

BIDM PROJECT
PREDICTING THE AVERAGE MONTHLY BILLING AMOUNT OF
MOBILE USER



TEAM

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Table of Contents

Executive summary	2
Problem description	2
Data: Sources and Characteristics	2
DATA SOURCES.....	2
CHARACTERISTICS OF DATA.....	3
Building the model	4
Reflection on feedback received on our Class Presentation	5
Conclusion.....	5
APPENDIX, TABLES, FIGURES	7
TABLE 1: CORRELATION MATRIX.....	7
FIGURE 1: INCOME LEVEL SCATTER PLOT	8
FIGURE 2: INTERNATIONAL TRAVEL SCATTER PLOT	8
FIGURE 3: INTERNET USAGE ON PHONE SCATTER PLOT	8
FIGURE 4: EMAIL CHECKING FREQUENCY SCATTER PLOT	9
FIGURE 5: TYPE OF PHONE SCATTER PLOT.....	9
FIGURE 6: USAGE OF PHONE FOR SOCIAL NETWORKING WEBSITE SCATTER PLOT	9
FIGURE 7: NAIVE ANALYSIS	10
FIGURE 8: REGRESSION TREE ANALYSIS	10
FIGURE 9: BEST SUBSET TABLE	10
FIGURE 10: REGRESSION TREE - DECILE-WISE LIFT CHART.....	11
FIGURE 11: REGRESSION TREE- LIFT CHART	11
FIGURE 12: LINEAR REGRESSION - DECILE-WISE LIFT CHART.....	11
FIGURE 13: LINEAR REGRESSION - LIFT CHART	12
APPENDIX 1	13

Executive summary

With more than 25 Mobile service providers in India, all the service providers want to increase their market share as quickly as possible. Few techniques to improve market share can be by good marketing campaigns or by providing customized connection plans and excellent customer service when the customer walks in to the store. In most of the cases, the customer's interaction with the representative from service provider will determine whether the customer will continue service with that provider or not.

We employed various data mining techniques on the 3100 users data collected to determine important predictor variables required for predicting average monthly mobile billing of a customer. The predictor variables so found can thus be used for better predicting billing amount of customer better. Thereby, customized plans can be suggested by service provider as the customer walks in the store. (Similar to 'beer offering example' explained in class).

Data mining analysis would enable us to rank potential customers on their probable amount of expenditure per month. It would be helpful for predicting customer service plan selection and preference patterns, and also for the development and extension of customer services and the service plan portfolio.

Problem description

The problem is to find out parsimonious model or methodology to facilitate mobile service provider to determine average monthly mobile bill expenditure of a customer walking in to the store for a new connection/plan. The analysis is performed to narrow down the customer's information to be collected by service provider to

- a. Predict monthly bill and suggest connection with suitable plans
- b. Rank the customers based on monthly expenditure

Y variable: Average monthly bill; X variables: Predictor variables

Data: Sources and Characteristics

Data Sources

Data has been collected from various sources by students in elective named Marketing Research, Term 5, 2011. Every student was asked to get the survey with 45 questions filled

by at least 10 members out of ISB Campus in order to avoid repetitions and biased information. All the students reached out to friends/family members/known person. 3100 such entries were collected and compiled in excel sheet with each row detailing the answer to question in every column by a particular person. Question for every column is mentioned in first row. The information collected on various parameters related to mobile usage, value added services, buyer behaviour, demographics, previous service provider, plan details, min/day usage, internet usage etc. (Questions are listed in Appendix 1).

Characteristics of data

1. As the survey required person to answer 45 questions which is considered long, the respondent might not have answered the questionnaire with lot of interest and responses may not be completely real.
2. Data is seen to be not a representative sample of Indian population as everyone who has filled survey has access to internet. (Internet penetration in India <10%). Therefore, the data doesn't have any respondents from bottom of the pyramid.
3. Missing data: It has been observed that not all the questions were answered by around 1000 respondents. Few of the columns were filled up by using dummy variables which are taken as average value for the column. Findings from the application of data mining models.
4. Few very relevant questions such as single/married/dating etc. haven't been included in the questionnaire and the outcome of analysis might have been different if such questions were included in the analysis.
5. Variables such as type of mobile, brand, channel for mobile purchase, primary way of internet access, work have been converted from text/string description to categorical variables.
6. Category variables which were collected on scale of 1 to 5 are converted to binary variables by consolidating the variables as high and low values.

To quickly analyse the variables required for the model, we went through the following exercise.

1. Correlation matrix: we found the correlation between all the variables to figure out the important variables. From the correlation matrix (Table 1), we could not really find out the variables which have no effect in predicting the average monthly bill.

2. Using spotfire, we created visualisations (barcharts, scatter plots) to find if the variable of interest (variables figured on intuition) really has any effect on response. Income level, international travel, internet usage on phone, usage of document reader on phone, GPS usage, degree of social networking, email checking frequency, tenure of phone ownership, phone brand, type of phone, mins/day are found to be reasonable predictors useful in predicting the monthly bill. (Fig 1, 2, 3, 4, 5 and 6)

3. We then ran the full regression tree to find the important predictors besides visualisations used in step 2.

4. We also looked at the distribution of expenditure in the data set so that we could use the Naive rule to determine in the worst case to compare with the output of the models. (Fig 7)

Building the model

Data partitioning: Data is then partitioned into training 50%, validation 30% and test data 20%.

Multiple linear regression: A multiple linear regression is run with best subset option. The results of the regression analysis have been shown in (Fig 8). We found that the following predictor variables could be used as predictors:

Binary variables:

Type of mobile: Smart phone/not

High end: High (Apple, Blackberry, HTC) and low (others)

Email checking frequency: High (every hour) or low

Social networking usage, Document reader usage: high (at least once a day) or low

Internet usage on phone: high or low (limited access to web)

International travel: high (once in 3 months) or low

Connection type: prepaid or postpaid

Quantitative variables:

Mins/day, Age in years, Tenure of mobile usage: in years

Categorical variables:

Education, Income level

Best subset: From (Fig 9) best subset results, it is observed that all the variables are significantly effecting the prediction.

Lift charts: Fig 12 and 13 shows that we can rank the customers with reasonable accuracy.

Results: The top 20% of the customers identified through the model are approximately 2 times more likely to spend more than average amount.

Regression Tree: Results of running a regression tree analysis with best pruning option is as shown in Fig (). We found that the following predictor variables could be used as predictors: Connection type (prepaid or postpaid), Minutes per day, Income level

Lift charts: Fig 10 and 11 shows that we can rank the customers with reasonable accuracy.

Results: The top 20% of the customers identified through the model are approximately 2 times more likely to spend more than average amount.

Reflection on feedback received on our Class Presentation

- Our project is based on ranking potential customers on their probable monthly expenditure. We use the results of this analysis as a base for predicting the suitability of a plan for the customer from the service plan portfolio. At this point we are not classifying the customers on whether they are likely to select the plan or not.
- Our best prune tree indicates the importance of the 'min/day' variable as a predictor. We believe that though there may not be any historical data on this variable for new potential customers, it has to be assessed at the point of contact at the dealership. Given the mature cell phone and service market in India and the high penetration and adoption of service networks and cellular usage in the country, we feel that the number of first time adopters would be negligible. Hence we conclude that any potential customer would be able to assess the average number of minutes used per day based on their prior experience. Since our 'min/day' buckets are in half hour slots, there is a sufficient buffer available for errors in customer estimation of talk time used per day.

Conclusion

The viability of our project depends on whether the service providers and dealerships are able to collect the identified important requisite raw data. We feel that this should not be a problem. If explained clearly, to potential customers, the customer would also realise that it is in his best interest as well. This would also result in a standardised and structured framework for customer interaction and service plan marketing.

The following conclusions can be drawn from our data mining analysis:

1) The analysis yields results which the service providers and dealerships can use to rank potential customers in order of their likely expenditure. This would help predicting what kind of service plan the customer would be likely to choose and also what would be his willingness to pay.

2) This would also result in a good 'point-of-sale' information feedback system – it would be a rich source of first hand data about demographic and behavioural patterns related to cell phone usage.

3) The data and analysis generated could be used in optimising:

- The service plan portfolio – to develop plans which better serve customer demands
- The pricing of service plans – to be competitively priced in the market, and yet not leave any money on the table
- The determination of other metrics which affect service plan selection – location, VAS usage, type of cellular phone, etc.
- The marketing and promotion activities – to get a competitive edge on the competitors by better influencing customer perception.
- The Customer Loyalty and Retention Programmes.

We also conclude that our model is not a comprehensive one. Due to biases (data is correlated with the student population at ISB) in the raw data set, even though partitioning and testing was done, new data may not be a good fit. Another reason for this is that as new technology (like 4G) penetrates the market, customer preferences may change.

We believe that a better model could be generated, if a raw data set could be recompiled with data which is more representative of the general population and which also contains the following predictors:

- Value Added Services (VAS) used
- Average time spent on VAS

APPENDIX, TABLES, FIGURES

Table 1: Correlation matrix

	Currently own	Type of mobile own	brand current handset	Frequency changing handset	Channel purchase current handset	Info_from_family
Currently own	1					
Type of mobile own	0.14	1.00				
brand current handset	-0.08	-0.23	1.00			
Frequency changing handset	-0.17	-0.17	0.16	1.00		
Channel purchase current handset	-0.07	-0.15	0.10	0.06	1.00	
Info_from_family	-0.03	-0.04	-0.01	0.04	0.02	1.00
Info_from_friends	0.01	0.02	0.01	0.01	0.03	0.20
Info_from_internet	0.05	0.12	-0.01	-0.04	-0.07	0.01
Info_from_TV	-0.01	-0.06	0.05	0.04	0.08	0.15
Info_from_showrooms	0.04	-0.03	0.06	0.03	0.03	0.16
Info_others	0.01	0.01	-0.02	-0.03	-0.01	0.00
Brand influence	0.05	0.05	-0.07	-0.04	0.05	0.02
Price influence	-0.07	-0.07	0.10	0.13	0.02	0.03
Screen size influence	0.02	0.12	-0.03	-0.04	0.01	-0.02
Touch screen influence	0.02	0.37	-0.03	-0.02	-0.10	-0.08
Camera influence	-0.02	0.14	0.05	-0.05	0.03	-0.01
MP3 Influence	-0.04	0.06	0.12	0.01	0.04	0.00
Wi-Fi influence	0.05	0.23	-0.08	-0.11	0.00	-0.06
Total tenure phone usage	0.06	0.06	-0.10	0.05	-0.01	0.02
Avg. monthly expenditure	0.17	0.21	-0.37	-0.24	-0.05	-0.04
Min per day	0.19	0.11	-0.18	-0.21	0.02	-0.01
Sms per day	0.06	0.05	-0.02	-0.18	0.06	-0.01
Caller tune usage	-0.02	-0.03	0.01	0.09	0.01	0.04
Ringtone usage	-0.02	-0.02	0.00	0.08	0.01	0.03
Email checking frequency	-0.15	-0.49	0.41	0.27	0.10	0.06
Social networking usage	-0.15	-0.45	0.34	0.27	0.09	0.05
Cricket usage	-0.08	-0.31	0.25	0.16	0.08	0.04
Astrology usage	-0.03	-0.07	0.09	0.11	0.03	-0.02
GPS usage	-0.15	-0.41	0.25	0.20	0.11	0.08
Online games usage	-0.03	-0.22	0.16	0.14	0.09	0.01
MMS usage	-0.04	-0.13	0.10	0.15	0.01	-0.01
Music usage	-0.12	-0.24	0.14	0.18	0.07	0.02
Document usage	-0.18	-0.41	0.34	0.23	0.09	0.06
primary internet access	0.04	0.11	-0.14	-0.08	-0.02	0.05
Internet usage on phone	0.15	0.57	-0.27	-0.23	-0.11	-0.08
careful financial planning	0.04	-0.02	0.03	0.10	0.00	0.05
Budget conscious	-0.04	-0.07	0.12	0.17	0.03	0.06
Status conscious	-0.03	-0.04	0.05	0.08	-0.05	0.04
International travel	0.00	0.14	-0.24	-0.04	-0.08	0.07
Many friends	0.09	0.03	-0.03	-0.05	0.01	0.01
Lot of time on internet	0.09	0.11	-0.05	-0.06	-0.07	-0.03
Technology comfort	0.11	0.21	-0.06	-0.10	-0.02	-0.06
Online transactions comfort	0.06	0.14	-0.09	-0.06	-0.11	-0.06
Social networking overall usage	0.09	0.05	-0.01	-0.09	-0.06	-0.03
Health risks	-0.01	-0.11	0.08	0.13	0.03	0.05
Age	0.03	-0.06	-0.01	0.12	-0.01	0.08
Gender	0.12	0.07	-0.03	-0.06	-0.05	-0.18
Education	0.04	0.05	-0.06	-0.04	-0.07	-0.01
Household size	0.00	-0.08	0.12	0.00	0.06	0.07
Work	-0.04	-0.03	0.05	0.01	0.01	0.04
Income level	0.04	0.16	-0.21	-0.10	-0.11	0.05

Figure 1: Income level Scatter plot



Figure 2: International travel Scatter plot

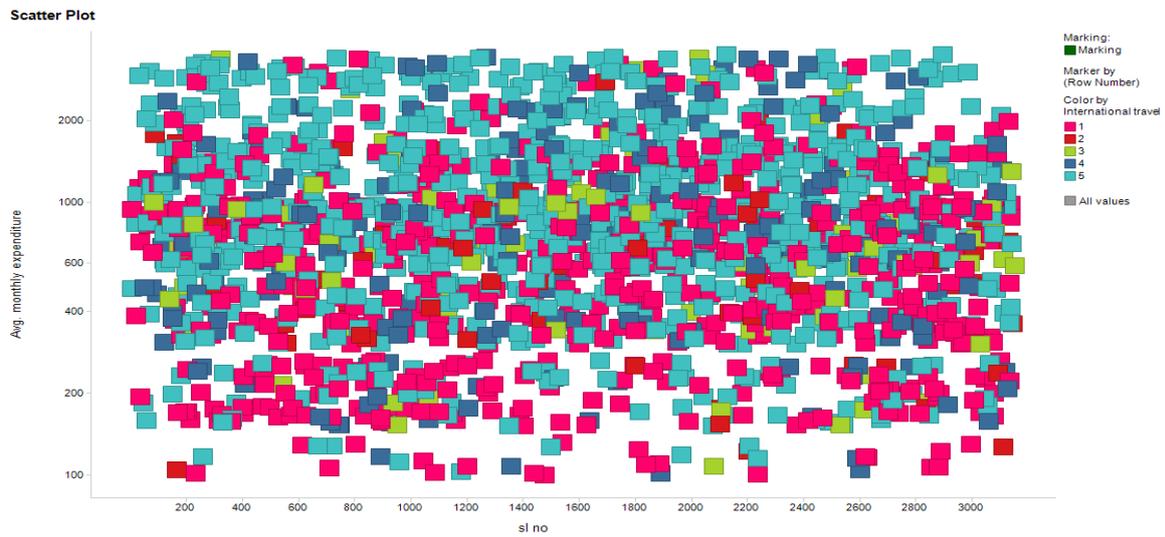


Figure 3: Internet Usage on phone Scatter plot



Figure 4: Email checking frequency Scatter plot

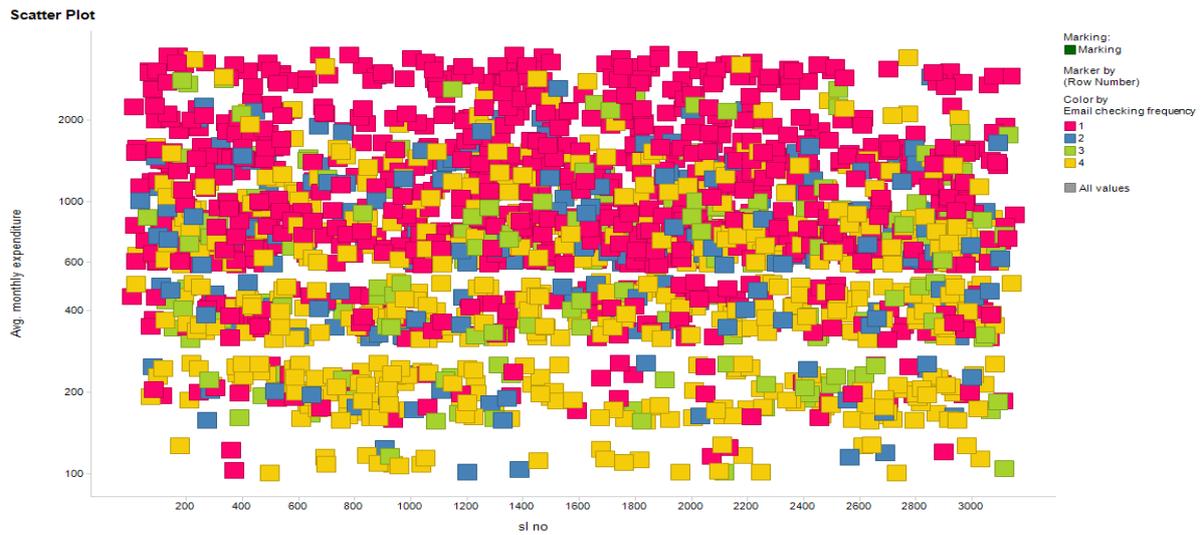


Figure 5: Type of phone scatter plot



Figure 6: Usage of phone for social networking website scatter plot



Figure 7: Naive Analysis

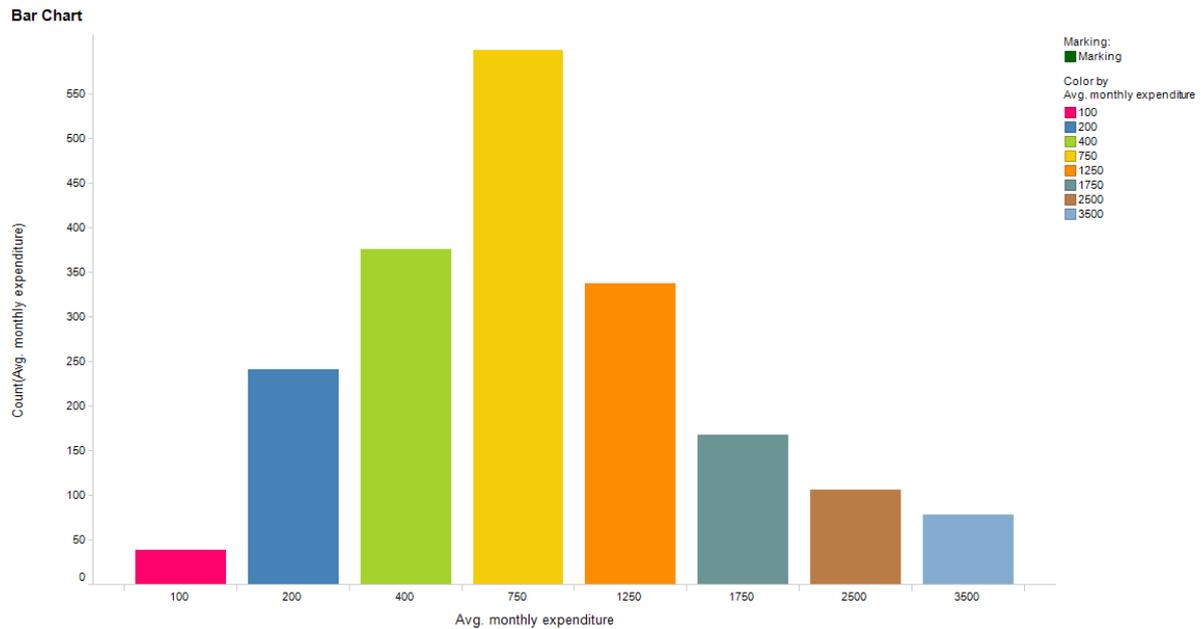


Figure 8: Regression tree analysis

The Regression Model

Input variables	Coefficient	Std. Error	p-value	SS
Constant term	355.7499085	157.1089325	0.02398337	986755500
Type of mobile own_0	-5.53108263	62.99322128	0.9300676	41821630
High end_0	-138.958603	53.73316574	0.00999117	43806840
Total tenure phone usage	-4.13733959	19.49701118	0.83203524	3888202
Min per day	226.8069305	19.1550312	0	82394080
Email checking frequency_0	-230.319717	64.98265076	0.00043087	25006190
Social networking usage_0	-125.390709	61.18490601	0.04095108	683758.1875
GPS usage_0	-43.9442482	55.19500351	0.42631787	1402073
Document usage_0	-9.25425434	55.27455139	0.86710513	42082.57813
Internet usage on phone_0	47.54750824	65.98522186	0.47150856	1140373
International travel_0	-125.38166	47.08589554	0.00800049	17518220
Age	2.62761903	3.00106931	0.38169256	3448279
Education	87.51660156	33.64689255	0.00957193	6661804
Income level	69.66675958	14.64526939	0.00000258	14547450
ConnType_0	-347.491425	46.07464218	0	23098040

Figure 9: Best Subset table

Best subset selection																	
#Coeffs	RSS	Cp	R- Squared	Adj. R- Squared	Probabilit s	Model (Constant present in all models)											
						1	2	3	4	5	6	7	8	9	10	11	
1000e Subset	2	534989632	348.85329	0.3625848	0.1817298	0	Constant	Min per day									
1000e Subset	3	480793280	182.73787	0.2895098	0.2846992	0	Constant	Min per day	ConnType_0								
1000e Subset	4	418039488	67.8929878	0.3934219	0.35735688	0	Constant	Min per day	frequency_0	ConnType_0							
1000e Subset	5	402135816	28.288374	0.38518005	0.38284287	0.00031817	Constant	Min per day	frequency_0	Income level	ConnType_0						
1000e Subset	6	289371120	17.6882013	0.39307273	0.38939328	0.0543415	Constant	Min per day	frequency_0	Income level	ConnType_0						
1000e Subset	7	294035104	12.4832574	0.3974916	0.39373567	0.09716097	Constant	High end_0	Min per day	frequency_0	International travel_0	Income level	ConnType_0				
1000e Subset	8	391198972	7.21055031	0.40199714	0.39705479	0.5890447	Constant	High end_0	Min per day	frequency_0	International travel_0	Education	Income level	ConnType_0			
1000e Subset	9	388492480	5.18372705	0.4045579	0.39956888	0.80484208	Constant	High end_0	Min per day	frequency_0	International travel_0	Education	Income level	ConnType_0			
1000e Subset	10	389178908	6.38404848	0.40500095	0.39943968	0.92720777	Constant	High end_0	Min per day	frequency_0	International travel_0	Age	Education	Income level	ConnType_0		
1000e Subset	11	430372472	124.601001	0.33204074	0.32505094	0	Constant	mobile own_0	High end_0	phone usage	Min per day	frequency_0	king usage_0	BPS usage_0	Internet usage_0	on phone_0	International travel_0
1000e Subset	12	432825104	18.103984	0.33810274	0.33052381	0	Constant	mobile own_0	High end_0	phone usage	Min per day	frequency_0	king usage_0	BPS usage_0	Internet usage_0	on phone_0	International travel_0
1000e Subset	13	426263392	103.704789	0.34829776	0.34014299	0	Constant	mobile own_0	High end_0	phone usage	Min per day	frequency_0	king usage_0	BPS usage_0	Internet usage_0	on phone_0	International travel_0
1000e Subset	14	411785336	69.8806182	0.37053896	0.36189722	0	Constant	mobile own_0	High end_0	phone usage	Min per day	frequency_0	king usage_0	BPS usage_0	Internet usage_0	on phone_0	International travel_0
1000e Subset	15	388817388	14.939989	0.40695282	0.39716012	1	Constant	mobile own_0	High end_0	phone usage	Min per day	frequency_0	king usage_0	BPS usage_0	Internet usage_0	on phone_0	International travel_0

Figure 10: Regression Tree - Decile-wise lift chart

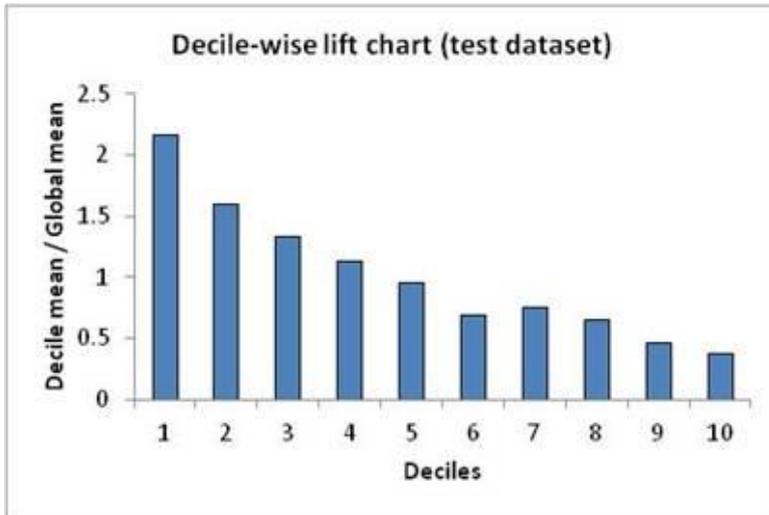


Figure 11: Regression Tree- Lift Chart

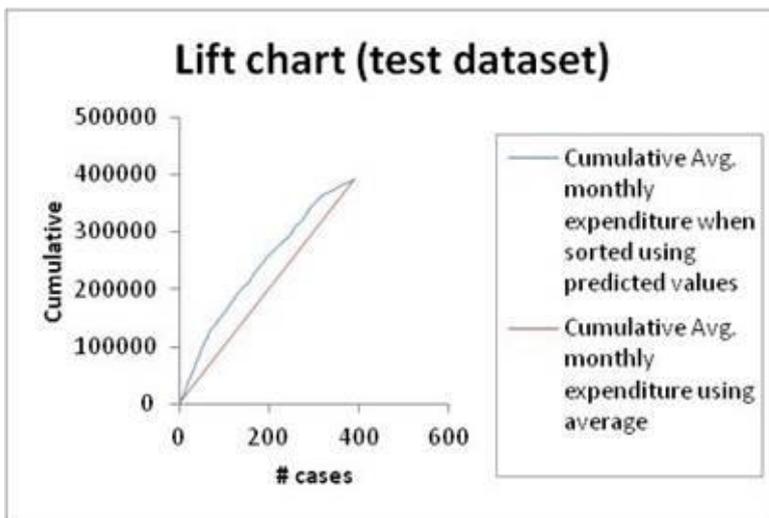


Figure 12: Linear Regression - Decile-wise lift chart

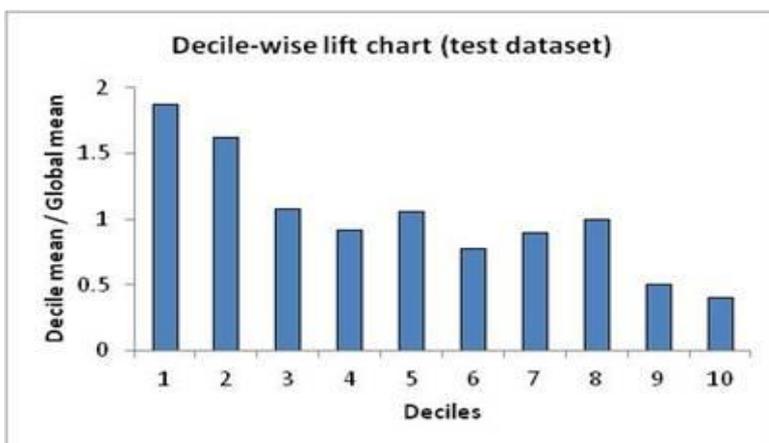
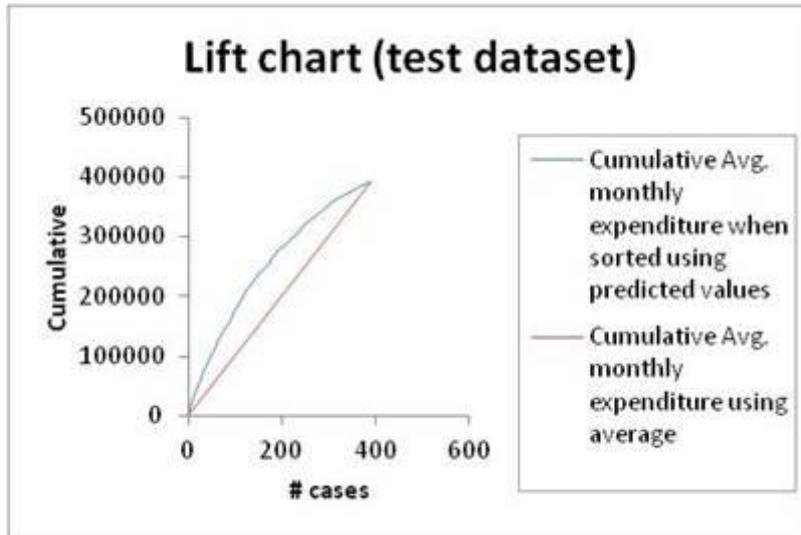


Figure 13: Linear Regression - Lift chart

APPENDIX 1

Do you currently own one or more Mobiles?

What type of mobile phone handset do you own? If you own more than one, please indicate for your primary or most used phone.

Who is your current service provider for your primary mobile phone? If other, please specify your current service provider for your primary mobile phone:

How long have you been on this network?

Which mobile service type do you use for your primary mobile phone?

Rate your service provider in the following areas:

	Poor (1)	Below Average (2)	Average (3)	Above Average (4)	Excellent (5)
Network Coverage (1)	<input type="radio"/>				
Call quality (2)	<input type="radio"/>				
Call charges (3)	<input type="radio"/>				
Roaming charges (4)	<input type="radio"/>				
Customer support (5)	<input type="radio"/>				
Offers and promotions (6)	<input type="radio"/>				
Easy bill payment, varied recharge options, etc (7)	<input type="radio"/>				

How many times have you changed your mobile service provider in last 3 years?

Were the following reasons important in your decision to change from your old mobile service provider?

	Not at all Important (1)	Somewhat less important (2)	Somewhat important (3)	Very Important (4)
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Poor tariff plans offered (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor Network/signal quality (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most of my social circle was on a different network (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor Customer Service (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opaque billing (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number portability made it easier to keep the original number (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data services (3G etc) better in the new network (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, please specify (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Who was your past service provider (the one most recently changed)?

- Airtel (1)
- Reliance (2)
- Idea (3)
- Vodafone (4)
- Tata DOCOMO (5)
- Tata Indicom (6)
- Aircel (7)
- BSNL / MTNL (8)
- Uninor (9)
- Virgin Mobile (10)
- Other (11)

If other, please specify your past service provider (the one most recently changed):

When did you buy your last handset?

- 0 -6 months (1)
- 6 months to 1 year (2)
- 1 - 2 years (3)
- 2 -5 years (4)
- More than 5 years ago (5)

Rank your preference for the TOP THREE handset brands, from 1 to 3, that you would consider buying from:

- _____ Apple (1)
- _____ Blackberry (2)
- _____ HTC (3)
- _____ Karbonn (4)
- _____ Lava (5)
- _____ LG (6)
- _____ Micromax (7)
- _____ Motorola (8)
- _____ Nokia (9)
- _____ Samsung (10)

What is the brand of your current handset? If other, please specify the brand of your current handset:

If you remember, can you specify the Model of the Handset (e.g. Nokia 3310 etc.)

How much did you pay for your current handset

- Less than Rs 2000 (1)
- Rs 2001-3000 (2)
- Rs 3001-5000 (3)
- Rs 5001-10,000 (4)
- Rs10,001 - 15,000 (5)
- Rs. 15,000-20,000 (6)
- More than Rs.20,000. (7)

How many handsets have you used till date?

On the average, how often do you change handsets?

- Every 6 months (1)
- Every year (2)
- Every two years (3)
- Every three or more years (4)

Through which channel did you purchase your current mobile phone?

- Online (1)
- Through service providers (2)
- Multi brand Electronics showroom (3)
- Single brand showroom (4)
- Other. Please Specify. (5) _____

Where do you get information about new mobile phone models? (Check all that apply)

- Family/ Relatives (1)
- Friends, colleagues or Peers (2)
- Internet (3)
- Television advertising (4)
- Showrooms and Malls (5)
- Other. Please Specify. (6) _____

Please rate the following mobile features based on how they might influence your purchase decision:

	No idea what this is (1)	Not at all Important (2)	Somewhat less Important (3)	Somewhat Important (4)	Absolutely Essential (5)
Brand (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Price (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Screen Size (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weight (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Touch Screen (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Camera (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Battery Life (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dual SIM facility (8)	<input type="radio"/>				
Looks (9)	<input type="radio"/>				
FM Radio (10)	<input type="radio"/>				
MP3 Player (11)	<input type="radio"/>				
Looks (12)	<input type="radio"/>				
WiFi/Bluetooth capability (13)	<input type="radio"/>				
QWERTY Keyboard (14)	<input type="radio"/>				
Other. Please Specify (15)	<input type="radio"/>				

How long have you been using mobile phones?

- Less than 1 Year (1)
- 1-2 Years (2)
- 2-3 Years (3)
- 3-5 years (4)
- 5-10 years (5)
- Over 10 years (6)

What type of mobile rate plan are you currently using?

- Simple Pre-paid (1)
- Prepaid + Data Services (eg: Internet, Email etc.) (2)
- Simple Post-paid (3)
- Postpaid + DataServices (eg: Internet, Email etc.) (4)
- Don't Know (5)
- Other. Please Specify (6) _____

On the average, what is your total monthly expenditure on mobile services?

- Less than Rs 100 (1)
- Rs101-300 (2)
- Rs. 301-500 (3)
- Rs. 501-1000 (4)
- Rs. 1001-1500 (5)

- Rs. 1501-2000 (6)
- Rs.2001-3000 (7)
- Above Rs. 3000 per month (8)

If you are a pre-paid user, what is your usual top up (or average re-charge) size?

- Upto Rs. 50 (1)
- Rs. 51-100 (2)
- Rs101-200 (3)
- Rs.201-500 (4)
- Over Rs.500 (5)

On the average, how many minutes per day do you use for voice calls?

- Less than 10 minutes per day (1)
- 11-30 minutes (2)
- 31-60 minutes (3)
- 1-2 hours (4)
- More than 2 hours per day. (5)

On the average, how many SMSes per day do you send?

- None. I hardly use SMS (1)
- 1-10 per day (2)
- 11-20 (3)
- More than 20 per day (4)

On the average, how often you use the following Value Added Services (VAS) on your mobile phone?

	At least once a day (1)	At least once a week (2)	At least once a month (3)	Never used this (4)
Caller Tunes (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ringtone downloads (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-mail checking (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking (Facebook etc.) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cricket, news or	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

stock alerts (5)				
Jokes, astrology etc. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GPS facility (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online games (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SMS/MMS (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
music/video downloads (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Document Reader (pdf, word etc.) (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

My primary way to access the internet is:

- PC/Laptop at home with broadband (1)
- PC/Laptop at home with mobile based wireless modem (2)
- PC/Laptop at work or school (3)
- Smartphone (non-tablet) (4)
- Tablet (5)
- Internet kiosk/ cyber cafes (6)
- Other. Please Specify (7) _____

Is your mobile phone internet enabled?

- No. (1)
- Yes, but I use it only to check email (2)
- Yes, I use it access the web. (3)

What is your current data plan type?

- 3G (1)
- GPRS (2)
- Don't Know. (3)
- Other. Please Specify. (4) _____

What is your current data plan?

- 1Gb - 2Gb Monthly plan (1)

- 2Gb - 5Gb Monthly Plan (2)
- Unlimited Plan (3)
- I use offhand bytes (Pay as you go) (4)
- Other. Please Specify. (5) _____

What is the OS (operating system) on your phone?

- Android (1)
- Apple (2)
- Symbian (3)
- Windows (4)
- Linux (5)
- Don't Know. (6)
- Other. Please Specify (7) _____

Please indicate your degree of agreement or disagreement with the following statements:

	Disagree completely (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Agree completely (5)
I am generally brand conscious when I am shopping (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am very careful and regular in planning my finances (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am generally budget conscious. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know a lot about mobile phones in general. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not a status conscious person. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I watch over an hour of TV everyday. (6)	<input type="radio"/>				
I have travelled to foreign countries. (7)	<input type="radio"/>				
I read newspapers daily. (8)	<input type="radio"/>				
I follow sports (especially cricket) on TV. (9)	<input type="radio"/>				
I am an environmentally conscious person. (10)	<input type="radio"/>				
I am a very health conscious person. (11)	<input type="radio"/>				
I often travel to new places by road. (12)	<input type="radio"/>				
I invest in the stock markets. (13)	<input type="radio"/>				
I have a large circle of friends. (14)	<input type="radio"/>				
I spend a lot of time on the Internet. (15)	<input type="radio"/>				
I believe imported goods are typically a	<input type="radio"/>				

<p>better buy than Indian goods. (16)</p>					
<p>I am comfortable with technology products and gadgets (17)</p>	○	○	○	○	○
<p>I am comfortable with online transactions - buying, selling (18)</p>	○	○	○	○	○
<p>I spend over an hour daily on social networking sites - facebook, chat etc. (19)</p>	○	○	○	○	○
<p>I am a TV news junkie - need a dose of TV news everyday (20)</p>	○	○	○	○	○
<p>I thoroughly research new products online before considering them (21)</p>	○	○	○	○	○
<p>I am often influenced by what brands or products others are buying (22)</p>	○	○	○	○	○
<p>It is important</p>	○	○	○	○	○

<p>not just to be successful but also to look successful. (23)</p>					
<p>I can tell a lot about a person by the brands they buy. (24)</p>	<input type="radio"/>				
<p>I believe more than 1 hour of mobile use daily has health risks. (25)</p>	<input type="radio"/>				

What year were you born in?

What is your gender?

- Male (1)
- Female (2)

What is your education level?

- Not completed Bachelor's degree (1)
- Bachelor's degree holder (2)
- Master's or PhD degree holder (3)
- Other, please specify. (4) _____

Including yourself, how many people are there in your household?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 or more. (4)

What kind of work do you do?

What kind of TV channels do you watch (Select the TOP 2 channel types.)

Which one of the following ranges includes your total yearly household income before taxes?

- Under 2 lakh rupees (1)
- Over 2 lakh and upto 5 lakh rupees (2)
- Over 5 lakh and upto 10 lakh rupees (3)
- Over 10 lakh and upto 15 lakh rupees (4)
- Over 15 lakh and upto 25 lakh rupees (5)
- Over 15 lakh and upto 50 lakh rupees (6)
- Over 50 lakh rupees (7)
- Other, pls specify. (8) _____

Which City/town do you live in?

Which State do you live in?

Your Email ID