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# PROJECT REPORT

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HBFC Bank Personal Loans



DECEMBER 19, 2023

HBFC BANK

- 1) What percentage of the bank's customers (according to the data) have availed Personal Loans vs the ones who have not availed it?

Personal loan	Percentage of Personal Loan
No	90.40%
Yes	9.60%

Only 9.6% of Customers have availed the Personal loans other 90.4% of customer not availed it because customer who accepting the personal loan income is high compared to others.

- 2) Generate a table with min, max, median & average for all numeric variables (age, experience, income, family members, CCAvg, Mortgage)

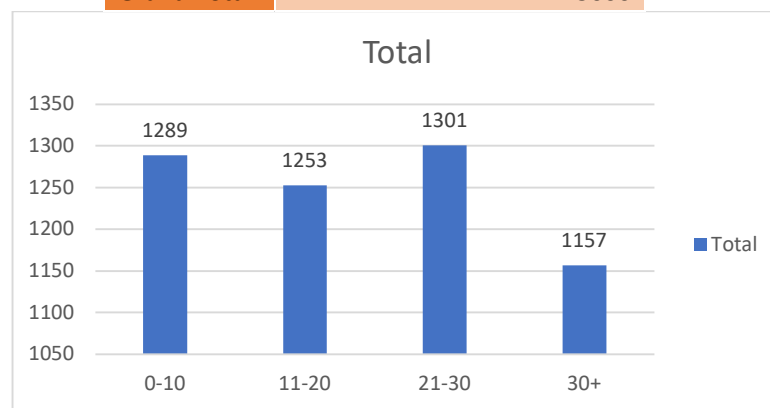
Category	MIN	MAX	MEDIAN	AVERAGE
Age	23	67	45	45.3384
Experience	0	43	20	20.1348
Income	8	224	64	73.7742
Family Members	1	4	2	2.397230028
CCAvg	0	10	1.5	1.937938
Mortgage	0	635	0	56.4988

- 3) Create a new categorical variable for Experience using 4 categories –

- 0 to 10 years
- 11 to 20 years
- 21 to 30 years
- 30+ years.

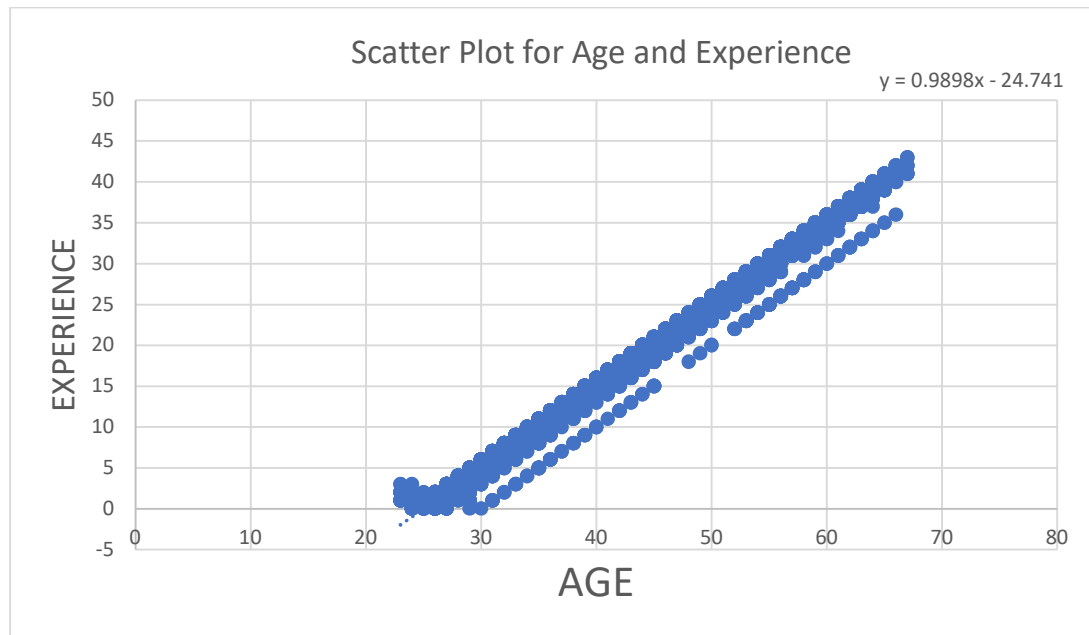
Plot a bar graph for this new categorical variable

Experience category	Count of experience categorical
0-10	1289
11-20	1253
21-30	1301
30+	1157
Grand Total	5000



Experience Categorical Variable

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



**Scatter Plot for Age and Experience**

- Above scatter plot shows perfect correlation between age and experience
- When age increases experience also increase.
- Experience depends on age.
- In age category minimum age of customer is 23 and maximum age is 67
- In experience category minimum experience is 0 and maximum is 43

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

Zip code	Count of ZIP Code
94720	169
94305	127
95616	116

The top 3 areas bank customers are located in above mentioned zipcodes.

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

Row Labels	Count of combination of TD and Credit Card
NO	4853
YES	147
Grand Total	5000

There are only 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?

Median income of the customers availed personal loans	142.5 K
Median income of the customers not availed personal loans	59 K

- The customer who have availed personal loan have higher income compared to the customer who have not availed personal loan.
- Half of the customer who availed personal loan their income is more than 142k in 10% of customer count.
- But the people who not availed personal loan half of their income is less than 59k in 90% of customer count.

- 8) Create 4 separate Pivot Tables. Summarize your data by percentage values.

- Education vs Personal Loan
- TD Account Vs Personal Loan
- Online vs Personal Loan
- Income\_Category vs Personal Loan

Education vs Personal Loan

Percentage of Education	Personal loan	
Row Labels	No	Yes
Graduate	27.01%	37.92%
Professional	28.67%	42.71%
Undergraduate	44.31%	19.38%

Online vs Personal Loan

Percentage of Online	Personal loan	
Row Labels	No	Yes
No	40.42%	39.38%
Yes	59.58%	60.63%

TD Account vs Personal Loan

Percentage of TD Account	Personal Loan	
Row Labels	No	Yes
No	96.42%	70.83%
Yes	3.58%	29.17%

Income category vs Personal Loan

Percentage of Income Categorical	Personal Loan	
Row Labels	No	Yes
0-50	42.35%	0.00%
51-100	40.53%	8.75%
100+	17.12%	91.25%

- 9) Analyze 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 analyze which customers are most likely to take personal loans and why?

- Income categorical variables is most important to continue further study. Below are the given categories to analyse the customers are most likely to take personal loans.
  - Education level who are professionals has accepted personal loans compared to other two category.
  - Customers who does not have Term Deposit are more likely to take personal loans.
  - Customers who are using net banking are more likely to take personal loans.
  - Highest income getting customers are more likely to take personal loans.
- Because the customers whose education category is profesional their income is probably high so they are more interested to take personal loans. This condition is concluded from the previous question income categorical variable whose income is less than 50k are 0% acceptance to get 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 optimize the cost of this campaign by identifying the correct target base (without significant reduction in number of acceptances 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?**

- A bank wants a new marketing campaign, so that they need information about the correlation between the variables given in the dataset.
- By increasing tenure period to target income categorical customers who get income between 51K to 100K may get chance to accept the personal loans with low reduction in number of accepting the offers.
- Bank can arrange online campaign like webinars to reach out so many customers and also campaign running cost will be reduced.
- To target education categorical customers, Professionals are more likely ready to take personal loans, so can focus on graduates and undergraduate customers by reducing collateral values and give personal loan by evaluating their certificates. If this idea follows, the bank can then offer personal loan to these target customers who have higher chance of accepting the personal loans.