

Predicting restaurant tips using predictive analytics on Excel.

Q1) Use the restaurant tips file for the analytics using excel

Ans) In the restaurant tips file, I have added a separate column which is the actual bill. The column actual bill is the summation of values from total Bill and Tip. The below mentioned is the pivot table which has the information of sum of actual bill, Number of Members for Dining, Total Members for Dining and the Count of smokers

The screenshot shows an Excel spreadsheet with a dataset of restaurant tips. The dataset includes columns for sex, smoker, day, time, size, total bill, tip, and ActualBill. A pivot table is created with 'day' and 'time' as row labels and 'ActualBill', 'Number of Members for Dining', and 'Total Members for Dining' as column labels. The pivot table results are as follows:

day	time	Sum of ActualBill	Number of Members for Dining	Total Members for Dining
Sun	Dinner	\$559.35	244	627

The screenshot shows an Excel spreadsheet with a dataset of restaurant tips. The dataset includes columns for size, total bill, tip, and ActualBill. A pivot table is created with 'day' and 'time' as row labels and 'ActualBill', 'Number of Members for Dining', 'Total Members for Dining', and 'Count of smoker' as column labels. The pivot table results are as follows:

day	time	Sum of ActualBill	Number of Members for Dining	Total Members for Dining	Count of smoker
Sun	Dinner	\$559.35	244	627	244

My Restaurant - Local

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Clipboard Font Alignment Number Styles Cells Editing

M12

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
21	Male	No	Sat	Dinner	3	20.65	3.35	24							
22	Male	No	Sat	Dinner	2	17.92	4.08	22							
23	Female	No	Sat	Dinner	2	20.29	2.75	23.04							
24	Female	No	Sat	Dinner	2	15.77	2.23	18							
25	Male	No	Sat	Dinner	4	39.42	7.58	47							
26	Male	No	Sat	Dinner	2	19.82	3.18	23							
27	Male	No	Sat	Dinner	4	17.81	2.34	20.15							
28	Male	No	Sat	Dinner	2	13.37	2	15.37							
29	Male	No	Sat	Dinner	2	12.69	2	14.69							
30	Male	No	Sat	Dinner	2	21.7	4.3	26							
31	Female	No	Sat	Dinner	2	19.65	3	22.65							
32	Male	No	Sat	Dinner	2	9.55	1.45	11							
33	Male	No	Sat	Dinner	4	18.35	2.5	20.85							
34	Female	No	Sat	Dinner	2	15.06	3	18.06							
35	Female	No	Sat	Dinner	4	20.69	2.45	23.14							
36	Male	No	Sat	Dinner	2	17.78	3.27	21.05							
37	Male	No	Sat	Dinner	3	24.06	3.6	27.66							
38	Male	No	Sat	Dinner	3	16.31	2	18.31							
39	Female	No	Sat	Dinner	3	16.93	3.07	20							
40	Male	No	Sat	Dinner	3	18.69	2.31	21							
41	Male	No	Sat	Dinner	3	31.27	5	36.27							
42	Male	No	Sat	Dinner	3	16.04	2.24	18.28							
43	Male	No	Sun	Dinner	2	17.46	2.54	20							
44	Male	No	Sun	Dinner	2	13.94	3.06	17							
45	Male	No	Sun	Dinner	2	9.68	1.32	11							
46	Male	No	Sun	Dinner	4	30.4	5.6	36							
47	Male	No	Sun	Dinner	2	18.29	3	21.29							
48	Male	No	Sun	Dinner	2	22.23	5	27.23							
49	Male	No	Sun	Dinner	4	32.4	6	38.4							
50	Male	No	Sun	Dinner	3	28.55	2.05	30.6							
51	Male	No	Sun	Dinner	2	18.04	3	21.04							
52	Male	No	Sun	Dinner	2	17.54	2.5	15.04							
53	Female	No	Sun	Dinner	2	10.29	2.6	12.89							
54	Female	No	Sun	Dinner	4	34.81	5.2	40.01							
55	Male	No	Sun	Dinner	2	9.94	1.56	11.5							
56	Male	No	Sun	Dinner	4	25.56	4.34	29.9							
57	Male	No	Sun	Dinner	2	19.49	3.51	23							
58	Male	Yes	Sat	Dinner	4	38.01	3	41.01							
59	Female	No	Sat	Dinner	2	26.41	1.5	27.91							
60	Male	No	Sat	Dinner	3	11.34	1.76	13							

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Clipboard Font Alignment Number Styles Cells Editing

M12

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
40	Male	No	Sat	Dinner	3	18.69	2.31	21							
41	Male	No	Sat	Dinner	3	31.27	5	36.27							
42	Male	No	Sat	Dinner	3	16.04	2.24	18.28							
43	Male	No	Sun	Dinner	2	17.46	2.54	20							
44	Male	No	Sun	Dinner	2	13.94	3.06	17							
45	Male	No	Sun	Dinner	2	9.68	1.32	11							
46	Male	No	Sun	Dinner	4	30.4	5.6	36							
47	Male	No	Sun	Dinner	2	18.29	3	21.29							
48	Male	No	Sun	Dinner	2	22.23	5	27.23							
49	Male	No	Sun	Dinner	4	32.4	6	38.4							
50	Male	No	Sun	Dinner	3	28.55	2.05	30.6							
51	Male	No	Sun	Dinner	2	18.04	3	21.04							
52	Male	No	Sun	Dinner	2	17.54	2.5	15.04							
53	Female	No	Sun	Dinner	2	10.29	2.6	12.89							
54	Female	No	Sun	Dinner	4	34.81	5.2	40.01							
55	Male	No	Sun	Dinner	2	9.94	1.56	11.5							
56	Male	No	Sun	Dinner	4	25.56	4.34	29.9							
57	Male	No	Sun	Dinner	2	19.49	3.51	23							
58	Male	Yes	Sat	Dinner	4	38.01	3	41.01							
59	Female	No	Sat	Dinner	2	26.41	1.5	27.91							
60	Male	No	Sat	Dinner	3	11.34	1.76	13							

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M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
60	Male	Yes	Sat	Dinner	2	11.24	1.76	13							
61	Male	No	Sat	Dinner	4	48.27	6.73	55							
62	Male	Yes	Sat	Dinner	2	20.29	3.21	23.5							
63	Male	Yes	Sat	Dinner	2	13.81	2	15.81							
64	Male	Yes	Sat	Dinner	2	11.02	1.98	13							
65	Male	Yes	Sat	Dinner	4	18.29	3.76	22.05							
66	Male	No	Sat	Dinner	3	17.59	2.64	20.23							
67	Male	No	Sat	Dinner	3	20.08	3.15	23.23							
68	Female	No	Sat	Dinner	2	16.45	2.47	18.92							
69	Female	Yes	Sat	Dinner	1	3.07	1	4.07							
70	Male	No	Sat	Dinner	2	20.23	2.01	22.24							
71	Male	Yes	Sat	Dinner	2	15.01	2.09	17.1							
72	Male	No	Sat	Dinner	2	12.02	1.97	13.99							
73	Female	No	Sat	Dinner	3	17.07	3	20.07							
74	Female	Yes	Sat	Dinner	2	26.86	3.14	30							
75	Female	Yes	Sat	Dinner	2	25.28	5	30.28							
76	Female	No	Sat	Dinner	2	14.73	2.2	16.93							
77	Male	No	Sat	Dinner	2	10.51	1.25	11.76							
78	Male	Yes	Sat	Dinner	2	17.92	3.08	21							
79	Male	No	Thur	Lunch	4	27.2	4	31.2							
80	Male	No	Thur	Lunch	3	17.76	2	20.76							

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Clipboard Font Alignment Merge & Center Number Conditional Formatting Styles Cells Insert Delete Format Sort & Find & Filter Select Editing

M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	Male	No	Thur	Lunch	2	22.76	3	25.76							
81	Male	No	Thur	Lunch	2	17.29	2.71	20							
82	Male	Yes	Thur	Lunch	2	19.44	3	22.44							
83	Male	No	Thur	Lunch	2	16.66	3.4	20.06							
84	Female	No	Thur	Lunch	1	10.07	1.63	11.9							
85	Male	Yes	Thur	Lunch	2	32.68	5	37.68							
86	Male	No	Thur	Lunch	2	15.98	2.03	18.01							
87	Female	No	Thur	Lunch	4	34.83	5.17	40							
88	Male	No	Thur	Lunch	2	13.03	2	15.03							
89	Male	No	Thur	Lunch	2	18.28	4	22.28							
90	Male	No	Thur	Lunch	2	24.71	5.85	30.56							
91	Male	No	Thur	Lunch	2	21.16	3	24.16							
92	Male	Yes	Fri	Dinner	2	28.97	3	31.97							
93	Male	No	Fri	Dinner	2	22.49	3.5	25.99							
94	Female	Yes	Fri	Dinner	2	5.75	1	6.75							
95	Female	Yes	Fri	Dinner	2	16.32	4.3	20.62							
96	Female	No	Fri	Dinner	2	22.75	3.25	26							
97	Male	Yes	Fri	Dinner	4	40.17	4.73	44.9							
98	Male	Yes	Fri	Dinner	2	27.28	4	31.28							
99	Male	Yes	Fri	Dinner	2	12.03	1.5	13.53							
100	Male	No	Fri	Dinner	3	31.61	2	34.61							

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Clipboard Font Alignment Merge & Center Number

Calibri 11 A A' Wrap Text

General DT - % 12 43

Conditional Formatting Format as Table Cell Styles Insert Delete Format Sort & Find & Filter Select Editing

M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
100	Male	Yes	Fri	Dinner	2	21.01	3	24.01							
101	Male	No	Fri	Dinner	2	12.46	1.5	13.96							
102	Female	Yes	Fri	Dinner	2	11.35	2.5	13.85							
103	Female	Yes	Fri	Dinner	2	15.38	3	18.38							
104	Female	Yes	Sat	Dinner	3	44.3	2.5	46.8							
105	Female	Yes	Sat	Dinner	2	22.42	3.48	25.9							
106	Female	No	Sat	Dinner	2	20.92	4.08	25							
107	Male	Yes	Sat	Dinner	2	15.36	1.64	17							
108	Male	Yes	Sat	Dinner	2	20.49	4.06	24.55							
109	Male	Yes	Sat	Dinner	2	25.21	4.29	29.5							
110	Male	No	Sat	Dinner	2	18.24	3.76	22							
111	Female	Yes	Sat	Dinner	2	14.31	4	18.31							
112	Male	No	Sat	Dinner	2	14	3	17							
113	Female	No	Sat	Dinner	1	7.25	1	8.25							
114	Male	No	Sun	Dinner	3	38.07	4	42.07							
115	Male	No	Sun	Dinner	2	23.95	2.55	26.5							
116	Female	No	Sun	Dinner	3	25.71	4	29.71							
117	Female	No	Sun	Dinner	2	17.31	3.5	20.81							
118	Male	No	Sun	Dinner	4	29.93	5.07	35							
119	Female	No	Thur	Lunch	2	10.65	1.5	12.15							
120	Female	No	Thur	Lunch	1	17.43	1.4	18.83							

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Clipboard Font Alignment Merge & Center Number

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General DT - % 12 43

Conditional Formatting Format as Table Cell Styles Insert Delete Format Sort & Find & Filter Select Editing

M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
120	Female	No	Thur	Lunch	2	12.43	1.8	14.23							
121	Female	No	Thur	Lunch	4	24.08	2.92	27							
122	Male	No	Thur	Lunch	2	11.69	2.31	14							
123	Female	No	Thur	Lunch	2	13.42	1.68	15.1							
124	Male	No	Thur	Lunch	2	14.26	2.5	16.76							
125	Male	No	Thur	Lunch	2	15.95	2	17.95							
126	Female	No	Thur	Lunch	2	12.48	2.52	15							
127	Female	No	Thur	Lunch	6	29.8	4.2	34							
128	Male	No	Thur	Lunch	2	8.52	1.48	10							
129	Female	No	Thur	Lunch	2	14.52	2	16.52							
130	Female	No	Thur	Lunch	2	11.38	2	13.38							
131	Male	No	Thur	Lunch	3	22.82	2.18	25							
132	Male	No	Thur	Lunch	2	19.08	1.5	20.58							
133	Female	No	Thur	Lunch	2	20.27	2.81	23.1							
134	Female	No	Thur	Lunch	2	11.17	1.5	12.67							
135	Female	No	Thur	Lunch	2	12.26	2	14.26							
136	Female	No	Thur	Lunch	2	18.26	3.25	21.51							
137	Female	No	Thur	Lunch	2	8.51	1.25	9.76							
138	Female	No	Thur	Lunch	2	10.33	2	12.33							
139	Female	No	Thur	Lunch	2	14.15	2	16.15							
140	Male	No	Thur	Lunch	2	14.1	2	16.1							

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Clipboard Font Alignment Merge & Center Number Conditional Formatting Styles Cells Insert Delete Format Sort & Find & Filter

M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
140	Male	Yes	Thur	lunch	2	16	2	18							
141	Female	No	Thur	lunch	2	11.16	2.75	15.91							
142	Female	No	Thur	lunch	2	17.47	3.5	20.97							
143	Male	No	Thur	lunch	6	34.3	6.7	41							
144	Male	No	Thur	lunch	5	41.19	5	46.19							
145	Female	No	Thur	lunch	6	27.05	5	32.05							
146	Female	No	Thur	lunch	2	16.43	2.3	18.73							
147	Female	No	Thur	lunch	2	8.35	1.5	9.85							
148	Female	No	Thur	lunch	3	18.64	1.36	20							
149	Female	No	Thur	lunch	2	11.87	1.63	13.5							
150	Male	No	Thur	lunch	2	9.78	1.73	11.51							
151	Male	No	Thur	lunch	2	7.51	2	9.51							
152	Male	No	Sun	Dinner	2	14.07	2.5	16.57							
153	Male	No	Sun	Dinner	2	11.13	2	15.13							
154	Male	No	Sun	Dinner	3	17.26	2.74	20							
155	Male	No	Sun	Dinner	4	24.55	2	26.55							
156	Male	No	Sun	Dinner	4	19.77	2	21.77							
157	Female	No	Sun	Dinner	5	29.85	5.14	34.99							
158	Male	No	Sun	Dinner	6	48.17	5	53.17							
159	Female	No	Sun	Dinner	4	25	3.75	28.75							
160	Female	No	Sun	Dinner	1	13.39	2.61	16							

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Clipboard Font Alignment Merge & Center Number Conditional Formatting Styles Cells Insert Delete Format Sort & Find & Filter

M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
160	Female	No	Sun	Dinner	2	13.39	2.61	16							
161	Male	No	Sun	Dinner	4	16.49	2	18.49							
162	Male	No	Sun	Dinner	4	21.5	3.5	25							
163	Male	No	Sun	Dinner	2	12.66	2.5	15.16							
164	Female	No	Sun	Dinner	3	16.21	2	18.21							
165	Male	No	Sun	Dinner	2	13.81	2	15.81							
166	Female	Yes	Sun	Dinner	2	17.51	3	20.51							
167	Male	No	Sun	Dinner	3	24.52	3.48	28							
168	Male	No	Sun	Dinner	2	20.76	2.24	23							
169	Male	No	Sun	Dinner	4	31.71	4.5	36.21							
170	Female	Yes	Sat	Dinner	2	10.59	1.63	12.2							
171	Female	Yes	Sat	Dinner	2	10.63	2	12.63							
172	Male	Yes	Sat	Dinner	3	50.81	10	60.81							
173	Male	Yes	Sat	Dinner	2	15.81	3.16	18.97							
174	Male	Yes	Sun	Dinner	2	7.25	5.15	12.4							
175	Male	Yes	Sun	Dinner	2	31.85	3.18	35.03							
176	Male	Yes	Sun	Dinner	2	16.82	4	20.82							
177	Male	Yes	Sun	Dinner	2	32.9	3.11	36.01							
178	Male	Yes	Sun	Dinner	2	17.89	2	19.89							
179	Male	Yes	Sun	Dinner	2	14.48	2	16.48							
180	Female	No	Sun	Dinner	1	13.39	2.61	16							

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Clipboard Font Alignment Merge & Center Number Conditional Formatting Styles Cells Insert Delete Format Sort & Find & Filter Select Editing

M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
190	Female	Yes	Sun	Dinner	3	18.15	3.5	21.65							
191	Male	Yes	Sun	Dinner	3	23.1	4	27.1							
192	Male	Yes	Sun	Dinner	2	15.69	1.5	17.19							
193	Female	Yes	Thur	Lunch	2	19.81	4.19	24							
194	Male	Yes	Thur	Lunch	2	28.44	2.56	31							
195	Male	Yes	Thur	Lunch	2	15.48	2.02	17.5							
196	Male	Yes	Thur	Lunch	2	16.58	4	20.58							
197	Male	No	Thur	Lunch	2	7.56	1.44	9							
198	Male	Yes	Thur	Lunch	2	10.34	2	12.34							
199	Female	Yes	Thur	Lunch	4	43.11	5	48.11							
200	Female	Yes	Thur	Lunch	2	13	2	15							
201	Male	Yes	Thur	Lunch	2	13.51	2	15.51							
202	Male	Yes	Thur	Lunch	3	18.71	4	22.71							
203	Female	Yes	Thur	Lunch	2	12.74	2.01	14.75							
204	Female	Yes	Thur	Lunch	2	13	2	15							
205	Female	Yes	Thur	Lunch	2	16.4	2.5	18.9							
206	Male	Yes	Thur	Lunch	4	20.53	4	24.53							
207	Female	Yes	Thur	Lunch	3	16.47	3.23	19.7							
208	Male	Yes	Sat	Dinner	3	26.59	3.41	30							
209	Male	Yes	Sat	Dinner	4	38.73	3	41.73							
210	Male	Yes	Fri	Lunch	3	14.77	1.03	15.8							

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Clipboard Font Alignment Merge & Center Number Conditional Formatting Styles Cells Insert Delete Format Sort & Find & Filter Select Editing

M12 day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
212	Male	Yes	Sat	Dinner	3	30.06	2	32.06							
213	Male	Yes	Sat	Dinner	4	25.89	5.16	31.05							
214	Male	No	Sat	Dinner	4	48.33	9	57.33							
215	Female	Yes	Sat	Dinner	2	13.27	2.5	15.77							
216	Female	Yes	Sat	Dinner	3	28.17	6.5	34.67							
217	Female	Yes	Sat	Dinner	2	12.9	1.1	14							
218	Male	Yes	Sat	Dinner	5	28.15	3	31.15							
219	Male	Yes	Sat	Dinner	2	11.59	1.5	13.09							
220	Male	Yes	Sat	Dinner	2	7.74	1.44	9.18							
221	Female	Yes	Sat	Dinner	4	30.14	3.09	33.23							
222	Male	Yes	Fri	Lunch	2	12.18	2.2	14.36							
223	Female	Yes	Fri	Lunch	2	13.42	3.48	16.9							
224	Male	Yes	Fri	Lunch	1	8.58	1.92	10.5							
225	Female	No	Fri	Lunch	3	15.98	3	18.98							
226	Male	Yes	Fri	Lunch	2	13.42	1.58	15							
227	Female	Yes	Fri	Lunch	2	16.27	2.5	18.77							
228	Female	Yes	Fri	Lunch	2	10.09	2	12.09							
229	Male	No	Sat	Dinner	4	20.45	3	23.45							
230	Male	No	Sat	Dinner	2	13.28	2.72	16							
231	Female	Yes	Sat	Dinner	2	22.12	2.88	25							
232	Male	Yes	Fri	Lunch	4	14.61	3	17.61							

tips cleaningmissing mypivots MissingValues DataCleaning Subtotals Features Predict

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
229	Male	No	Sat	Dinner	4	20.45	3	23.45							
230	Male	No	Sat	Dinner	2	13.28	2.72	16							
231	Female	Yes	Sat	Dinner	2	22.12	2.88	25							
232	Male	Yes	Sat	Dinner	4	24.01	2	26.01							
233	Male	Yes	Sat	Dinner	3	15.69	3	18.69							
234	Male	No	Sat	Dinner	2	11.61	3.39	15							
235	Male	No	Sat	Dinner	2	10.77	1.47	12.24							
236	Male	Yes	Sat	Dinner	2	15.53	3	18.53							
237	Male	No	Sat	Dinner	2	10.07	1.25	11.32							
238	Male	Yes	Sat	Dinner	2	12.6	1	13.6							
239	Male	Yes	Sat	Dinner	2	32.83	1.17	34							
240	Female	No	Sat	Dinner	3	35.83	4.67	40.5							
241	Male	No	Sat	Dinner	3	29.03	5.92	34.95							
242	Female	Yes	Sat	Dinner	2	27.18	2	29.18							
243	Male	Yes	Sat	Dinner	2	22.67	2	24.67							
244	Male	No	Sat	Dinner	2	17.82	1.75	19.57							
245	Female	No	Thur	Dinner	2	18.78	3	21.78							
246					627	4827.77	731.58	5559.35							

Q2) Find out if there are missing values and clean the data

Ans) From the given dataset by using the concept of filter, I analyze that there are no NAN

Values in the given columns. Hence, there are no missing values in the dataset. However, for data cleaning I am using the concept of removing duplicates in size, total bill and tip columns

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Wrap Text Merge & Center Alignment Number Conditional Formatting Format as Table Cell Styles Insert Delete Format Cells Sort & Filter Find & Select Editing

Here, I am using the concept of removing Duplicates for Data Cleaning in Size, total_bill and in tip columns

size	total_bill	tip
2	16.99	1.01
3	10.34	1.66
4	21.01	3.5
1	23.68	3.31
6	24.59	3.61
5	25.29	4.71
	8.77	2
	26.88	3.12
	15.04	1.96
	14.78	3.23
	10.27	1.71
	35.26	5
	15.42	1.57
	18.43	3
	14.83	3.02
	21.58	3.92
	10.22	1.67

DataCleaning Subtotals Features Predic ... 99%

15:48 04-05-2023

	K	L	M	N	O	P	Q	R	S	T
			10.33	1.67						
			16.29	3.71						
			16.97	3.35						
			20.65	4.08						
			17.92	2.75						
			20.29	2.23						
			15.77	7.58						
			39.42	3.18						
			19.82	2.34						
			17.81	4.3						
			13.37	1.45						
			12.69	2.5						
			21.7	2.45						
			19.65	3.27						
			9.55	3.6						
			18.35	3.07						
			15.06	2.31						
			20.69	2.24						
			17.78	2.54						
			24.06	3.06						
			16.21	1.22						

Features Predic ...

99%

15:49 04-05-2023

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
68 Sat	Dinner	2	16.45	2.47							38.01	2.09						
69 Sat	Dinner	1	3.07	1							26.41	1.97						
70 Sat	Dinner	2	20.23	2.01							11.24	3.14						
71 Sat	Dinner	2	15.01	2.09							48.27	2.2						
72 Sat	Dinner	2	12.02	1.97							13.81	1.25						
73 Sat	Dinner	3	17.07	3							11.02	3.08						
74 Sat	Dinner	2	25.86	3.14							17.59	4						
75 Sat	Dinner	2	25.28	5							20.08	2.71						
76 Sat	Dinner	2	14.73	2.2							16.45	3.4						
77 Sat	Dinner	2	10.51	1.25							3.07	1.83						
78 Sat	Dinner	2	17.92	3.08							20.23	2.03						
79 Thur	Lunch	4	27.2	4							15.01	5.17						
80 Thur	Lunch	2	22.76	3							12.02	5.85						
81 Thur	Lunch	2	17.29	2.71							17.07	3.25						
82 Thur	Lunch	2	19.44	3							26.86	4.73						
83 Thur	Lunch	2	16.66	3.4							25.28	3.48						
84 Thur	Lunch	1	10.07	1.83							14.73	1.64						
85 Thur	Lunch	2	32.68	5							10.51	4.06						
86 Thur	Lunch	2	15.98	2.03							27.2	4.29						
87 Thur	Lunch	4	34.83	5.17							22.76	2.55						
88 Thur	Lunch	3	12.09	1							17.92	2.07						

tips | cleaningmissing | mypivots | MissingValues | DataCleaning | Subtotals | Features | Predic ...

99%

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Clipboard Font Alignment Number Styles Cells Editing

1228

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
88	Thur	Lunch	2	13.03	2						17.29	5.07						
89	Thur	Lunch	2	18.28	4						19.44	1.8						
90	Thur	Lunch	2	24.71	5.85						16.66	2.92						
91	Thur	Lunch	2	21.16	3						10.07	1.68						
92	Fri	Dinner	2	28.97	3						32.68	2.52						
93	Fri	Dinner	2	22.49	3.5						15.98	4.2						
94	Fri	Dinner	2	5.75	1						34.83	1.48						
95	Fri	Dinner	2	16.32	4.3						13.03	2.18						
96	Fri	Dinner	2	22.75	3.25						18.28	2.83						
97	Fri	Dinner	4	40.17	4.73						24.71	6.7						
98	Fri	Dinner	2	27.28	4						21.16	2.3						
99	Fri	Dinner	2	12.03	1.5						28.97	1.36						
100	Fri	Dinner	2	21.01	3						22.49	1.63						
101	Fri	Dinner	2	12.46	1.5						5.75	1.73						
102	Fri	Dinner	2	11.35	2.5						16.32	2.74						
103	Fri	Dinner	2	15.38	3						22.75	5.14						
104	Sat	Dinner	3	44.3	2.5						40.17	3.75						
105	Sat	Dinner	2	22.42	3.48						27.28	2.61						
106	Sat	Dinner	2	20.92	4.08						12.03	4.5						
107	Sat	Dinner	2	15.36	1.64						12.46	1.61						
108	Sat	Dinner	2	20.49	4.06						11.35	10						
109	Sat	Dinner	2	25.21	4.29						15.38	3.16						
110	Sat	Dinner	2	18.24	3.76						44.3	5.19						
111	Sat	Dinner	2	14.31	4						22.42	3.11						
112	Sat	Dinner	2	14	3						20.92	3.55						
113	Sat	Dinner	1	7.25	1						15.36	3.68						
114	Sun	Dinner	3	38.07	4						20.49	5.65						
115	Sun	Dinner	2	23.95	2.55						25.21	6.5						
116	Sun	Dinner	3	25.71	4						18.24	4.19						
117	Sun	Dinner	2	17.31	3.5						14.31	2.56						
118	Sun	Dinner	4	29.93	5.07						14	2.02						
119	Thur	Lunch	2	10.65	1.5						7.25	1.44						
120	Thur	Lunch	2	12.43	1.8						38.07	3.41						
121	Thur	Lunch	4	24.08	2.92						23.95	5.16						
122	Thur	Lunch	2	11.69	2.31						25.71	9						
123	Thur	Lunch	2	13.42	1.68						17.31	1.1						
124	Thur	Lunch	2	14.36	1.8						36.03	2.06						

tips cleaningmissing mypivots MissingValues DataCleaning Subtotals Features Predic

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Clipboard Font Alignment Number Styles Cells Editing

1228

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
104	Sat	Dinner	3	44.3	2.5						40.17	3.75						
105	Sat	Dinner	2	22.42	3.48						27.28	2.61						
106	Sat	Dinner	2	20.92	4.08						12.03	4.5						
107	Sat	Dinner	2	15.36	1.64						12.46	1.61						
108	Sat	Dinner	2	20.49	4.06						11.35	10						
109	Sat	Dinner	2	25.21	4.29						15.38	3.16						
110	Sat	Dinner	2	18.24	3.76						44.3	5.19						
111	Sat	Dinner	2	14.31	4						22.42	3.11						
112	Sat	Dinner	2	14	3						20.92	3.55						
113	Sat	Dinner	1	7.25	1						15.36	3.68						
114	Sun	Dinner	3	38.07	4						20.49	5.65						
115	Sun	Dinner	2	23.95	2.55						25.21	6.5						
116	Sun	Dinner	3	25.71	4						18.24	4.19						
117	Sun	Dinner	2	17.31	3.5						14.31	2.56						
118	Sun	Dinner	4	29.93	5.07						14	2.02						
119	Thur	Lunch	2	10.65	1.5						7.25	1.44						
120	Thur	Lunch	2	12.43	1.8						38.07	3.41						
121	Thur	Lunch	4	24.08	2.92						23.95	5.16						
122	Thur	Lunch	2	11.69	2.31						25.71	9						
123	Thur	Lunch	2	13.42	1.68						17.31	1.1						
124	Thur	Lunch	2	14.36	1.8						36.03	2.06						

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Number		Styles		Cells		Editing				
J	K	L	M	N	O	P	Q	R	S	T
			29.93	3.09						
			10.65	1.92						
			12.43	1.58						
			24.08	2.72						
			11.69	2.88						
			13.42	3.39						
			14.26	1.47						
			15.95	1.17						
			12.48	4.67						
			29.8	5.92						
			8.52	1.75						
			14.52							
			11.38							
			22.82							
			19.08							
			20.27							
			11.17							
			12.26							
			18.26							
			8.51							
			14.15							
Subtotals			Features		Predic ...					

<

Enter 70 0.00 0.0

Formatting Table Styles Filter Select Editing

Number Styles Cells

J	K	L	M	N	O	P	Q	R	S	T
			8.51							
			14.15							
			16							
			13.16							
			17.47							
			34.3							
			41.19							
			27.05							
			16.43							
			8.35							
			18.64							
			11.87							
			9.78							
			7.51							
			14.07							
			13.13							
			17.26							
			24.55							
			19.77							
			29.85							
			18.17							

Subtotals Features Predic ...

99%

15:51 04-05-2023 ENG

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Wrap Text Merge & Center Alignment Number Conditional Formatting Format as Table Cell Styles Insert Delete Format Sort & Find & Filter Select Editing

G	H	I	J	K	L	M	N	O	P	Q	R	S	T
3.5						29.85							
2.5						48.17							
2						25							
2						13.39							
3						16.49							
3.48						21.5							
2.24						12.66							
4.5						16.21							
1.61						17.51							
2						24.52							
10						20.76							
3.16						31.71							
5.15						10.59							
3.18						10.63							
4						50.81							
3.11						15.81							
2						31.85							
2						16.82							
4						32.9							
3.55						17.89							
3.55						17.89							

ingValues DataCleaning Subtotals Features Predic ...

15:51 04-05-2023

H	I	J	K	L	M	N	O	P	Q	R	S	T	
					50.81								
					15.81								
					31.85								
					16.82								
					32.9								
					17.89								
					14.48								
					9.6								
					34.63								
					34.65								
					23.33								
					45.35								
					23.17								
					40.55								
					20.9								
					30.46								
					18.15								
					23.1								
					15.69								
					19.81								
					29.11								

The below attached is the screenshot of the data cleaning where the columns day,time,size,total bill,tip and actual bills are clubbed by Group By concepts

My Restaurant - Excel

File Home Insert Page Layout Formulas Data Review View Developer Help Table Design

Clipboard Font Alignment Number Styles Cells Editing

day

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Sex	Smoker	Day	Time	Size	Total	Tip	Actual BB											
2	Female	No	Sun	Dinner	2	16.99	1.01	18											
3	Male	No	Sun	Dinner	3	10.34	1.66	12											
4	Male	No	Sun	Dinner	3	21.01	3.5	24.51											
5	Male	No	Sun	Dinner	2	23.68	3.31	26.99											
6	Female	No	Sun	Dinner	4	24.59	3.61	28.2											
7	Male	No	Sun	Dinner	4	25.29	4.71	30											
8	Male	No	Sun	Dinner	2	8.77	2	10.77											
9	Male	No	Sun	Dinner	4	26.88	3.12	30											
10	Male	No	Sun	Dinner	2	15.04	1.95	17											
11	Male	No	Sun	Dinner	2	14.78	3.23	18.01											
12	Male	No	Sun	Dinner	2	10.27	1.71	11.98											
13	Female	No	Sun	Dinner	4	35.26	5	40.26											
14	Male	No	Sun	Dinner	2	15.42	1.57	16.99											
15	Male	No	Sun	Dinner	4	18.43	3	21.43											
16	Female	No	Sun	Dinner	2	14.83	3.02	17.85											
17	Male	No	Sun	Dinner	2	21.58	3.92	25.5											
18	Female	No	Sun	Dinner	3	10.33	1.67	12											

Ready

tips cleaningmissing mypivots Missing/Values DataCleaning Subtotals Features Predic ...

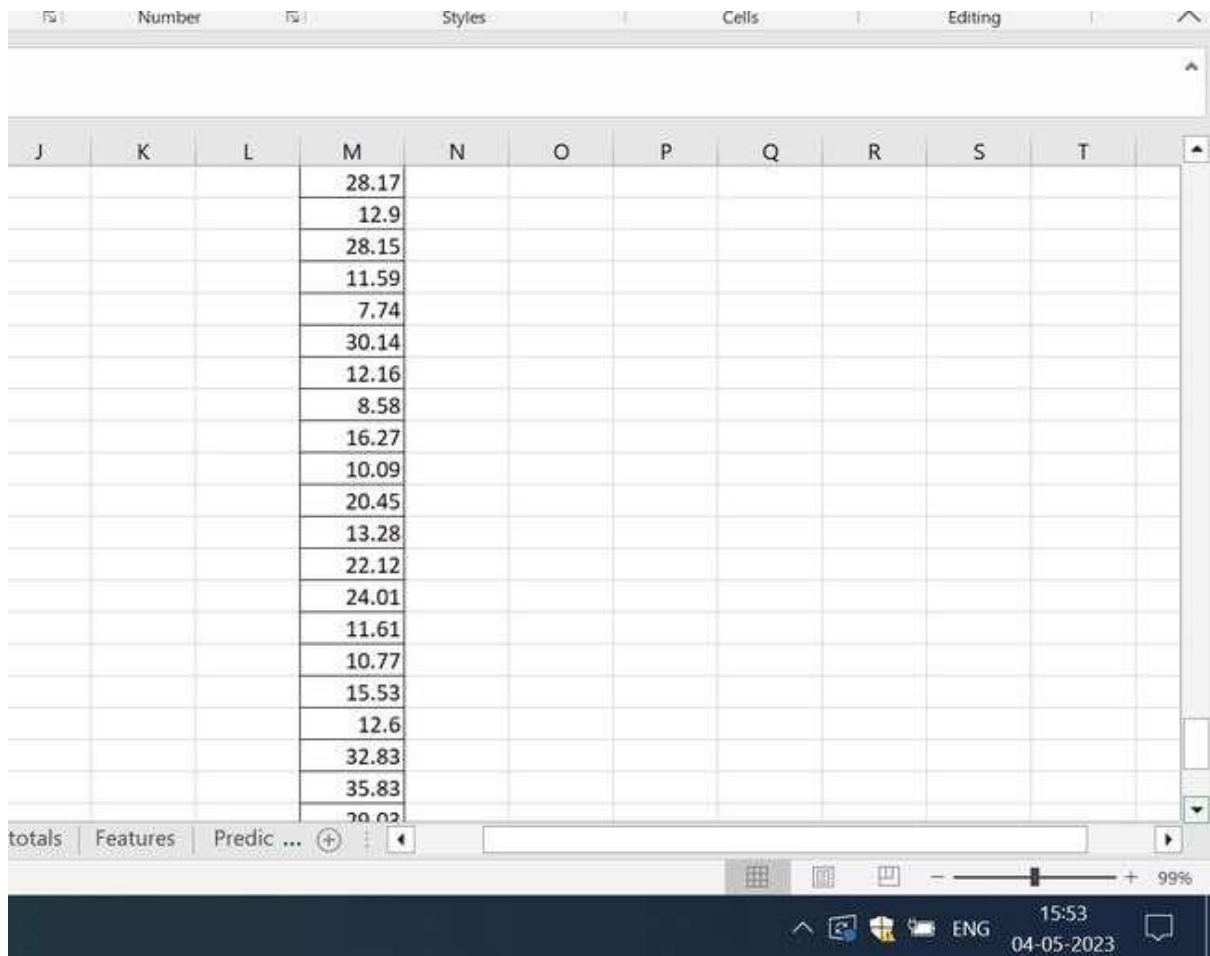
16:00 04-05-2023

Number Styles Cells Editing

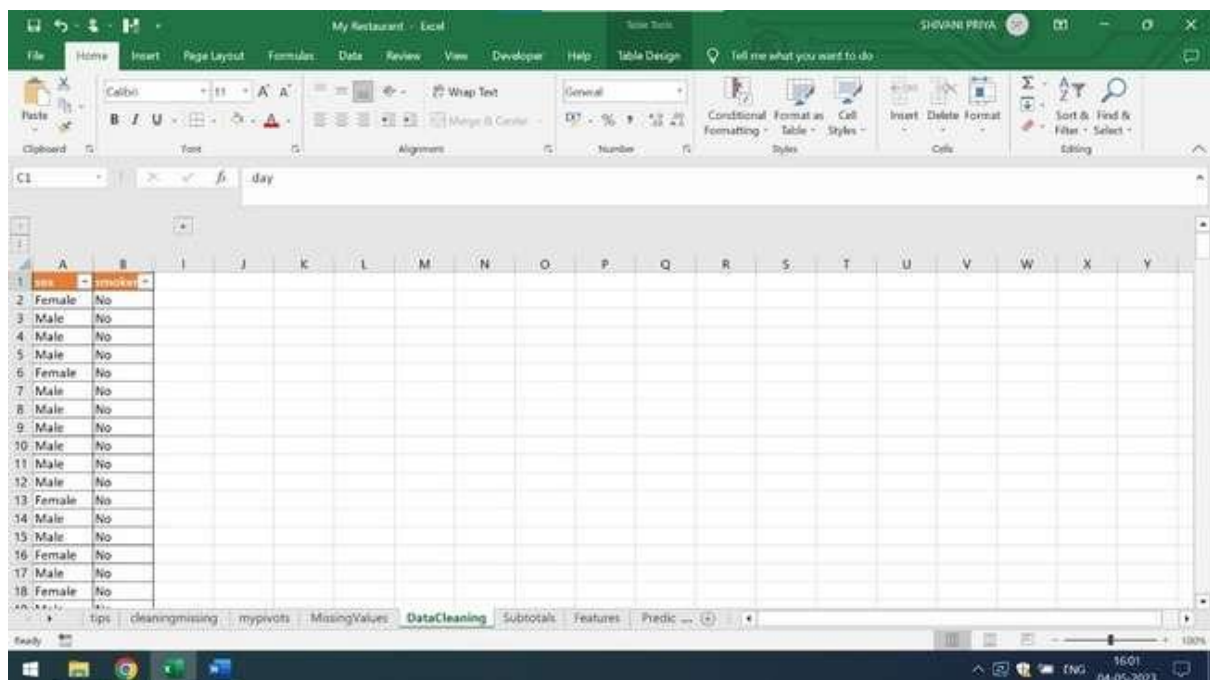
I	J	K	L	M	N	O	P	Q	R	S	T
				28.44							
				15.48							
				16.58							
				7.56							
				43.11							
				13							
				13.51							
				18.71							
				12.74							
				16.4							
				20.53							
				16.47							
				26.59							
				38.73							
				24.27							
				12.76							
				30.06							
				25.89							
				48.33							
				13.27							
				28.17							

ng Subtotals Features Predic ...

15:52 04-05-2023



When the user clicks on – symbol, only first two columns are visible



For data cleaning, one can also use the concept of subtotal. The below mentioned screenshots shows the subtotal of Actual Bill for Friday Dinner, Saturday Dinner, Sunday Dinner, Thursday Dinner, Saturday, Thursday and Sunday Lunch

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D254

1	day	time	total_bill	tip	Actual Bill
2	Fri	Dinner	3.07	1	4.07
3	Fri	Dinner	5.75	1	6.75
4	Fri	Dinner	7.25	1	8.25
5	Fri	Dinner	7.25	5.15	12.4
6	Fri	Dinner	7.51	2	9.51
7	Fri	Dinner	7.56	1.44	9
8	Fri	Dinner	7.74	1.44	9.18
9	Fri	Dinner	8.35	1.5	9.85
10	Fri	Dinner	8.51	1.25	9.76
11	Fri	Dinner	8.52	1.48	10
12	Fri	Dinner	8.58	1.92	10.5
13	Fri	Dinner	8.77	2	10.77
14	Fri	Dinner	9.55	1.45	11
15	Fri	Dinner	9.6	4	13.6
16	Fri	Dinner	9.68	1.32	11
17	Fri	Dinner	9.78	1.73	11.51
18	Fri	Dinner	9.94	1.56	11.5
19	Fri	Dinner	10.07	1.25	11.32
20	Fri	Dinner	10.07	1.83	11.9
21	Fri Total				191.87

sex Gender of the customer
smoker Indicates if the customer is a smoker
day Day of the restaurant visit
time indicates whether the tip was for lunch or dinner
size Number of members dining
total_bill Bill amount in USD
tip Tip amount in USD

Ready tips cleaningmissing mypivots MissingValues DataCleaning Subtotals Features Predic ... 100%

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Clipboard Font Alignment Number Styles Cells Editing

D254

5	Fri	Dinner	7.25	5.15	12.4
6	Fri	Dinner	7.51	2	9.51
7	Fri	Dinner	7.56	1.44	9
8	Fri	Dinner	7.74	1.44	9.18
9	Fri	Dinner	8.35	1.5	9.85
10	Fri	Dinner	8.51	1.25	9.76
11	Fri	Dinner	8.52	1.48	10
12	Fri	Dinner	8.58	1.92	10.5
13	Fri	Dinner	8.77	2	10.77
14	Fri	Dinner	9.55	1.45	11
15	Fri	Dinner	9.6	4	13.6
16	Fri	Dinner	9.68	1.32	11
17	Fri	Dinner	9.78	1.73	11.51
18	Fri	Dinner	9.94	1.56	11.5
19	Fri	Dinner	10.07	1.25	11.32
20	Fri	Dinner	10.07	1.83	11.9
21	Fri Total				191.87
22	Sat	Dinner	10.09	2	12.09
23	Sat	Dinner	10.27	1.71	11.98
24	Sat	Dinner	10.29	2.6	12.89
25	Sat	Dinner	10.33	1.67	12

day Day of the restaurant visit
time indicates whether the tip was for lunch or dinner
size Number of members dining
total_bill Bill amount in USD
tip Tip amount in USD

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Clipboard Font Alignment Number Styles Cells Sort & Filter Editing

D254

	A	B	C	D	E	F	G	H	I	J	K
22	Sat	Dinner	10.09	2	12.09						
23	Sat	Dinner	10.27	1.71	11.98						
24	Sat	Dinner	10.29	2.6	12.89						
25	Sat	Dinner	10.33	1.67	12						
26	Sat	Dinner	10.33	2	12.33						
27	Sat	Dinner	10.34	1.66	12						
28	Sat	Dinner	10.34	2	12.34						
29	Sat	Dinner	10.51	1.25	11.76						
30	Sat	Dinner	10.59	1.61	12.2						
31	Sat	Dinner	10.63	2	12.63						
32	Sat	Dinner	10.65	1.5	12.15						
33	Sat	Dinner	10.77	1.47	12.24						
34	Sat	Dinner	11.02	1.98	13						
35	Sat	Dinner	11.17	1.5	12.67						
36	Sat	Dinner	11.24	1.76	13						
37	Sat	Dinner	11.35	2.5	13.85						
38	Sat	Dinner	11.38	2	13.38						
39	Sat	Dinner	11.59	1.5	13.09						
40	Sat	Dinner	11.61	3.39	15						
41	Sat	Dinner	11.69	2.31	14						
42	Sat	Dinner	11.87	1.63	13.5						
43	Sat	Dinner	12.02	1.97	13.99						
44	Sat	Dinner	12.03	1.5	13.53						
45	Sat	Dinner	12.16	2.2	14.36						
46	Sat	Dinner	12.26	2	14.26						
47	Sat	Dinner	12.43	1.8	14.23						
48	Sat	Dinner	12.46	1.5	13.96						
49	Sat	Dinner	12.48	2.52	15						
50	Sat	Dinner	12.54	2.5	15.04						
51	Sat	Dinner	12.6	1	13.6						
52	Sat	Dinner	12.66	2.5	15.16						
53	Sat	Dinner	12.69	2	14.69						
54	Sat	Dinner	12.74	2.01	14.75						
55	Sat	Dinner	12.76	2.23	14.99						
56	Sat	Dinner	12.9	1.1	14						
57	Sat	Dinner	13	2	15						
58	Sat	Dinner	13	2	15						
59	Sat	Dinner	13.03	2	15.03						
60	Sat	Dinner	13.13	2	15.13						
61	Sat	Dinner	13.16	2.75	15.91						
62	Sat	Dinner	13.37	1.6	14.97						

tips cleaningmissing mypivots MissingValues DataCleaning Subtotals Features Predic ...

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16:21 04-05-2021

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Clipboard Font Alignment Number Styles Cells Sort & Filter Editing

D254

	A	B	C	D	E	F	G	H	I	J	K
42	Sat	Dinner	11.87	1.63	13.5						
43	Sat	Dinner	12.02	1.97	13.99						
44	Sat	Dinner	12.03	1.5	13.53						
45	Sat	Dinner	12.16	2.2	14.36						
46	Sat	Dinner	12.26	2	14.26						
47	Sat	Dinner	12.43	1.8	14.23						
48	Sat	Dinner	12.46	1.5	13.96						
49	Sat	Dinner	12.48	2.52	15						
50	Sat	Dinner	12.54	2.5	15.04						
51	Sat	Dinner	12.6	1	13.6						
52	Sat	Dinner	12.66	2.5	15.16						
53	Sat	Dinner	12.69	2	14.69						
54	Sat	Dinner	12.74	2.01	14.75						
55	Sat	Dinner	12.76	2.23	14.99						
56	Sat	Dinner	12.9	1.1	14						
57	Sat	Dinner	13	2	15						
58	Sat	Dinner	13	2	15						
59	Sat	Dinner	13.03	2	15.03						
60	Sat	Dinner	13.13	2	15.13						
61	Sat	Dinner	13.16	2.75	15.91						
62	Sat	Dinner	13.37	1.6	14.97						

tips cleaningmissing mypivots MissingValues DataCleaning Subtotals Features Predic ...

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16:21 04-05-2021

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Clipboard Font Alignment Number Styles Cells Editing

Calibri 11 A A' Wrap Text General 100% 100%

Font Alignment Number Styles Cells Editing

D254

	A	B	C	D	E	F	G	H	I	J	K
64 Sat	Dinner	13.37	2	15.37							
65 Sat	Dinner	13.39	2.61	16							
66 Sat	Dinner	13.42	1.68	15.1							
67 Sat	Dinner	13.42	3.48	16.9							
68 Sat	Dinner	13.42	1.58	15							
69 Sat	Dinner	13.51	2	15.51							
70 Sat	Dinner	13.81	2	15.81							
71 Sat	Dinner	13.81	2	15.81							
72 Sat	Dinner	13.94	3.06	17							
73 Sat	Dinner	14	3	17							
74 Sat	Dinner	14.07	2.5	16.57							
75 Sat	Dinner	14.15	2	16.15							
76 Sat	Dinner	14.26	2.5	16.76							
77 Sat	Dinner	14.31	4	18.31							
78 Sat	Dinner	14.48	2	16.48							
79 Sat	Dinner	14.52	2	16.52							
80 Sat	Dinner	14.73	2.2	16.93							
81 Sat	Dinner	14.78	3.23	18.01							
82 Sat	Dinner	14.83	3.02	17.85							
83 Sat	Dinner	15.01	2.09	17.1							
84 Sat	Dinner	15.04	1.96	17							
85 Sat	Dinner	15.06	3	18.06							
86 Sat	Dinner	15.36	1.64	17							
87 Sat	Dinner	15.38	3	18.38							
88 Sat	Dinner	15.42	1.57	16.99							
89 Sat	Dinner	15.48	2.02	17.5							
90 Sat	Dinner	15.53	3	18.53							
91 Sat	Dinner	15.69	1.5	17.19							
92 Sat	Dinner	15.69	3	18.69							
93 Sat	Dinner	15.77	2.23	18							
94 Sat	Dinner	15.81	3.16	18.97							
95 Sat	Dinner	15.95	2	17.95							
96 Sat Total				1121.94							
97 Sun	Dinner	15.98	2.03	18.01							
98 Sun	Dinner	15.98	3	18.98							
99 Sun	Dinner	16	3	19							

tips cleaningmissing mypivots MissingValues DataCleaning Subtotals Features Predict

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D254

	A	B	C	D	E	F	G	H	I	J	K
79 Sat	Dinner	14.52	2	16.52							
80 Sat	Dinner	14.73	2.2	16.93							
81 Sat	Dinner	14.78	3.23	18.01							
82 Sat	Dinner	14.83	3.02	17.85							
83 Sat	Dinner	15.01	2.09	17.1							
84 Sat	Dinner	15.04	1.96	17							
85 Sat	Dinner	15.06	3	18.06							
86 Sat	Dinner	15.36	1.64	17							
87 Sat	Dinner	15.38	3	18.38							
88 Sat	Dinner	15.42	1.57	16.99							
89 Sat	Dinner	15.48	2.02	17.5							
90 Sat	Dinner	15.53	3	18.53							
91 Sat	Dinner	15.69	1.5	17.19							
92 Sat	Dinner	15.69	3	18.69							
93 Sat	Dinner	15.77	2.23	18							
94 Sat	Dinner	15.81	3.16	18.97							
95 Sat	Dinner	15.95	2	17.95							
96 Sat Total				1121.94							
97 Sun	Dinner	15.98	2.03	18.01							
98 Sun	Dinner	15.98	3	18.98							
99 Sun	Dinner	16	3	19							

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D254

	A	B	C	D	E	F	G	H	I	J	K
121	Sun	Dinner	17.46	2.54	20						
122	Sun	Dinner	17.47	3.5	20.97						
123	Sun	Dinner	17.51	3	20.51						
124	Sun	Dinner	17.59	2.64	20.23						
125	Sun	Dinner	17.78	3.27	21.05						
126	Sun	Dinner	17.81	2.34	20.15						
127	Sun	Dinner	17.82	1.75	19.57						
128	Sun	Dinner	17.89	2	19.89						
129	Sun	Dinner	17.92	4.08	22						
130	Sun	Dinner	17.92	3.08	21						
131	Sun	Dinner	18.04	3	21.04						
132	Sun	Dinner	18.15	3.5	21.65						
133	Sun	Dinner	18.24	3.76	22						
134	Sun	Dinner	18.26	3.25	21.51						
135	Sun	Dinner	18.28	4	22.28						
136	Sun	Dinner	18.29	3	21.29						
137	Sun	Dinner	18.29	3.76	22.05						
138	Sun	Dinner	18.35	2.5	20.85						
139	Sun	Dinner	18.43	3	21.43						
140	Sun Total				864.2						
141	Thurs	Dinner	19.64	1.36	21						

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Clipboard Font Alignment Number Conditional Formatting Styles Cells Insert Delete Format Sort & Find & Filter Select Editing

D254

	A	B	C	D	E	F	G	H	I	J	K
164	Thur	Dinner	20.9	3.5	24.4						
165	Thur	Dinner	20.92	4.08	25						
166	Thur	Dinner	21.01	3.5	24.51						
167	Thur	Dinner	21.01	3	24.01						
168	Thur	Dinner	21.16	3	24.16						
169	Thur	Dinner	21.5	3.5	25						
170	Thur	Dinner	21.58	3.92	25.5						
171	Thur	Dinner	21.7	4.3	26						
172	Thur	Dinner	22.12	2.88	25						
173	Thur	Dinner	22.23	5	27.23						
174	Thur	Dinner	22.42	3.48	25.9						
175	Thur	Dinner	22.49	3.5	25.99						
176	Thur	Dinner	22.67	2	24.67						
177	Thur	Dinner	22.75	3.25	26						
178	Thur	Dinner	22.76	3	25.76						
179	Thur	Dinner	22.82	2.18	25						
180	Thur	Dinner	23.1	4	27.1						
181	Thur Total				957.63						
182	Sat	Lunch	23.17	6.5	29.67						
183	Sat	Lunch	23.33	5.65	28.98						
184	Sat	Lunch	23.48	2.38	25.86						

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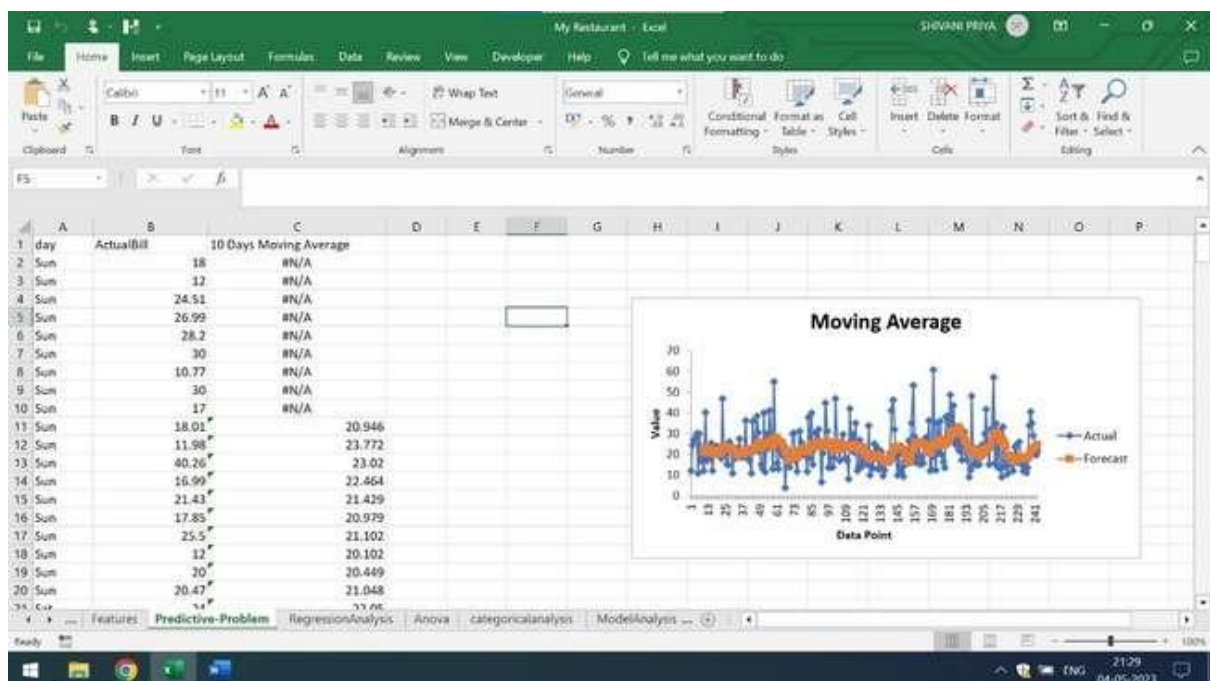
D254

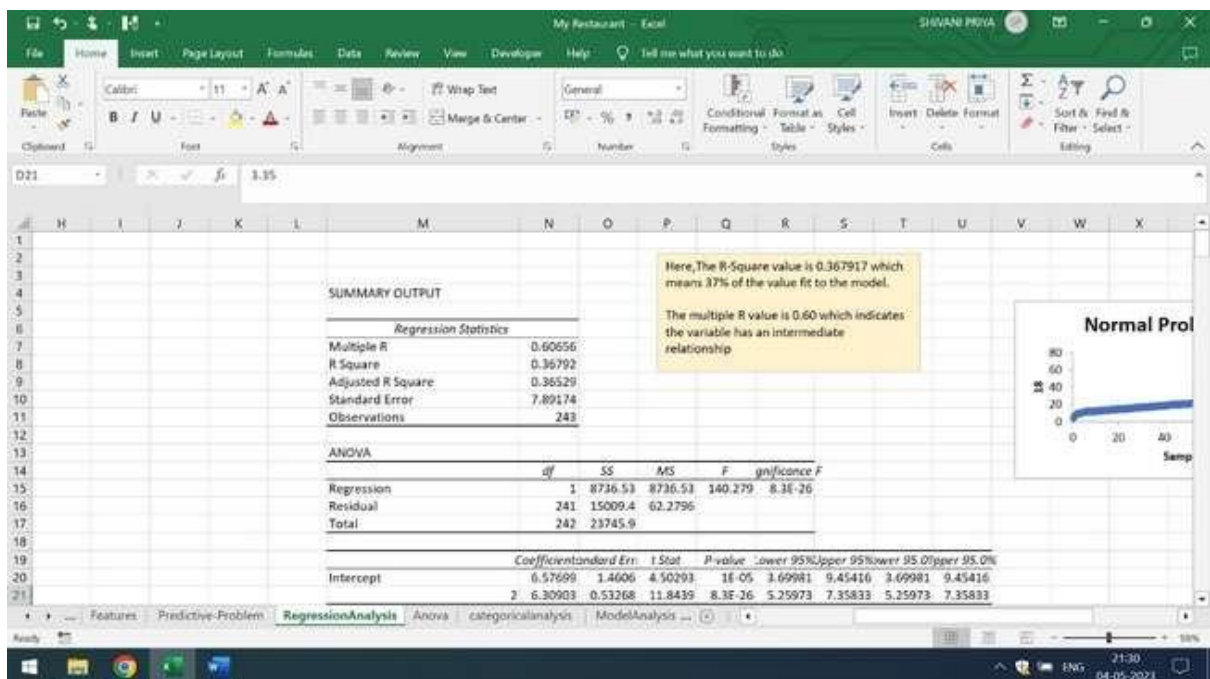
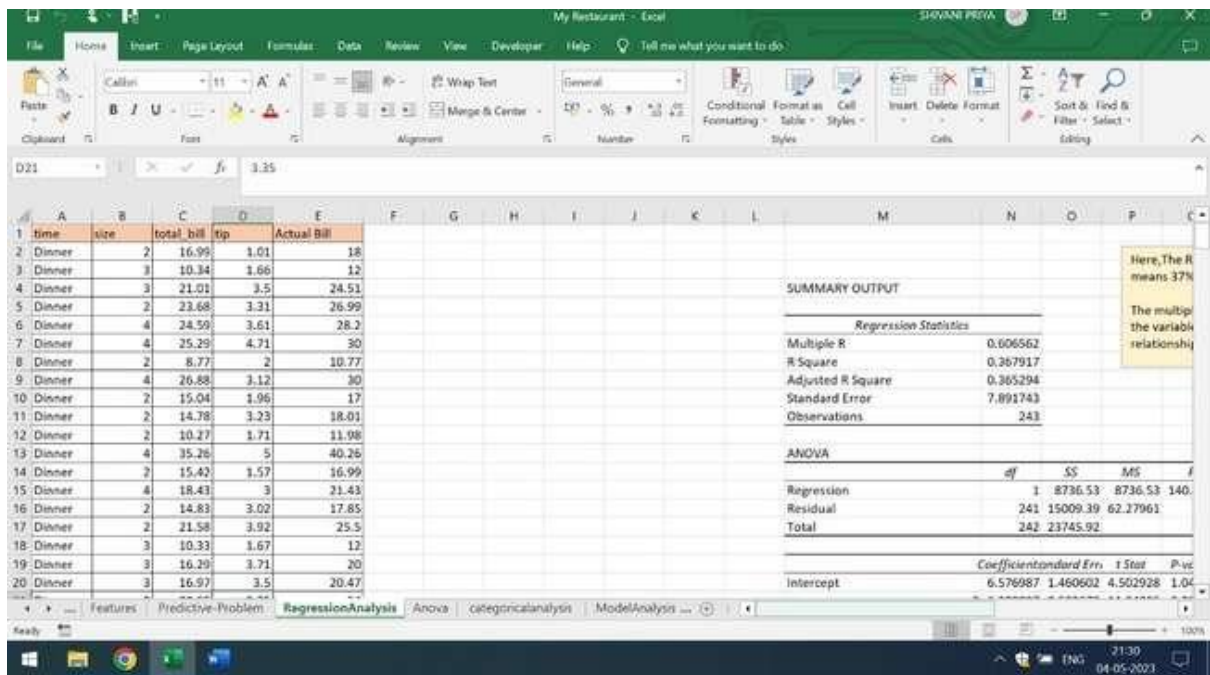
	A	B	C	D	E	F	G	H	I	J	K
183 Sat	Lunch		23.33	5.65	28.98						
184 Sat	Lunch		23.68	3.31	26.99						
185 Sat	Lunch		23.95	2.55	26.5						
186 Sat	Lunch		24.01	2	26.01						
187 Sat	Lunch		24.06	3.6	27.66						
188 Sat	Lunch		24.08	2.92	27						
189 Sat	Lunch		24.27	2.03	26.3						
190 Sat	Lunch		24.52	3.48	28						
191 Sat	Lunch		24.55	2	26.55						
192 Sat	Lunch		24.59	3.61	28.2						
193 Sat	Lunch		24.71	5.85	30.56						
194 Sat	Lunch		25	3.75	28.75						
195 Sat Total					361.17						
196 Sun	Lunch		25.21	4.29	29.5						
197 Sun	Lunch		25.28	5	30.28						
198 Sun	Lunch		25.29	4.71	30						
199 Sun	Lunch		25.56	4.34	29.9						
200 Sun	Lunch		25.71	4	29.71						
201 Sun	Lunch		25.89	5.16	31.05						
202 Sun	Lunch		26.41	1.5	27.91						
203 Sun	Lunch		26.5	3.43	29.93						
204 Sun	Lunch		26.5	3.43	29.93						
205 Sun	Lunch		26.5	3.43	29.93						
206 Sun	Lunch		26.5	3.43	29.93						
207 Sun	Lunch		26.5	3.43	29.93						
208 Sun	Lunch		26.5	3.43	29.93						
209 Sun	Lunch		26.5	3.43	29.93						
210 Sun	Lunch		26.5	3.43	29.93						
211 Sun	Lunch		26.5	3.43	29.93						
212 Sun	Lunch		26.5	3.43	29.93						
213 Sun	Lunch		26.5	3.43	29.93						
214 Sun	Lunch		26.5	3.43	29.93						
215 Sun	Lunch		26.5	3.43	29.93						
216 Sun	Lunch		26.5	3.43	29.93						
217 Sun	Lunch		26.5	3.43	29.93						
218 Sun	Lunch		26.5	3.43	29.93						
219 Sun	Lunch		26.5	3.43	29.93						
220 Sun	Lunch		26.5	3.43	29.93						
221 Sun	Lunch		26.5	3.43	29.93						
222 Sun	Lunch		26.5	3.43	29.93						
223 Sun	Lunch		26.5	3.43	29.93						
224 Sun	Lunch		26.5	3.43	29.93						
225 Sun	Lunch		26.5	3.43	29.93						
226 Sun	Lunch		26.5	3.43	29.93						
227 Sun	Lunch		26.5	3.43	29.93						
228 Sun	Lunch		26.5	3.43	29.93						
229 Sun Total					1071.73						
230 Thur	Lunch		32.9	3.11	36.01						
231 Thur	Lunch		34.3	6.7	41						
232 Thur	Lunch		34.63	3.55	38.18						
233 Thur	Lunch		34.65	3.68	38.33						
234 Thur	Lunch		34.81	5.2	40.01						
235 Thur	Lunch		34.83	5.17	40						
236 Thur	Lunch		35.26	5	40.26						
237 Thur	Lunch		35.22	4.47	39.69						
238 Thur	Lunch		35.22	4.47	39.69						
239 Thur	Lunch		35.22	4.47	39.69						
240 Thur	Lunch		35.22	4.47	39.69						
241 Thur	Lunch		35.22	4.47	39.69						
242 Thur	Lunch		35.22	4.47	39.69						
243 Thur	Lunch		35.22	4.47	39.69						
244 Thur	Lunch		35.22	4.47	39.69						
245 Thur	Lunch		35.22	4.47	39.69						
246 Thur	Lunch		35.22	4.47	39.69						
247 Thur	Lunch		35.22	4.47	39.69						
248 Thur	Lunch		35.22	4.47	39.69						
249 Thur	Lunch		35.22	4.47	39.69						
250 Thur	Lunch		35.22	4.47	39.69						
251 Thur	Lunch		35.22	4.47	39.69						
252 Thur	Lunch		35.22	4.47	39.69						
253 Thur	Lunch		35.22	4.47	39.69						
254 Thur	Lunch		35.22	4.47	39.69						
255 Thur	Lunch		35.22	4.47	39.69						
256 Thur	Lunch		35.22	4.47	39.69						
257 Thur	Lunch		35.22	4.47	39.69						
258 Thur	Lunch		35.22	4.47	39.69						
259 Thur	Lunch		35.22	4.47	39.69						
260 Thur	Lunch		35.22	4.47	39.69						
261 Thur	Lunch		35.22	4.47	39.69						
262 Thur	Lunch		35.22	4.47	39.69						
263 Thur	Lunch		35.22	4.47	39.69						
264 Thur	Lunch		35.22	4.47	39.69						
265 Thur	Lunch		35.22	4.47	39.69						
266 Thur	Lunch		35.22	4.47	39.69						
267 Thur	Lunch		35.22	4.47	39.69						
268 Thur	Lunch		35.22	4.47	39.69						
269 Thur	Lunch		35.22	4.47	39.69						
270 Thur	Lunch		35.22	4.47	39.69						
271 Thur	Lunch		35.22	4.47	39.69						
272 Thur	Lunch		35.22	4.47	39.69						
273 Thur	Lunch		35.22	4.47	39.69						
274 Thur	Lunch		35.22	4.47	39.69						
275 Thur	Lunch		35.22	4.47	39.69						
276 Thur	Lunch		35.22	4.47	39.69						
277 Thur	Lunch		35.22	4.47	39.69						
278 Thur	Lunch		35.22	4.47	39.69						
279 Thur	Lunch		35.22	4.47	39.69						
280 Thur	Lunch		35.22	4.47	39.69						
281 Thur	Lunch		35.22	4.47	39.69						
282 Thur	Lunch		35.22	4.47	39.69						
283 Thur	Lunch		35.22	4.47	39.69						
284 Thur	Lunch		35.22	4.47	39.69						
285 Thur	Lunch		35.22	4.47	39.69						
286 Thur	Lunch		35.22	4.47	39.69						
287 Thur	Lunch		35.22	4.47	39.69						
288 Thur	Lunch		35.22	4.47	39.69						
289 Thur	Lunch		35.22	4.47	39.69						
290 Thur	Lunch		35.22	4.47	39.69						
291 Thur	Lunch		35.22	4.47	39.69						
292 Thur	Lunch		35.22	4.47	39.69						
293 Thur	Lunch		35.22	4.47	39.69						
294 Thur	Lunch		35.22	4.47	39.69						
295 Thur	Lunch		35.22	4.47	39.69						
296 Thur	Lunch		35.22	4.47	39.69						
297 Thur	Lunch		35.22	4.47	39.69						
298 Thur	Lunch		35.22	4.47	39.69						
299 Thur	Lunch		35.22	4.47	39.69						
300 Thur	Lunch		35.22	4.47	39.69						
301 Thur	Lunch		35.22	4.47	39.69						
302 Thur	Lunch		35.22	4.47	39.69						
303 Thur	Lunch		35.22	4.47	39.69						
304 Thur	Lunch		35.22	4.47	39.69						
305 Thur	Lunch		35.22	4.47	39.69						
306 Thur	Lunch		35.22	4.47	39.69						
307 Thur	Lunch		35.22	4.47	39.69						
308 Thur	Lunch		35.22	4.47	39.69						
309 Thur	Lunch		35.22	4.47	39.69						
310 Thur	Lunch		35.22	4.47	39.69						
311 Thur	Lunch		35.22	4.47	39.69						
312 Thur	Lunch		35.22	4.47	39.69						
313 Thur	Lunch		35.22	4.47	39.69						
314 Thur	Lunch		35.22	4.47	39.69						
315 Thur	Lunch		35.22	4.47	39.69						
316 Thur	Lunch		35.22	4.47	39.69						
317 Thur	Lunch		35.22	4.47	39.69						
318 Thur	Lunch		35.22	4.47	39.69						
319 Thur	Lunch		35.22	4.47	39.69						
320 Thur	Lunch		35.22	4.47	39.69						
321 Thur	Lunch		35.22	4.47	39.69						
322 Thur	Lunch		35.22	4.47	39.69						
323 Thur	Lunch		35.22	4.47	39.69						
324 Thur	Lunch		35.22	4.47	39.69						
325 Thur	Lunch		35.22	4.47	39.69						
326 Thur	Lunch		35.22	4.47	39.69						
327 Thur	Lunch		35.22	4.47	39.69						
328 Thur	Lunch		35.22	4.47	39.69						
329 Thur	Lunch		35.22	4.47	39.69						
330 Thur	Lunch		35.22	4.47	39.69						
331 Thur	Lunch		35.22	4.47	39.69						
332 Thur	Lunch		35.22	4.47	39.69						
333 Thur	Lunch		35.22	4.47	39.69						
334 Thur	Lunch		35.22	4.47	39.69						
335 Thur	Lunch		35.22	4.47	39.69						
336 Thur	Lunch		35.22	4.47	39.69						
337 Thur	Lunch		35.22	4.47	39.69						
338 Thur	Lunch		35.22	4.47	39.69						
339 Thur	Lunch		35.22	4.47	39.69						
340 Thur	Lunch		35.22	4.47	39.69						
341 Thur	Lunch		35.22	4.47	39.69						
342 Thur	Lunch		35.22	4.47	39.69						

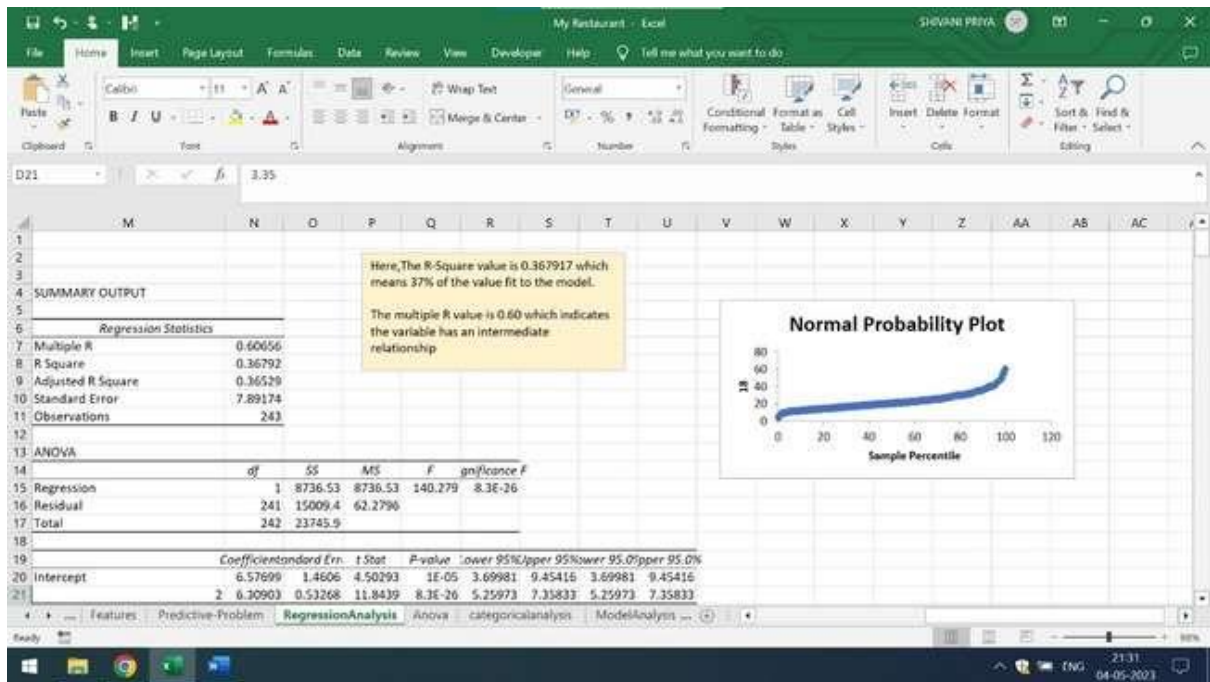
From the above mentioned screenshot, it is clear that when the Number of Members for Dinning is 1, the tip is the range from 1 to 2 USD, when the number of Members for Dinning is 2, the tip is in the range of 1 to 6 USD, when the number of Members for Dinning is 3, the tip is in the range of 1 to 10, when the number of Members for Dinning is 4, the tip is in the range of 2 to 9 USD, when the number of Members for Dinning is 5, the tip is in the range of 2 to 5 USD and when the number of Members for Dinning is 6, the tip is the range of 4 to 7 USD

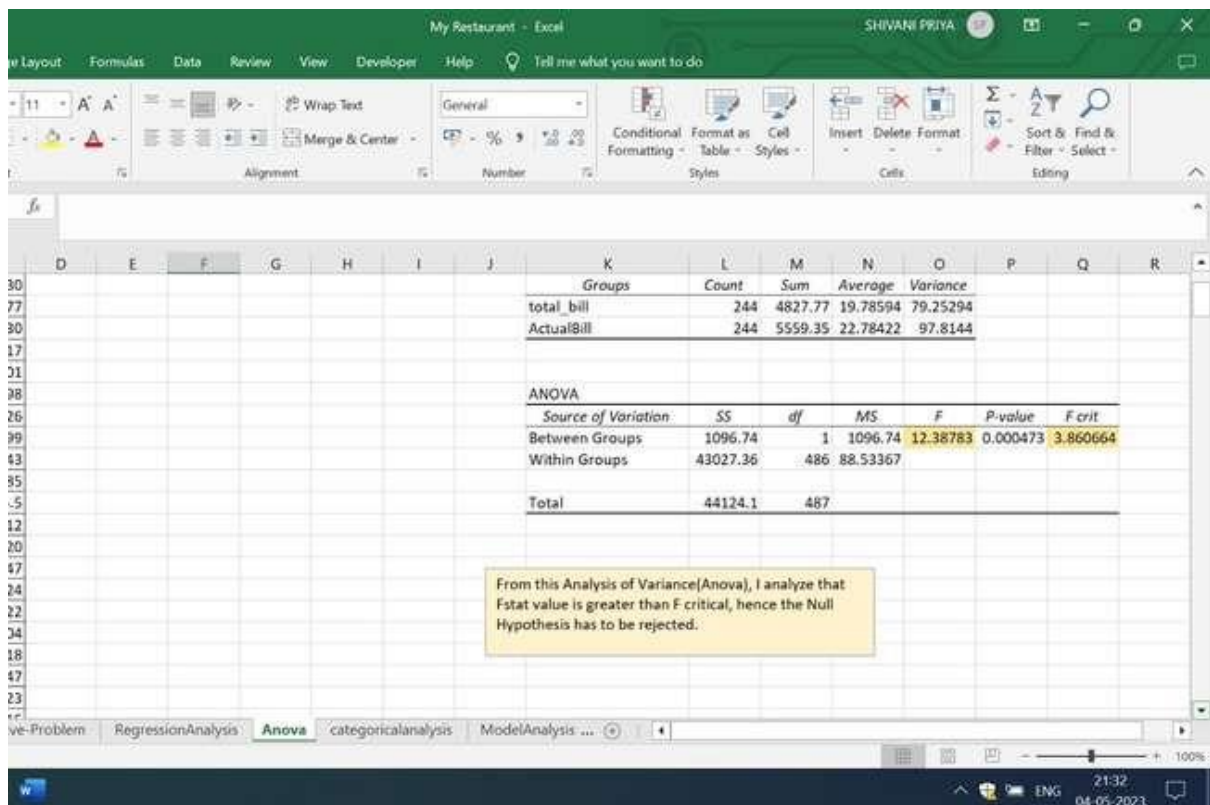
Q4) Identify which predictive problem is needed

Ans) In the given dataset, for predictive problem analysis I am using the concept of Moving Average, Regression Analysis and Anova Single Factor. The below attached is the screenshot of the Moving Average, Regression Analysis and Anova Single Factor. The 10 days Moving Average helps in identifying the irregularities in the data.



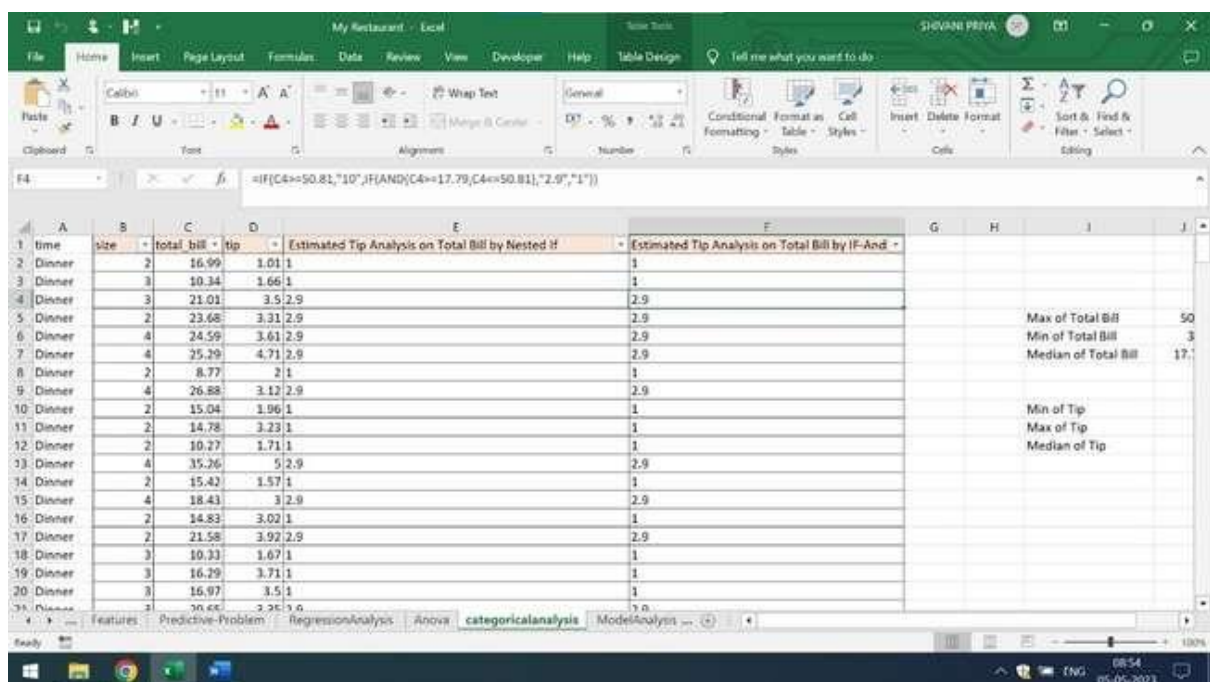






Q5) Encode the categorical variables to numerical values using IF condition

Ans) Here, I am using the column time as one of the categorical column. It has two different groups of lunch and Dinner. There are two formulas of Nested If and If And which has to be use on column tip for predicted tip analysis.



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F4: =IF(C4<=50.81,"10",IF(AND(C4>=17.79,C4<=50.81),"2.9","1"))

	A	size	total_bill	tip	Estimated Tip Analysis on Total Bill by Nested If	Estimated Tip Analysis on Total Bill by IF-And	G	H	I	J
8	Dinner	2	8.77	2.1		1				
9	Dinner	4	26.88	3.12	2.9					
10	Dinner	2	15.04	1.96	1					
11	Dinner	2	14.78	3.23	1					
12	Dinner	2	10.27	1.71	1					
13	Dinner	4	35.26	5.29	2.9					
14	Dinner	2	15.42	1.57	1					
15	Dinner	4	18.43	3.29	2.9					
16	Dinner	2	14.83	3.02	1					
17	Dinner	2	21.58	3.92	2.9					
18	Dinner	3	10.33	1.67	1					
19	Dinner	3	16.29	3.71	1					
20	Dinner	3	16.97	3.51	1					
21	Dinner	3	20.65	3.35	2.9					
22	Dinner	2	17.92	4.08	2.9					
23	Dinner	2	20.29	2.75	2.9					
24	Dinner	2	15.77	2.23	1					
25	Dinner	4	39.42	7.58	2.9					
26	Dinner	3	19.82	3.18	2.9					
27	Dinner	4	17.81	2.34	2.9					
28	Dinner	2	12.35	2.1	1					

Features Predictive-Problem RegressionAnalysis Anova categoricalanalysis ModelAnalysis

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E113: =IF(C113>=50.81,"10",IF(C113>=17.79,"2.9",IF(C113>=3.07,"1","0")))

	A	size	total_bill	tip	Estimated Tip Analysis on Total Bill by Nested If	Estimated Tip Analysis on Total Bill by IF-And	G	H	I	J
101	Dinner	2	12.46	1.51		1				
102	Dinner	2	11.35	2.51		1				
103	Dinner	2	15.38	3.1		1				
104	Dinner	3	44.3	2.5	2.9					
105	Dinner	2	22.42	3.48	2.9					
106	Dinner	2	20.92	4.08	2.9					
107	Dinner	2	15.36	1.64	1					
108	Dinner	2	20.49	4.06	2.9					
109	Dinner	2	25.21	4.29	2.9					
110	Dinner	2	18.24	3.76	2.9					
111	Dinner	2	14.31	4.1		1				
112	Dinner	2	14	3.1		1				
113	Dinner	1	7.25	1.1		1				
114	Dinner	3	38.07	4.29		2.9				
115	Dinner	2	23.95	2.55	2.9					
116	Dinner	3	25.71	4.29		2.9				
117	Dinner	2	17.31	3.51		1				
118	Dinner	4	29.93	5.07	2.9					
119	Lunch	2	10.65	1.51		1				
120	Lunch	2	12.43	1.81		1				
121	Lunch	4	14.08	3.05	2.9					

Features Predictive-Problem RegressionAnalysis Anova categoricalanalysis ModelAnalysis

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By using Nested If or If And Formula on Total Bill,one can easily analyze that customers are giving 10 dollar when the bill is not more than 51 USD,the tip amount is somewhere around 2.9 dollar when the bill is not more than 18 USD and the tip is 1 USD when the bill is not less than 3.07

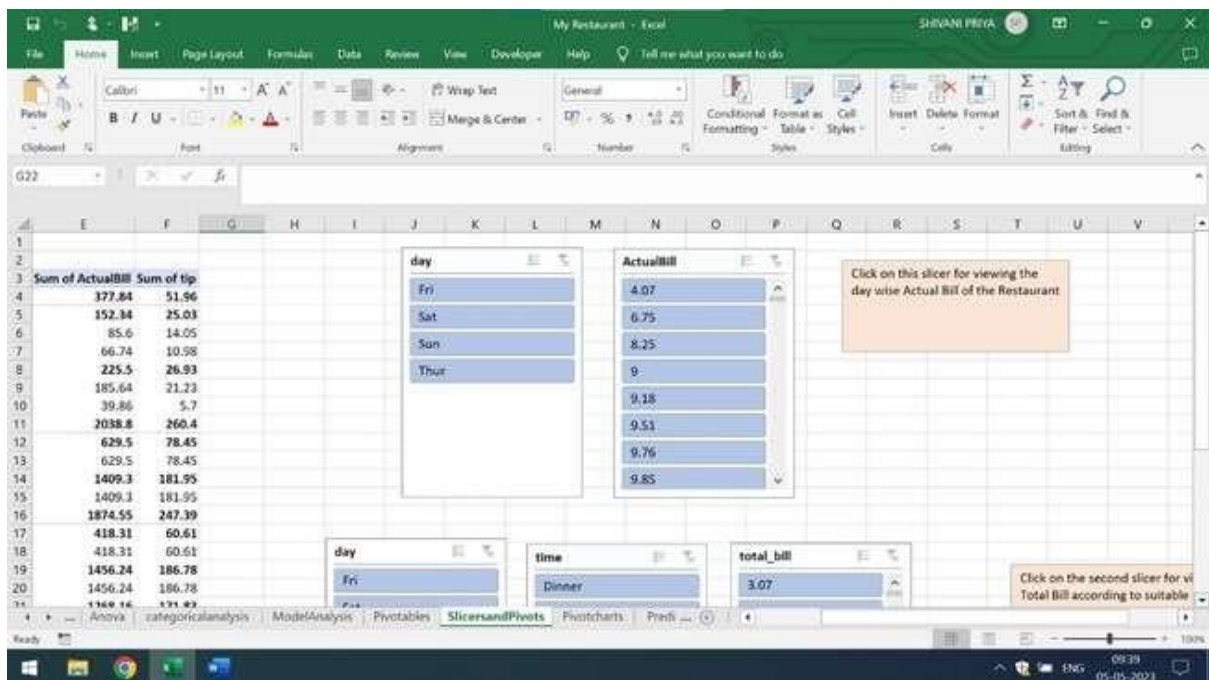
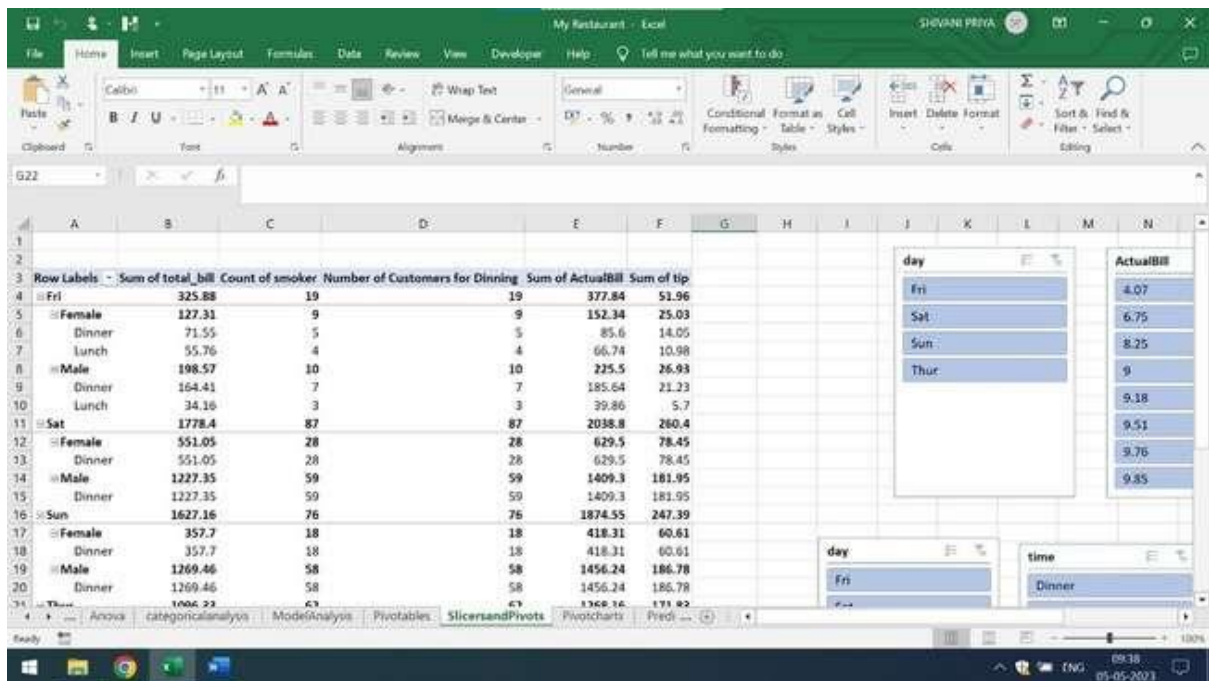
Q6) Build an appropriate model with the data set

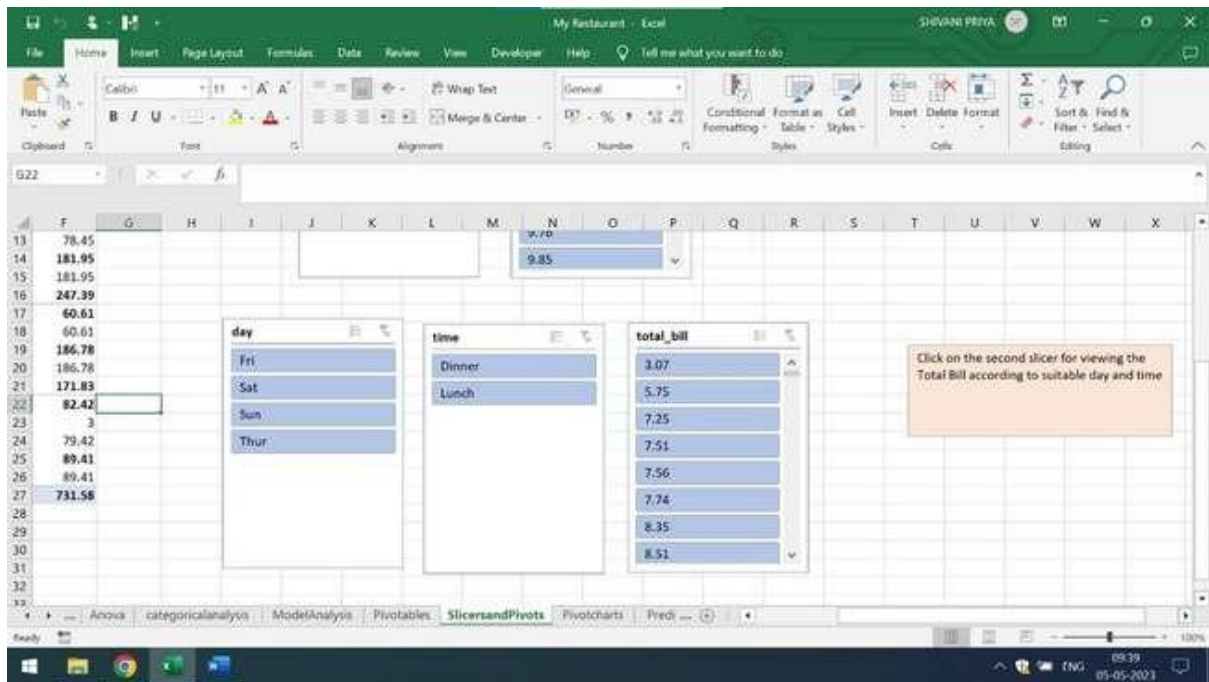
Ans) Pivot table is the best model with the given data set. Here, Pivot table is used for the analysis of Sum of Total Bill, Smoker Count, Number of Customers for Dining, Sum of Actual Bill and Sum of Tip. The below attached is the screenshot of the Pivot Table

Row Labels	Sum of total_bill	Count of smoker	Number of Customers for Dining	Sum of ActualBill	Sum of Tip
Fri	325.88	19	19	377.84	51.96
Female	127.31	9	9	152.34	25.03
Dinner	71.55	5	5	85.6	14.05
Lunch	55.76	4	4	66.74	10.98
Male	198.57	10	10	225.5	26.93
Dinner	164.41	7	7	185.64	21.23
Lunch	34.16	3	3	39.86	5.7
Sat	1778.4	87	87	2038.8	260.4
Female	551.05	28	28	629.5	78.45
Dinner	551.05	28	28	629.5	78.45
Male	1227.35	59	59	1409.3	181.95
Dinner	1227.35	59	59	1409.3	181.95
Sun	1627.16	76	76	1874.55	247.39
Female	357.7	18	18	418.31	60.61
Dinner	357.7	18	18	418.31	60.61
Male	1269.46	58	58	1456.24	186.78
Dinner	1269.46	58	58	1456.24	186.78
Thur	1096.33	62	62	1268.16	171.83
Female	534.89	32	32	617.31	82.42
Dinner	18.78	1	1	21.78	3
Lunch	516.11	31	31	595.53	79.42
Male	561.44	30	30	650.85	89.41
Lunch	561.44	30	30	650.85	89.41
Grand Total	4827.77	244	244	5559.35	731.58

Row Labels	Sum of total_bill	Count of smoker	Number of Customers for Dining	Sum of ActualBill	Sum of Tip
Lunch	34.16	3	3	39.86	5.7
Sat	1778.4	87	87	2038.8	260.4
Female	551.05	28	28	629.5	78.45
Dinner	551.05	28	28	629.5	78.45
Male	1227.35	59	59	1409.3	181.95
Dinner	1227.35	59	59	1409.3	181.95
Sun	1627.16	76	76	1874.55	247.39
Female	357.7	18	18	418.31	60.61
Dinner	357.7	18	18	418.31	60.61
Male	1269.46	58	58	1456.24	186.78
Dinner	1269.46	58	58	1456.24	186.78
Thur	1096.33	62	62	1268.16	171.83
Female	534.89	32	32	617.31	82.42
Dinner	18.78	1	1	21.78	3
Lunch	516.11	31	31	595.53	79.42
Male	561.44	30	30	650.85	89.41
Lunch	561.44	30	30	650.85	89.41
Grand Total	4827.77	244	244	5559.35	731.58

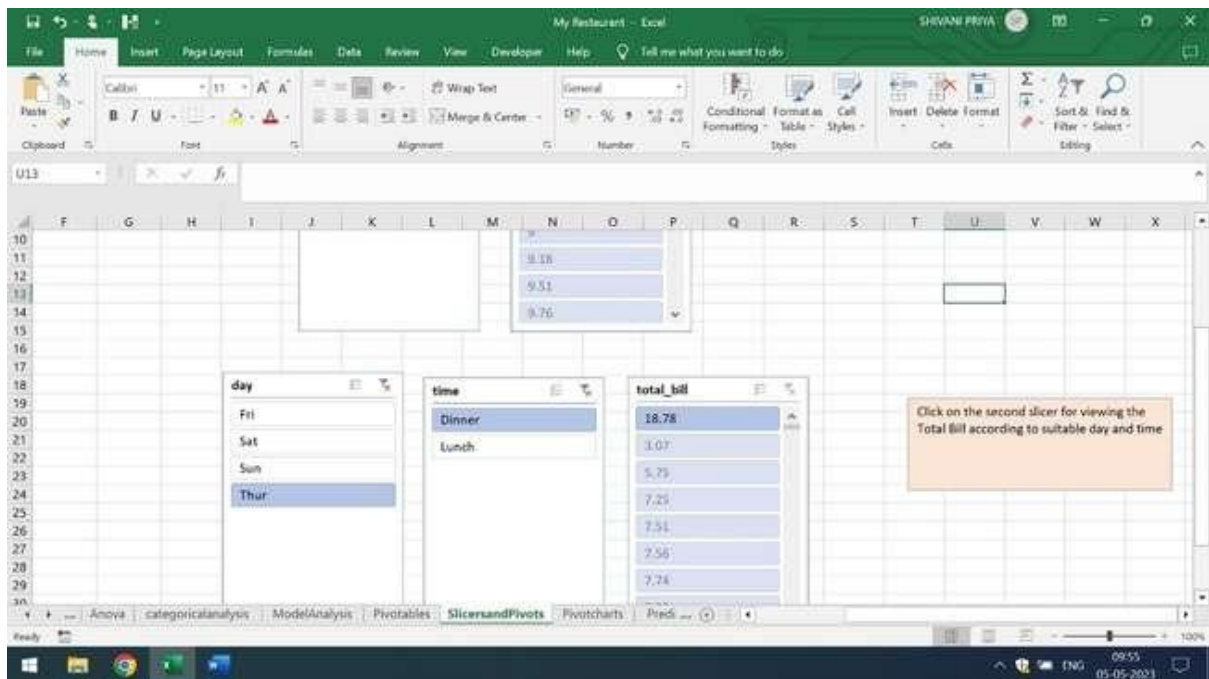
Slicers can also be used with Pivot tables for filtering the results from the pivot table. The below attached are the screenshots of the slicers



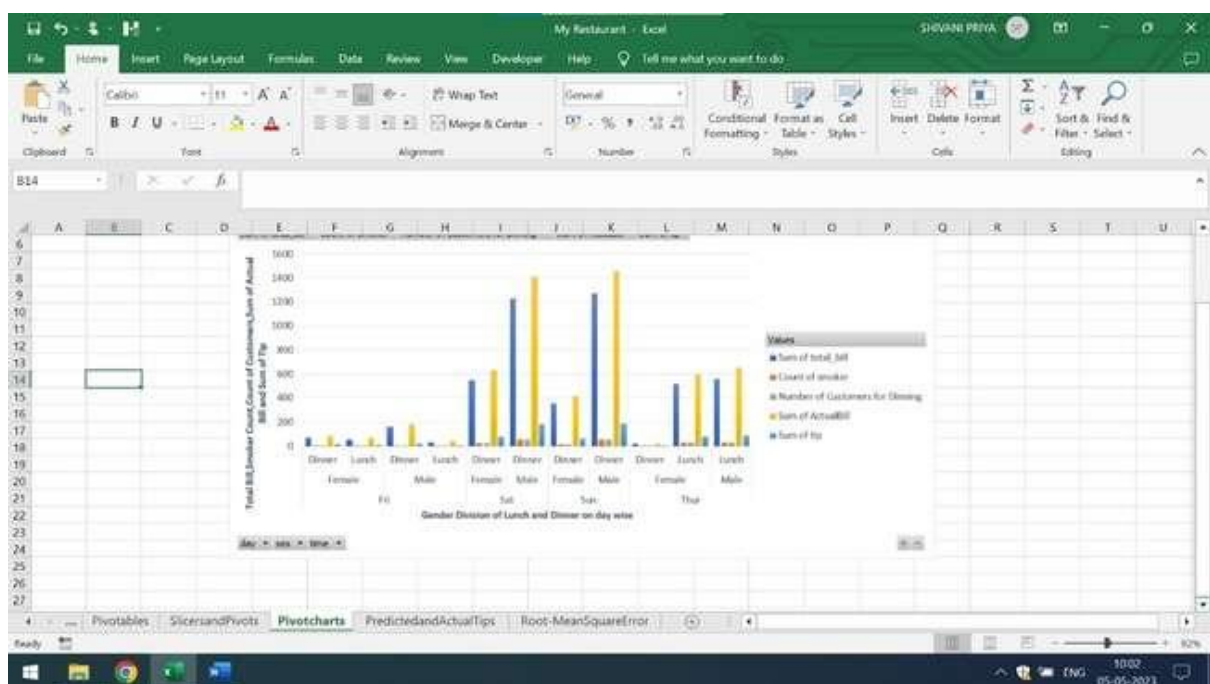
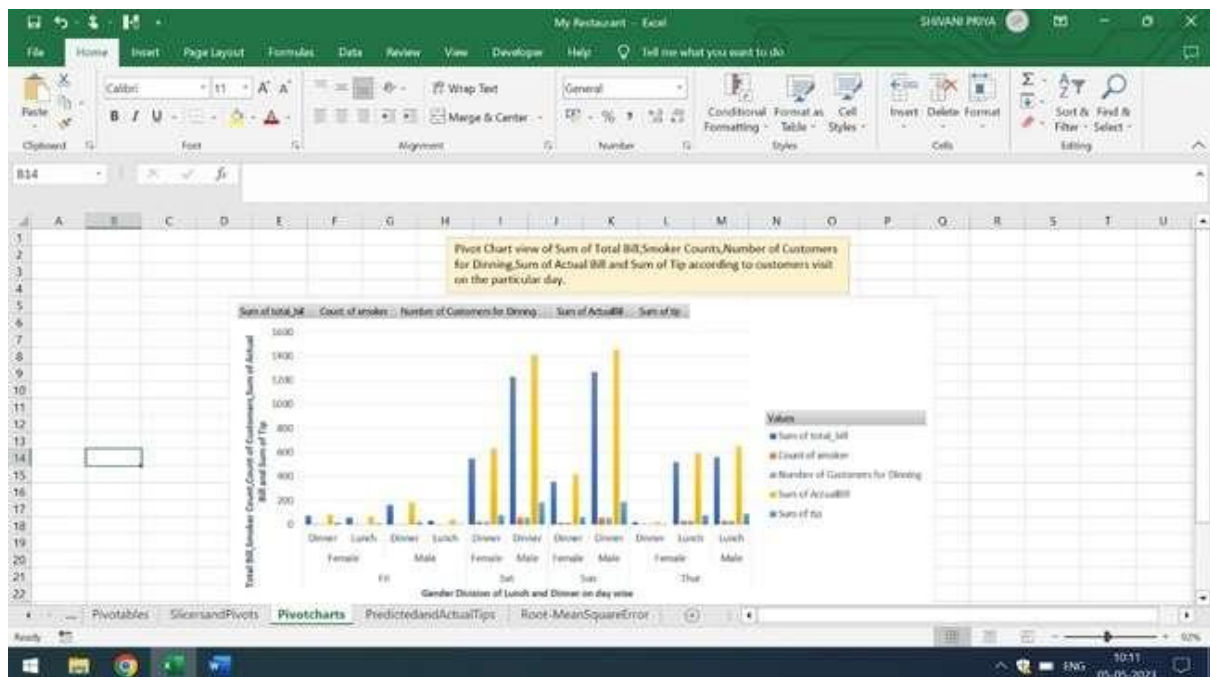


For example,for viewing the total bill of Thursday Dinner,one may click on slicer as it will filter out the results

The total bill of Thursday dinner is 18.78 USD

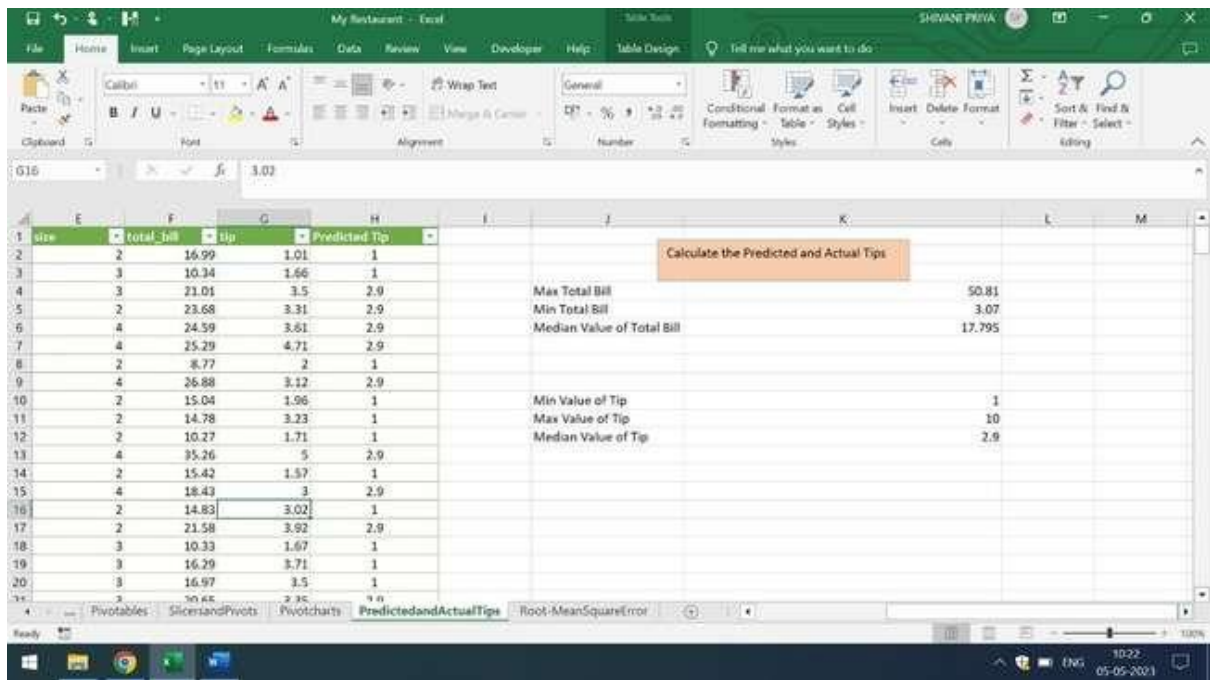
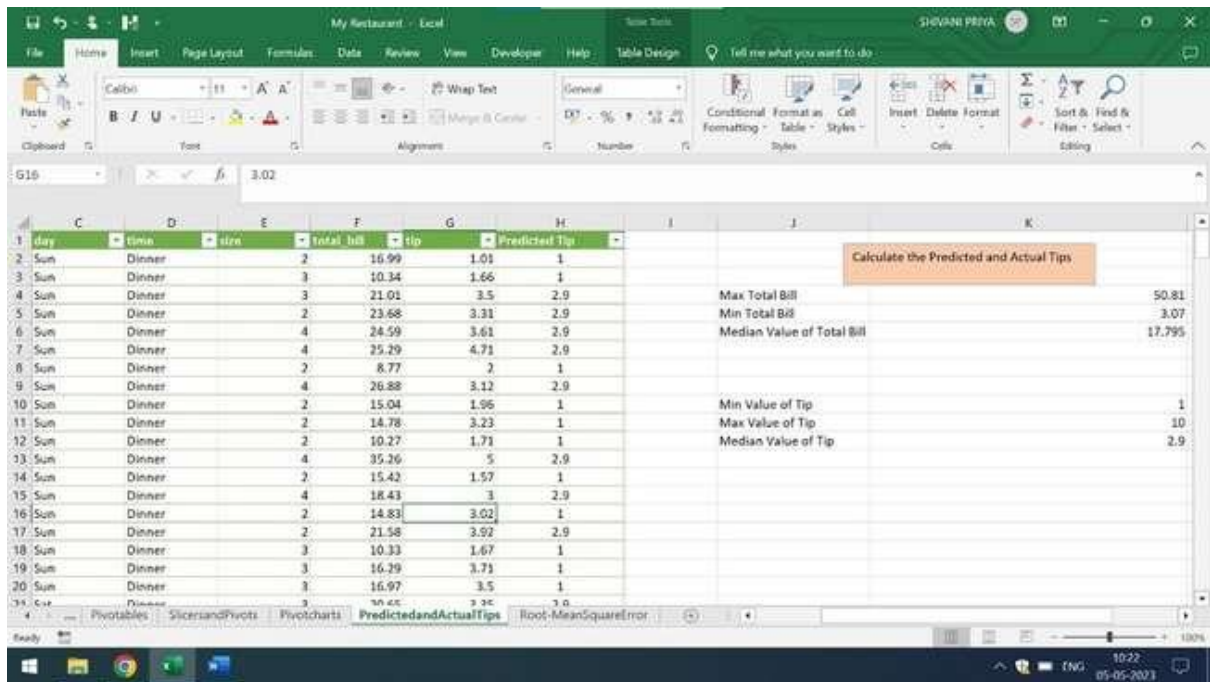


Pivot charts are also helpful for analysis of Sum of Total Bill, Smoker Count, Number of Customers for Dining, Sum of Actual Bill and Sum of Tip based on Gender wise on a particular day. The below attached is the screenshot of the Pivot Chart



Q7) Calculate the Predicted and Actual Value Tips

Ans) The below attached is the screenshot which shows the actual and predicted tip. The column G is the actual tip while the column H is the predicted tip



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	A	B	day	time	size	total_bill	tip	Predicted Tip		
20	Female	No	Sun	Dinner	3	16.97	3.5	1		
21	Male	No	Sat	Dinner	3	20.65	3.35	2.9		
22	Male	No	Sat	Dinner	2	17.92	4.08	2.9		
23	Female	No	Sat	Dinner	2	20.29	2.75	2.9		
24	Female	No	Sat	Dinner	2	15.77	2.23	1		
25	Male	No	Sat	Dinner	4	39.42	7.58	2.9		
26	Male	No	Sat	Dinner	2	19.82	3.18	2.9		
27	Male	No	Sat	Dinner	4	17.81	2.34	2.9		
28	Male	No	Sat	Dinner	2	13.37	2	1		
29	Male	No	Sat	Dinner	2	12.69	2	1		
30	Male	No	Sat	Dinner	2	21.7	4.3	2.9		
31	Female	No	Sat	Dinner	2	19.65	3	2.9		
32	Male	No	Sat	Dinner	2	9.55	1.45	1		
33	Male	No	Sat	Dinner	4	18.35	2.5	2.9		
34	Female	No	Sat	Dinner	2	15.06	3	1		
35	Female	No	Sat	Dinner	4	20.69	2.45	2.9		
36	Male	No	Sat	Dinner	2	17.78	3.27	1		
37	Male	No	Sat	Dinner	3	24.06	3.6	2.9		
38	Male	No	Sat	Dinner	3	16.31	2	1		
39	Female	No	Sat	Dinner	3	16.91	3.07	1		
40	Male	No	Sat	Dinner	3	18.89	2.31	2.9		
41	Male	No	Sat	Dinner	3	31.27	5	2.9		
42	Male	No	Sat	Dinner	3	16.04	2.24	1		
43	Male	No	Sun	Dinner	2	17.46	2.54	1		
44	Male	No	Sun	Dinner	2	13.94	3.06	1		
45	Male	No	Sun	Dinner	2	9.68	1.32	1		
46	Male	No	Sun	Dinner	4	30.4	5.6	2.9		
47	Male	No	Sun	Dinner	2	18.29	3	2.9		
48	Male	No	Sun	Dinner	2	22.23	5	2.9		
49	Male	No	Sun	Dinner	4	32.4	6	2.9		
50	Male	No	Sun	Dinner	3	28.55	2.05	2.9		
51	Male	No	Sun	Dinner	2	18.04	3	2.9		
52	Male	No	Sun	Dinner	2	12.54	2.5	1		
53	Female	No	Sun	Dinner	2	10.29	2.6	1		
54	Female	No	Sun	Dinner	4	34.81	5.2	2.9		
55	Male	No	Sun	Dinner	2	9.94	1.56	1		
56	Male	No	Sun	Dinner	4	25.56	4.34	2.9		
57	Male	No	Sun	Dinner	2	19.49	3.51	2.9		
58	Male	Yes	Sat	Dinner	4	38.01	3	2.9		
59	Female	No	Sat	Dinner	2	26.41	1.5	2.9		
60	Male	No	Sat	Dinner	1	11.51	1.76	1		

PivotTables Slicers and Pivots Pivotcharts Predicted and Actual Tips Root-Mean-Square Error

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G16 3.02

	A	B	day	time	size	total_bill	tip	Predicted Tip		
40	Male	No	Sat	Dinner	3	18.89	2.31	2.9		
41	Male	No	Sat	Dinner	3	31.27	5	2.9		
42	Male	No	Sat	Dinner	3	16.04	2.24	1		
43	Male	No	Sun	Dinner	2	17.46	2.54	1		
44	Male	No	Sun	Dinner	2	13.94	3.06	1		
45	Male	No	Sun	Dinner	2	9.68	1.32	1		
46	Male	No	Sun	Dinner	4	30.4	5.6	2.9		
47	Male	No	Sun	Dinner	2	18.29	3	2.9		
48	Male	No	Sun	Dinner	2	22.23	5	2.9		
49	Male	No	Sun	Dinner	4	32.4	6	2.9		
50	Male	No	Sun	Dinner	3	28.55	2.05	2.9		
51	Male	No	Sun	Dinner	2	18.04	3	2.9		
52	Male	No	Sun	Dinner	2	12.54	2.5	1		
53	Female	No	Sun	Dinner	2	10.29	2.6	1		
54	Female	No	Sun	Dinner	4	34.81	5.2	2.9		
55	Male	No	Sun	Dinner	2	9.94	1.56	1		
56	Male	No	Sun	Dinner	4	25.56	4.34	2.9		
57	Male	No	Sun	Dinner	2	19.49	3.51	2.9		
58	Male	Yes	Sat	Dinner	4	38.01	3	2.9		
59	Female	No	Sat	Dinner	2	26.41	1.5	2.9		
60	Male	No	Sat	Dinner	1	11.51	1.76	1		

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	A	B	day	time	size	total bill	tip	Predicted Tip		
100	Male	Yes	Fri	Dinner	2	21.01	3	2.9		
101	Male	No	Fri	Dinner	2	12.46	1.5	1		
102	Female	Yes	Fri	Dinner	2	11.35	2.5	1		
103	Female	Yes	Fri	Dinner	2	15.38	3	1		
104	Female	Yes	Sat	Dinner	3	44.3	2.5	2.9		
105	Female	Yes	Sat	Dinner	2	22.42	3.48	2.9		
106	Female	No	Sat	Dinner	2	20.92	4.08	2.9		
107	Male	Yes	Sat	Dinner	2	15.36	1.64	1		
108	Male	Yes	Sat	Dinner	2	20.49	4.06	2.9		
109	Male	Yes	Sat	Dinner	2	25.21	4.29	2.9		
110	Male	No	Sat	Dinner	2	18.24	3.76	2.9		
111	Female	Yes	Sat	Dinner	2	14.31	4	1		
112	Male	No	Sat	Dinner	2	14	3	1		
113	Female	No	Sat	Dinner	1	7.25	1	1		
114	Male	No	Sun	Dinner	3	38.07	4	2.9		
115	Male	No	Sun	Dinner	2	23.95	2.55	2.9		
116	Female	No	Sun	Dinner	3	25.71	4	2.9		
117	Female	No	Sun	Dinner	2	17.31	3.5	1		
118	Male	No	Sun	Dinner	4	29.93	5.07	2.9		
119	Female	No	Thur	Lunch	2	10.65	1.5	1		
120	Female	No	Thur	Lunch	1	12.43	1.8	1		

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	A	B	day	time	size	total bill	tip	Predicted Tip		
120	Female	No	Thur	Lunch	2	12.43	1.8	1		
121	Female	No	Thur	Lunch	4	24.08	2.92	2.9		
122	Male	No	Thur	Lunch	2	11.69	2.31	1		
123	Female	No	Thur	Lunch	2	13.42	1.68	1		
124	Male	No	Thur	Lunch	2	14.26	2.5	1		
125	Male	No	Thur	Lunch	2	15.95	2	1		
126	Female	No	Thur	Lunch	2	12.48	2.52	1		
127	Female	No	Thur	Lunch	6	29.8	4.2	2.9		
128	Male	No	Thur	Lunch	2	8.52	1.48	1		
129	Female	No	Thur	Lunch	2	14.52	2	1		
130	Female	No	Thur	Lunch	2	11.38	2	1		
131	Male	No	Thur	Lunch	3	22.82	2.18	2.9		
132	Male	No	Thur	Lunch	2	19.08	1.5	2.9		
133	Female	No	Thur	Lunch	2	20.27	2.83	2.9		
134	Female	No	Thur	Lunch	2	11.17	1.5	1		
135	Female	No	Thur	Lunch	2	12.26	2	1		
136	Female	No	Thur	Lunch	2	18.26	3.25	2.9		
137	Female	No	Thur	Lunch	2	8.51	1.25	1		
138	Female	No	Thur	Lunch	2	10.33	2	1		
139	Female	No	Thur	Lunch	2	14.15	2	1		
140	Male	No	Thur	Lunch	1	14	1	1		

PivotTables Slicers and Pivots Pivotcharts Predicted and Actual Tips Root-Mean-Square-Error

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Clipboard Font Alignment Number Styles Cells Editing

G16 3.02

	A	B	day	time	size	total_bill	tip	Predicted Tip		
140	Male	Yes	Thur	Lunch	2	16	2	1		
141	Female	No	Thur	Lunch	2	13.16	2.75	1		
142	Female	No	Thur	Lunch	2	17.47	3.5	1		
143	Male	No	Thur	Lunch	6	34.3	6.7	2.9		
144	Male	No	Thur	Lunch	5	41.19	5	2.9		
145	Female	No	Thur	Lunch	6	27.05	5	2.9		
146	Female	No	Thur	Lunch	2	16.43	2.3	1		
147	Female	No	Thur	Lunch	2	8.35	1.5	1		
148	Female	No	Thur	Lunch	3	18.64	1.36	2.9		
149	Female	No	Thur	Lunch	2	11.87	1.63	1		
150	Male	No	Thur	Lunch	2	9.78	1.73	1		
151	Male	No	Thur	Lunch	2	7.51	2	1		
152	Male	No	Sun	Dinner	2	14.07	2.5	1		
153	Male	No	Sun	Dinner	2	13.13	2	1		
154	Male	No	Sun	Dinner	3	17.26	2.74	1		
155	Male	No	Sun	Dinner	4	24.55	2	2.9		
156	Male	No	Sun	Dinner	4	19.77	2	2.9		
157	Female	No	Sun	Dinner	5	29.85	5.14	2.9		
158	Male	No	Sun	Dinner	6	48.17	5	2.9		
159	Female	No	Sun	Dinner	4	25	3.75	2.9		
160	Female	No	Sun	Dinner	7	13.36	3.61	1		

PivotTables Slicers and Pivots Pivotcharts Predicted and Actual Tips Root-Mean-Square-Error

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G16 3.02

	A	B	day	time	size	total_bill	tip	Predicted Tip		
140	Male	Yes	Thur	Lunch	2	16	2	1		
141	Female	No	Thur	Lunch	2	13.16	2.75	1		
142	Female	No	Thur	Lunch	2	17.47	3.5	1		
143	Male	No	Thur	Lunch	6	34.3	6.7	2.9		
144	Male	No	Thur	Lunch	5	41.19	5	2.9		
145	Female	No	Thur	Lunch	6	27.05	5	2.9		
146	Female	No	Thur	Lunch	2	16.43	2.3	1		
147	Female	No	Thur	Lunch	2	8.35	1.5	1		
148	Female	No	Thur	Lunch	3	18.64	1.36	2.9		
149	Female	No	Thur	Lunch	2	11.87	1.63	1		
150	Male	No	Thur	Lunch	2	9.78	1.73	1		
151	Male	No	Thur	Lunch	2	7.51	2	1		
152	Male	No	Sun	Dinner	2	14.07	2.5	1		
153	Male	No	Sun	Dinner	2	13.13	2	1		
154	Male	No	Sun	Dinner	3	17.26	2.74	1		
155	Male	No	Sun	Dinner	4	24.55	2	2.9		
156	Male	No	Sun	Dinner	4	19.77	2	2.9		
157	Female	No	Sun	Dinner	5	29.85	5.14	2.9		
158	Male	No	Sun	Dinner	6	48.17	5	2.9		
159	Female	No	Sun	Dinner	4	25	3.75	2.9		
160	Female	No	Sun	Dinner	7	13.36	3.61	1		

PivotTables Slicers and Pivots Pivotcharts Predicted and Actual Tips Root-Mean-Square-Error

Ready 10:26 05-05-2023

X

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H2 =IF(F2>=50.81,"10",IF(AND(F2>=17.79,F2<=50.81),"2.9",1))

	A	B	C	D	E	F	G	H	I	J
	sex	smoker	day	time	size	total_bill	tip	Predicted Tip		
2	Female	No	Sun	Dinner	2	16.99	1.01	1		
3	Male	No	Sun	Dinner	3	10.34	1.66	1		
4	Male	No	Sun	Dinner	3	21.01	3.5	2.9		
5	Male	No	Sun	Dinner	2	23.68	3.31	2.9		
6	Female	No	Sun	Dinner	4	24.59	3.61	2.9		
7	Male	No	Sun	Dinner	4	25.29	4.71	2.9		
8	Male	No	Sun	Dinner	2	8.77	2	1		
9	Male	No	Sun	Dinner	4	26.88	3.12	2.9		
10	Male	No	Sun	Dinner	2	15.04	1.96	1		
11	Male	No	Sun	Dinner	2	14.78	3.23	1		
12	Male	No	Sun	Dinner	2	10.27	1.71	1		
13	Female	No	Sun	Dinner	4	35.26	5	2.9		
14	Male	No	Sun	Dinner	2	15.42	1.57	1		
15	Male	No	Sun	Dinner	4	18.43	3	2.9		
16	Female	No	Sun	Dinner	2	14.83	3.02	1		
17	Male	No	Sun	Dinner	2	21.58	3.92	2.9		
18	Female	No	Sun	Dinner	3	10.33	1.67	1		
19	Male	No	Sun	Dinner	3	16.29	3.71	1		
20	Female	No	Sun	Dinner	3	16.97	3.5	1		
21	Male	No	Sun	Dinner	3	16.97	3.5	1		

Calculate the Predicted and

Max Total Bill
Min Total Bill
Median Value of Total Bill

Min Value of Tip
Max Value of Tip
Median Value of Tip

PivotTables Slicers and Pivots PivotCharts Predicted and Actual Tips Root-Mean-Square-Error

Ready 10:46 05-05-2021

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G16 = 3.02

	A	B	day	time	size	total_bill	tip	Predicted Tip	I	J
181	Male	Yes	Sun	Dinner	2	34.63	3.55	2.9		
182	Male	Yes	Sun	Dinner	4	34.65	3.68	2.9		
183	Male	Yes	Sun	Dinner	2	23.33	5.65	2.9		
184	Male	Yes	Sun	Dinner	3	45.35	3.5	2.9		
185	Male	Yes	Sun	Dinner	4	23.17	6.5	2.9		
186	Male	Yes	Sun	Dinner	2	40.55	3	2.9		
187	Male	No	Sun	Dinner	5	20.69	5	2.9		
188	Female	Yes	Sun	Dinner	3	20.9	3.5	2.9		
189	Male	Yes	Sun	Dinner	5	30.46	2	2.9		
190	Female	Yes	Sun	Dinner	3	18.15	3.5	2.9		
191	Male	Yes	Sun	Dinner	3	23.1	4	2.9		
192	Male	Yes	Sun	Dinner	2	15.69	1.5	1		
193	Female	Yes	Thur	Lunch	2	19.81	4.19	2.9		
194	Male	Yes	Thur	Lunch	2	28.44	2.56	2.9		
195	Male	Yes	Thur	Lunch	2	15.48	2.02	1		
196	Male	Yes	Thur	Lunch	2	16.58	4	1		
197	Male	No	Thur	Lunch	2	7.56	1.44	1		
198	Male	Yes	Thur	Lunch	2	10.34	2	1		
199	Female	Yes	Thur	Lunch	4	43.11	5	2.9		
200	Female	Yes	Thur	Lunch	2	13	2	1		
201	Male	Yes	Thur	Lunch	3	19.65	3.95	1		

PivotTables Slicers and Pivots PivotCharts Predicted and Actual Tips Root-Mean-Square-Error

Ready 10:28 05-05-2021

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Clipboard Font Alignment Number Styles Cells Editing

H2: $=IF(F2>=50.81,"10",IF(AND(F2>=17.79,F2<=50.81),"2.9",1))$

	A	B	C	D	E	F	G	H	I	J
1	sex	smoker	day	time	size	total bill	tip	Predicted Tip		
2	Female	No	Sun	Dinner	2	16.99	1.01	1		
3	Male	No	Sun	Dinner	3	10.34	1.66	1		
4	Male	No	Sun	Dinner	3	21.01	3.5	2.9		
5	Male	No	Sun	Dinner	2	23.68	3.31	2.9		
6	Female	No	Sun	Dinner	4	24.59	3.61	2.9		
7	Male	No	Sun	Dinner	4	25.29	4.71	2.9		
8	Male	No	Sun	Dinner	2	8.77	2	1		
9	Male	No	Sun	Dinner	4	26.88	3.12	2.9		
10	Male	No	Sun	Dinner	2	15.04	1.96	1		
11	Male	No	Sun	Dinner	2	14.78	3.23	1		
12	Male	No	Sun	Dinner	2	10.27	1.71	1		
13	Female	No	Sun	Dinner	4	35.26	5	2.9		
14	Male	No	Sun	Dinner	2	15.42	1.57	1		
15	Male	No	Sun	Dinner	4	18.43	3	2.9		
16	Female	No	Sun	Dinner	2	14.83	3.02	1		
17	Male	No	Sun	Dinner	2	21.58	3.92	2.9		
18	Female	No	Sun	Dinner	3	10.33	1.67	1		
19	Male	No	Sun	Dinner	3	16.29	3.71	1		
20	Female	No	Sun	Dinner	3	16.97	3.5	1		
21	Male	No	Sun	Dinner	2	20.64	2.34	2.9		

PivotTables Slicers and Pivots Pivotcharts Predicted and Actual Tips Root-Mean-Square-Error

Ready 100%

10:46 05-05-2023

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Clipboard Font Alignment Number Styles Cells Editing

G16: 3.02

	A	B	C	D	E	F	G	H	I	J
200	Female	Yes	Thur	Lunch	2	13	2	1		
201	Male	Yes	Thur	Lunch	2	13.51	2	1		
202	Male	Yes	Thur	Lunch	3	18.71	4	2.9		
203	Female	Yes	Thur	Lunch	2	12.74	2.01	1		
204	Female	Yes	Thur	Lunch	2	13	2	1		
205	Female	Yes	Thur	Lunch	2	16.4	2.5	1		
206	Male	Yes	Thur	Lunch	4	20.53	4	2.9		
207	Female	Yes	Thur	Lunch	3	16.47	3.23	1		
208	Male	Yes	Sat	Dinner	3	26.59	3.41	2.9		
209	Male	Yes	Sat	Dinner	4	38.73	3	2.9		
210	Male	Yes	Sat	Dinner	2	24.27	2.03	2.9		
211	Female	Yes	Sat	Dinner	2	12.76	2.23	1		
212	Male	Yes	Sat	Dinner	3	30.06	2	2.9		
213	Male	Yes	Sat	Dinner	4	25.89	5.16	2.9		
214	Male	No	Sat	Dinner	4	48.33	9	2.9		
215	Female	Yes	Sat	Dinner	2	13.27	2.5	1		
216	Female	Yes	Sat	Dinner	3	28.17	6.5	2.9		
217	Female	Yes	Sat	Dinner	2	12.9	1.1	1		
218	Male	Yes	Sat	Dinner	5	28.15	3	2.9		
219	Male	Yes	Sat	Dinner	2	11.59	1.5	1		
220	Male	No	Sat	Dinner	1	7.74	1.44	1		

PivotTables Slicers and Pivots Pivotcharts Predicted and Actual Tips Root-Mean-Square-Error

Ready 100%

10:28 05-05-2023

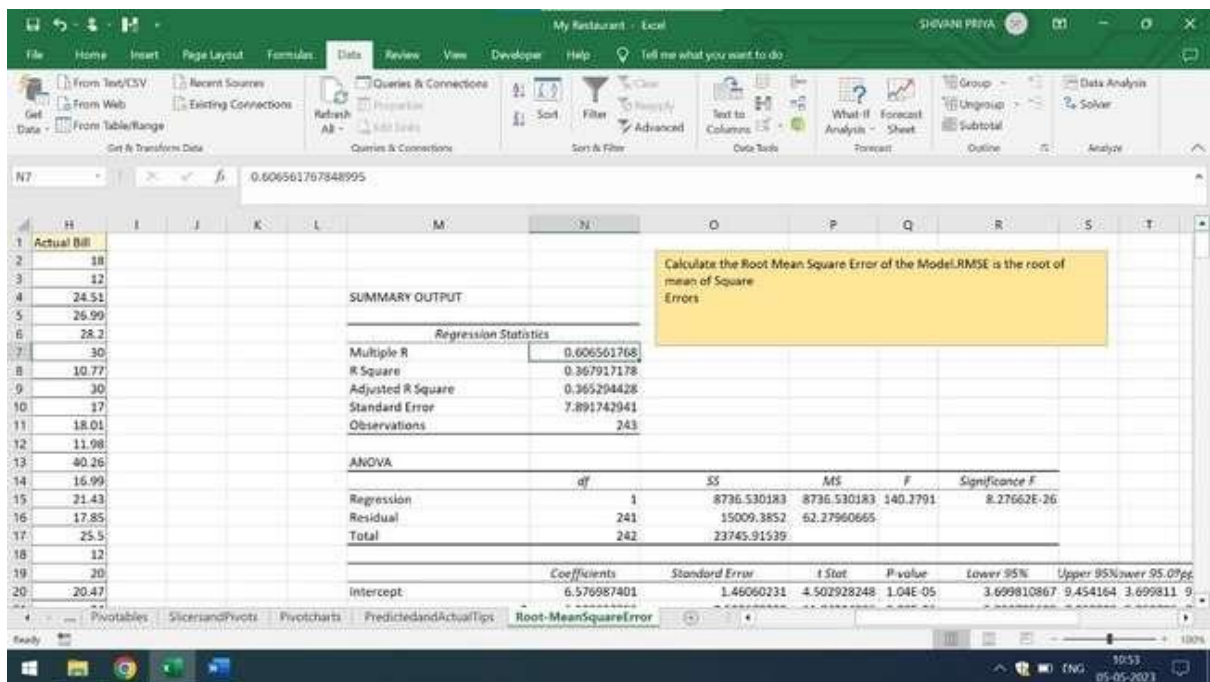
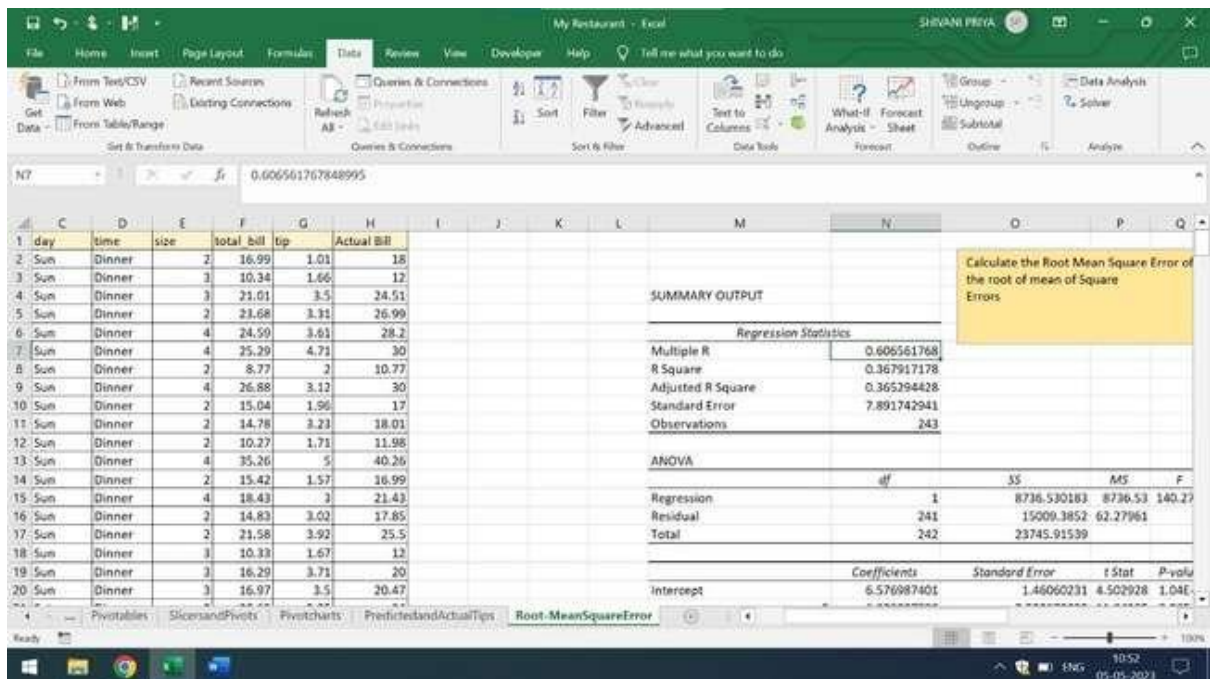
	A	B	day	time	size	total bill	tip	Predicted Tip
220	Male	Yes	Sat	Dinner	2	7.74	1.44	1
221	Female	Yes	Sat	Dinner	4	30.14	3.09	2.9
222	Male	Yes	Fri	Lunch	2	12.16	2.2	1
223	Female	Yes	Fri	Lunch	2	13.42	3.48	1
224	Male	Yes	Fri	Lunch	1	8.58	1.92	1
225	Female	No	Fri	Lunch	3	15.98	3	1
226	Male	Yes	Fri	Lunch	2	13.42	1.58	1
227	Female	Yes	Fri	Lunch	2	16.27	2.5	1
228	Female	Yes	Fri	Lunch	2	10.09	2	1
229	Male	No	Sat	Dinner	4	20.45	3	2.9
230	Male	No	Sat	Dinner	2	13.28	2.72	1
231	Female	Yes	Sat	Dinner	2	22.12	2.88	2.9
232	Male	Yes	Sat	Dinner	4	24.01	2	2.9
233	Male	Yes	Sat	Dinner	3	15.69	3	1
234	Male	No	Sat	Dinner	2	11.61	3.39	1
235	Male	No	Sat	Dinner	2	10.77	1.47	1
236	Male	Yes	Sat	Dinner	2	15.53	3	1
237	Male	No	Sat	Dinner	2	10.07	1.25	1
238	Male	Yes	Sat	Dinner	2	12.6	1	1
239	Male	Yes	Sat	Dinner	2	32.83	1.17	2.9

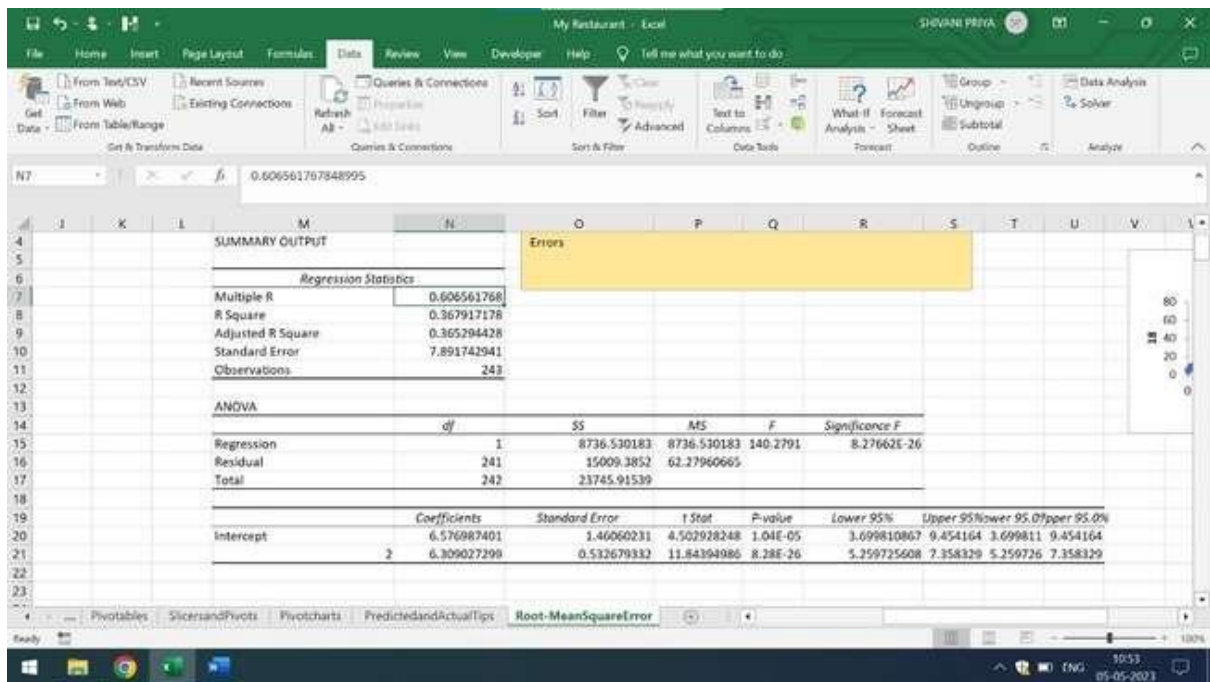
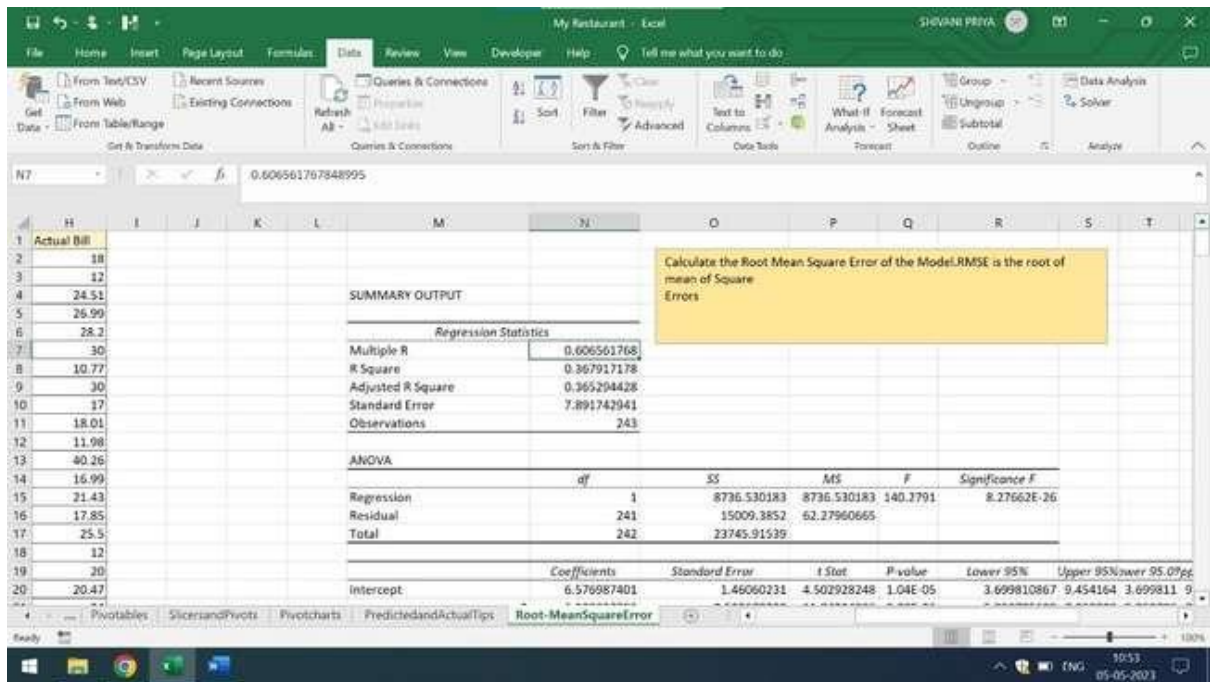
	A	B	day	time	size	total bill	tip	Predicted Tip
229	Male	No	Sat	Dinner	4	20.45	3	2.9
230	Male	No	Sat	Dinner	2	13.28	2.72	1
231	Female	Yes	Sat	Dinner	2	22.12	2.88	2.9
232	Male	Yes	Sat	Dinner	4	24.01	2	2.9
233	Male	Yes	Sat	Dinner	3	15.69	3	1
234	Male	No	Sat	Dinner	2	11.61	3.39	1
235	Male	No	Sat	Dinner	2	10.77	1.47	1
236	Male	Yes	Sat	Dinner	2	15.53	3	1
237	Male	No	Sat	Dinner	2	10.07	1.25	1
238	Male	Yes	Sat	Dinner	2	12.6	1	1
239	Male	Yes	Sat	Dinner	2	32.83	1.17	2.9
240	Female	No	Sat	Dinner	3	35.83	4.67	2.9
241	Male	No	Sat	Dinner	3	29.03	5.92	2.9
242	Female	Yes	Sat	Dinner	2	27.18	2	2.9
243	Male	Yes	Sat	Dinner	2	22.67	2	2.9
244	Male	No	Sat	Dinner	2	17.82	1.75	2.9
245	Female	No	Thur	Dinner	2	18.78	3	2.9
246						4827.77		

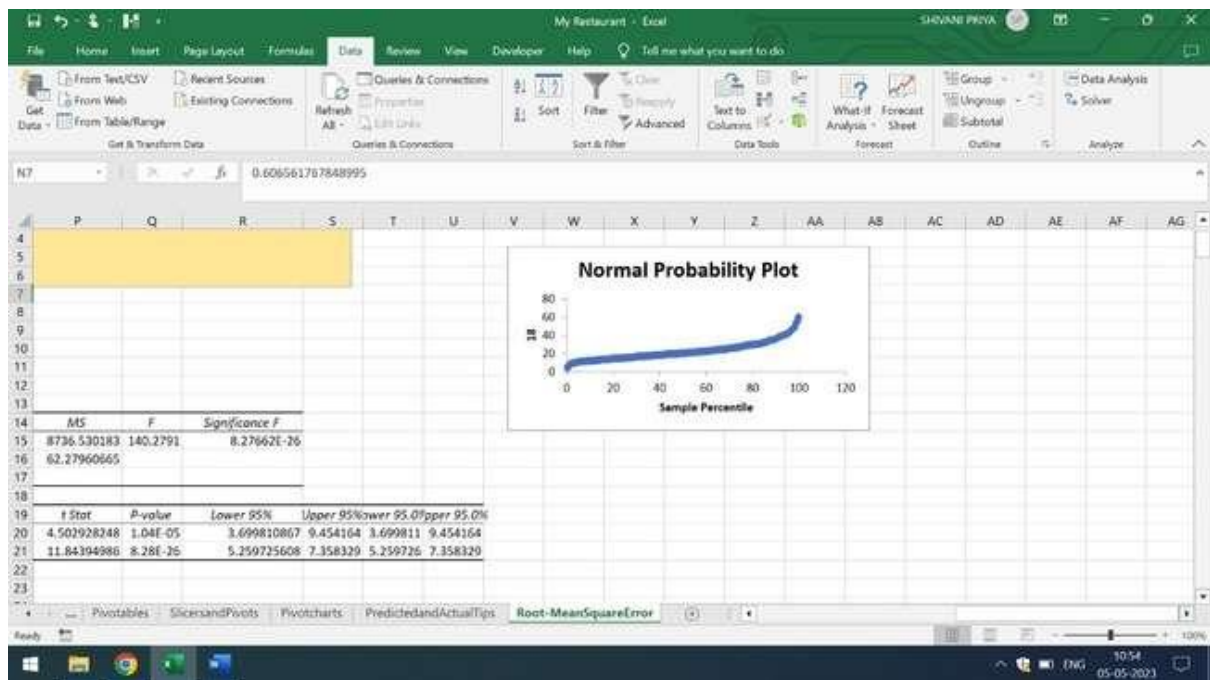
By using If And formula, one can easily analyze that there is not much difference between actual tip and predicted tip.

Q8) Calculate the RMSE(Root Mean Square Error) of the model. RMSE is root of mean of square errors.

Ans) By using Regression in Data Analysis Tab, one can calculate the adjusted R-Square and standard errors







For more detailed information, click on the below mentioned link for detailed report

<https://github.com/shivanipriya89/Restaurant-Tips>