NYC Taxi Demand Forecasting & Weather Impact Analysis

January — Time-Series Forecasting (7-Day Horizon)

Short-term taxi demand forecasting using weather features & ML

By: *Advait Chavadekar*
Tools: Python (XGBoost) · Power BI · Pandas · Scikit-Learn
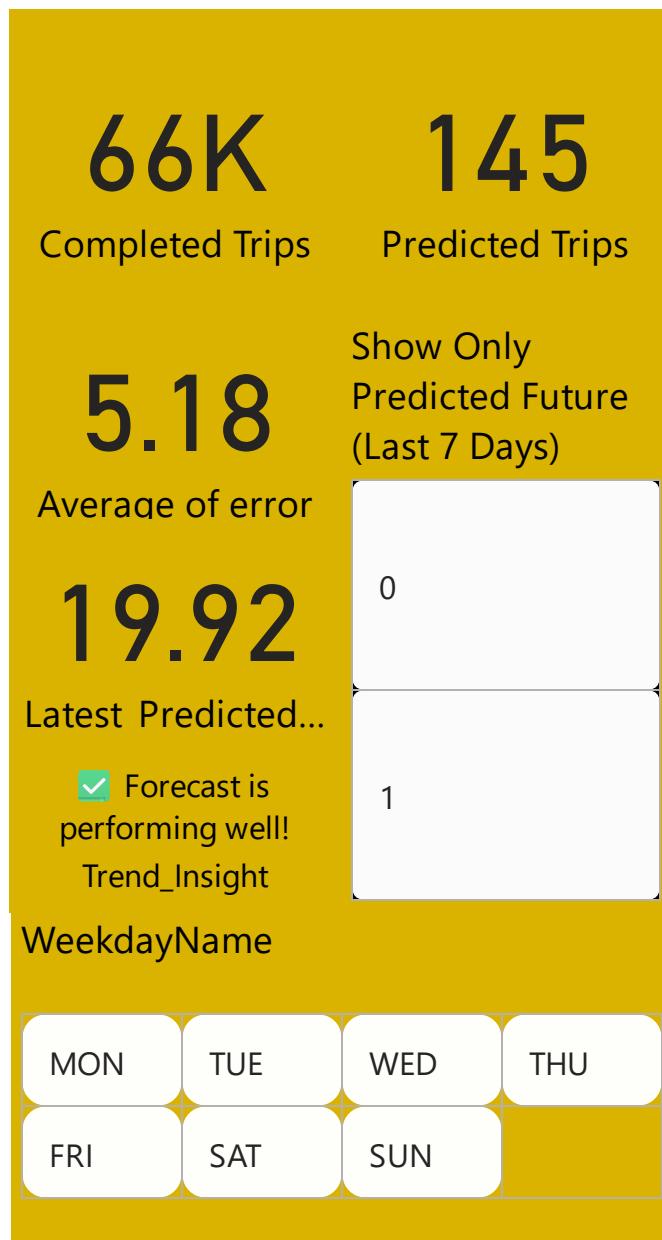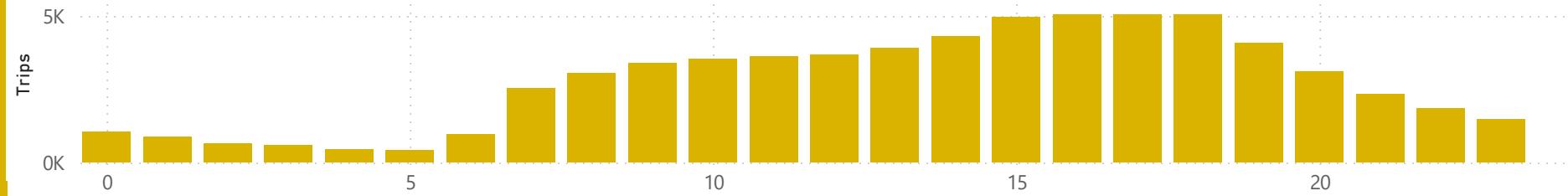
NYC Taxi Demand — Forecasting Dashboard (7-Day Horizon)
January — Actual vs Predicted Trips

66K Completed Trips

145 Predicted Trips

5.18 Average of error

19.92 Latest Predicted...

☑ Forecast is performing well! Trend_Insight

Show Only Predicted Future (Last 7 Days)

- 0
- 1

WeekdayName

MON	TUE	WED	THU
FRI	SAT	SUN	
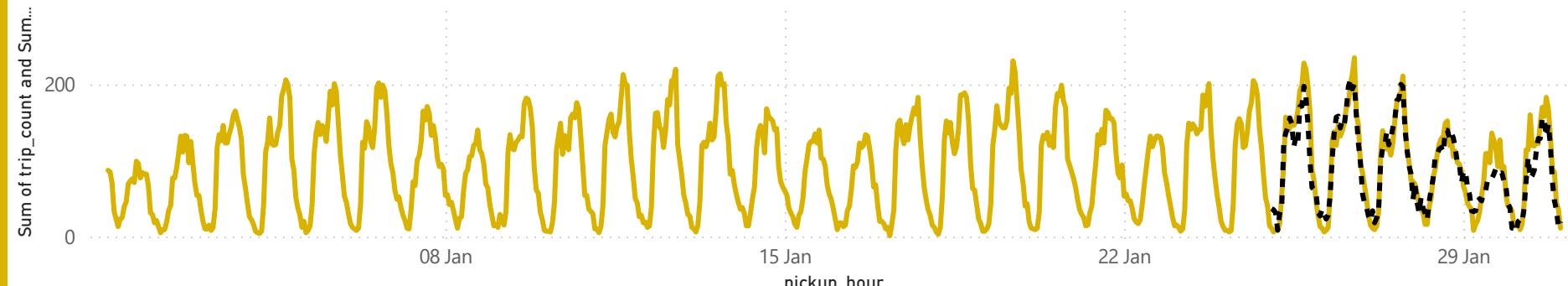
Trips by Hour of Day

Time Series: Actual vs Predicted

● Sum of trip_count ● Sum of forecast
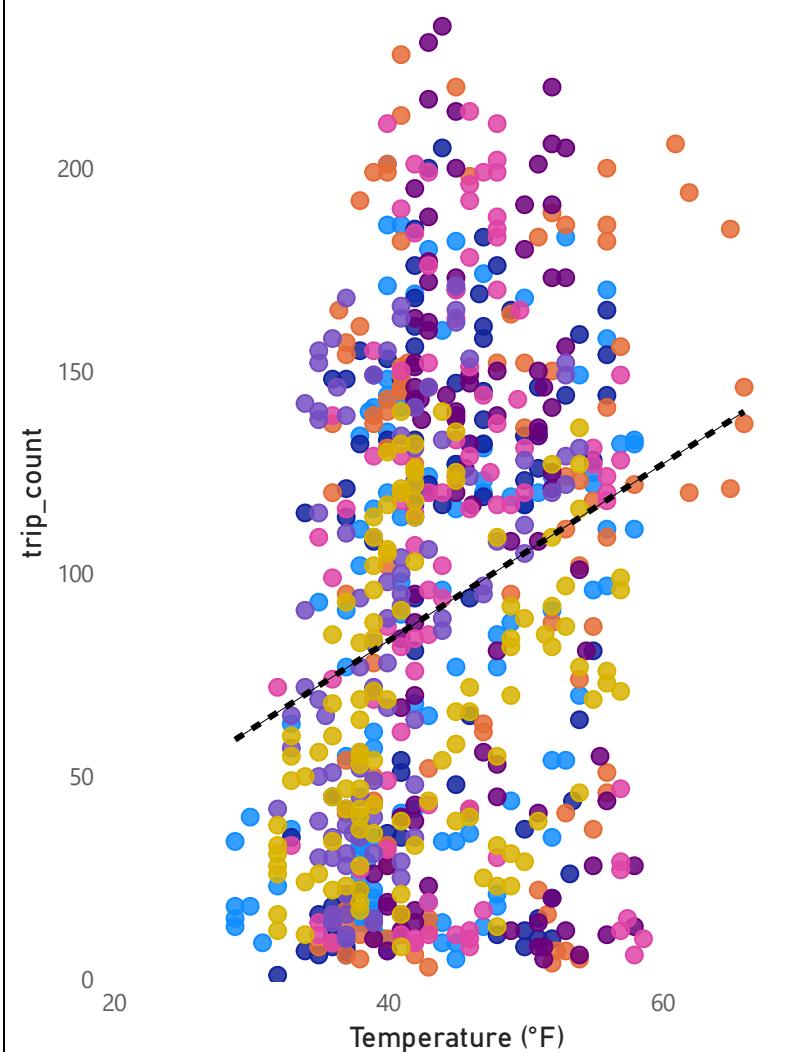
Day of Week	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
0	128	87	63	81	65	63	144	413	478	557	552	569	595	649	649	783	777	778	779	610	415	345	251	162
1	93	48	35	42	21	54	159	467	562	583	535	495	509	514	610	654	695	691	680	535	386	264	197	137
2	97	72	35	30	20	49	188	453	570	585	576	529	507	552	603	745	792	824	802	672	463	316	236	169
3	105	70	56	37	38	56	179	474	577	605	576	564	540	556	658	732	766	852	863	608	493	345	262	196
4	151	90	50	41	32	51	154	473	512	527	524	512	482	513	683	777	766	787	782	638	467	371	330	278
5	238	202	151	130	107	55	55	135	213	281	402	486	513	574	517	654	635	563	581	525	467	363	339	334
6	233	311	256	232	166	92	71	113	139	246	355	459	522	536	570	609	607	555	553	486	420	324	223	185

# How Weather Factors Influence NYC Taxi Demand (January)
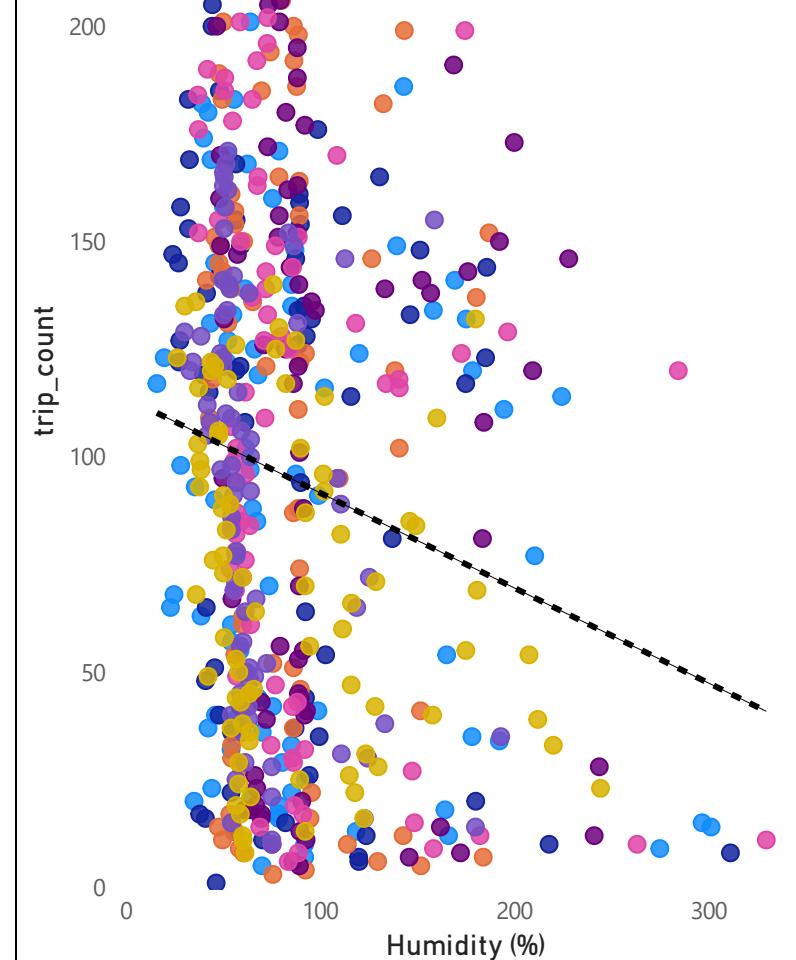
Impact of Temperature on NYC Taxi Demand

WeekdayName ● MON ● TUE ● WED ● THU ● FRI ● SAT ● SUN
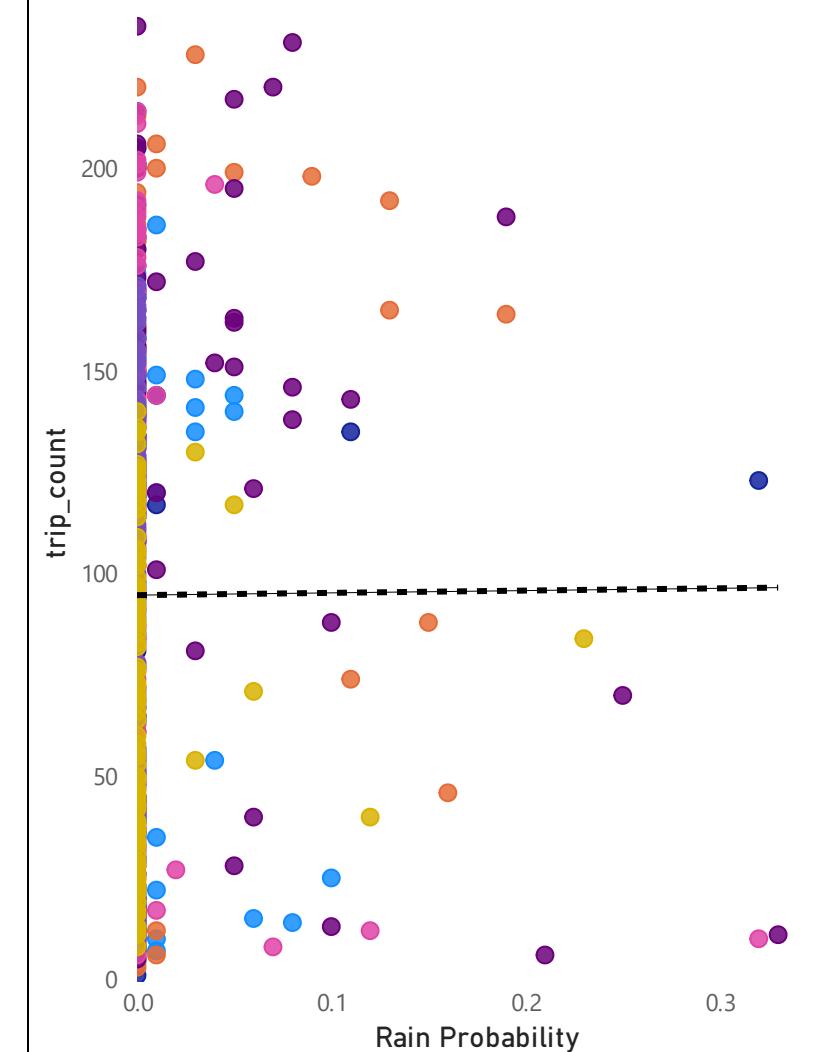
Impact of Humidity on NYC Taxi Demand

WeekdayName ● MON ● TUE ● WED ● THU ● FRI ● SAT ● SUN

Impact of Rain Probability on NYC Taxi Demand

WeekdayName ● MON ● TUE ● WED ● THU ● FRI ● SAT ● SUN

Key Weather Insights
- Higher temperature → More taxi trips
- High humidity → Lower demand
- Rain does not strongly change demand in winter

Cover Page | Forecasting... | Weather Impact...