Query with and without Index

```
5  SELECT Car_ID, Make, Model, Fuel_Type
6  FROM C##car_schema.CarDetails
7  WHERE Fuel_Type = 'Petrol';
8
```

Query Result

SQL | Fetched 50 rows in 0.054 seconds

	CAR_ID	MAKE	MODEL	FUEL_TYPE
1	1	Honda	Amaze 1.2 VX i-VTEC	Petrol
2	3	Hyundai	i10 Magna 1.2 Kappa2	Petrol

```
CREATE INDEX idx_fuel_type ON C##car_schema.CarDetails(Fuel_Type);

SELECT Car_ID, Make, Model, Fuel_Type
FROM C##car_schema.CarDetails
WHERE Fuel_Type = 'Petrol';
```

ript Output | Query Result

SQL | Fetched 50 rows in 0.019 seconds

	CAR_ID	MAKE	MODEL	FUEL_TYPE
1	1	Honda	Amaze 1.2 VX i-VTEC	Petrol
2	3	Hyundai	i10 Magna 1.2 Kappa2	Petrol

Query with Subquery vs. Rewritten Join

```
SELECT cd.Car_ID, cd.Make, cd.Model, cd.Price
FROM C##car_schema.CarDetails cd
WHERE cd.Price > (SELECT AVG(Price) FROM C##car_schema.CarDetails);
```

ipt Output | Query Result 1

SQL | Fetched 50 rows in 0.014 seconds

	CAR_ID	MAKE	MODEL	PRICE
1	5	Toyota	Innova 2.4 VX 7 STR [2016-2020]	1950000
2	7	Mercedes-Benz	CLA 200 Petrol Sport	1898999
3	8	BMW	X1 xDrive20d M Sport	2650000

```
SELECT cd.Car_ID, cd.Make, cd.Model, cd.Price
FROM C##car_schema.CarDetails cd
JOIN (SELECT AVG(Price) AS AvgPrice FROM C##car_schema.CarDetails) avg_table
ON cd.Price > avg_table.AvgPrice;
```

cript Output | Query Result

SQL | Fetched 50 rows in 0.009 seconds

	CAR_ID	MAKE	MODEL	PRICE
1	5	Toyota	Innova 2.4 VX 7 STR [2016-2020]	1950000
2	7	Mercedes-Benz	CLA 200 Petrol Sport	1898999
3	8	BMW	X1 xDrive20d M Sport	2650000

Optimized Query with or without CTE

```
SELECT Fuel_Type, ROUND(AVG(Price), 2) AS Average_Price
FROM C##car_schema.CarDetails
GROUP BY Fuel_Type
ORDER BY Average_Price DESC;
```

Script Output | Query Result

SQL | All Rows Fetched: 9 in 0.009 seconds

	FUEL_TYPE	AVERAGE_PRICE
1	Hybrid	7166666.67
2	Diesel	2101848.38
3	Electric	1497857.14

```
10 WITH AvgPricePerFuel AS (
11     SELECT Fuel_Type, ROUND(AVG(Price), 2) AS Average_Price
12     FROM C##car_schema.CarDetails
13     GROUP BY Fuel_Type
14 )
15 SELECT *
16 FROM AvgPricePerFuel
17 ORDER BY Average_Price DESC;
```

Script Output | Query Result | Query Result 1

SQL | All Rows Fetched: 9 in 0.007 seconds

	FUEL_TYPE	AVERAGE_PRICE
1	Hybrid	7166666.67
2	Diesel	2101848.38
3	Electric	1497857.14
4	Petrol	1322041.35
5	Petrol + CNG	575000
6	CNG	445380
7	CNG + CNG	249000
8	LPG	210000
9	Petrol + LPG	130000

Joins With and Without Index

```
26 SELECT cd.Car_ID, cd.Make, cd.Model, cf.Color
27 FROM C##car_schema.CarDetails cd
28 JOIN C##car_schema.CarFeatures cf ON cd.Car_ID = cf.Car_ID;
29
30
```

Script Output | Query Result

SQL | Fetched 50 rows in 0.036 seconds

	CAR_ID	MAKE	MODEL	COLOR
1	1	Honda	Amaze 1.2 VX i-VTEC	Grey
2	2	Maruti Suzuki	Swift DZire VDI	White
3	3	Hyundai	i10 Magna 1.2 Kappa2	Maroon

```
30  CREATE INDEX idx_car_id ON C##car_schema.CarFeatures(Car_ID);
31
32  SELECT cd.Car_ID, cd.Make, cd.Model, cf.Color
33  FROM C##car_schema.CarDetails cd
34  JOIN C##car_schema.CarFeatures cf ON cd.Car_ID = cf.Car_ID;
35
```

Script Output x | Query Result x

SQL | Fetched 50 rows in 0.027 seconds

	CAR_ID	MAKE	MODEL	COLOR
1	1	Honda	Amaze 1.2 VX i-VTEC	Grey
2	2	Maruti Suzuki	Swift DZire VDI	White
3	3	Hyundai	i10 Magna 1.2 Kappa2	Maroon
4	4	Toyota	Glanza G	Red
5	5	Toyota	Innova 2.4 VX 7 STR [2016-2020]	Grey