Persona

Team

Draw your persona here

About this persona

Name?

Background?

1 Pains

Fears, frustration and anxieties

..\Documents\PERSONA PROFILES Parthib Ray CSE Core B2.docx

2 Gains

Wants, needs, hopes and dreams

3 Jobs to be done

What are they trying to do and why is it important for them?

4 Reality

How do they achieve those goals today? Any barriers in their way?

5 Stories and observations

Write down quotes or observations that best describe their experience

6 Context

Are there other factors that we should take in consideration?

Problem sizing

Team

1 Problem
Which problem or pain did you discover?

..\Documents\PERSONA PROFILES Parthib Ray CSE Core B2.docxDescribe the user's problem or pain point

2 User segment (# users)

- Does this problem affect all the users in your market or is it specific to a certain user segment/profile?
- How many people are there in that group?

X

3 Frequency (# times/user)

- How often does the pain or problem occur during the bigger activity?
- How often does the user do that activity on a yearly basis?
- So how often is this pain felt in a year?

X

4 Severity ($/time)

- How much $ is the user already spending on trying to solve, reduce or avoid this problem?
- How much $ is solving this problem worth to the user?

= Annual problem size

5 Evolution: Boosters

- Look at the Political, Economical, Socio Demographic, Technological, Environmental and Legal trends (PESTEL) from your market scan.
- What trends will boost the problem size?
- What is the growth rate of these boosting trends?

6 Evolution: Setbacks

- Look at the Political, Economical, Socio Demographic, Technological, Environmental and Legal trends (PESTEL) from your market scan.
- What trends will decrease the problem size?
- What is the growth rate of these setback trends?

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About this tool
The "Problem sizing" template is designed to help you make a quick guesstimate regarding the value of a specific user problem. No complicated excel spreadsheets that are tweaked until they show a billion dollar opportunity but a simple tool that forces you to agree on a couple of key assumptions.

Keep adjusting the template after you (in)validated those assumptions. If there is a validated problem size we can start thinking of solutions to solve these problems.

printsize: A3
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Problem Validation: example questions

1 Main goal: understand the context of a user & look for 'pains'

- Can you tell me more about the last time you did [X]?
- What are the reasons you do [X]?
- How often do you do [X]?
- What are you trying to achieve/get done by doing [X]?

- Could you describe step by step how you do [X]?
- Which step is the most time-consuming/most difficult/most expensive?
- Can you quantify this? (e.g. "losing 20 min per day")
- Why is that?
- If you could take out/avoid 1 step, which would you pick?

- Why did you decide to go for this solution/process?
- Did you ever compare alternative solutions to solve problem [X]?

- How often do you experience problem [X]?
- What happens before/after you experience problem [X]?

- What don't you like about [X]?
- How would you compare this (negative) experience to [X]?

- Can you show me how you do [X]?

- Have you ever tried to improve [X]?
- Can you describe your solution?
- Would you change anything today?

- What is the maximum you would pay (to invest) to tackle problem [X]?
- Are you paying for a solution today?

2 General tips

- Don't interrupt people too soon. If you are silent, people might feel uncomfortable so they will tell you more to avoid silence.
- Don't ask them to invent the future (solution).
- Ask why, why, why,... to have a very detailed view on what actually happens.
- A question that can be answered with just yes/no is not enough. Ask for more info.
- Ask for references or specific numbers where possible. "It's easy to do." is not enough. "It takes 10 min & 6 steps to complete X." is already better.
- Look for evidence/proof of existing behaviour!

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About this tool
The "Problem Validation: Example Questions" tools is designed to guide you through your first problem validation interviews. Use these example questions to design your interview scripts. Truly understanding your target customers is key to the success of your venture, and it's hard to understand people without talking to them. **Tip:** Try to go in with an open mind, enjoy the conversation, and focus on really understanding *Why*.

PERSONA PROFILES

(By Parthib Ray -B2T9)

(1) Tom (Corporate Employee, Barclays Bank)

(1)Pains:-

- **His job is to ensure the security of transactions of customers who pay by credit cards but he is immensely tensed by the increased number of frauds being committed by cyber thieves these days**
- **His fear is that Barclays being one of the leading multinational banks is always in the radar of cyber criminals for fraud purposes.**

- **This can lead to a huge panic among the customers of the bank can lead to a lot of customers withdrawing from the bank's credit card facility leading to huge losses in revenue for the bank.**

(2)Gains:-

- **His demand is of a robust system that can ensure zero fraud can be committed by detecting faulty transactions before they are debited as loans from the bank's account**
- **His hope is that such a software can minimize the risk of frauds to the bare minimum and save the bank from huge financial and professional losses**
- **He dreams of a fraud free open market where transactions can be done without any doubts and fears in mind of any frauds being committed.**

(3)Jobs to done:-

- **He is the chief security officer of the Barclays financial sector and he is been entrusted with the task of overlooking the security of the transactions done by the bank and its customers**
- **It is important because security is the backbone of any transaction and can affect the bank in an adverse way if any discrepancies take place.**

(4) Reality:-

- **Under the current system the transactions are scrutinized using a fraud detection software by a four step verification process under a certain range.**
- **The system is very time consuming and wastage of a lot of resources is a very big problem under the current system.**

(5) Stories and Observations:-

- **"I am scared by the increased number of fraudulent transactions"**
- **"Resources are being wasted to just ensure the security of transactions which can be done more efficiently"**
- **"I have a vision of creating a free open market where fraudulent transactions can easily be detected without much effort"**

(6) Context:-

- **Conversion rates of different currencies as valuation of money changes in every country**
- **Fraud detection system architecture**
- **Integration of model into main system of transactions**

Problem Sizing

(1)Problem:-

- **To prevent fraudulent transactions which can adversely affect the reputation of the bank and also can lead to huge financial losses**

(2)User Segment:-

- **The problem of fraudulent transactions hampering the bank will affect the customers directly and the bank employees indirectly.**
- **Almost all the customers and bank employees are affected.**

(3)Frequency:-

- **The pain of doing the activity is everyday because transactions are happening all around the globe at all times.**
- **The activity is done 24*7**
- **The pain of doing such a cumbersome task is felt everyday.**

(4)Severity:-

- **An average of 125 million dollars is spent on the current system .**
- **The user is extremely dissatisfied as this is a lot of money and wants to cut down to 75 million dollars for such a system.**

(5) Evolution:Boosters

- **The current declining financial market and economy due to pandemic crisis can increase the no of fraudulent transactions as more people are losing jobs at a rapid pace due to lockdowns and slowdown**
- **The trends of fraudulent transactions are increasing rapidly at a pace of 34.5% per year.**

(6) Evolution:Setbacks

- **The current world economic reforms that promote open market can help in reducing fraudulent transactions in a major way**
- **The induction of new techniques like IOT,Machine Learning and an increased use of Data Science will help in bringing down fraudulent transactions to a bare minimum**

Customer Validation:-

(1)Can you tell me more about the last time you did fraud detection?

Ans:-The last time that fraud detection was done by my team was yesterday where three fraudulent transactions were caught.

(2)What are the reasons you do fraud detection?

Ans:-The reasons are many but the two most important are as follows:-

(a)To ensure the financial security of the customers

(b)To ensure the reputation and financial situation of the organization remains intact

(3) How often do you do and what are you trying to achieve/get done by doing fraud detection?

Ans:- The process is done 24*7 and it is done to ensure that frauds are minimized to a bare minimum.

(4) Could you describe step by step how you do and which step is the most time-consuming/most difficult/most expensive?

Ans:- Each transaction is scrutinized using a four step verification like verifying account number, amount, credentials of the server transacting and by using

outlier coefficients to classify the transaction as fraud or normal.

The step for calculating the outliers can be reduced by training the system to automatically calculating by comparing with previous values.

(5) Can you quantify this?

This takes an average of 10 minutes time each transaction which causes a huge delay in fund transfer.

(6) Why did you decide to go for this solution/process? Did you ever compare alternative solutions to solve problem ?

Ans:- It is the most efficient solution available in the market right now. Alternatives were researched upon but they were for the same level or even lower level than the current software.

(7) How often do you experience problem?What happens before/after you experience problem?

Ans:-Problems like server overloading and computational errors are encounters almost daily and to rectify that is a lot of money and manpower wastage.

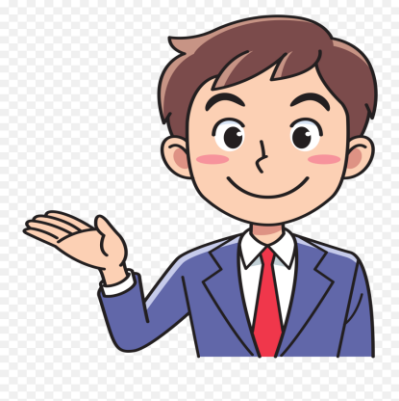
(8)Any other comments and expectations.

Ans:- Yes I have a vision of a free market which can help people transact freely without worrying about frauds and ana efficient system without any bugs should be created with integration of modern technologies.

PERSONA PROFILES

RA1911003010678
Shezin Saleem
B2T9

Mr. Inder Singh – Elsa & co
Assistant Bank Manager



1) **Pains :**

- Model should be fast enough to handle large amount of data
- Data availability as the data is mostly private.
- Since very less fraud transcation very hard to differentiate
- Misclassified Data can be another major issue, as not every fraudulent transaction is caught and reported.

2) **Gains :**

- Ability to identify new patterns and adapt to changes.
- For protecting the privacy of the user the dimensionality of the data can be reduced.
- By that system or software fraud transactions can be minimized and save the bank from huge financial losses
- Less manual work needed for additional verification

3) **Jobs to be done What are they trying to do and why is it important for them?**

- Detecting the fraud transactions is a very important thing during this decade, because most of the transactions are online now.

- The aim of this project is to build a classifier using machine learning that classifies if it is a fraud or not
- We are tasked by a well-known company to detect potential frauds so that customers have whole trust on our company

4) Reality: How do they achieve those goals today? Any barriers in their way?

- Requires large data for training, many data science community forum will contribute to it.
- Machine learning algorithms are employed to analyze all the authorized transactions and report the suspicious ones
- Transaction patterns often change their statistical properties over the course of time So it needs a bit of attention with the ML and DS

5) Stories and observations Write down quotes or observations that best describe their experience

- Let our advance worrying become advance thinking and planning
- Customer have less trust on banks due to this fraud transactions
- A good plan can help with risk analyses but it will never guarantee the smooth running of the project.

6) Context Are there other factors that we should take in consideration?

- Identifying project goals, measurement metrics and assign resources
- Designing the fraud detection model
- Deploying the build model

Problem Sizing

1) Problem: Which problem or pain did you discover?

To find the event where normal transaction is automically processed and the fraud is found who made big losses to the customer

2) User segment (# users)

Not all customers are effected by the fraud transaction. Very less percent of people face this issue, but it indirectly effects the bank

Here everyone is involved and affected directly or indirectly

3) **Frequency (# times/user)**

   It should be done everyday, since all around the globe transactions are been done all time

4) **Severity ($/time)**

   Customers are not happy with money in bank use of many fraud transaction in the bank

5) **Evolution: Boosters**

   Due to the intrinsic properties of transaction data, namely data imbalance, noise, borderline entities and concept drift. The advent of mobile payment systems has further complicated the fraud detection process.

6) **Evolution: Setbacks**

   The most commonly used fraud detection methods are Naïve Bayes (NB), Support Vector Machines (SVM), K-Nearest Neighbor algorithms (KNN). These techniques can be used alone or in collaboration using ensemble or meta-learning techniques to build classifiers

   The induction of new techniques like IOT,Machine Learning and an increased use of Data Science will help in bringing down fraudulent transactions to a bare minimum

Problem Validation

1) **Can you tell me more about the last time you did fraud detection?**
   The last time that fraud detection was done by my team was yesterday where three fraudulent transactions were caught

2) **What are the reasons you do fraud detection?**
   Done to prevent money or property from being obtained through false pretenses. Fraud detection is applied to many industries such as banking or insurance. In banking, fraud may include forging checks or using stolen credit cards.

3) **How often do you do and what are you trying to achieve/get done by doing fraud detection?**
   It should be done 24/7. It is done to identify suspicious events and report them to an analyst while letting normal transactions be automatically processed.

4) **Could you describe step by step how you do it and which step is the most time-consuming/most difficult/most expensive?**
   Each transaction is scrutinized using a four step verification like verifying account number, amount, credentials of the server transacting and by using outlier coefficients to classify the transaction as fraud or normal.

5) **Can you quantify this?**
   This takes an average of 10 minutes time each transaction which causes a huge delay in fund transfer.

6) **Why did you decide to go for this solution/process? Did you ever compare alternative solutions to solve problems ?**
   It is the most efficient solution available in the market right now. Alternatives were researched upon but they were for the same level or even lower level than the current software

7) **How often do you experience problems?What happens before/after you experience a problem?**
   Problems like server overloading and computational errors are encountered almost daily and to rectify that is a lot of money and manpower wastage.
   Getting high profile coders to rectify the errors in the code section also costs a lot.

8) **Any other comments and expectations**
   Credit card fraud has become more and more rampant in recent years. Therefore, the main aim is to detect fraud accurately and before fraud is committed. The goal is to detect and accurately detect false fraud detection. For that there are several methodologies for detecting credit card fraud, like neural networks, Genetic Algorithms, k-means clustering.

Persona

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About this persona

1 Pains
Fears, frustration and anxieties

2 Gains
Wants, needs, hopes and dreams

3 Jobs to be done
What are they trying to do and why is it important for them?

4 Reality
How do they achieve those goals today? Any barriers in their way?

5 Stories and observations
Write down quotes or observations that best describe their experience

6 Context
Are there other factors that we should take in consideration?

About this tool
Personas are fictional profiles, often developed as a way of representing a particular group based on their shared interests and needs.

Personas can provide a range of different perspectives, allowing teams to define and engage the different interest groups that may exist within their target market.

Problem sizing

Team

1 Problem
Which problem or pain did you discover?

Describe the user's problem or pain point

2 User segment (# users)

- Does this problem affect all the users in your market or is it specific to a certain user segment/profile?
- How many people are there in that group?

X

3 Frequency (# times/user)

- How often does the pain or problem occur during the bigger activity?
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- So how often is this pain felt in a year?

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- How much $ is the user already spending on trying to solve, reduce or avoid this problem?
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= Annual problem size

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- Look at the Political, Economical, Socio Demographic, Technological, Environmental and Legal trends (PESTEL) from your market scan.
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Problem Validation: example questions

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- Can you tell me more about the last time you did [X]?
- What are the reasons you do [X]?
- How often do you do [X]?
- What are you trying to achieve/get done by doing [X]?

- Could you describe step by step how you do [X]?
- Which step is the most time-consuming/most difficult/most expensive?
- Can you quantify this? (e.g. "losing 20 min per day")
- Why is that?
- If you could take out/avoid 1 step, which would you pick?

- Why did you decide to go for this solution/process?
- Did you ever compare alternative solutions to solve problem [X]?

- How often do you experience problem [X]?
- What happens before/after you experience problem [X]?

- What don't you like about [X]?
- How would you compare this (negative) experience to [X]?

- Can you show me how you do [X]?

- Have you ever tried to improve [X]?
- Can you describe your solution?
- Would you change anything today?

- What is the maximum you would pay (to invest) to tackle problem [X]?
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2 General tips

- Don't interrupt people too soon. If you are silent, people might feel uncomfortable so they will tell you more to avoid silence.
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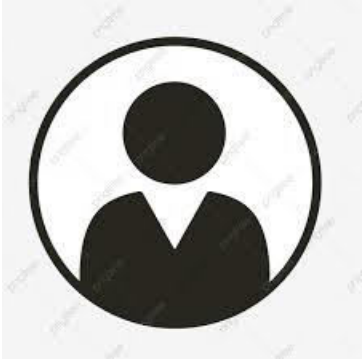
Persona

P. Sai Ram

RA1911003010696



Shankar Raj

Security Advisor

IDBI Bank

Pains:

1) He states that “Customers are afraid of using their credit cards.”

2)The number of fraudulent transactions is setting new heights day by day with new skimming technologies.

3) His job is to ensure the security of transactions of customers who pay by credit cards but he is immensely tensed by the increased number of frauds being committed by cyber thieves these days

Gains:

1) Credit card fraud is happening at all times of the day and night, which is why it's so important to keep an eye on customer’s accounts.

2) His demand is of a robust system that can ensure zero fraud can be committed by detecting faulty transactions before they are debited as loans from the bank’s account.

3)He hopes that such a software can minimize the risk of frauds to the bare minimum.

4)He dreams of a fraud free market so that their company can reach new heights.

Jobs to be done:

1) He is a security advisor at IDBI and he is been entrusted with the task of looking and finding the fraudulent transactions.

2)It is important because everyday a huge amount of money and the company's reputation is at stake.

Reality:

1) Under the current system the transactions are scrutinized using a fraud detection software by a four-step verification process under a certain range.

2) The system is very time consuming and wastage of a lot of resources is a very big problem under the current system.

Stories and observations:

"Online credit fraud is still the primary leader in all types of fraud because no physical card is needed to complete a fraudulent transaction."

"Our customers are very dissatisfied to use their credit cards and our credit card transactions are decreasing gradually"

"I want a fraud free mark to ensure costumer's safety and security"

"Customer's trust, satisfaction and their financial security is our main motive"

Context:

1) The transaction patterns often change their statistical properties over the course of time.

2) The privacy of the users must be not be compromised

3) Integration of model into main system of transactions

Problem Sizing

Problem:

Monitoring the activities of populations of users in order to estimate, perceive or avoid objectionable behaviour, which consist of fraud, intrusion, and defaulting

User Segment:

Not everyone is affected by credit card fraud. Every year, 40% percent of the credit users are suffering from Credit card fraud at some time.

Frequency:

1) Credit card fraud is happening at all times of the day and night.

2) According to a report from Javelin Strategy, there's a new identity theft victim every two seconds, and many of the incidents involve credit cards.

3) In just two-and-a-half years (between April 2017 and September 2019), a total of 1,10,367 cases amounting to ₹371.44 crore were reported.

Severity:

1) An average of 125 million dollars is spent on the current system.

2) The user is extremely dissatisfied as this is a lot of money and wants to cut down to 75 million dollars for such a system.

Evolution: Boosters

Online shopping is on the rise as more of us stay at home and let our credit cards do the walking. Keeping pace with that trend is an unfortunate increase in credit card fraud.

It’s no surprise, really. According to Forbes, online fraud has been a growing problem for the past few years. And now, as consumers and businesses adapt to the worldwide pandemic and make more credit card transactions in the card-not-present (CNP) space, the resulting uptick in online shopping and ecommerce has opened up an even bigger playground for fraudsters to try out new tricks.

A 2018 study by the Federal Reserve showed the amount of card-present fraud in the U.S. declined from $3.68 billion in 2015 to $2.91 billion in 2016. Unfortunately, during the same period the loss from CNP fraud jumped from $3.4 billion to $4.57 billion

Evolution: Setbacks

1) The current world economic reforms that promote open market can help in reducing fraudulent transactions in a major way

2) The induction of new techniques like IOT, Machine Learning and an increased use of Data Science will help in bringing down fraudulent transactions to a bare minimum

Problem Validation

1) Can you tell me more about the last time you did Credit Card Fraud Detection?

The last time we did Credit Card Fraud Detection was two days ago where a fraudulent transaction of Rs. 1,00,000 was identified.

2) What are the reasons you do Credit Card Fraud Detection?

i) To ensure that our customers won't lose their money.

ii) To ensure our organization's financial stability.

3) How often do you do Credit Card Fraud Detection?

We do this 24/7. It is done to find any suspicious transactions and report them to an analyst while letting normal transactions be automatically processed.

4) What are you trying to achieve/get done by doing Credit Card Fraud Detection?

Customer's trust, satisfaction and their financial security is our main motive. So, we want to get reported as soon as possible whenever someone is trying to do a fraudulent transaction and stop that to avoid financial loses of the customers.

5) Could you describe step by step how you do Credit Card Fraud Detection?

Each transaction is verified using a four-step verification like verifying account number, amount, credentials of the server transacting and by using outlier coefficients to classify the transaction as fraud or normal.

6) Which step is the most time-consuming/most difficult/most expensive?

The step for calculating the outliers can be more time consuming when compared to others.

7) Can you quantify this?

It takes at an average of 10 mis.

8) Why is that?

Because, we have to check the previous transaction patterns to find outliers.

9) If you could take out/avoid 1 step, which would you pick?

The most time-consuming step which is checking if the transaction is an outlier.

10) Why did you decide to go for this solution/process?

This is a very relevant problem that demands the attention of communities such as machine learning and data science where the solution to this problem can be automated, which could identify outliers or fraudulent transactions and report them immediately.

11) Did you ever compare alternative solutions to solve problem Credit Card Fraud?

Yes, we have considered some other alternatives but nothing seems to be as effective as this one.

12) How often do you experience problem?

We experience this problem very often, may be 20-30 times a day. The amount at stake is increasing day by day.

13) What happens before/after you experience problem Credit Card Fraud?

After a fraudulent transaction happens customer might receive an SMS that their card was used then they go panic which after identified to be a fraud.

14) What don't you like about Credit Card Fraud?

This causes financial loses for the customers and our organization. Eventually, we lose our customer's trust.

15) Have you ever tried to improve Credit Card Fraud Detection?

Yes, we have tried to improve in every manner possible but fraudsters always find their new ways.

16) Can you describe your solution?

Our systems check and verify the user's credentials then we would need a robust model with Machine learning to identify outliers and report them.

PERSONA PROFILES

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V kishore kumar reddy
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MR.Ravi Kumar - J.P. Morgan & co
Corporate Bank Employee

1) **Pains Fears, frustration and anxieties:**

- Enormous Data is processed every day and the model build must be fast enough to respond to the scam in time.
- Imbalanced Data i.e most of the transactions (99.8%) are not fraudulent which makes it really hard for detecting the fraudulent ones
- Data availability as the data is mostly private.
- Misclassified Data can be another major issue, as not every fraudulent transaction is caught and reported.
- Adaptive techniques used against the model by the scammers.

2) **Gains Wants, needs, hopes and dreams:**

- The model used must be simple and fast enough to detect the anomaly and classify it as a fraudulent transaction as quickly as possible.
- Imbalance can be dealt with by properly using some methods which we will talk about in the next paragraph
- For protecting the privacy of the user the dimensionality of the data can be reduced.
- A more trustworthy source must be taken which double-checks the data, at least for training the model.

- We can make the model simple and interpretable so that when the scammer adapts to it with just some tweaks we can have a new model up and running to deploy.

3) Jobs to be done What are they trying to do and why is it important for them?

- Detecting the fraud transactions is a very important thing during this era as we gain a massive change in technology the rate of frauds also increased
- The main goal of the this project is to build a classifier using machine learning that classifies if it is a fraud or not
- We are tasked by a well-known company to detect potential frauds so that customers are not charged for items that they did not purchase.

4) Reality: How do they achieve those goals today? Any barriers in their way?

- Demands the attention of communities such as machine learning and data science where the solution to this problem can be automated
- Machine learning algorithms are employed to analyze all the authorized transactions and report the suspicious ones
- Transaction patterns often change their statistical properties over the course of time So it needs a bit of attention with the ML and DS

5) Stories and observations Write down quotes or observations that best describe their experience

- Let our advance worrying become advance thinking and planning
- A good plan today is better than a perfect plan tomorrow
- A good plan can help with risk analyses but it will never guarantee the smooth running of the project.

6) Context Are there other factors that we should take in consideration?

- Some of the factors are as follows:
  1) Define project goals, measurement metrics and assign resources
  2)Identify proper data sources
  3)Design the fraud detection system architecture
  4)Develop the data engineering, transformation, and modeling pipelines
  5)Integrate the model into the case management system

Problem Sizing

1) **Problem: Which problem or pain did you discover?**

   To identify suspicious events and report them to an analyst while letting normal transactions be automatically processed.And identify the frauds that causes heavy losses

2) **User segment (# users)**

   All users are not affected by credit card fraud in the market .There were 41 percent of grouped people in the identity theft cases affected by credit card fraud. From the year 2017 credit card fraud cases increased rapidly ,by this credit card fraud cases many are affected by the increasing year. So many of the credit card fraud cases will decrease by the credit card fraud detection

   Here everyone is involved and affected directly or indirectly

3) **Frequency (# times/user)**

   According to a report from Javelin Strategy, there's a new identity theft victim every two seconds, and many of the incidents involve credit cards.
   So it has the high frequency and it happens during day or night
   The activity is done 24*7

   In just two-and-a-half years (between April 2017 and September 2019), a total of 1,10,367 cases amounting to ₹371.44 crore were reported

4) **Severity ($/time)**

   An average of 125 million dollars is spent on the current system

   The user is extremely dissatisfied as this is a lot of money and wants to cut down to 75 million dollars for such a system

5) **Evolution: Boosters**

   The trends of fraudulent transactions are increasing rapidly at a pace of 34.5% per year.

Due to the intrinsic properties of transaction data, namely data imbalance, noise, borderline entities and concept drift. The advent of mobile payment systems has further complicated the fraud detection process.

6) **Evolution: Setbacks**

The most commonly used fraud detection methods are Naïve Bayes (NB), Support Vector Machines (SVM), K-Nearest Neighbor algorithms (KNN). These techniques can be used alone or in collaboration using ensemble or meta-learning techniques to build classifiers

The induction of new techniques like IOT,Machine Learning and an increased use of Data Science will help in bringing down fraudulent transactions to a bare minimum

Problem Validation

1) **Can you tell me more about the last time you did fraud detection?**
   The last time that fraud detection was done by my team was yesterday where three fraudulent transactions were caught

2) **What are the reasons you do fraud detection?**
   Undertaken to prevent money or property from being obtained through false pretenses. Fraud detection is applied to many industries such as banking or insurance. In banking, fraud may include forging checks or using stolen credit cards.

3) **How often do you do and what are you trying to achieve/get done by doing fraud detection?**
   It should be done 24/7
   It is done to identify suspicious events and report them to an analyst while letting normal transactions be automatically processed.

4) **Could you describe step by step how you do it and which step is the most time-consuming/most difficult/most expensive?**
   Each transaction is scrutinized using a four step verification like verifying account number, amount, credentials of the server transacting and by using outlier coefficients to classify the transaction as fraud or normal.
   - labeling data can be time consuming and expensive.

5) **Can you quantify this?**
   This takes an average of 10 minutes time each transaction which causes a huge delay in fund transfer.

6) **Why did you decide to go for this solution/process? Did you ever compare alternative solutions to solve problems ?**
   It is the most efficient solution available in the market right now. Alternatives were researched upon but they were for the same level or even lower level than the current software

   Using ML and DS we can also get an efficient solution for this problem

7) **How often do you experience problems?What happens before/after you experience a problem?**
   Problems like server overloading and computational errors are encountered almost daily and to rectify that is a lot of money and manpower wastage.
   Getting high profile coders to rectify the errors in the code section also costs a lot.

8) **Any other comments and expectations**
   Credit card fraud has become more and more rampant in recent years. Therefore, the main aim is to detect fraud accurately and before fraud is committed. The goal is to detect and accurately detect false fraud detection. For that there are several methodologies for detecting credit card fraud, like neural networks, Genetic Algorithms, k-means clustering.

Persona Profiles

-->Name : Deborah
(Customer accounts manager)

1)Pains:-

=>Her job is Ensuring all customers are satisfied with the level of service and products provided by her organisation without any disappointment of the customers.
=>The problem in the job is she has numerous complaints from her customers advising of either no payment being taken at all or a larger amount being collected from their bank account.
=>By this many customers will be lost and also some withdraw online transactions or else not at all using online payments.

2) Gains:-

=>She thinks of a system that that has zero fraud and detect faulty transactions before they are debited as loans from the bank's account
=>By that system or software fraud transactions can be minimized and save the bank from huge financial losses.
=>Due to this the fraud transactions can be reduced and customers can easily trust the bank.

3)Jobs to done:-

=> She is a customer accounts manager and she is entrusted with the transactions and accounts done by bank and its customers.
=>It is important because security is the backbone of any transaction and can affect the bank in an adverse way.

4)Reality:-

=>The system currently using by the bank have many loop holes so that hacker can easily take the money.
=>So that a new software with strong security can lead to decrease in the fraud transactions.

5)Stories and Observations:-

=>Increased number of fraud transactions
Many complaints from the customers and the trust on the bank is reducing.
=>A vision of creating a free open market where fraudulent transactions can easily be detected without much effort.

6)Context:-

=>A system with detecting fraud transactions ensures customer trust.

=>Integration of model into main system of transactions.

Problem Sizing

(1)Problem:-

Trust from the customer on the bank is affecting which can lead to huge financial losses.

(2)User Segment:-

Fraud transactions can effect the customers of the bank directly and indirectly it effects the bank and its employees.

(3)Frequency:-

The pain of doing the activity is everyday because transactions are happening all around the globe at all times and the activity is done everyday.

(4)Severity:-

The customers of the bank reduces the half of the average money in the bank due to security of the current system.

(5) Evolution:Boosters;-

Due to the current pandemic situation the number of fraud transactions are increased due to the loss of many jobs by lockdown. The fraud transactions are increasing rapidly.

(6) Evolution:Setbacks:-

By introducing the new systems with high security and new techniques like Machine Learning and an increased use of Data Science will help in bringing down fraudulent transactions.
The current world economic reforms that promote open market can help in reducing fraudulent transactions.

Problem Validation

(1)Can you tell me more about the last time you did fraud detection?
Ans:-The last time that fraud detection was done by my team was yesterday where three fraudulent transactions were caught.
(2)What are the reasons you do fraud detection?
Ans:- To prevent money or property from being obtained through false pretenses.
To maintain trust on bank from the customers and to prevent the nation from financial crises.
(3) How often do you do and what are you trying to achieve/get done by doing fraud detection?
Ans:-The system works everyday and it is done to ensure that frauds are minimized to a bare minimum.
(4) Could you describe step by step how you do and which step is the most time-consuming/most difficult/most expensive?

Ans:- Each transaction is scrutinized using a four step verification like verifying account number, amount, credentials of the server transacting and by using outlier coefficients to classify the transaction as fraud or normal.
The step for calculating the outliers can be reduced by training the system to automatically calculating by comparing with previous values.
(5) Can you quantify this?
Ans:- This takes an average of 10 minutes time each transaction which causes a huge delay in fund transfer.
(6)If you could take out/avoid 1 step, which would you pick?

Ans:- "Monitoring the activities of populations of users in order to estimate, perceive or avoid objectionable behaviour, which consist of fraud, intrusion, and defaulting"
is the one I would pick. This may take a lot of time and effort if it is done by humans.

(7)Why did you decide to go for this solution/process?

Ans:- This is a very relevant problem that demands the attention of communities such as machine learning and data science where the solution to this problem can be automated, which could identify otliers or fraudulent transcations and report them immediately.

(8)Did you ever compare alternative solutions to solve problem Credit Card Fraud?

Ans:- No, we haven't considered any other alternatives.
The number of valid transactions far outnumber fraudulent ones.
Also, the transaction patterns often change their statistical properties over the course of time.
So, this seems to be the obvious solution for the problem.

(9)How often do you experience problem Credit Card Fraud?

Ans:- We experience this problem very often, may be 20-30 times a day.The amount at stake is increasing day by day.

PERSONA

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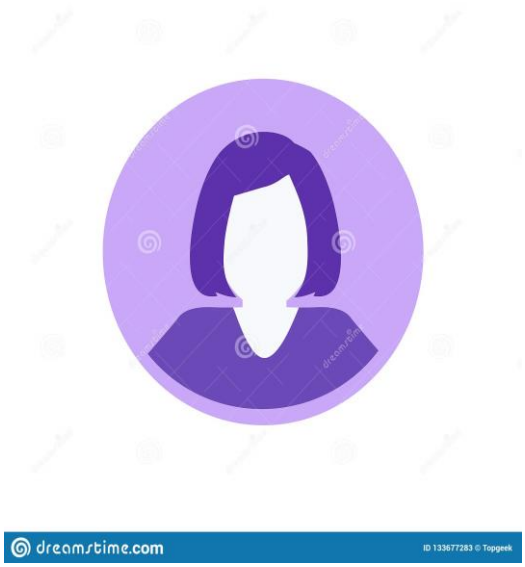
Vagicherla Sai Avinash.

Name: M.Sangeetha
Back ground: Andhra pragathi grameena bank Employee



1) Pains Fears, frustration and anxieties:

● Vast number of transactions are being processed from time to time.It is a big task to verify each transaction at every time.

● And the even more challenging thing is to verify the transaction in less time for the customer transaction.

● Adapting to the new changes in the techniques for employee is a big task.

● Data availability and to make the data private and secure.

2) Gains Wants, needs, hopes and dreams:

To decrease the fraud transactions ratio so that it increases the customers trust on organisation and also the customer feels secure.

The model should be simple and adaptable ,so that all the customers and employees can easily adapt to the change .

(3)Jobs to done:-

● We must choose a model so that it should be cheap and affordable by the organisation and the customer.
● And it should get more accurate result as per the requirement of the need.

(4)Reality:-

All the problem is in managing the huge amount of data to check for valid transactions or not.

We achieve our goals by using the modern techniques like Machine Learning ,Data Science,Neural Networks..etc

(5)Stories and observations:-

●“Although still in its infancy, machine learning will be a game changer in the supply chain.”

●“We have some catching up to do in the area of machine learning and artificial intelligence.”

●“A baby learns to crawl, walk and then run. We are in the crawling stage when it comes to applying machine learning.”

(6) Context:-

●Choosing an efficient Algorithm.

●Integration of model with system architecture.

●Making encryption of data.

●Securing the big transactions of organisations, governments..etc.

PROBLEM SIZING

(1)Problem:-

To prevent fraud transactions and to increase the trust of customers on bank on the credit card transactions and also it prevents thefting of money from customers.

(2)User Segment:-

Few percent of people in the identity theft cases were affected by credit card fraud.From recent two years onwards the % of fraud cases were increased to increase in the online users. So many of the credit card fraud cases will decrease by the credit card fraud detection.

Where everyone is involved and affected directly or indirectly.

(3)Frequency:-

Generally this type of problem will be there at every time because at each second people may do transactions.This pain will be there every day.

(4)Severity:-

According to a synovus survey each company is spending around $25,000 per each year.

Only $15,000 are worthing to customers where the remaining are not being traced out.

(5)**Evolution: Boosters**

Due to the pandemic the offline transactions have become very insecure .So in every market the transactions are boosting and it also increases the fraud transactions.
According to CAGR survey, the growth rate for 2021-26 will be 18.17%.

(6) Evolution: Setbacks

The most commonly used fraud detection methods are Support Vector Machines (SVM) ,Decision tree,XGBoost classifier, Random Forest classifier, Neural networks..etc.The growth rate of these techniques was 20.5%and these techniques will decrease the problem size too.

CUSTOMER VALIDATION

1.Why did you decide to go for this solution/process?

We have chosen this solution because decision tree is commonly used due to its fast training, reliability and robustness to dirty data;

however, it is prone to overfit, where the algorithm can generate over-complex trees that fit training data

so perfectly that they do not generalize to unseen data.

2.How often do you experience problems with credit cards ?

The following are situations where we experience the credit card frauds:

when we use unsecure websites for doing transactions.

By using public Wi-Fi for financial transactions.

When we lost our card or were stolen by someone.

By clicking on spam mails leads to malware injection into systems.

3.Did you ever compare alternative solutions to solve problems ?

The different methods to solve credit card frauds are by using:

1. Decision tree – It’s a very powerful tool for classification and prediction analysis. It’s a tree-like structure where the source is split into subsets based on attributes.

2. XG Boost classifier – It’s an open-source library that provides a high-performance implementation of gradient boosted decision trees.

3. Random Forest classifier – This is a combination of multiple decision trees to improve classifications, as each decision tree checks for different regressions simultaneously.

4. Neural networks – It’s a concept derived from the functionality of the human brain. It involves the use of data mining and natural language processing.

4.What happens before/after you experience a problem ?

If we come across a fraud then we have to make the call to our respective bank as soon as you notice anything suspicious or you realize that your card has been lost or stolen.

Your credit card provider will then launch an investigation to verify the fraudulent activity and remove any unauthorized transactions.

Compromised cards will be cancelled to halt criminal activity, and you will be issued a new card and account number to reinstate secure access to your account and funds.

5.What are you trying to achieve/get done by doing this fraud detection ?

By doing this we can detect the fraud transactions going on .So that all the customers feel secure to do credit card transactions.

6.How often do you do and what are you trying to achieve/get done by doing fraud detection?

The process will be done 24*7 and it is used to minimize fraud transactions.

7.Can you tell me more about the last time you did fraud detection?

The last time that fraud detection was done by my team was two days ago where 1 fraud transaction was caught. The main reason was we have used public wifi .

8.What are the reasons you do fraud detection?

The reasons are many but the two most important are as follows:-

(a)To ensure the security of the customers and to encourage credit card transactions.

(b)To get good will in the company from the customers .