastest_lap
								from lap_times
								group by raceid) x on x.raceid=lp.raceid and
x.fastest_lap=lp.time
			) lp on lp.driverid = ds.driverid and lp.raceid=r.raceid
left join (	select raceid,driverid, count(1) as no_of_stops
						from pit_stops
						group by raceid,driverid) pt on pt.driverid = ds.driverid and
pt.raceid=r.raceid
where year=2022 --and r.raceid=1074
order by year, race_no, driver_position;
```

**9) List down the names of all F1 champions and the no of times they have won it.**

```
with cte as
	(select r.year, concat(d.forename,' ',d.surname) as driver_name
	, sum(res.points) as tot_points
	, rank() over(partition by r.year order by sum(res.points) desc) as rnk
	from races r
	join driver_standings ds on ds.raceid=r.raceid
	join drivers d on d.driverid=ds.driverid
	join results res on res.raceid=r.raceid and res.driverid=ds.driverid --and	res.constructorid =
	cs.constructorid
				--where r.year>=2000
	group by r.year,  res.driverid, concat(d.forename,' ',d.surname) ),
			cte_rnk as  (select * from cte where rnk=1)
select driver_name, count(1) as no_of_championships
from cte_rnk
group by driver_name
order by 2 desc;
```