

HBFC Bank - Personal Loans

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SITUATION :

HBFC bank, which has more customers having deposits(Saving,Current) and Term deposit(including Fixed Deposits and Recurring deposit accounts) and the consumers who avail loans are lesser in numbers,so bank is planning to bring in more business loans and earn more through interest.

TASK:

We need to figure out which customers are more likely to take up personal loans

ACTION:

DATA: Customer ID, ZIP Code, Education, Personal Loan,CC Average , TD Account, Online, Credit Card,Mortgage,securities account etc.

DESCRIPTIVE ANALYSIS:

1) What percentage of the bank's customers (according to the data) have availed Personal Loans?

Ans: 9.6% of the bank customers have availed personal Loans

Row Labels	Count of Personal Loan
No	90.40%
Yes	9.60%
Grand Total	100.00%

2) Generate a table with min, max, median & average for all numeric variables (age, experience, income, family members, CCAvg, Mortgage). What are your observations?

Ans:

Column1	avg	min	max	median
age	45.3336	23	67	45
experience	20.1344	0	43	20
income	73.76622	1.1	224	64
ccavg	1.938118	0	10	1.5
family memebbers	2.395679	0	4	2
mortgage	56.5101	0	635	0

Obserations:

Age: minimum age of customers is 23,maximum age is 67 and median age is 45 it says that most of the customers are less than 45 years old.

Experience: minimum is 0,maximum is 67,median is 20 and it suggests that most of the customers are aged 20.

Income: minimum is 1,maximum is 224,median is 64 and it suggests that majority of them have moderate income.

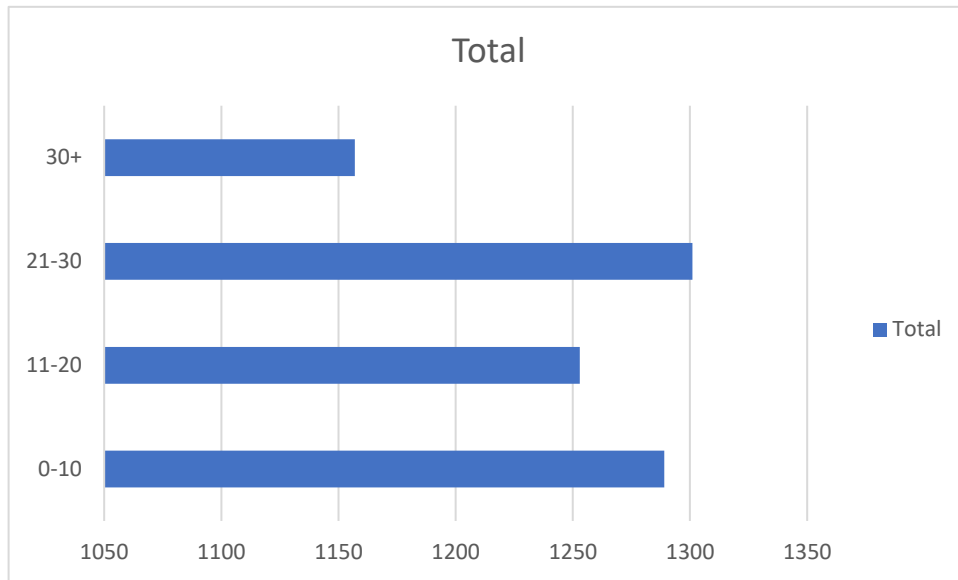
CCavg: minimum is 0,maximum is 10,median is 1.5 and average of 1.93 customers use credit cards.

Family members: minimum is 0, maximum is 4, median is 2 it suggests that most of the customers are from small families.

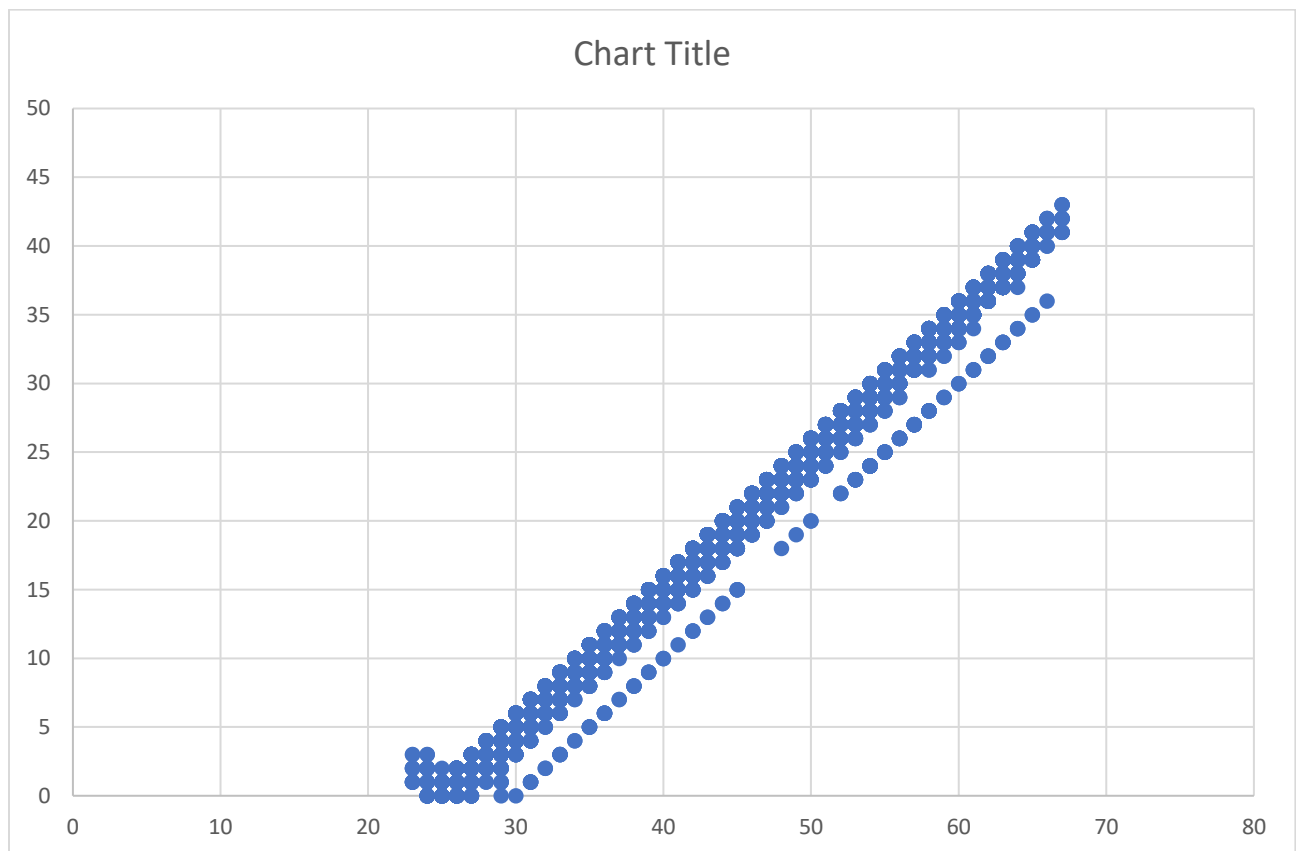
Mortgage: minimum is 0,maximum is 635,median is 0 and average is 56.51.

3) Plot a bar graph for this new categorical variable.

Row Labels	Count of Experience (in years)
0-10	1289
11-20	1253
21-30	1301
30+	1157
Grand Total	5000



4) Create a scatter plot of the Age and the Experience variable. What do you observe?



We can say that as the age increases, the experience also increases. Minimum customer age is 23 and maximum customers's age is 67

5) What are the top 3 areas (ZIP Codes) where the bank's customers are located?

Row Labels	Count of ZIP Code	Sum of ID
94720	169	376304
94305	127	312845
95616	116	313909

94720,94305,95616 are the top three areas(zip codes) where the bank's customers are located

6) How many customers have a combination of Fixed Deposits and Credit Cards but not Personal Loan?

CreditCard	Yes
TD Account	Yes
Personal Loan	No

Count of TD Account	Count of CreditCard
147	147

147 customers have a combination of fixed deposits and credit cards but not personal loan

7. What is the median income of the customers who have availed personal loans and compare it with the median income of those customers who have not availed personal loans? What do you infer?

<i>personal loan availed and median income</i>	
Mean	73.93650794
Standard Error	0.66338328
Median	64
Mode	44
Standard Deviation	46.20406204
Sample Variance	2134.815349
Kurtosis	-0.046887916
Skewness	0.845127338
Range	216
Minimum	8
Maximum	224
Sum	358666
Count	4851

<i>personal loan not aviled and median income</i>	
Mean	73.76655331
Standard Error	0.651100567
Median	64
Mode	44
Standard Deviation	46.03515839
Sample Variance	2119.235808
Kurtosis	-0.043555027
Skewness	0.841812561
Range	216
Minimum	8
Maximum	224
Sum	368759
Count	4999

8) Create 4 separate Pivot Tables. Summarise your data by percentages.

- Education vs Personal Loan
- TD Account Vs Personal Loan
- Online vs Personal Loan
- Income Category vs Personal Loan

EDUCATION VS PERSONAL LOAN

Count of Personal Loan	Column Labels		Grand Total
Row Labels	No	Yes	
Graduate	87.03%	12.97%	100.00%
Professional	86.34%	13.66%	100.00%
Undergraduate	95.56%	4.44%	100.00%
Grand Total	90.40%	9.60%	100.00%

TD Account Vs Personal Loan

Count of Personal Loan	Column Labels		Grand Total
Row Labels	No	Yes	
No	96.42%	70.83%	93.96%
Yes	3.58%	29.17%	6.04%
Grand Total	100.00%	100.00%	100.00%

Online vs Personal Loan

Count of Personal Loan	Column Labels		Grand Total
Row Labels	No	Yes	
No	40.42%	39.38%	40.32%
Yes	59.58%	60.63%	59.68%
Grand Total	100.00%	100.00%	100.00%

Income Category vs Personal Loan

Count of Personal Loan	Column Labels			
Row Labels	No	Yes		Grand Total
0-50		42.35%	0.00%	38.28%
100+		17.12%	91.25%	24.24%
51-100		40.53%	8.75%	37.48%
Grand Total		100.00%	100.00%	100.00%

9) Analyse the Pivot tables created in the previous question and state any anomaly that you observe. Which categorical variables appear most important for your further study if you want to analyse which customers are most likely to take personal loans and why?

Education vs Personal Loan:

Less percentage of undergraduate students avail personal loan

TD Account Vs Personal Loan:

Customers with TD accounts have a slightly higher likelihood of taking personal loans compared to those without TD accounts

Online vs Personal Loan :

Consumers who use online banking are less interested in availing loans.

Income Category vs Personal Loan:

Consumers with higher income avail personal loans.

10. In the last campaign, bank reached out to 5000 customers out of which 480 customers accepted the personal loan offer. The bank incurred a huge cost in running a marketing campaign to reach out to so many customers. This is where you as a strategic business consultant step in. You are tasked to optimise the cost of this campaign by identifying the correct target base (without significant reduction in number of acceptance of offers). The bank can then send Personal Loan offers to these target customers who have a higher chance of accepting the offer. Based on your analysis, what strategy would you suggest to the management of HBFC bank?

- Factors that include higher level of income, education, family size.
- Customers with a higher credit score are more likely to qualify for personal loans and have a higher probability of accepting the offer.
- Customers who have taken personal loans in the past are more likely to accept offers for personal loans in the future.
- Customers with a higher income level are more likely to be able to afford personal loans and have a higher probability of accepting the offer.

