

WELCOME

Performance Insights for Goodcabs Business Operations

Problem Statement

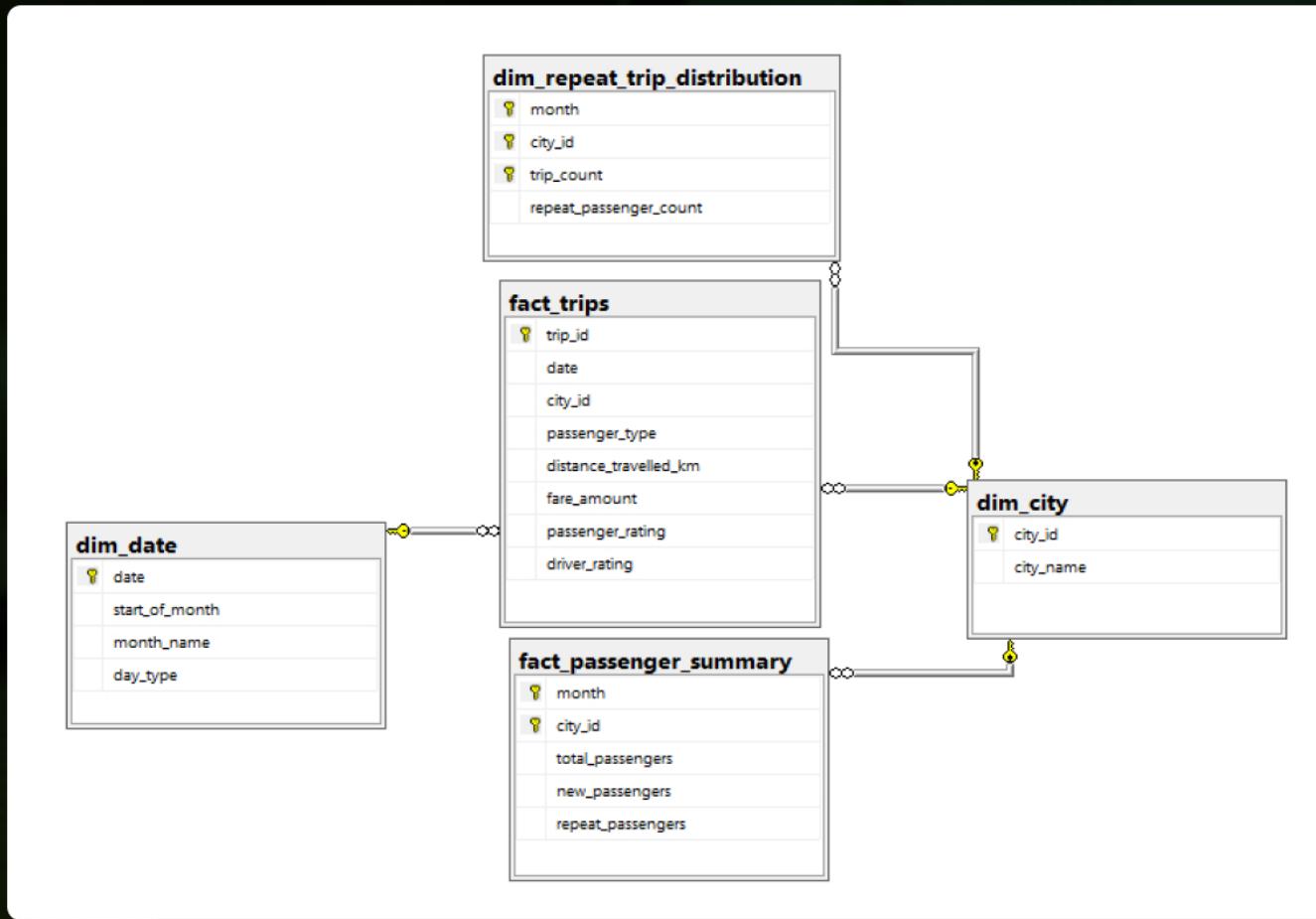
Goodcabs requires timely and actionable insights into essential performance metrics like trip volume, passenger satisfaction, repeat passenger rate, and trip distribution to achieve its ambitious growth targets for 2024.

To aid in this initiative provide the management with insights to drive informed decision making

Objectives:

- Address all ad-hoc requests with the required results.
- Uncover any hidden insights to meet business needs.

Data Model:



Request 1.0



Business Request-1: City-Level Fare and Trip Summary Report

Generate a report that displays the **total trips**, **average fare per km**, **average fare per trip**, and the **percentage contribution of each city's trips to the overall trips count**.

Fields:

`city_name - total_trips - avg_fare_per_km - avg_fare_per_trip - %_contribution_to_total_trips`

Request 1



Query

```
with Overview_By_City as
(
    select
        city_id,
        count(*) as total_trips,
        sum(fare_amount) total_fare,
        sum(distance_travelled_km) as Total_Dist
    from
        trips_db.dbo.fact_trips
    group by
        city_id
)

select
    C.city_name,
    total_trips,
    Round( cast( total_fare as float ) / Total_Dist,0) Fare_Per_KM,
    Round( cast( total_fare as float ) / total_trips ,0) Fare_per_Trip,
    Round( cast(total_trips as float) * 100/(select sum(total_trips) from Overview_By_City ),2) '%contribution'
from
    Overview_By_City as OBC
    left join trips_db.dbo.dim_city C
        on OBC.city_id = C.city_id
```

Request 1



Result:

	city_name	total_trips	Fare_Per_KM	Fare_per_Trip	%contribution
1	Kochi	50702	14	335	11.9
2	Jaipur	76888	16	484	18.05
3	Lucknow	64299	12	147	15.1
4	Mysore	16238	15	250	3.81
5	Visakhapatnam	28366	13	283	6.66
6	Indore	42456	11	180	9.97
7	Chandigarh	38981	12	284	9.15
8	Surat	54843	11	117	12.88
9	Coimbatore	21104	11	167	4.96
10	Vadodara	32026	10	119	7.52

Request 2.0



Business Request - 2: Monthly City-Level Trips Target Performance Report

1. Generate a report that evaluates the target performance for trips at the monthly and city level.
For each city and month,
.
2. Compare the actual total trips with the target trips and Categorise the performance as follows:
 - If actual trips are greater than target trips, mark it as "Above Target".
 - If actual trips are less than or equal to target trips, mark it as "Below Target".
Additionally,
3. calculate the % difference between actual and target trips to quantify the performance gap.

Fields: City_name - month_name - actual_trips - target_trips - performance_status - %_difference

Request 2



Query

```
with Overview_By_City_Month as
(
    select
        city_id,
        datename(Month,date) as 'month',
        count(*) as total_trips,
        sum(fare_amount) total_fare,
        sum(distance_travelled_km) as Total_Dist
    from
        trips_db.dbo.fact_trips
    group by
        city_id,
        datename(Month,date)
),
Target_Overview as
(
    select
        *,
        datename(month,month) as MonthName
    from
        [targets_db].[dbo].[monthly_target_trips]
)
```

```
select
    C.city_name,
    OBC.month as Month,
    total_trips,
    total_target_trips as target_trips,
    Case
        when total_target_trips < total_trips then 'Above Target'
        when total_target_trips > total_trips then 'Below Target'
    END as performance_status,
    round(((total_trips - total_target_trips)*Cast(100 as float) / total_target_trips) , 2) as '%_difference'
from
    Overview_By_City_Month as OBC
    left join Target_Overview as T
        on T.city_id = OBC.city_id and OBC.month = T.MonthName
    left join trips_db.dbo.dim_city as C
        on C.city_id = OBC.city_id
```

Request 2



Result:

Rank	City Name	Month	Total Trips	Target Trips	Performance Status	% Difference	Rank	City Name	Month	Total Trips	Target Trips	Performance Status	% Difference
1	Chandigarh	February	7387	7000	Above Target	5.53	22	Kochi	June	6399	9000	Below Target	-28.9
2	Kochi	February	7688	7500	Above Target	2.51	23	Chandigarh	June	6029	6000	Above Target	0.48
3	Indore	May	7787	7500	Above Target	3.83	24	Lucknow	February	12060	13000	Below Target	-7.23
4	Surat	June	8544	10000	Below Target	-14.56	25	Coimbatore	May	3550	3500	Above Target	1.43
5	Visakhapatnam	February	4793	4500	Above Target	6.51	26	Vadodara	February	5228	6000	Below Target	-12.87
6	Lucknow	June	10240	11000	Below Target	-6.91	27	Jaipur	April	11406	9500	Above Target	20.06
7	Mysore	March	2633	2000	Above Target	31.65	28	Jaipur	January	14976	13000	Above Target	15.2
8	Coimbatore	March	3680	3500	Above Target	5.14	29	Jaipur	March	13317	13000	Above Target	2.44
9	Mysore	June	2842	2500	Above Target	13.68	30	Jaipur	June	9842	9500	Above Target	3.6
10	Coimbatore	April	3661	3500	Above Target	4.6	31	Surat	March	9267	9000	Above Target	2.97
11	Vadodara	March	5598	6000	Below Target	-6.7	32	Lucknow	May	9705	11000	Below Target	-11.77
12	Visakhapatnam	June	4478	5000	Below Target	-10.44	33	Visakhapatnam	April	4938	5000	Below Target	-1.24
13	Surat	February	9069	9000	Above Target	0.77	34	Coimbatore	June	3158	3500	Below Target	-9.77
14	Indore	March	7019	7000	Above Target	0.27	35	Visakhapatnam	January	4468	4500	Below Target	-0.71
15	Coimbatore	January	3651	3500	Above Target	4.31	36	Kochi	January	7344	7500	Below Target	-2.08
16	Jaipur	May	11475	9500	Above Target	20.79	37	Chandigarh	April	5566	6000	Below Target	-7.23
17	Indore	April	7415	7500	Below Target	-1.13	38	Kochi	April	9762	9000	Above Target	8.47
18	Mysore	February	2668	2000	Above Target	33.4	39	Chandigarh	January	6810	7000	Below Target	-2.71
19	Vadodara	June	4685	6500	Below Target	-27.92	40	Chandigarh	May	6620	6000	Above Target	10.33
20	Indore	January	6737	7000	Below Target	-3.76	41	Surat	May	9774	10000	Below Target	-2.26

Request 3.0



Business Request-3: City-Level Repeat Passenger Trip Frequency Report

Generate a report that shows the **percentage distribution of repeat passengers** by the number of trips they have taken in each city. Calculate the percentage of repeat passengers who took 2 trips, 3 trips, and so on, up to 10 trips.

(Each column should represent a trip count category, displaying the percentage of repeat passengers who fall into that category out of the total repeat passengers for that city).

Fields: `city_name, 2-Trips, 3-Trips, 4-Trips, 5-Trips, 6-Trips, 7-Trips, 8-Trips, 9-Trips, 10-Trips`

Request 3



Query

```
With Total_RP_By_City_RepeatCnt as
(
    select
        city_id,
        trip_count,
        sum(repeat_passenger_count) as Total_R_Passengers,
        sum(sum(repeat_passenger_count)) over(partition by city_id) as Total_Trips
    from
        trips_db.dbo.dim_repeat_trip_distribution
    Group by
        city_id,
        trip_count
)

select
    city_name,
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%1%'
    ) as '1 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%2%'
    ) as '2 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%3%'
    ) as '3 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%4%'
    ) as '4 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%5%'
    ) as '5 Trips',
```

```
(select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%6%'
    ) as '6 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%7%'
    ) as '7 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%8%'
    ) as '8 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%9%'
    ) as '9 Trips',
    (select Round( Total_R_Passengers * 100 / Cast(Total_Trips as float) , 2 )
     from Total_RP_By_City_RepeatCnt _rp
     where _rp.city_id = RP.city_id and _rp.trip_count like '%10%'
    ) as '10 Trips'

from
    trips_db.dbo.dim_city RP
```

Request 3



Result:

	city_name	1 Trip	2 Trips	3 Trips	4 Trips	5 Trips	6 Trips	7 Trips	8 Trips	9 Trips	10 Trips
1	Visakhapatnam	0.92	51.25	24.96	9.98	5.44	3.19	1.98	1.39	0.88	0.92
2	Chandigarh	1.79	32.31	19.25	15.74	12.21	7.42	5.48	3.47	2.33	1.79
3	Surat	1.35	9.76	14.26	16.55	19.75	18.45	11.89	6.24	1.74	1.35
4	Vadodara	1.61	9.87	14.17	16.52	18.06	19.08	12.86	5.78	2.05	1.61
5	Mysore	0.47	48.75	24.44	12.73	5.82	4.06	1.76	1.42	0.54	0.47
6	Kochi	0.81	47.67	24.35	11.81	6.48	3.91	2.11	1.65	1.21	0.81
7	Indore	1.51	34.34	22.69	13.4	10.34	6.85	5.24	3.26	2.38	1.51
8	Jaipur	0.97	50.14	20.73	12.12	6.29	4.13	2.52	1.9	1.2	0.97
9	Coimbatore	1.22	11.21	14.82	15.56	20.62	17.64	10.47	6.15	2.31	1.22
10	Lucknow	1.1	9.66	14.77	16.2	18.42	20.18	11.33	6.43	1.91	1.1

Request 4.0



Business Request-4:

Identify Cities with Highest and Lowest Total New Passengers.

1. Generate a report that calculates the **total new passengers** for **each city** and **ranks them** based on this value.
2. Identify the **top 3 cities** with the highest number of new passengers as well as the **bottom 3 cities** with the lowest number of new passengers, categorizing them as "**Top 3**" or "**Bottom 3**" accordingly.

Fields: `city_name - total_new_passengers - city_category ("Top 3" or "Bottom 3")`

Request 4



Query

```
with NewPassengers_by_City as
(
    select
        * ,
        count(*) over() as TotRows,
        ROW_NUMBER() over(order by Total_New_Passengers DESC) as RowNum
    from
    (
        select
            city_id , sum(new_passenger) as Total_New_Passenger
        from
            trips_db.dbo.fact_passenger_summary
        group by
            city_id
    )t
)
```

```
select
    city_id,
    Total_New_Passenger,
    case
        when RowNum <= 3 then 'Top 3'
        when RowNum > 7 then 'Bot 3'
        else ''
    End as city_category
from
    NewPassengers_by_City
order by
    Total_New_Passenger desc
```

Request 4



Result:

	city_id	Total_New_Passengers	city_category
1	RJ01	45856	Top 3
2	KL01	26416	Top 3
3	CH01	18908	Top 3
4	UP01	16260	
5	MP01	14863	
6	AP01	12747	
7	KA01	11681	
8	GJ01	11626	Bot 3
9	GJ02	10127	Bot 3
10	TN01	8514	Bot 3

Request 5.0



Business Request - 5: Identify Month with Highest Revenue for Each City

Generate a report that identifies the **month** with the **highest revenue** for **each city**. For **each city**, display the **month_name**, the **revenue amount for that month**, and the **percentage contribution** of that **month's revenue** to the **city's total revenue**.

Fields: **city_name** - **highest_revenue_month** - **revenue** - **percentage_contribution (%)**

Request 5



Query

```
with Result as
(
  Select
    city_id,
    Datename(Month,date) as DN,
    sum(fare_amount) Revenue,
    first_value( Datename(Month,date) )
      over( partition by city_id order by sum(fare_amount) desc) as TopMonth,
    sum( sum(fare_amount) ) over( partition by city_id ) as Total_Revenue
  from
    trips_db.dbo.fact_trips
  group by
    city_id, Datename(Month,date)
)
```

```
select
  city_name,
  TopMonth,
  Format(Revenue , 'c' , 'en-IN' ) Revenue,
  round( Cast(Revenue as float) * 100 / Total_Revenue ,2)
  as Percentage_Contribution
from
  Result R
  left join trips_db.dbo.dim_city C
    on R.city_id = C.city_id
  where
    TopMonth = DN
```

Request 5



Result:

	city_name	TopMonth	Revenue	Percentage_Contribution
1	Visakhapatnam	April	₹ 13,90,682.00	17.34
2	Chandigarh	February	₹ 21,08,290.00	19.07
3	Surat	April	₹ 11,54,909.00	17.96
4	Vadodara	April	₹ 7,06,250.00	18.6
5	Mysore	May	₹ 7,45,170.00	18.38
6	Kochi	May	₹ 33,33,746.00	19.61
7	Indore	May	₹ 13,80,996.00	18.09
8	Jaipur	February	₹ 77,47,202.00	20.82
9	Coimbatore	April	₹ 6,12,431.00	17.38
10	Lucknow	February	₹ 17,77,269.00	18.78

Request 6.0



Business Request-6:

Repeat Passenger Rate Analysis

Generate a report that calculates two metrics:

1. **Monthly Repeat Passenger Rate:** Calculate the **repeat passenger rate** for **each city and month** by comparing the number of **repeat passengers** to the **total passengers**.
2. **City-wide Repeat Passenger Rate:** Calculate the **overall repeat passenger rate** for **each city**, considering all passengers across months.

Fields: **city_name - month - total_passengers - repeat_passengers - monthly_repeat_passenger_rate (%)**: Repeat passenger rate at the city and month level - **city_repeat_passenger_rate (%)**: Overall repeat passenger rate for each city aggregated across months

Request 6



Query

```
with result as
(
    select
        city_name,
        DATENAME(month,month) as Month,
        sum(total_passengers) as TotalPassengers,
        sum(repeat_passengers) as Repeatpassengers,
        sum( sum( repeat_passengers ) ) over( partition by city_name)
            as Total_Repeat_Passengers

    from
        trips_db.dbo.fact_passenger_summary F
    left join trips_db.dbo.dim_city C
        on F.city_id = C.city_id

    group by
        city_name,
        DATENAME(month,month)
)
```

```
select
    city_name,
    Month,
    TotalPassengers,
    Repeatpassengers,
    Round( Cast( Repeatpassengers as float) * 100 / TotalPassengers,2)
        as Monthly_RepeatPassengerRate,
    Round( Cast( Repeatpassengers as float) * 100 / Total_Repeat_Passengers,2)
        as City_RepeatPassengerRate
from
    result
```

Request 6



Result:

		Total	Repeat passengers	Monthly	City	20	Jaipur	April	7856	1736	22.1	17.93	41	Mysore	June	2203	329	14.93	22.27	
1	City Name	Month	Passengers			21	Jaipur	February	12450	1661	13.34	17.16	42	Mysore	March	2194	208	9.48	14.08	
2	Chandigarh	April	3285	789	24.02	15.56	22	Jaipur	January	11845	1422	12.01	14.69	43	Mysore	May	2270	349	15.37	23.63
3	Chandigarh	February	4957	853	17.21	16.82	23	Jaipur	June	6956	1181	16.98	12.2	44	Surat	April	3394	1551	45.7	17.96
4	Chandigarh	January	4640	720	15.52	14.2	24	Jaipur	March	9257	1840	19.88	19	45	Surat	February	3567	1313	36.81	15.2
5	Chandigarh	June	3297	867	26.3	17.1	25	Jaipur	May	7174	1842	25.68	19.02	46	Surat	January	3616	1184	32.74	13.71
6	Chandigarh	March	4100	872	21.27	17.2	26	Kochi	April	6515	1576	24.19	20.67	47	Surat	June	3030	1490	49.17	17.25
7	Chandigarh	May	3699	969	26.2	19.11	27	Kochi	February	5372	1005	18.71	13.18	48	Surat	March	3440	1494	43.43	17.3
8	Coimbatore	April	1722	480	27.87	18.82	28	Kochi	January	5660	795	14.05	10.42	49	Surat	May	3217	1606	49.92	18.59
9	Coimbatore	February	1993	346	17.36	13.56	29	Kochi	June	4060	1049	25.84	13.76	50	Vadodara	April	2499	862	34.49	19.83
10	Coimbatore	January	2214	392	17.71	15.37	30	Kochi	March	6213	1348	21.7	17.68	51	Vadodara	February	2756	610	22.13	14.04
11	Coimbatore	June	1628	402	24.69	15.76	31	Kochi	May	6222	1853	29.78	24.3	52	Vadodara	January	2633	544	20.66	12.52
12	Coimbatore	March	1965	427	21.73	16.74	32	Lucknow	April	3807	1496	39.3	15.59	53	Vadodara	June	1807	703	38.9	16.18
13	Coimbatore	May	1543	504	32.66	19.76	33	Lucknow	February	5188	1659	31.98	17.29	54	Vadodara	March	2522	759	30.1	17.46
14	Indore	April	3646	1295	35.52	17.95	34	Lucknow	January	4896	1431	29.23	14.91	55	Vadodara	May	2256	868	38.48	19.97
15	Indore	February	3981	1103	27.71	15.29	35	Lucknow	June	3698	1727	46.7	18	56	Visakhapatnam	April	2837	992	34.97	19.42
16	Indore	January	3876	1033	26.65	14.32	36	Lucknow	March	4781	1622	33.93	16.9	57	Visakhapatnam	February	3170	790	24.92	15.47
17	Indore	June	3152	1131	35.88	15.67	37	Lucknow	May	3487	1662	47.66	17.32	58	Visakhapatnam	January	3163	650	20.55	12.73
18	Indore	March	3833	1091	28.46	15.12	38	Mysore	April	2072	236	11.39	15.98	59	Visakhapatnam	June	2702	802	29.68	15.7
19	Indore	May	3591	1563	43.53	21.66	39	Mysore	February	2290	183	7.99	12.39	60	Visakhapatnam	March	3093	923	29.84	18.07
							40	Mysore	January	2129	172	8.08	11.65	61	Visakhapatnam	May	2890	951	32.91	18.62