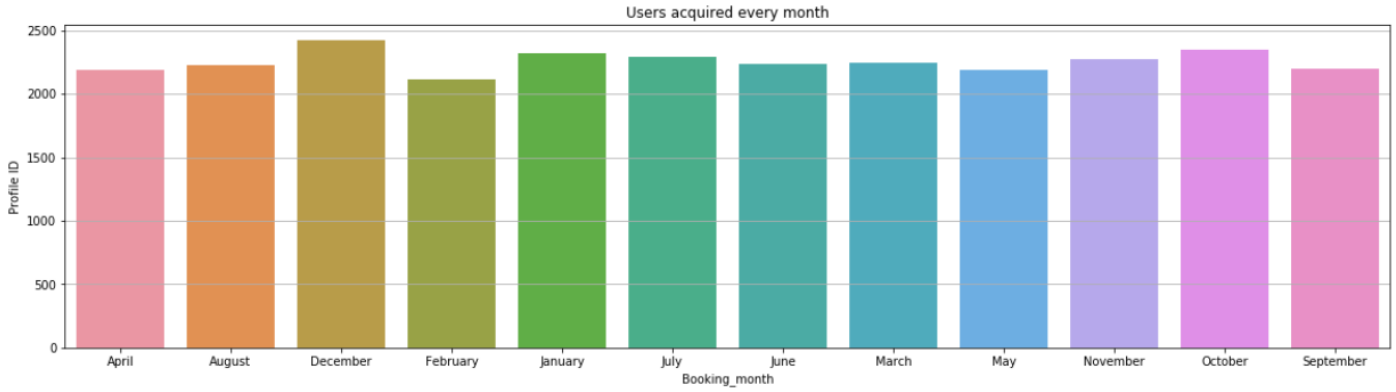
1.) Plot new users acquired every month on a bar chart



	Booking_month	Acquired
0	April	2188
1	August	2228
2	December	2424
3	February	2115
4	January	2324
5	July	2290
6	June	2241
7	March	2248
8	May	2189
9	November	2276
10	October	2352
11	September	2200

2.) 30-Day repeat rate is defined as percentage of new users who have placed a 2nd order within 30 days of placing their first order. What is the 30-day repeat rate of users acquired in December 2017?

Ans.) 30 day repeat rate for users acquired in december 2017 = 22.4834 %

3.) What is the 90-day repeat rate of users acquired in Jan,Feb,March 2018?

ANS.) 90 day repeat rate for users acquired in

- jan 2018 = 35.41 %
- feb 2018 = 35.55 %
- march 2018 = 35.54 %

4.) Use logistic regression to predict the 90-day repeat of users acquired in November 2018.

90DAY REPEAT RATE FOR ALL MONTHS:

	Booking_month	90_day_repeat_rate(%)
0	January	35.413081
1	February	35.555556
2	March	35.542705
3	December	34.117162
4	April	34.963437
5	May	35.495660
6	June	34.136546
7	July	35.633188
8	August	35.727110
9	September	31.045455
10	October	22.789116

DATA POINTS IMPLEMENETED FOR FINAL MODEL DEVELOPMENT :

1.) Slot of Booking(Hour of the Day): Mean booking hour of that month

2.) A,B,C,D : Sum of the respective methods(Source) to place booking, of that month

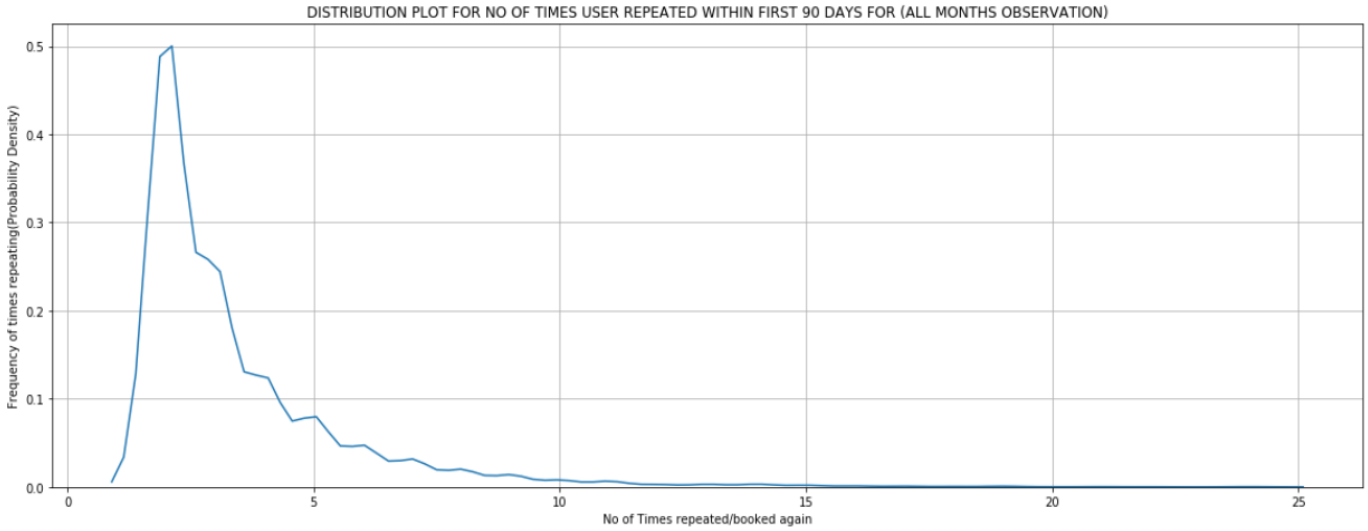
3.) Gap_booking_and_service(days) : Mean gap b/w booking and service_requested in days, of that month

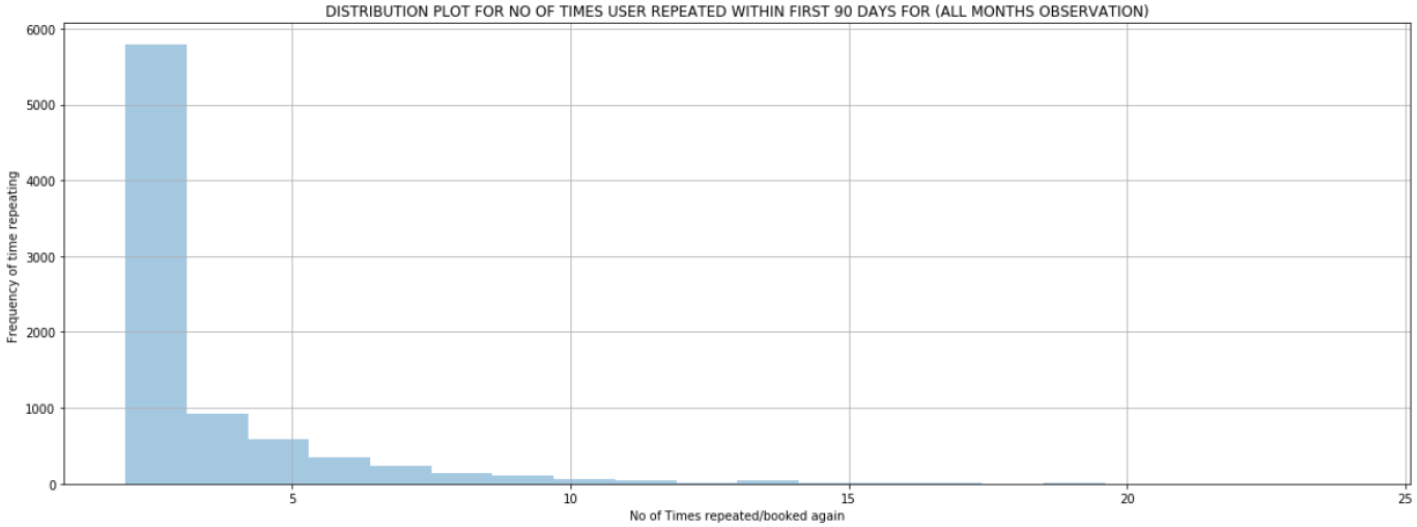
4.) 90_day_repeat_rate(%) : 90day repeat rate of that month

	Booking_month	Slot of Booking (Hour of the Day)	A	B	C	D	Gap_booking_and_service(days)	90_day_repeat_rate(%)
0	April	13.124849	409.0	611.0	844.0	619.0	2.579541	34.963437
1	August	13.077465	437.0	615.0	887.0	617.0	2.493740	35.727110
2	December	12.989134	464.0	673.0	912.0	712.0	2.454183	34.117162
3	February	13.096130	402.0	577.0	795.0	629.0	2.570537	35.555556
4	January	13.014206	434.0	642.0	920.0	679.0	2.517009	35.413081
5	July	13.007645	443.0	668.0	866.0	639.0	2.512997	35.633188
6	June	13.112019	419.0	641.0	860.0	651.0	2.509140	34.136546
7	March	13.038846	425.0	620.0	909.0	646.0	2.508846	35.542705
8	May	13.042231	392.0	625.0	844.0	649.0	2.515936	35.495660
9	November	13.055103	429.0	644.0	896.0	608.0	2.462941	NaN
10	October	13.082090	436.0	678.0	923.0	643.0	2.482463	22.789116
11	September	13.098086	439.0	588.0	846.0	635.0	2.517544	31.045455

ANS.) Predicted value for November 2018 using Linear Regression model : 31.13 %.
Source ‘C’ is the most preferred method for all the months, to place Booking order.

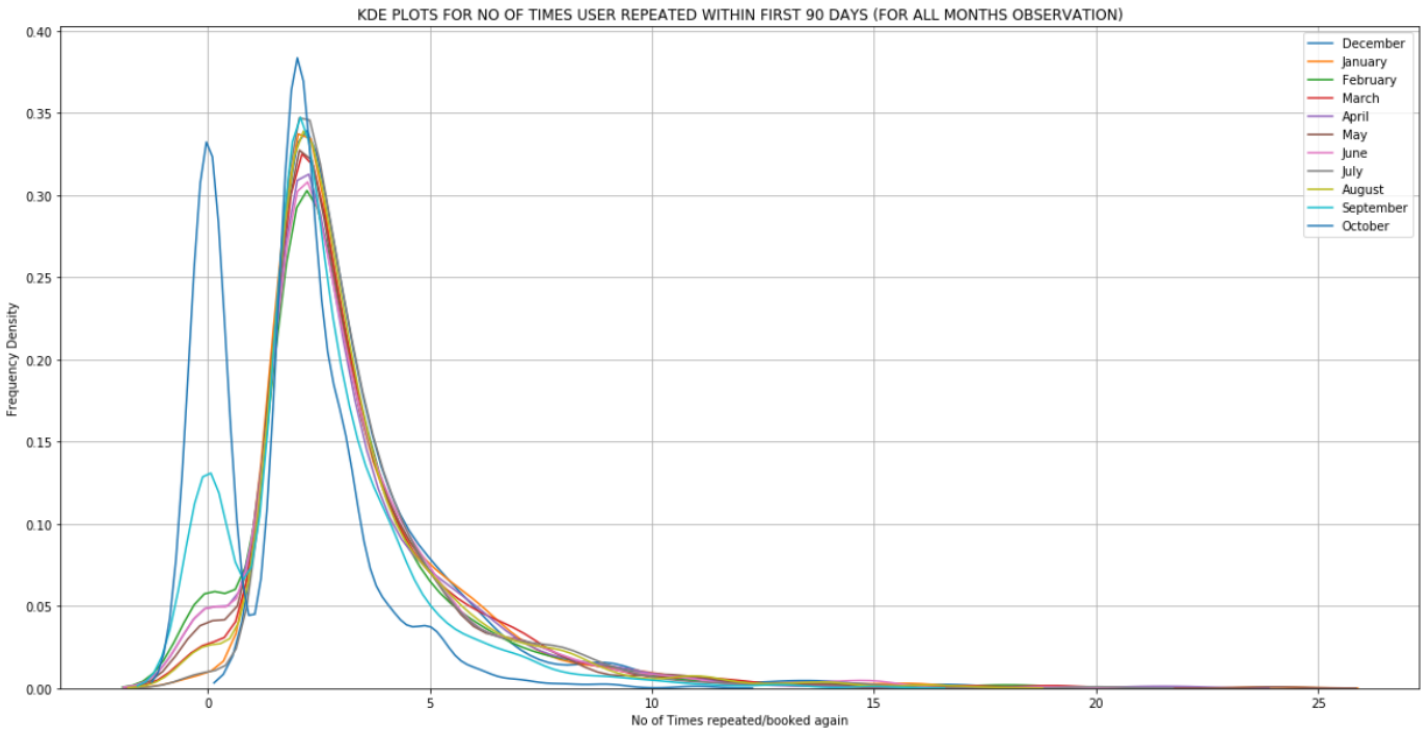
5.) Plot the distribution of users by frequency of their 90-day repeat (Number of times user repeated within first 90 days)





- **MAJORITY OF USERS THAT CONTRIBUTED TO 90 DAY REPEAT RATE, GENERALLY PLACED AROUND 2-3 ORDERS.**

MONTH WISE DISTRIBUTION (ADDITIONAL PLOT) :



A SAMPLE LOOK AT THE OBSERVATIONS OF NO OF TIMES BOOKING ORDER PLACED WHEN THE USER CONTRIBUTED TO '90 DAY REPEAT' (from dec 2017 to oct 2018)

 # The no of users contributing to 90 day repeat varies for each month, hence Null values have been equated to 0 for those data points observtions.

	December	January	February	March	April	May	June	July	August	September	October
0	5.0	2.0	8.0	2.0	5.0	3.0	4.0	7.0	7.0	4.0	3.0
1	3.0	2.0	3.0	6.0	6.0	7.0	2.0	4.0	3.0	2.0	5.0
2	2.0	2.0	3.0	3.0	2.0	3.0	5.0	2.0	7.0	2.0	2.0
3	4.0	3.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0
4	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0
5	2.0	2.0	2.0	2.0	3.0	2.0	4.0	2.0	3.0	5.0	2.0
6	2.0	2.0	2.0	2.0	2.0	2.0	4.0	7.0	4.0	2.0	2.0
7	3.0	2.0	2.0	2.0	3.0	3.0	5.0	4.0	5.0	3.0	4.0
8	9.0	4.0	3.0	2.0	2.0	3.0	5.0	4.0	2.0	2.0	2.0
9	2.0	2.0	3.0	2.0	2.0	8.0	2.0	2.0	2.0	2.0	2.0