ELP305

Semester II 2022-23

Report on Problem Statement 2

Tribe: Cosmopolitan
Version: 3.5
Week: 4
Date of Submission: 25 April 2023

Table of Contents

1. Tribe Member Information

Total number of members = 73

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2. Documentation Statistics

2.1. Text Statistics

Word Count	# Unique Words	# Repeated Words	# Sentences	# Characters
5937	1123	2283	349	28964

# Syllables	Avg # of words per sentence	Avg # of characters per sentence	Avg # of characters per word	Avg # of syllables per word
9832	23	115	5	2

2.2. Readability Indices

Table 1. Readability Indices Values And Ideal Ranges

Index	Value	Range
Readibility	60	0-100
Gunning Fog Index	14.9	0-20
Flesch Reading Ease	41.8	0-100
Coleman-Liau Index	12	0 - (17+)
Automated Readability Index	13.7	5-22

The above results were obtained using https://readabilityformulas.com/freetests/six-readability-formulas.php.

2.3. List of Abbreviations

Abbreviation	Meaning
LAFA	Live Anywhere finance Anywhere
TLE	Time Limit Exceeded
TCS	Tata Consultancy Services

Abbreviation	Meaning
CAGR	Compound Annual Growth Rate
Mbps	Megabits per second
KPMG	Klynveld Peat Marwick Goerdeler
TRAI	Telecom Regulatory Authority of India
IAMAI	Internet and Mobile Association of India
CIBIL	Credit Information Bureau (India) Limited
NPO	Non-Profit Organization
KYC	Know Your Customer
STS	Secure Transaction System
P2P	peer to peer
PAN	Permanent Account Number
Fintech	Financial Technology
DSU	Deficit Spending Unit
SSU	Surplus Spending Unit

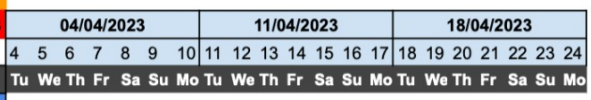
2.4. List of Figures

2.5. List of Tables

2.6. Gantt Chart

PROJECT NAME	LAFA(Live anywhere Finance Anywhere) Design Cycle			
Co-ordinator	Ayush Kumar			
			Project Start	04/04/2023

TASK	"ASSIGNED TO"	PROGRESS	START	END
Phase 1 Ideation and Brain Storming				
Ideation	Co-ordinator, Sub Co-ordinator	100%	04/04/23	09/04/23
Team division	Co-ordinator, Sub Co-ordinator	100%	09/04/23	09/04/23
Secure Transaction System	STS team	100%	09/04/23	16/04/23
Investment	Investment team	100%	09/04/23	16/04/23
Crowdfunding	Crowdfunding team	100%	09/04/23	16/04/23
P2P lending	P2P team	100%	09/04/23	16/04/23
Phase 2 Implementation and Finalization				
Framework of STS	STS team	100%	16/04/23	23/4/23
Framework of Investment	Investment team	100%	16/04/23	23/4/23
Framework of Crowdfunding	Crowdfunding team	100%	16/04/23	23/4/23
Framework of P2P lending	P2P lending	100%	17/04/23	24/4/23
Finalizing STS	Anurag	100%	23/4/23	24/4/23
Finalizing Investment	Aaryan,Manas	100%	23/4/23	24/4/23
Finalizing Crowdfunding	Tushita Pandey	100%	24/4/23	24/4/23
Finalizing P2P lending	Rashee	100%	24/4/23	24/4/23
Web Development	Web Development Team	100%	24/4/23	24/4/23



Find the complete Gantt Chart here
(https://docs.google.com/spreadsheets/d/12Q0UmNZfXABKoocdvFklwXGPaaKWGjd57urB2vdoieY/edit?usp=sharing).

3. Abstract

DoXFroX is a problem statement that aims to empower users from any location to perform their work in India. It presents a unique challenge that requires a comprehensive solution that is accessible, secure, reliable, and scalable. The solution should also integrate seamlessly with existing systems, be customizable to user preferences, and comply with legal regulations. LAFA is a component of DoxFroX that focuses on Live anywhere Finance anywhere. LAFA enables users to trade from anywhere in India, providing them with the flexibility to manage their finances while on the go. The financial solution for the Indian population should fulfill several key requirements, including accessibility, integration, security, scalability, personalization, transparency, compliance, education, and reliability. This project intends to address these requirements by developing a comprehensive financial solution that enables users to manage their finances from anywhere in India.

The solution will offer users a range of features, including the ability to trade stocks, manage their portfolios, track expenses, and access financial education resources. The solution will be accessible through multiple channels, including web and mobile, and will incorporate the latest security measures to ensure user data remains protected. Overall, this project aims to provide Indian users with a reliable, secure, and scalable financial solution that meets their specific needs, enabling them to manage their finances from anywhere in the country.

4. Requirements

In this document, we present our proposed DoXFroX solution, named **Poonji**, which enables the users of India to finance from anywhere they choose to be within India, transcending factors such as geography, origin, birth, and economic disparity. Our solution will enable the user to LAFA (Live Anywhere Finance Anywhere), and in order to achieve that, we have identified various requirements.

To ensure that our financial solution is effective and meets the needs of citizens in India, it should fulfill the following requirements:

1. **Accessibility**: India is a land of diversity; hence any solution targeting the complete Indian populace must take the factor of accessibility into account. The solution should be easily accessible to citizens across different regions and socioeconomic backgrounds. This may require developing a user-friendly interface and providing support for multiple languages, as well as ensuring that the solution is accessible through a variety of devices and internet connections.
2. **Integration**: For a huge market like India, a huge variety of vendors already exist in every domain dealing with necessities, which we will have to work with for our solution. The same applies to the financial domain too. Our solution should integrate with multiple financial institutions and government services to enable seamless transactions and access to services.
3. **Security**: Every provider of a financial service must first and foremost ensure that they are capable of providing necessary and sufficient security to their customers at all times and are capable of protecting the customer's money. The solution should provide robust security measures to protect users' sensitive financial information and prevent fraud and unauthorized access.
4. **Scalability**: Naturally, a solution working on the national scale must always be capable of handling sufficiently large amounts of traffic so that the scaling factor does not render it useless. The solution should be designed to handle a large volume of transactions and users, with the ability to scale up as the user base grows. Thus, having a sufficiently developed base server that is capable of further upscaling is necessary.
5. **Personalization**: The solution should be tailored to the specific needs and goals of individual users, with personalized financial advice and resources. Since each and every user is different, with different needs, usage requirements, and patterns, our solution should be able to incorporate these factors and be flexible with its interface so that it may provide the best experience to the user.
6. **Transparency**: Transparency is also important for any financial solution in India, as citizens need clear and accurate information on fees, charges, and other financial details to make informed decisions. The solution should provide clear and transparent information on fees, charges, and other financial details to ensure that users can make informed decisions. Since our solution is going to involve all kinds of transactions of immense importance to the users, ensuring transparency in the entire process is very important for us.
7. **Compliance**: Providing financial services and acting as a link between customers and other customers, or between The solution should adhere to regulatory requirements and compliance standards to ensure legal and ethical operation. The solution should adhere to all relevant legal and ethical requirements, as well as any other regulations or standards that apply to financial services in India.
8. **Education**: The solution should provide education and resources to help users develop financial literacy and understanding of basic financial concepts. For this purpose, a help guide could be provided to make the user understand the working of the application more concretely. It should relay all the necessary as well as lawfully required information that should be shared with the user, as well as additional ways that the solution can be used by the user should also be provided.

9. **Reliability**: The solution should be reliable and available to the users at all times, with minimal downtime and interruptions. This requires a robust and scalable infrastructure, as well as effective monitoring and maintenance processes, to ensure that the solution is always available and functioning as intended. To ensure this, there could be a limited server downtime daily at odd hours like 2 AM – 4 AM for server maintenance to ensure minimal interruptions.
10. **Innovation**: The solution should leverage emerging technologies and trends to continuously improve and innovate, providing new features and functionality to meet evolving user needs.

5. Specifications

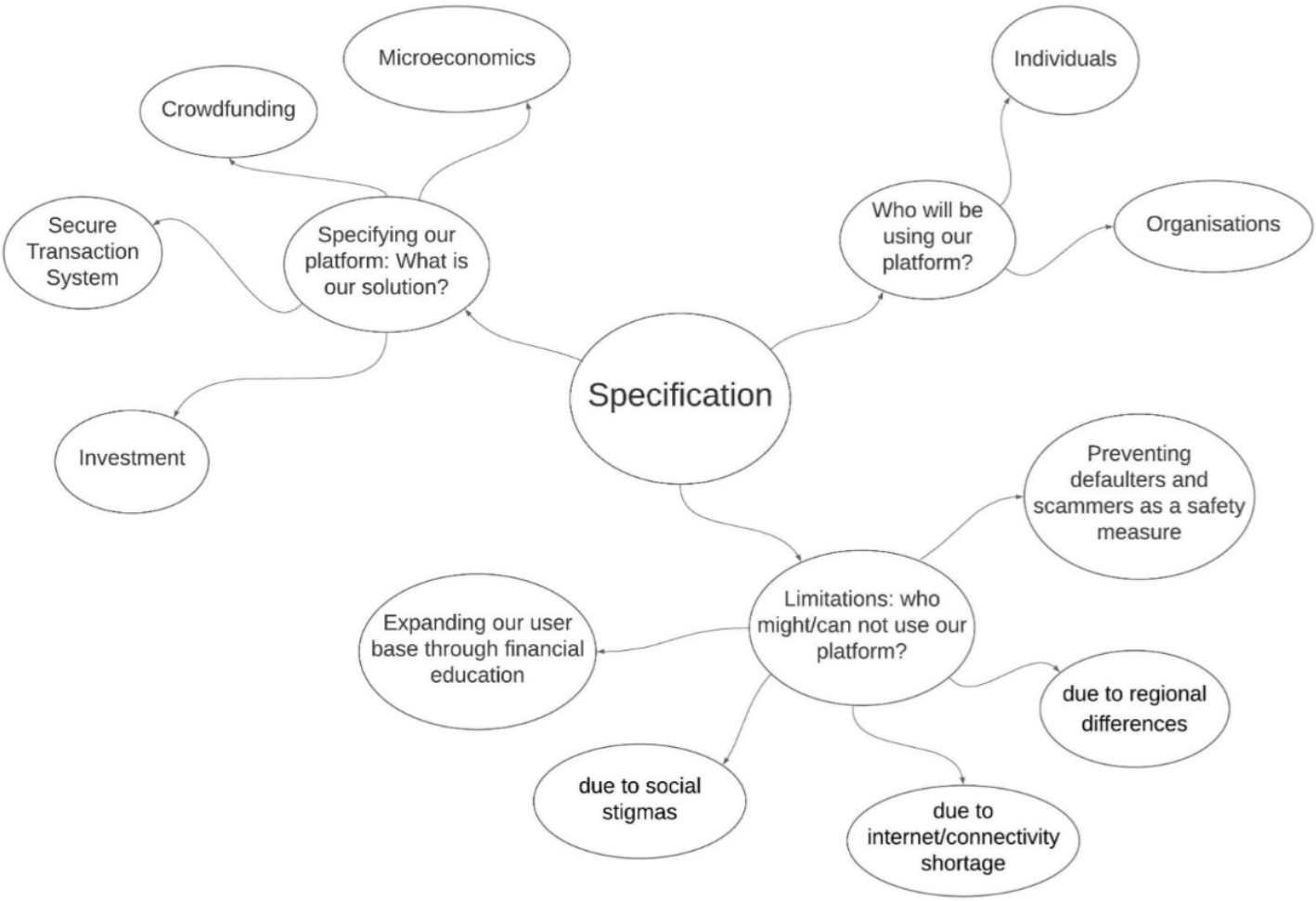
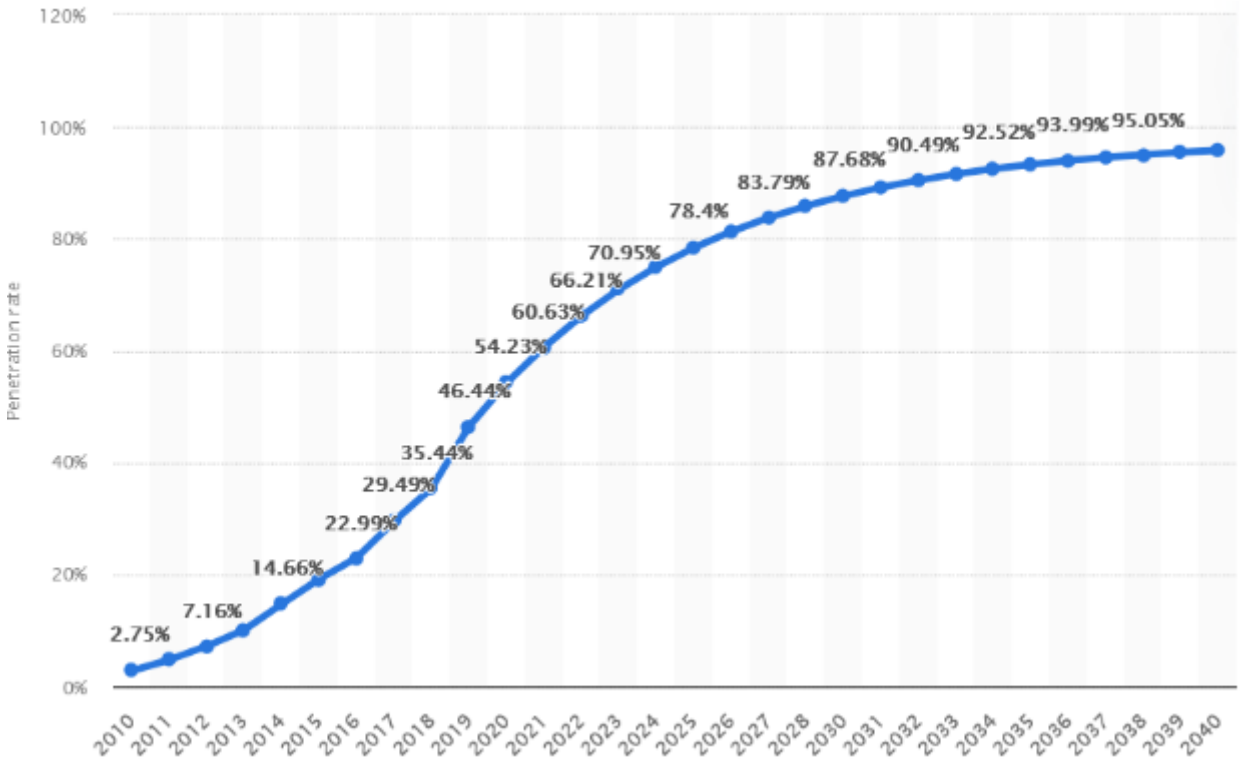


Figure 1. mindmap of Specifications

5.1. Who all can use the platform?

India is the second-largest smartphone market globally and has a substantial number of laptop users. Accurately estimating the number of mobile phones and laptops in the country is challenging due to various factors, such as uneven technology access across different regions and the rapidly evolving technology landscape. Below, we discuss briefly about the current smartphone and internet reach in India through various other means such as cybercafes, and thus our complete set of potential users based on recent surveys.

Current Smartphone Market : As of 2021, India has 1.2 billion mobile phone users and 750 million smartphone users, with a smartphone penetration rate of 54%, estimated to reach 96% by 2040. In rural India, smartphones are becoming the primary consumption devices, with 45% mobile data usage in rural to 55% in urban areas. The number of rural households with access to computers is only 4.4% compared to 23.4% of urban households.

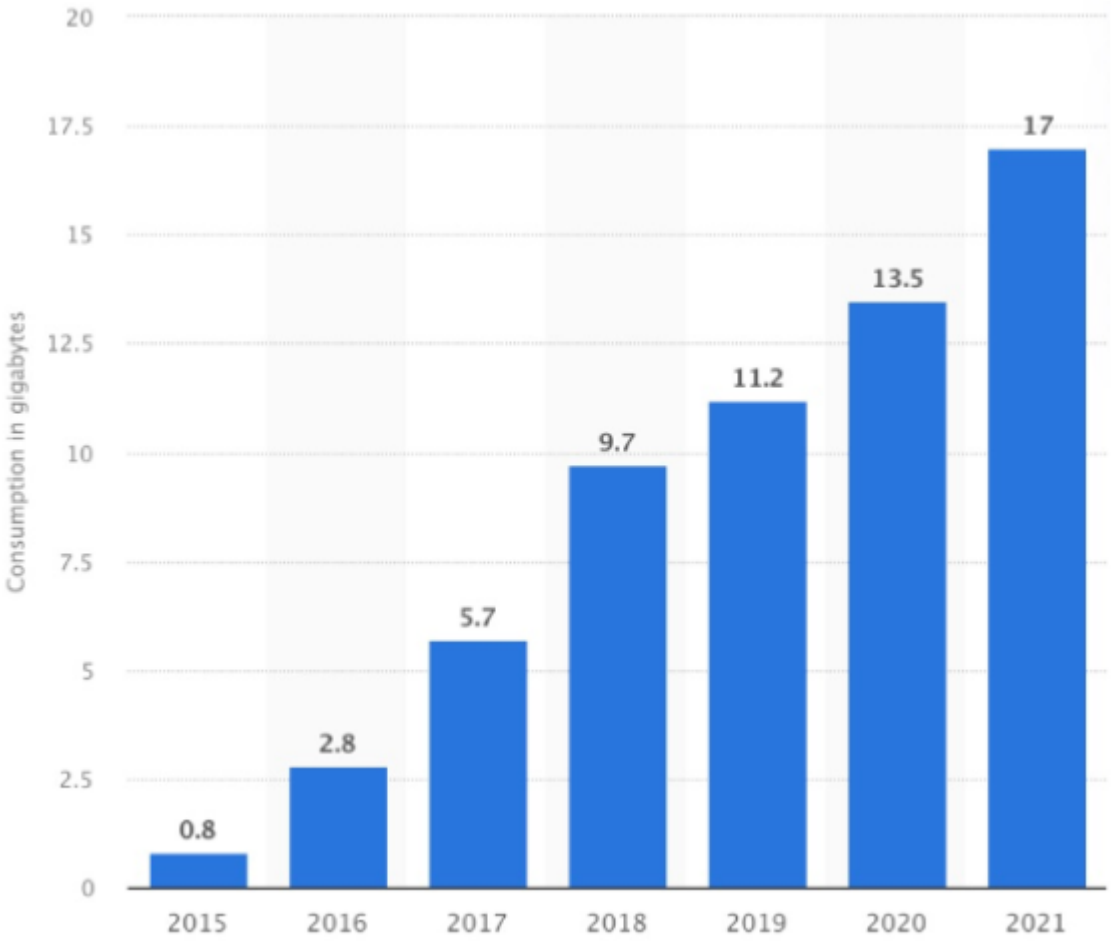


Cybercafés : According to a recent study by TCS and the Cybercafé Association of India, just 5% of Indian internet users visited cybercafés in 2021, compared to 46% in 2009. This decrease in user base caused the number of internet cafés to decrease from 200,000 in 2009 to a mere 72,000 in 2021. During this period, internet use at home rose from 58% to 78%.

Future Projections : India's mobile phone production more than doubled in FY22, making it the second-largest manufacturer of these devices globally. India manufactured mobile phones worth Rs. 5,277 crores in FY22, up from Rs. 2,334 crores in FY21. The market size for laptops in India reached over Rs. 452 crores in 2022, expected to grow at a CAGR of 6.7% between 2023 and 2028, reaching a value of Rs. 666 crores by 2028.

Internet Access :

1. As of 2023, the internet penetration rate in India is around 43%, a significant increase from just 4% in 2007. The average monthly data consumption per user across 3G and 4G networks in India was 17 GB in 2021, with 99% of the overall data traffic being contributed by 4G.
2. Social media and entertainment are the most popular mobile internet activities in India. Online shopping and mobile payments are also gaining popularity due to the increasing adoption of digital payments and the convenience of online shopping.
3. Broadband internet access on laptops remains an essential means of internet access, particularly for businesses and professionals, with around 34% of all internet users in India accessing the internet through laptops or desktops. As of August 2022, India had around 29.47 million wired broadband subscribers and 783.57 million wireless broadband subscribers.
4. As of 2021, India is 80th in the average fixed broadband download speed of 62.45 Mbps and 131st in the average mobile download speed of 12.07 Mbps. The rollout of 5G networks is expected to provide faster and more reliable internet connectivity.



India is experiencing a rapid expansion of its smartphone and mobile internet user base, bolstered by significant mobile phone and laptop production capabilities and a thriving e-commerce market.
What kind of institutions will be utilizing our platform; (such as Colleges, Hospitals, firms, or even the Govt.)

Banks : Banks can use the solution to offer their customers access to their accounts and financial services from anywhere in the world.

1. According to a report by Statista, the global banking industry's assets reached $138.7 trillion in 2020, indicating a significant market for such solutions.
2. A cashless society with digital transactions is much more efficient and it allows for much better management of your financial resources. It's a real time-saver.
3. Security protocols enabled in such kinds of solutions are why these have had success in the first place. Many mobile banking apps now allow you to use biometric authentication to log in. Axis Bank's app, for instance, provides three different biometric login options—fingerprint, voiceprint and facial recognition

Fintech startups : Fintech startups can leverage the solution to provide their customers with a seamless and secure way to access financial services. According to a report by KPMG, global fintech investment reached $105 billion in 2020, indicating a growing market for fintech solutions.

Insurance companies: Insurance companies can use the solution to offer their customers access to their policies and claims from anywhere in the world. According to a report by Market Research Future, the global insurance industry is expected to reach $7.5 trillion by 2025, indicating a significant market for such solutions.

Governments and public institutions: Governments and public institutions can use the solution to promote financial inclusion and enable people to access financial services, regardless of their location. According to a report by the World Bank, an estimated 1.7 billion adults worldwide do not have access to formal financial services, highlighting the need for innovative solutions that can address this issue.

1. The World Bank says financial services reduce poverty and boost growth. 2017 witnessed 1.7 billion unbanked. Banks support financial inclusion globally.
2. Jan Dhan Yojana gave universal bank accounts, insurance, and pensions in 2014. By 2021, the project produced 430 million bank accounts, 70% of them women. Financial inclusion reduced India's poverty.
3. Financial services expand opportunity. Government helps the poor. These methods raised bank account ownership, financial inclusion, and poverty.

Non-profit organizations : Non-profit organizations can use the solution to promote financial literacy and enable people to manage their finances more effectively. According to a report by The Balance, nearly 70% of Americans struggle with at least one aspect of financial literacy, highlighting the need for solutions that can help improve financial literacy.

1. Better financial management: Donations and grants limit NPOs. Financial management may help people make smarter judgments and utilize resources. NPOs may gain.
2. NPOs pay significant money transfer fees. Online payment processing may save money and release resources for programmes and operations.
3. Remote fund management, donor interaction, and transaction costs benefit NPOs. Capabilities describe advantages and applications.

5.2. Limitations to our user base due to various factors-

5.2.1 Limitations in access to our platform due to regional differences

India is a vast country with a gigantic variety of geographic and cultural variety. Some of these regions make it hard for some people to use online finance platforms. Here are a few reasons why:

1. **Insufficient digital infrastructure**: The two most significant issues are a steady electricity source and high-speed internet. Internet Penetration in India by 2022 was 48.7% of the total population. Rural regions have poor access because there are only 600 corridors, or about the top 50 to 100 Indian towns, where broadband is currently available. In states like Rajasthan, Goa, Gujrat, Uttarakhand, and many more, there are over 10,000 villages that still need mobile and internet connectivity. Almost 2.4% of the total population still has no electricity supply, and 13% still do not have grid-connected electricity.
2. **Digital literacy**: Some regions may have a low level of digital literacy, making it difficult for people to access and utilize online finance learning platforms.
3. **Device compatibility**: Certain regions may have a high prevalence of older devices or limited access to newer technology, which can limit access to finance learning platforms that require newer or more advanced technology.
4. **Cultural Setbacks**: A platform developed in a specific region of the country may have limited information prevalent mostly to regions of similar status quo, posing difficulties for other regions. For instance, impoverished individuals in rural areas may need access to banking services, making it challenging to apply the financial concepts and strategies taught in the platform.

5.2.2 Limitation in access to our platform due to internet/connectivity shortages

Data on Internet Users for respective bands (by 2021) :

1. **The population of India** : According to the latest data from the World Bank, as of 2021, the population of India is approximately 1.366 billion.
2. **Number of Internet Subscribers**: According to the latest data from the Telecom Regulatory Authority of India (TRAI), as of January 2022, the total number of internet subscribers in India is 802.15 million.
3. If the above information is accurate, then there are approximately 560 million people in India who do not have access to the internet. According to a report by the Internet and Mobile Association of India (IAMAI) and Nielsen, there were about 329 million 2G data users in India as of November 2020. However, it is important to note that this data is from 2020, and the number of 2G data users in India may have changed since then due to various factors, such as the adoption of 4G and 5G technologies. If we subtract 100 million to account for the rapid expansion of 4G and 5G, we can reasonably assume that India has around 200 million users accessing data via 2G networks. Hence a total of ~800 million (~61%) users in India will suffer from the consequences.

For the smooth sailing operation of our platform for the greatest efficiency, access to 4G and above (4G+,5G) band of the internet is a recommendation. In case of lack of proper internet access below described problems may be faced :

1. In case the network is in the 3G band, the data management and changes on our platform will be considerably lower leading to longer processing times and even cancellation of an initiated program due to TLE. This may result in the display of some unwanted results at times which could jeopardize the user's finances.
2. In the case of network bands 2G and below (including no internet access) , the platform will likely switch to the message-based transmission of information. This provides these three limitations :
    - The slower speed of transmission of data to and fro from the user and also slower speed in updating the database.
    - The inconvenient user interface as a messaging system would require some serious and strict rules for services offered which may cause unwanted errors on the user's part in case there is a lack of knowledge.
    - Risk of a security breach as it wouldn't be possible to use real-time encryption-decryption techniques for some of the services provided by the platform.

5.2.3 Limitations in access to our platform due to social stigmas

1. **Limited access to education**: People in rural areas or those from lower socioeconomic classes may not have access to quality education. This can limit their ability to use the DoXFroX platform effectively, as they may not have the necessary skills and knowledge to operate the technology.
2. **Lack of digital literacy**: People who are not familiar with technology may find it difficult to use the DoXFroX platform. This may be due to a lack of exposure to technology or limited access to digital devices.
3. **Social stigmas**: Certain social stigmas may prevent some people from accessing the platform. For example, in some communities, women may not have the freedom to access technology, or may be discouraged from using it due to cultural norms.
4. **Financial constraints**: People who belong to lower-income groups may not have the financial resources to access technology. This can limit their ability to use the platform and benefit from its services.
5. **Limited internet connectivity**: In some remote areas, internet connectivity may be limited or non-existent. This can make it difficult for people to access the DoXFroX platform, which requires a stable internet connection.

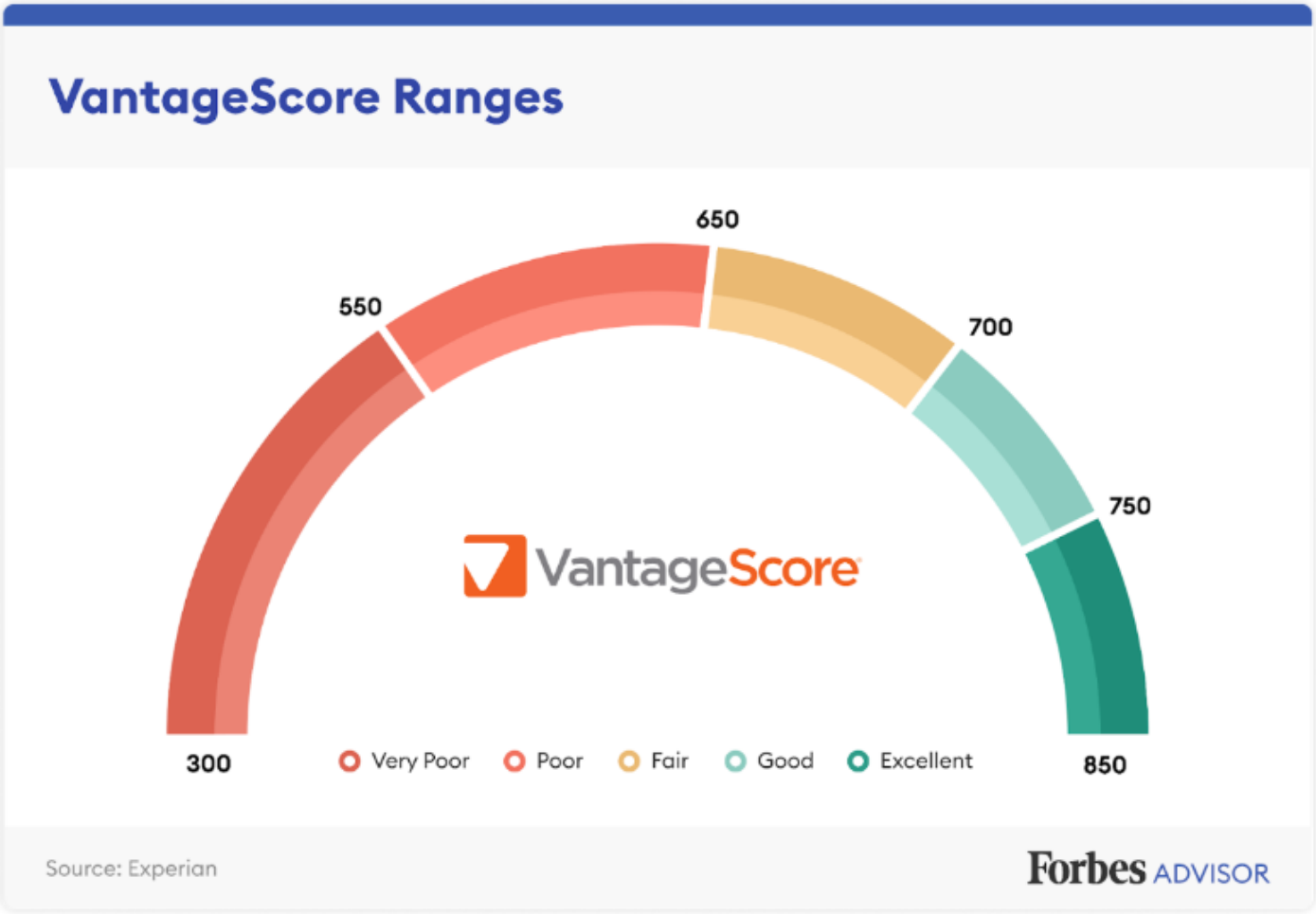
It's essential to consider these limitations and work towards finding solutions that can help overcome them. For example, providing training and education programs for digital literacy can allow people to use the platform effectively. Furthermore, making internet connectivity more affordable and accessible can help bridge the digital divide and provide equal access to the forum.

5.2.4 Limiting the access to our platform to prevent defaulters and scammers

Another factor that limits our user base is the set of defaulters and scammers, which needs to be prevented from accessing our platform in order to ensure the safety of our users. There are various ways to keep a check on such users, the most popular ones being credit scores and payment history which are utilised by a large number of internet banking solutions.
A financial credit score is a number that measures the financial stability and creditworthiness of an individual or an organization. This score is determined by several characteristics, such as credit history, which measures the length of credit history and variety of credit accounts we have for ex-mortgage, credit cards, and loans. Other parameters are the debt-to-income ratio which compares the amount of debt and credit a person owns, wherein a high debt-to-credit ratio lowers the credit score, payment history involving the user's track record of making on-time payments, and other financial behaviours such as frequency of new credit applications in the past few years. Other factors such as employment history, financial obligations and income sources might play an important role. Considering different weights for each parameter based on their importance, we obtain a score for each user unique to his PAN number, based on which the user might be barred or given special benefits for using the platform services.

The lending system we plan to develop as a part of the financial interface is a peer-to-peer type, which involves matching borrowers and lenders with similar demands. For the same, we need a scoring algorithm which assesses a user's creditworthiness by considering various above-mentioned factors. A high score implies a low-risk borrower, whereas a low score may indicate a high-risk borrower who is unlikely to repay debts. Among the several credit scores being used, we plan to use the CIBIL scoring method, developed by TransUnion, which is the most widely used scoring method in India, which receives data from most of the financial institutions and banks, and adding a slight variation to it, which is offered by the Vantage score, that is developed by Experian, Equifax and TransUnion. Since CIBIL is the traditional score being used, vantage considers several other parameters to fit the vast scope offered by the FinTech platform. The following is the weight distribution for several features, with the final score being on a scale of 300-850-

- Payment history (40%) : measures how well you have paid your bills on time in the past. A good payment history will show that you have made most of your payments on time.
- Age and type of credit (21%) : this metric covers how long a consumer has held credit accounts in good standing and whether they have a diverse mix of revolving credit and instalment loans.
- Percentage of credit limit used (20%) : a consumer's credit utilization rate, or debt-to-credit ratio, is the ratio of their outstanding credit balances to their total credit limits.
- Total Credit balances (11%) : imply the already kept credit balances and how well they are paid down.
- Recent credit behaviour (5%) : is calculated based on the new application for loans or credit cards.
- Available credit (3%) : depends on a consumer's amount of available credit.



The above chart defines what score is considered a good rating. For the platform, we can start with a conservative limit for the initial access of platform services, such as for a new user, an initial limit of 670. If the rating exceeds 750, the user will be given special benefits in using the platform's services. Later, the credit limits will be adjusted based on creditworthiness developed from experience with the platform.

This scoring method also considers the case of users with limited credit history. Still, for them, techniques such as behavioural scoring, which involves trends based on payment history, social scoring based on data received from social media platforms and business credit ratings for businesses which depend on their financial health, credit history, and payment behaviour will be used for studying their financial credibility.

Some alternative sources of information will include data from social media platforms, utility bills, mobile phone usage, etc., to assess users' risk profiles and machine learning algorithms to study their lending decisions. Also, initially, users must submit government identification documents, including PAN number and KYC details to verify the user's identity, address, and other personal information.

Also, later while using the platform, several fraud detection algorithms will be used alongside to study investment, borrowing and spending trends and monitor suspicious activity to prevent fraudulent activity. This scheme will help the fintech platform make informed lending decisions and manage risk exposure.

5.2.5 Expanding our user base through financial education

Teaching financial education is essential for helping people develop the skills and knowledge they need to manage their money effectively. Some strategies that can be taken up to help expand user base, increase customer outreach and promote financial education are as follows:

Content marketing: Creating high-quality content educates people about financial literacy and how to use money wisely. One can write blog posts, create videos, or host webinars on topics like budgeting, saving, investing, and debt management. Sharing content on social media platforms, email newsletters, and other relevant channels is a great strategy to reach a wider audience.

Partnership and collaborations: Collaboration with other organizations or businesses that share your mission and values and teaming up with financial advisors or banks can bring more financial resources and other perks, such as assisting in hosting workshops or seminars.
Referral Programs: Existing users can be incentivized to refer their friends and family to our platform. This can be in the form of discounts or bonuses, helping to create a loyal community around your brand.

Social media campaigns: Social media platforms are very useful in promoting financial education content and engaging with potential users. Entering partnerships with influencers or using paid ads can help reach new audiences.

Offline events: Hosting workshops or seminars on financial literacy within local communities can help to create a loyal customer base and encourage word-of-mouth marketing.

Customized content: Creating tailored content for specific demographics or user segments, such as students or small business owners, can help reach those more effectively. Customizing content and services to fit the needs of specific groups can help to attract new users and increase engagement.

Offer personalized financial advice: Offering personalized financial advice or coaching services to the users can help build trust and loyalty for our brand while providing a valuable service to our users.

A few ways in which we can reach out to the population more effectively are as follows.

1. **Making it relevant**: Teaching financial concepts relevant to the individual's life is a crucial aspect of financial education. For example, if one is teaching a young adult, one could focus on budgeting, managing credit cards, and saving for emergencies.
2. **Using real-life examples**: Using real-life examples and case studies to illustrate financial concepts can help learners to see the practical applications of financial education.
3. **Using interactive methods**: Interactive methods like games, quizzes, and simulations can engage learners and make the learning experience more enjoyable.
4. **Keeping it simple**: Using simple language and avoiding using jargonistic or technical terms makes financial concepts more accessible and easier to understand.
5. **Providing ongoing support**: Providing ongoing support and resources for learners to continue their financial education journey could include access to financial calculators, online resources, or one-on-one support from a financial coach or advisor.

Overall, it is important to continuously evaluate and update strategies to meet the changing needs of your users and keep up with the latest trends in financial education.

5.3. Specifying our platform: What is our solution?

Our platform for 'Live Anywhere Finance Anywhere' is going to comprise a web-based solution which will be accessible from any part of the world and cater all the financial needs of users irrespective of their location or economic circumstances, with registered users from India only. It will also include a well-framed operating structure for the company as a whole, with human intervention at various points that includes verification of documents and financial credibility of newly registered users, valuation of assets that an individual or an organization would want to use our platform for the following ways:

1. **Microeconomics**: Our platforms will offer loans via p2p lending to individuals and organizations as a substitute to traditional banking services by provision of additional securities and services in addition to those who have limited access to banking services due to their limited income, lack of collateral, or credit history. These loans are typically used for income-generating activities such as starting a small business or investing in agriculture. Our platforms can leverage technology to reduce the cost of lending, facilitate faster and more optimized transactions thus providing a more efficient loan processing processes via P2P lending. This would also serve as a different form of investment for the users of the platform.
2. **Crowdfunding**: Our platform will allow individuals or small businesses to raise capital from a large range of potential investors through equity crowdfunding, some of whom may also be current or future customers. This will be accomplished through matching companies with prospective investors via the platform.The initial process will include application of government regulations, equity valuation and limitation on funds raised to protect the interests of investors. Equity valuation will be done on basis of mathematical models to estimate the intrinsic value of a security which is based on an analysis of investment fundamentals and characteristics. This will prevent a security from getting over valued and give a description about the various dividends payments and equity valuation models.
3. **Secure Transaction System(STS)**: As one of our prime solutions offered to our users, we provide the capacity of money transfer from one financial entity to another, by the means of government registered accounts for the purpose of transactions, within the limit specified by the government in accordance with the safety protocols for remote transactions. This will be done with state-of-the-art safety protocols by adding features like end-to-end encryption and blockchain security features.
4. **Investment**: Our platform will allow users to invest in small businesses.The platform would provide information on the investment opportunity, such as the business plan, financial projections, and expected returns.To invest in an opportunity, the investor would first need to create a personalised account on our platform. The account would require basic information such as the investor's name and contact information, as well as their preferred method of payment for the investment.Our platform will offer a range of investment opportunities to match their interests, preferences and risk in primary as well as secondary market's equity.The platform would provide clear and detailed information about each investment opportunity, including the risk level and potential returns.With our secure payment system investor can be assured that their investment is secure and transparent.The platform would keep investor informed about the progress of the investment,sending regular updates.The platform will also provide a secondary market for investor to sell there investment.

Thus, our solution will comprise of a website as well as a well-formed General Operating Procedure which completely specifies the different departments and how they will offer the solutions that we endorse for our platform.

6. Design

In this section we present to the reader, our platform Vitt (वित्त), our remote finance solution devised for the Indian populace. This platform was built in order to address the larger question of remote access to all kinds of goods and services, or as well call it- Do anything from anywhere (Do-X-from-X.) We decided that if we can truly enable the Indian populace to achieve their financial needs, we will eventually be able to enable this greater target for them.

We've built our finance platform to achieve this and thus on our platform, we have focused on providing all kinds of financial support to our users, and we have realised this by four pillars of our platform. These four pillars- Secure Transaction System (STS), Crowdfunding, Investment and Person-to-Person Lending (P2PL) have been carefully formulated and designed in order to meet the public's need which may fall under these domains.

For the demo of our platform, we have only demonstrated a minimalised version of our P2PL platform and a basic Transaction system in the place of our Transaction model in STS. Our platform design, which follows comprises of all the four domains in detail. The GitHub repository for our platform can be found at :

https://github.com/etikshajain/Poonji
(* We have renamed our platform to ‘Vitt’. Our earlier working title was ‘Poonji’. Also as discussed in our previous submissions, the term live anywhere finance anywhere might be misleading, since there exist some limitations to the places which can be enabled with our solution. The more apt caption would be- “Live Somewhere Finance Somewhere”.)

We will now discuss all the four domains of our platform.

6.1. Secure Transaction System (STS)

This transaction system is designed to provide a safe and secure gateway and enable our users to perform the most basic requirement for enabling finance; transactions between any two users, securely. In this discussion, we will describe the current scenario of payments interfaces and how we derived our transaction system.

We open our discussion with some of the basic elements of the current payments interface:

1. **VPA (Virtual Payment Address)**
   VPA stands for Virtual Payment Address, a unique identifier used in the UPI platform to facilitate transactions. Each VPA is associated with a bank account and is used to identify the account during UPI transactions. A VPA is an email-like address that can be used to send and receive money using the UPI platform. For example, if a user’s VPA is "username@bankname", other users can send money to that user by entering the VPA in the UPI app. The VPA eliminates the need for users to share their bank account details, such as their account number and IFSC code, during UPI transactions, which enhances security and convenience.
2. **PSP**
   PSP stands for Payment Service Provider, a company that provides payment processing services to merchants, businesses, and individuals. A PSP acts as an intermediary between the buyer, seller, and the financial institutions involved in a transaction, processing payments securely and efficiently.
   PSPs typically offer a range of payment options, such as credit cards, debit cards, digital wallets, and bank transfers. They may also provide value-added services like fraud prevention, chargeback management, and subscription billing. PSPs can be used for online and in-person transactions and are often used by e-commerce platforms, marketplaces, and mobile apps.
   Some examples of PSPs include PayPal, Stripe, Square, and PayTM. The growth of digital payments and e-commerce has led to increased PSPs as businesses and individuals seek secure and convenient payment processing solutions.
3. **NPCI**
   NPCI stands for National Payments Corporation of India, a non-profit organization that operates retail payments and settlement systems in India. NPCI was founded in 2008 by the Reserve Bank of India and the Indian Banks' Association to create a robust and efficient payment infrastructure in India.
   NPCI is responsible for managing several payment systems in India, including the Unified Payments Interface (UPI), National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS), Bharat Bill Payment System (BBPS), and RuPay card network. These systems enable individuals and businesses to make secure and efficient digital payments, transfer funds in real time, and pay bills online.

In order to build our own system, we first did a detailed analysis of the current platform. The following discussion outlines our findings and conclusions:

1. **UPI**
   UPI stands for Unified Payments Interface, a real-time payment system developed by the National Payments Corporation of India (NPCI) for facilitating interbank transactions in India. It enables individuals and businesses to instantly transfer funds from one bank account to another without any physical infrastructure or intermediaries. UPI is a highly secure and efficient system that enables instant payments 24×7, even on holidays and has gained widespread popularity in India due to its ease of use and convenience.

- **Working of UPI**
  UPI has 2 variants, i.e. P2M (Peer to Merchant) and P2P (Peer to Peer). For each transaction, 4 parties are involved, so called 4 Party Model:
  - **Payer**: The person who is initiating the payment
  - **Payee**: The person who receives the money
  - **Beneficiary Bank**: Involvement of receiver's bank account
  - **Remitter Bank**: Involvement of Payer's Bank and attached account
- **Steps involved in setting up a UPI ID:**
  - **Steps for Customer Registration**
    - Download a PSP app like Google Pay, PayTM, or PhonePe and select your preferred bank.
    - The app will send a request to the PSP server.
    - The PSP server will forward the request to the NPCI (using the same mobile number).
    - The NPCI UPI server will forward the request to the Issuer Bank.
    - The Issuer Bank will verify if the number is linked to that person or not.
    - The UPI will pass the same info to the PSP server.
    - PSP stores the IFSC and Account Number of the customer to the mobile apps (including device information).
    - The customer will get all the linked bank accounts of the triggered SMS number and choose a preference.
    - PSP will create the VPA to proceed ahead
  - **Steps for PIN Generation**
    - From your Mobile application, select the option to Generate a PIN
    - Now, the PSP server will request an OTP of that bank account to NPCI
    - NPCI will forward the same request to the Issuer Bank
    - The OTP will be forwarded back to the customer
    - The customer will now be required to enter the last 6-digit debit card number (along with the expiry date and OTP)
    - PSP will now forward the OTP validation request
    - UPI will decrypt the details (including PIN) from the PSP key and encrypt with the Issuer key
    - Now, the Issuer bank will decrypt the data and will start validating the details (such as debit card no.) and OTP and will store the PIN
    - Neither the PSP server nor the NPCI will have the authentication to save the PIN
- **Steps involved in a Transaction**
  There are generally 2 varieties of transactions, PUSH and PULL
  Pull Transaction: A pull transaction is initiated by the recipient of the payment. In this type of transaction, the recipient requests payment from the payer, and the payer authorizes the payment to be made. For example, if you pay your utility bill online, you may be asked to enter your bank account details and authorize the payment. The recipient (the utility company) "pulls" the funds from your account after you have authorized the payment.
  Push Transaction: the payer initiates a push transaction. In this type of transaction, the payer instructs their bank or payment provider to transfer funds to the recipient. For example, if you send money to a friend using a

mobile wallet app, you initiate a push transaction by entering the recipient's mobile number and the amount to be transferred. Your bank or payment provider "pushes" the funds to the recipient's account.
Steps involved in a UPI PUSH method that is majorly used in the market:

- **Phase - I**
  - The customer initiates the transaction either with Payee's mobile number, or VPA / QR
  - Now, the Payer PSP will forward the same request to the NPCI
  - Following that, the NPCI UPI server will forward the same request to the Payee's PSP for address resolution and authorization
  - The payee PSP resolves the address and provides the account details (works with the Remitter bank)
- **Phase – II**
  - The Payee PSP will provide the bank details to UPI and the same will be forwarded to NPCI
  - Now, the NPCI will check with the remitter bank to debit funds from the payer's account
  - Once money gets debited, a credit request is sent to the beneficiary's bank
  - The beneficiary bank credits the Payee's account and later responds to NPCI UPI
  - Now, the NPCI UPI server passes the response to the status of the transaction via Payer's PSP to the customer

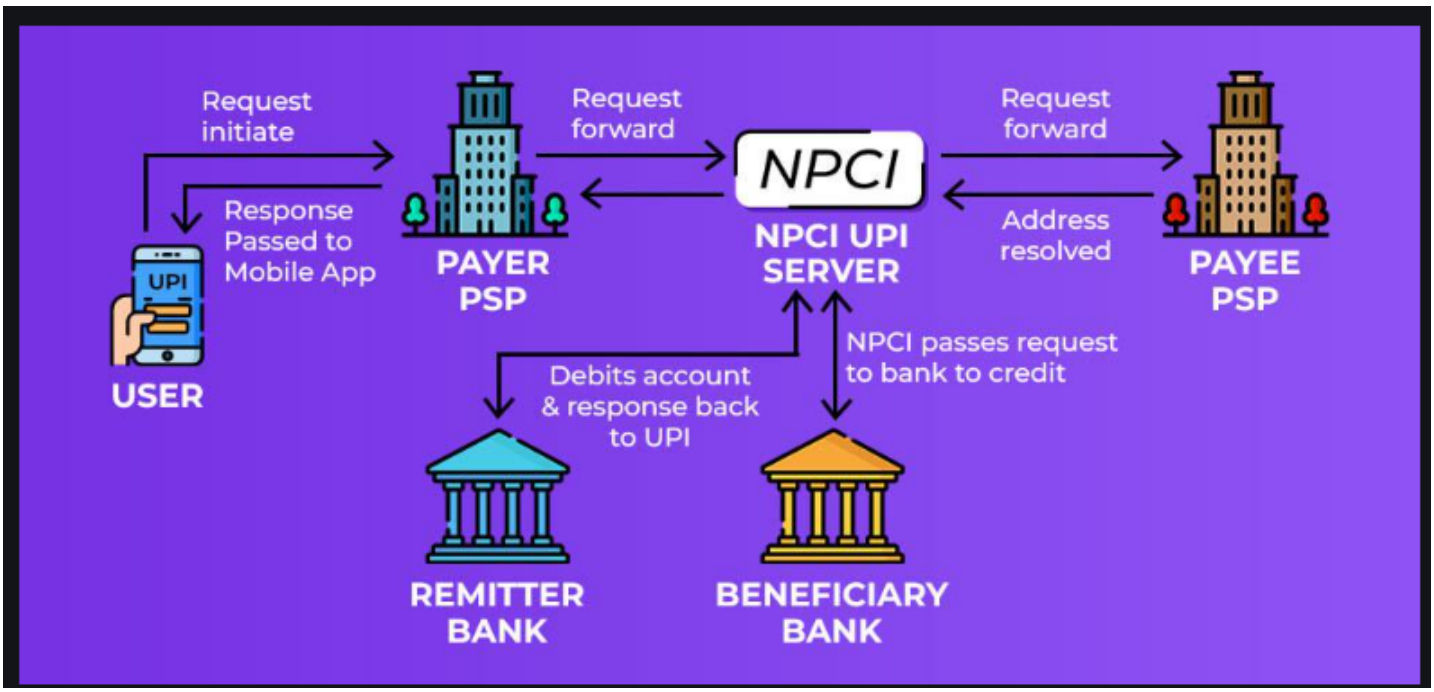


Figure 2. Steps involved in UPI transaction

- **Responsibilities of the Involved Parties**
  - **Payer PSP**
    - Customer onboarding
    - To create a UPI ID
    - Create device binding (first-factor authentication)
    - Payee PSP
  - **Payee PSP**
    - On-board customer/merchant

    - facilitate money transfer/payment to the recipient using UPI
  - **Remitter Bank**
    - Hold & Debit Bank account for the transaction
    - Store and verify UPI PIN
  - **Beneficiary Bank**
    - Process incoming credits and funds into the beneficiary account
- **Benefits of UPI**
  - UPI is the cheapest mode of payment, and that's why most banks have declared it Free of Cost up to a certain amount of money. (unlike other modes of payments)
  - It allows instant money transfer and that too 24×7
  - Since VPA (Virtual Payment Address) is the front face of the UPI therefore, it helps in maintaining the privacy of any individual
  - A single UPI application holding multiple accounts makes it more reliable, and you also get the freedom to choose your preference for "Default Account"
  - UPI is not just about sending money, but also you can "Request for Money" too
  - Over a period of time, many Third-Party applications have entered the market with hefty cashback and that makes it more appealing for customers to perform more transactions.
  - Unlike other modes of payment, all you need is just either VPA, QR scanner, or mobile number to initiate the transactions (applicable for both receiving and sending money).
- **Limitation of UPI**
  Unified Payments Interface (UPI) is on track to becoming the most preferred mode of sending money to anyone. This is because of the convenience and security it offers. It is available 24×7 and all transfers happen almost instantly. It even uses Two-Factor authentication, which makes it safer for anyone to transfer money. However, UPI comes with a set of its own challenges. We aim at solving as many of the following limitations:
  - Network Connectivity: UPI relies majorly on a stable network connection to function correctly. If there is a network issue or a server downtime, the transaction may fail or get delayed.
  - Compatibility issues: Not all banks and financial institutions are part of the UPI network. Therefore, it may not be possible to send or receive money via UPI if one of the parties involved is not part of the UPI network
  - Transaction Fees: Some banks may charge a transaction fee for UPI transactions which may not be suitable for many users.
  - Limited Transfer Amount: UPI doesn't allow anyone to transfer large amounts on a single day. Currently, the limit amount for a transaction is Rs. 1 Lakh.
  - Failed Transactions: The bank servers often fail to carry out transactions and hence, no transfers can happen.

    1. **The *99# Service**
       A very basic system of transactions that exists and has been publicly used is the *99# service for payments. The discussion below describes how this works.
       *99# is a USSD-based service that allows users to access various banking services, including UPI, using a basic feature phone. To use *99#, users simply need to dial the designated number (*99#) and follow the instructions on the screen. *99# supports a wide range of banking services, including current account balances, transferring funds, and paying bills. UPI functionality is also available through *99#, but it is not as advanced as what is offered through UPI LITE or dedicated UPI apps.

- The *99# service uses computing techniques and software engineering principles. Here are some of the technical details:
  - USSD Gateway: The USSD gateway is a key component of the *99# service. It is responsible for receiving user requests and sending responses back to the user's mobile phone. The USSD gateway is implemented using software and hardware components to communicate with the user's mobile phone using the USSD protocol.
  - Immediate Payment Service (IMPS): The IMPS is a real-time interbank electronic fund transfer service that is used to transfer funds instantly across banks. The *99# service uses IMPS to enable fund transfers and other banking transactions.
  - Authentication and Authorization: The *99# service requires users to authenticate themselves before accessing banking services. This is done using various techniques, including mobile number verification, PIN, and two-factor authentication.
  - User Interface: The *99# service is designed to be user-friendly, even for users unfamiliar with banking terminology or processes. The user interface is designed to be simple and intuitive, with options presented in a menu format that can be navigated using the phone's keypad.
  - Security: The *99# service is designed to be secure, with multiple layers of security implemented to protect user data and transactions. This includes encryption of data, secure communication channels, and monitoring and logging of all transactions.
- Overall, the *99# service is implemented using a combination of software and hardware components, focusing on security, usability, and reliability. Software engineers are critical in designing, developing, and maintaining the backend systems that make the *99# service possible.
- Working of the Service
  - A user dials *99# on their mobile phone.
  - The USSD gateway receives the request and sends it to the *99# service backend.
  - The *99# service backend authenticates the user's mobile number and account details using a secure authentication process.
  - The backend system retrieves the user's available banking services and presents them to the user in a menu format on their mobile phone.
  - The user selects the desired banking service from the menu.
  - The USSD gateway sends the user's selection to the *99# service backend.
  - The backend system processes the user's request and sends the response to the USSD gateway.
  - The USSD gateway sends the response to the user's mobile phone, which displays the result of the requested banking service.
  - If the user has requested a fund transfer or bill payment, the backend system uses the Immediate Payment Service (IMPS) to initiate the transaction.
  - The backend system sends a confirmation message to the user's mobile phone once the transaction is completed.
- Behind the scenes, software engineers work on developing and maintaining the various components involved in the *99# service. This includes developing the USSD gateway, integrating with banks' core banking systems, designing and implementing security measures, developing the user interface, and ensuring the overall reliability and scalability of the service.
- Bringing back our interest to India, we delve into the newest big addition to the UPI interface recently, the UPI Lite. In the discussion below, we discuss the UPI Lite in great detail, and contrast it with the *99# service.

1. **UPI Lite** UPI Lite is a simplified version of the Unified Payments Interface (UPI) payment system, which was developed by the National Payments Corporation of India (NPCI). The UPI Lite system is designed to work on basic feature phones and low-end smartphones with limited internet connectivity, making it an important tool for promoting financial inclusion by enabling users with these devices to access digital payment services.
   To initiate a transaction using UPI Lite, the user dials a designated number and selects the UPI Lite option. They then enter their UPI ID and the amount they wish to transfer. The USSD gateway receives the request and sends it to the UPI Lite service backend. The backend system then authenticates the user's UPI ID and mobile number and retrieves their bank account details from the linked bank. Once the authentication is successful, the backend system processes the transaction and generates a unique transaction ID. The transaction is then sent to the user's bank for processing. If the transaction is authorized, the bank sends an SMS confirmation to the user's phone. Once the transaction is complete, the UPI Lite service backend sends a confirmation message to the user's phone that includes the transaction ID and the updated account balance.
   UPI Lite is built on top of the UPI platform and uses the same underlying infrastructure, including the UPI Payment Service Provider (PSP) and the UPI Central System (UCS). The UPI Lite service backend is responsible for adapting the UPI functionality to work on basic feature phones and low-end smartphones with limited internet connectivity. It uses various security measures to protect user data and transactions, such as secure authentication, encryption of data using standard encryption algorithms like AES or RSA, secure communication channels using SSL or TLS protocols, and monitoring and logging of all transactions for auditing purposes.
   In summary, UPI Lite is an important tool for promoting financial inclusion by enabling users with basic feature phones to access digital payment services. The UPI Lite service backend is designed to be simple and easy to use, while still maintaining the security and reliability of the UPI platform.

- **Working of UPI LITE**
  - Initiation: The payment process is initiated when a customer makes a purchase or payment. This can be done through a website, mobile app, or point-of-sale (POS) system. Engineers are responsible for building the front-end interface that allows the customer to enter their payment information, such as credit card details or bank account information.
  - Authorization: Once the customer enters their payment information, the authorization process begins. The payment information is sent to the payment gateway, which verifies the customer's identity and checks for sufficient funds. The payment gateway communicates with the bank or card network to complete the authorization process. Software engineers are responsible for building the back-end infrastructure that facilitates this communication.
  - Settlement: Once the payment is authorized, the funds are transferred from the customer's account to the merchant's. This process is known as settlement. Software engineers work on the back-end system that facilitates this transfer of funds, which involves communication with the banks and other financial institutions involved in the transaction.
  - Reconciliation: After the settlement process is complete, the payment information must be reconciled with the merchant's records to ensure that the transaction was completed successfully. Engineers work on the reconciliation process, which involves comparing transaction records from the payment gateway and the merchant's records to identify discrepancies.
  - Reporting: The final step is to generate reports that summarize the payment transactions. This includes information such as the total number of transactions, the amount processed, and any fees or charges associated. Engineers work on building reporting tools that allow merchants to view and analyse this data.
- Throughout the payment process, engineers must ensure that security measures are in place to protect sensitive customer data and prevent fraudulent transactions. This includes data encryption, secure communication protocols, and monitoring for suspicious activity.

Since the requirement of the Internet is such a prominent shortcoming, the government came up with another application called UPI Lite. UPI Lite is a simpler version of UPI. UPI Lite can also work in the absence of good internet connection.

- **Problems and Limitations of UPI LITE**
  - Transaction size: Similar to UPI, the transaction size is limited. With UPI Lite, a person cannot send more than Rs. 2000 in a single transaction, which is quite lesser than standard UPI transaction size.
  - Limited Bank Support: Not all banks support UPI Lite and offer limited functionality.
  - Limited Features: Users have limited features on the application. For example, they cannot have multiple bank accounts linked with the same application.
  - No cashback/rewards: A fully fledged UPI app comes with a rewarding policy for the users. However, UPI Lite does not offer the same. Users, therefore, have less incentive to use it.
  - Limited Transaction History: Users can see up-to the last 5 executed transactions and not more than that.
  - Limited Support: Since the app is not quite popular, it does not have a robust technical support like UPI. This is why users might face some problem while using it.

    1. Differences and Similarities between UPI Lite and *99# Both UPI Lite and *99# provide simplified versions of the Unified Payments Interface (UPI) that can be accessed using basic feature phones and low-end smartphones.
       - They are both designed to be user-friendly and easy to use, with simple interfaces that allow users to perform basic banking transactions such as sending and receiving money, current account balances, and generating UPI IDs.
       - Both UPI Lite and *99# are also aimed at promoting financial inclusion by enabling people who do not have access to advanced smartphones or high-speed internet to use digital payment services.
       - They are both initiatives of the Indian government and are part of its efforts to promote digital payments and reduce the use of cash in the country.
       - UPI Lite is a dedicated mobile application that is designed to work on feature phones and low-end smartphones. It provides a simple user interface that allows users to access basic UPI functionality, such as sending and receiving money, current account balances, and generating UPI ID. UPI Lite is available for download from the Google Play Store and can be used on smartphones running Android 4.1 or higher.
       - *99# is a USSD-based service that allows users to access various banking services, including UPI, using a basic feature phone. To use *99#, users simply need to dial the designated number (*99#) and follow the instructions on the screen. *99# supports a wide range of banking services, including current account balances, transferring funds, and paying bills. UPI functionality is also available through *99#, but it is not as advanced as what is offered through UPI Lite or dedicated UPI apps.

From the above findings, we now understand how a payments service works, and can design one on the lines of the other existing interfaces. In order to ensure privacy and security in our interface we can look into adding some additional features too.

As one of our prime solutions offered to our users, we provide the capacity of money transfer from one financial entity to another, by the means of government registered accounts for the purpose of transactions, within the limit specified by the government in accordance with the safety protocols for remote transactions. This will be done with state-of-the-art safety protocols by adding features like end-to-end encryption and blockchain security features.

1. **Blockchain** Blockchain is a distributed ledger technology that enables the secure and transparent sharing of information between participants in a public or private network. The power to update a blockchain is distributed between nodes, which are incentivized with digital tokens or currency to make updates to blockchains.

Blockchain allows for the permanent, immutable recording of data and transactions, making it possible to exchange anything that has value. A blockchain database must be cryptographically secure, meaning that access or addition of data on the database requires two cryptographic keys: a public key and a private key.
Blockchains are digital logs or databases of transactions that happen fully online and are shared across a public or private network. The most well-known public blockchain network is the Bitcoin Blockchain. Anyone can open a Bitcoin wallet or become a node on the network.
Blockchains have potential applications in various industries, including finance, healthcare, supply chain management, and more. They can be used to track and verify the authenticity of assets, improve transparency and efficiency in transactions, and reduce the risk of fraud and errors. However, they also have some challenges, such as scalability, interoperability, and regulatory issues.

- **How does blockchain work?**
  Blockchain is a distributed database that is operated on a peer-to-peer network. Each block of the chain consists of a cryptographic hash of the previous block, a timestamp, and a record of transaction data. When a new transaction is initiated, it is broadcast to the network of nodes. Each node collects the transaction data and verifies it using complex algorithms, such as proof-of-work or proof-of-stake. Once a consensus is reached, the transaction is added to a block and then broadcasted to the network. Once the block is added to the chain, it is permanent and cannot be altered.
  One of the benefits of blockchain technology is its ability to create trust between parties without the need for a centralized authority. This is because the blockchain is immutable, and once a transaction is recorded, it cannot be altered. Additionally, the decentralized nature of the network makes it difficult for any one party to manipulate the system. Another benefit of blockchain technology is its ability to provide transparency. Because all transactions are recorded on the blockchain, it is possible to trace the history of a particular asset or transaction. This can be particularly useful in industries where transparency is essential, such as supply chain management.
- **Use of Blockchain in Transaction**
  Blockchain technology can revolutionize online transactions by providing a secure and transparent way to track all transactions. With blockchain, each transaction is verified and recorded on a distributed ledger that is accessible to all participants in the network. This means that every participant has access to the same information and can easily verify the integrity of the transactions.
  Furthermore, because the ledger is distributed and decentralized, there is no central authority that can manipulate or alter the data. This makes blockchain technology incredibly secure and resistant to fraud and manipulation. As a result, businesses and individuals can use blockchain to conduct online transactions with confidence, knowing that their data is safe and secure.
- **More Secure UPI Wallet**
  Each transaction on this platform is recorded in the form of a public ledger or the form of a blockchain, hence you don't have to worry about the authentication of the transaction and the person with whom you are dealing. Apart from this, all KYC details of that person are also synced into the Bitkart database before they can transact on this platform like a live banking system works. Hence, no frauds are possible on this centralized system.
- **The transactor is public with this UPI wallet.**
  All the blockchain transactions in this public ledger are maintained and authenticated in the form of a blockchain. Hence, no one could preferably back this system. The information shared on this system is so managed that a normal person can track it and it automatically populates the most popular peer-to-peer exchange using clone scripts.
- **Ensures Complete Privacy**
  This UPI Wallet ensures complete privacy of its uses as it does not rely on any third-party operator as other flat money transactors do. The software of this app helps you get in contact with the buyer or seller and the transaction takes place directly between two peers. Also, no one could intentionally or unintentionally steak your fiat currency while you are transacting over this app.

- **How Blockchain Technology is implemented with this wallet?**
  This UPI Wallet uses advanced blockchain technology to help authenticate the peers on its platform before you start the transaction. It thus helps avoid any kind of double spending on the platform. A peer in the absence of technology like blockchain could sell the digital money to two or more peers at the same time. However, blockchain introduces the ledger-like functionality into the platform which authenticates the peer and books the transaction with double entry or debiting the account of the sender and crediting the account of the receiver like normal banks do.
- **Working of offline payments**
  The passage discusses the potential application of blockchain and artificial intelligence in the digital transformation of the world. Blockchain technology can provide a secure and transparent means to transact and communicate with the digital world, while artificial intelligence can assist in processing large amounts of data extracted from the connected world to extract valuable information.
  The passage also emphasizes the importance of having a secure, reliable, and fast network for transactions to take place. To address the issue of internet unavailability in some places, the proposed payment method will be offline and conducted via SMS. The transaction limit will be small to ensure security.
  The app is designed to cover a variety of transactions, including bonds and agreements. The hash function can process all inputs, and the mining rewards can generate a profit that can be used in other ways through a financial platform.
  To demonstrate the feasibility of the proposed payment method, the app will be developed as a small-scale model using a third-party app bot.

6.2. Crowdfunding

Our crowdfunding domain is designed to involve the local markets and leverage the trust that their customers have on them into a finance model. In this domain, we have brought local markets forward by bringing them on our platform and letting our users invest in them. The description below outlines how we are going to perform this task and our business model in detail.

6.2.1. Our Business Model

1. **Target Market**: Our Crowdfunding model focuses on the following two target groups:
   - **Small local markets**: Our primary target market is small local markets, such as grocery stores, bakeries, restaurants, and other businesses that are located in a particular community or region. These businesses may have limited access to traditional forms of financing, and equity crowdfunding could provide them with an alternative way to raise capital.
   - **Investors**: Our secondary target market is investors who are interested in supporting small local markets in their community or region. These investors may be individuals or groups who are passionate about supporting small businesses and are looking for investment opportunities with a local impact.
2. **Value Proposition**: Our business model provides the following value propositions for our target groups :
   - For small local markets :
     - Access to capital: Small local markets often struggle to secure financing from traditional sources like banks. By listing their equity offerings on our platform, they can tap into a broader pool of finance by involving investors in their business and thereby accessing the capital they need to grow their business.
     - Control over their business: Unlike traditional forms of financing, equity crowdfunding allows small local markets to raise capital without giving up full control of their business or taking on a permanent debt against their assets. They can maintain their independence while still accessing the funds they need to succeed. Also, in terms of control over the business, selling a certain amount of their equity does not imply that the owner loses his say, but simply that they have to fulfil their duty to their investors as an upholding business.

    - Increased exposure and business: By listing their equity offerings on our platform, small local markets can increase their visibility and exposure to potential customers and investors. This can help them to build their brand and attract new business.
  - For investors:
    - Local impact: Our equity crowdfunding platform provides investors with an opportunity to support small local markets in their community or region. By investing in these businesses, they can have a positive impact on the local economy and support the growth of small businesses.
    - Potential financial returns: Investors have the potential to earn financial returns on their investment as the small local markets grow and become more profitable.
    - Diversification: Investing in small local markets through our platform provides investors with a unique way to diversify their investment portfolio and reduce their risk.
  - Overall, our value proposition is centred around providing a valuable platform that connects small local markets with investors who are passionate about supporting their growth. By offering access to capital, control over their business, and increased exposure, small local markets can thrive and grow. Meanwhile, investors can have a positive impact on their community while potentially earning financial returns on their investment
3. **Revenue Stream**
  - Commission-based model: We will earn revenue by charging the potential investor a commission on the equity offerings sold on our platform. This commission can be a percentage of the total equity sold, typically ranging from 2-4% depending on the size of the offering. This will also be a helpful feature in curbing malpractices that involve frequent buying and selling of equity, because the actual rise in equity price would be far below that cost incurred in the transactions needed to produce it.
  - Listing fee model: We will also charge a fee for small local markets to list their equity offerings on our platform. This fee can be a percentage of the total amount raised, a fixed fee per offering, or a monthly subscription fee for access to the platform. The above-mentioned fee will be nominal in amount and for a limited period, say for one financial quarter. Furthermore, in order to attract the local markets, we can provide waivers on this fee for new registrations (thorough cross-checking would be done on the new markets joining our platform, so this feature wouldn't be misused.)
  - The above-mentioned revenues will be generated from every user, be it on the business side or the investor side. As a way to further enhance the experience for our buyers and sellers, we have decided to introduce premium memberships. These memberships will offer a range of benefits, and they will be designed to provide an even more seamless, personalised, and rewarding experience for our users while supporting the growth of local businesses.
    a) A premium membership for investors:
    - Collaborator for Financial Guidance and Education: This premium membership service would provide investors with access to a collaborator who can offer financial guidance and education. This could include personalised consultations, investment webinars, and other educational resources to help members make informed investment decisions. To provide this service, our platform could partner with a financial advisory firm or investment education platform.
    - Early Access to Investment Opportunities: This premium membership service would offer premium members early access to investment opportunities before they are made available to the general users. This can be particularly advantageous for members seeking high-potential investment opportunities that may be limited in supply. We could also enhance the early access experience by sending notifications or alerts to premium members via email or other communication channels.
    - Equity Cap for Premium Users: To provide additional benefits to premium members, we could offer a higher equity cap for premium members. For example, we could offer a cap of double the equity for premium members compared to regular members. This could incentivize more investments from premium members

and enable them to invest more in local businesses they believe in.

- Ad-free Experience: A premium membership service that provides an ad-free experience can enhance the overall user experience for members. By removing ads from the platform for premium members, we can provide a cleaner and more seamless interface, which can help them focus on their investment goals and improve engagement with our platform. b) A premium membership for Sellers (Business side):
- Traditional Ads: These include the basic ads which can be shown on the website on a per-project basis. Per-project basis ads are specific advertising agreements between an advertiser and a publisher based on a particular campaign or event. This option is flexible and cost-effective for both parties. Thus, the same method can be used here, in which ads for investing in a particular business can be shown with various offers.
- Priority based listing: Priority-based listing is a feature that allows businesses to pay for higher placement in search results. This means that when a user searches for a particular keyword or phrase, businesses that have paid for priority-based listing will appear higher in the search results than those that have not. This helps the sellers so to increase their visibility in searches and thus get more customers. While it can be a valuable tool for businesses to increase visibility, it's important to carefully consider the cost and potential return on investment before investing in priority-based listing.
- Service based offer Ads: Service-based offer ads refer to advertising campaigns that promote a specific service or set of services offered by a business. The goal of these ads is to raise awareness of the services offered and encourage potential customers to engage with the business. These types of ads which are only for a limited time will also be shown and will have more priority.

4. **Outlining the Costs**

- Development costs: We will need to build a platform that allows small local markets to list their equity offerings, and investors to invest in them. Development costs can include software development, website design, user experience design, testing, and hosting. Depending on the complexity of the platform, development costs can range from a few thousand dollars to several hundred thousand dollars
- Legal and regulatory costs: We will need to comply with securities regulations, which can vary depending on the jurisdiction we operate in. Legal and regulatory costs can include attorney fees, compliance costs, and expenses related to filing with regulatory agencies. Depending on the level of complexity of our platform and the regulations we need to comply with legal and regulatory costs can range from a few thousand dollars to tens of thousands of dollars.
- Marketing and advertising costs: To attract small local markets and investors to our platform, we will need to invest in marketing and advertising. Marketing and advertising costs can include social media advertising, paid search, content creation, email marketing, and event sponsorship. Depending on the size of our target market and the channels we use to reach them, marketing and advertising costs can range from a few thousand dollars to several hundred thousand dollars.
- Staffing costs: We will need to hire a team to manage our platform, including developers, legal and compliance professionals, marketing and advertising professionals, and customer service representatives. Staffing costs can include salaries, benefits, payroll taxes, and other expenses. Depending on the size of our team, staffing costs can range from tens of thousands of dollars to several hundred thousand dollars per year. We will need some potential staff teams to build and manage our equity or service-providing crowdfunding platform that uses AI:
  - Development team
  - Data analytics and statistics team
  - Legal and compliance team
  - Marketing and growth team
  - Customer support team
  - AI research team

- Operating costs: We will need to cover expenses related to running our business, including office space, utilities, software subscriptions, equipment, and other expenses. Operating costs can vary widely depending on the size and location of our business, as well as the services we need to run our platform.

5. **Determining our channels**: Here are some possible channels that we will use to reach our target market and attract small local markets and investors to our equity crowdfunding platform.
   - Word of Mouth: Since this business idea targets regional businesses, the best source of reaching our potential users is the word of mouth from existing users.
   - Social media: We will use social media platforms like Facebook, Twitter, and LinkedIn to build a strong brand and engage with our target audience. Social media can be an effective way to share content, build relationships, and attract users to our platform.
   - Content marketing: We will use content marketing to attract users to our platform by creating and sharing valuable content that educates and informs our target audience. Content marketing can include blog posts, infographics, videos, podcasts, and other types of content that are relevant to our target market.
   - Email marketing: We will use email marketing to stay in touch with our users and keep them informed about new investment opportunities and other platform updates. Email marketing can be an effective way to build relationships with our users and keep them engaged with our platform.
   - Events and conferences: We will attend industry events and conferences to meet potential users and investors in person. Events and conferences can be an effective way to build relationships, share our message, and generate interest in our platform.
   - Influencer marketing: We will partner with influencers in our target market to promote our platform and attract new users. Influencer marketing can be an effective way to reach a large audience and build credibility with our target market.
   - Search engine marketing: We will use search engine marketing to reach users who are actively searching for investment opportunities in our target market. Search engine marketing can include paid search ads, display ads, and other types of online advertising.
6. **Key Business Partners**:
   - Financial Education Firms: We will partner up with firms that provide financial education on investments which is a premium feature on our platform.
   - Marketing and PR firms: We'll need to promote our platform and attract users and investors to our platform. It's important to partner with marketing and PR agencies that can help us develop and execute effective marketing strategies that resonate with our target audience. These will also help in devising ads that can be used by businesses for themselves using our medium by paying a per-project-based fee.
   - Data Backup Firms: We will partner up with firms providing cloud-based services to provide data backup for our users and smooth functioning of the platform.
7. **Success Metrics for our business**
   - The number of users: One important metric to track is the number of users who sign up for our platform. This will give us an idea of how many people are interested in our concept and can help us gauge our potential market size.
   - The number of investments: Another key metric to track is the number of investments made through our platform. This will give us an idea of how much traction we are getting with users and how much capital we are able to provide to local businesses.
   - Total investment volume: In addition to the number of investments, we should also track the total investment volume on our platform. This will help us understand the total amount of capital we are able to provide to local businesses, which is an important indicator of our impact.

- User engagement: We will also track user engagement on our platform, such as the frequency of logins, time spent on the platform, and user retention rates. This will help us understand how engaged our users are and how satisfied they are with our service.
- Business growth: Finally, we will track the growth of the local businesses that we are supporting through our platform. This can include metrics such as revenue growth, customer acquisition, and profitability. By tracking the growth of these businesses, we can measure the impact of our platform on the local economy and determine whether our model is successful in achieving its intended goals.

6.2.2. Security and Reliability for the companies which want to be listed on our platform

A standard procedure to verify the reliability of the registering company would be followed by our company. This will involve various physical checks which would be done by our team. The following list of checks will be carried out for the same :

1. Criminal History Check : This will verify whether an individual has been convicted of any crimes in the past. This can be done by contacting the local police station of the registered area. This involves obtaining a police clearing certificate (PCC) by paying a processing fee of around 500 Rs. To 1000 Rs. After a wait of nearly 15 to 30 days, the PCC form can be collected from the police station.
2. Education Verification : This check will confirm an individual's educational background, including degrees, diplomas, and certifications. The documents to be checked include certificates issued by the educational institutions attended by the individual, class 10th and 12th marksheets (if applicable), any degrees applicable.
3. Credit History Check : A credit history check will examine an individual's credit report to verify their financial history and creditworthiness. For this an individual's personal information will be collected like full name, DOB, and address. We can then obtain the individual's credit report from any of the four credit information companies (CIC) authorised by RBI. These companies are TransUnion CIBIL, Equifax, Experian, and CRIF High Mark (wherever applicable).
4. Reference Check : This will involve contacting an individual's professional (if any) or personal references to obtain feedback about their character, work ethic and abilities. This will help reduce the chances of frauds being committed.
5. Social Media Check (Optional) : This will reviewing an individual's social media profiles to assess their online presence and behaviour. This will be optional since it is not necessary for an individual to be active on social media.
6. Relevant Property Registration Check : This will include verification of property(on which the business is operating) related documents. This will involve contacting the local Sub-registrar's office which is under the jurisdiction of the state government.
7. Business Registration Checks : We will verify whether the business is registered with the relevant government authorities (depending upon the scale of the business). This involves checking in with MCA (Ministry of Corporate Affairs) as all businesses had to be registered with it under the companies act, 2013.

6.2.3. Liability of the small businesses which want to be listed on our platform

1. Financial statement- We will review various financial metrics such as revenue, expenses, profits, and cash flow to determine how the company is performing financially and this data has to be made available to the shareholders by the seller on a regular basis.
2. Goals/Ideas for future and strategic initiatives- We will ask the seller how the invested money will be used. He/she should be able to give a rough structure on how he is going to spend the money for the company. The seller will also have to keep his company's shareholders updated on what initiatives will be taken by him/her in the near future that may impact the company. Any collaborations or partnerships being pursued will also be made known to the shareholders by the seller. This step is important as it will tell us whether we have invested in the right business.

3. Product - Any changes whether major or minor will have to be notified by the seller to the shareholders as it is deterministic to the profit/losses of the company in the future which is a direct concern of the shareholders.
4. Other Key Metrics - Shareholders will want to know how the company is performing relative to key metrics, such as customer acquisition, retention, and satisfaction. The founder will have to share data on these metrics and explain any possible major changes in the values. Most of this data will be noted on-counter, and a simple numerical value suffices.

6.2.4. Information required from the companies which are registering on our platform

We are proposing that small businesses will be approaching us to be listed on our platform to get funds through crowdfunding. Once a small business approaches us for getting funds, we will be asking them for certain information (listed below) to set an initial price for equity in their businesses.

Once a business is listed on our platform, our users will be able to invest in any business of their choice and we will be using this money invested by our users to give funds to the business. Further changes in the price of equity in the business will change depending on the demand for equity in the business.

This is the information we will be asking the businesses to set an initial price for the listing.

We will request a range of detailed financial information from companies that are planning to request crowd funding through our platform. We use this information to help us determine the appropriate valuation range for the company's shares and to set the price initial pricing. Here are some of the types of financial information that we will request:

1. **Financial statements**: We will ask for several years' worth of audited financial statements, including balance sheets, income statements, and cash flow statements. These statements provide an overview of the company's financial performance and help us assess its profitability, revenue growth, and cash flow.
2. **Revenue projections**: We will ask the company to provide revenue projections for the next several years. These projections can help us assess the company's growth potential and determine an appropriate valuation range.
3. **Cost structure**: We will ask for a breakdown of the company's costs and expenses, including fixed and variable costs. This information can help us assess the company's profitability and margins.
4. **Capital structure**: We will request information on the company's current capital structure, including any outstanding debt or equity securities. This information can help us assess the company's financial health and determine an appropriate valuation range.We will also be asking for data about the management team and their background etc to assign a score to the management team.
5. **Industry and market data**: We will request industry and market data to help us assess the company's competitive position and growth potential. This will data on market size, growth rates, and trends.

Overall, we will request a wide range of financial information from the company to help us determine the appropriate valuation range and set the initial pricing. The more detailed and accurate the financial information provided by the company, the better positioned we will be to accurately assign the initial price.

Instead of equity in the business, we are also providing the small business an option to provide add on services to the people who invest in their company. We will be setting the value of these services to be the same as the amount of money when the customer invests in the company and thus we do not need an additional model for calculating how the services will be modelled.

We will also not be requiring the company to submit the Industry and Market data since we will be getting it from data from trusted websites like https://www.grandviewresearch.com/

We will also need some information from the investors that are going to invest in these businesses. However, since this user base is intertwined with our Investment user base, these requirements have been mentioned later in the Investment section.

6.2.5. Model for setting an initial price for the customers to invest in the companies which have been listed on our website

Assigning a number to a company's value involves creating a mathematical model that takes into account the variables, the information for which we have asked the sal business as per the above section. Our model proposes each of the scores is calculated as follows: (We have listed the information we will be using to assign a the score after the description of each score)

Market size score: The market size score is calculated by taking the current market size and projected growth rates and assigning a score between 0 and 1 based on the company's potential market share.

1. Industry and Market data
2. Market Size
3. Market growth rate

Industry trend score: The industry trend score is calculated by evaluating the competitive landscape, regulatory environment, technological advancements, and other industry-specific factors that may impact the company's growth potential. The score is assigned between 0 and 1 based on the company's ability to capitalize on these trends. A max operator with industries already established i.e. based on historical performances will be applied.

1. Revenue projections for the next 6 months

Differentiation score: The differentiation score is calculated by evaluating the company's ability to innovate and develop new products or services to maintain its competitive advantage. The score is assigned between 0 and 1 based on the level of differentiation and uniqueness of the company's products or services.

1. Breakdown of costs and expenses including fixed and variable costs

Financial score: The financial score is calculated by evaluating the company's financial history and projections. The score is assigned between 0 and 1 based on revenue growth, profit margins, and return on investment

1. Audited financial statements
2. Balance Sheet
3. Income Statements
4. Cashflow statements
5. Information about outstanding debts

Customer base score: The customer base score is calculated by evaluating the company's ability to retain customers, acquire new ones, and expand its customer base. The score is assigned between 0 and 1 based on customer retention rates, customer acquisition costs, and the company's ability to expand its customer base

1. Customer Acquisition costs = Number of new customers per unit time/ Amount of money spent on advertising to get new customers per unit time
2. Lifetime value of a customer= Amount of money business earns per unit time/ Number of businesses the customer gets per unit time

W * [market size score + max{Industry trend score, historical performance score} + Differentiation score + Financial score + Customer base score] = target T

w1+w2+w3+w4+w5=1
Because small scale, differentiation w3= 0.1
w5= Customer base = 0.3
w2= 0.25
w1=0.15 (overlapping with customer base in small scale)
w4=0.2

W=[0.15,0.25,0.1,0.2,0.3]
0T1

Vendor demands funds= INV
Float shares worth T * INV

Inv - T* Inv is the collateral to compensate for the risk in floating the local vendor's shares on our stock exchange

Denomination divisibility: 10000 shares for each vendor so that even small investors are able to invest

Each share will be worth T*Inv/10000 Will be floated

If we receive investment more than we aim, shares will be given in a ratio of Investment reqd/ investment received

SSUs are the customers who are using our platform to invest their money in local/small businesses, and DSUs are the small businesses which have been listed on our platform.
SSUs will be allowed to invest the remaining funds in similar DSUs

We will be calculating the stock prices again at periodic time periods, for this, T will be calculated again depending on present situations.

6.2.6. User Interface of platform for both the SSUs and DSUs

This is the information which will be available to the SSUs and the DSUs when they log on to our platform. SSUs are the customers who are using our platform to invest their money in local/small businesses, and DSUs are the small businesses which have been listed on our platform.

1. **SSU (Surplus Spending Units)**:-
   User-Friendly Interface: The platform's interface will be intuitive and easy to use. Users will be able to easily search for investment opportunities, view detailed information about each opportunity, and complete transactions with minimal friction. This can be realized with filtered and sorted search results based on location, volume of equity, company credit rating, etc. This will allow users to find local small businesses where they can invest and businesses to connect with local customers for funding to expand their business.
   Portfolio Management: The platform will allow users to easily manage their investment portfolio, including tracking their investments, viewing performance metrics, and accessing reports. The statistics and quantizations of user performance will allow them to plan their future preferences and also compare and learn from others in the user community.
   Notification System: The platform will have a notification system that alerts users about new investment opportunities set previously by their preferences, changes in their portfolio, and other relevant updates. Users will be able to customise their notification preferences and receive updates through push notifications, email, or other channels. This will allow potential buyers to stay updated on the available investment opportunities and simultaneously helping sellers to get quick responses for fulfilling their funding requirements. The preference selection also gives an idea of what the users at a particular time are looking for, helping businesses to design their

schemes accordingly.

Social Trading: The platform will offer a social trading feature that allows equity buyers to follow and replicate the trades of other successful investors. This will be a valuable tool for investors who want to learn from other successful investors and emulate their investment strategies.

Reporting malicious sellers: The platform will allow buyers to report outdated/incorrect information regarding crowdfunding schemes. This, along with a verification system for the legitimacy of sellers, will ease the maintenance of the platform in staying clean of all fake schemes, malicious sellers, or anything happening against the regulations.

2. DSUs (Deficit Spending Units):-

User-Friendly Dashboard: The platform will have a dashboard that is easy to use and allows sellers to manage their investment offerings. The dashboard will provide a clear overview of all current and past offerings. The platform will allow sellers to communicate with their investors, provide updates on their offerings, and answer questions via messaging or a dedicated customer support team set up by the seller. This will allow users to stay updated on current investor trends and preferences and design their schemes to suit them.

Compliance Management: Equity crowdfunding is subject to various regulations. The platform provides a compliance management system that helps sellers stay compliant with relevant laws and regulations. This includes features such as automated compliance checks, document management, and regulatory reporting. Automated compliance checks use software tools that analyse data provided by the investor and the company seeking investment. The tools use algorithms to evaluate the investor's eligibility based on factors such as their net worth, annual income, and investment history. The tools also analyse the company's financial statements and other disclosures to ensure that they meet the legal and regulatory requirements for equity crowdfunding.

Reporting Agreement: As part of the equity crowdfunding offering process, the company seeking investment agrees to submit regular financial statements and operational reports on a quarterly or annual basis. (One thing to note: Equity crowdfunding investments are typically illiquid and may require a long-term investment horizon. As a result, performance metrics and reports may not be available in real-time.)

Financial Management: The platform provides sellers with tools to manage their financials, including reporting and tracking of funding rounds and investor information. The platform also provides detailed analytics, including information about investor demographics, investment trends, and market analysis. This data and statistics help sellers plan their future investments and equities and also compare them with other local businesses in or out of their competition.

Customer Support: The platform offers a customer support feature that allows equity sellers to communicate with support representatives for assistance with any issues related to selling their equities. This includes features such as chatbots, email support, or phone support. This makes the platform more inviting for relatively small businesses new to the platform.

Transaction History: The Transaction History feature allows equity sellers to view and track their transaction history, including the status of pending and completed sell orders. This information is easily accessible and searchable, with the ability to filter by date range, stock name, or other relevant criteria.

Investment Insights: The platform provides investment insights and recommendations based on the equity seller's portfolio and trading history. This includes features such as automated portfolio analysis, personalised investment recommendations, and investment performance tracking.

Tax Reporting: The platform provides tax reporting tools to help equity sellers accurately report their earnings and capital gains from selling equities. This includes features such as automated tax reporting, tax filing support, and tax advice from experts.

6.3. Investment

Design Features of Investment Platform

We want our platform to allow users to invest in both NSE and BSE stocks and small-scale local firms through crowdsourcing. To achieve this purpose, two kinds of listings will be provided on our platform. One of them would

contain the stocks and commodities listed on the NSE/BSE or on the international market, and the other would contain the list of crowdfunded local businesses, which have been thoroughly discussed in the Crowdfunding section. The following sections describe the design features of the platform from the point of view of the investor and the business.

6.3.1. Features offered to investors

1. **Investment options**
   A multitude of investment options would be provided to the users, like stocks, bonds, options and futures, and commodities. We will also provide means to trade not just in the NSE and BSE but also in other markets like the Indian market or the Chinese market. This would help provide the user with multiple options to choose from and flexibility in the type of portfolio they want to make. As our platform would trade in most international markets, the website would potentially be able to attract foreign users too.
2. **Low Brokerage**
   Our platform will offer a low brokerage fees so that investors need to give a low investment cost and in turn increase their returns. As a result of lower fees, the investors will also diversify their portfolio more and increase their overall profits. This feature will attract more users towards our platform and increase the website traffic to gain a better outreach.
3. **Research reports**
   The platform will provide detailed reports on the fundamental and technical analysis of different firms, as well as PnL, expected returns charts for the user's portfolio which would help the users to make more well-informed decisions regarding their investments which would yield them higher returns. The latest news for any particular firm would also be provided so that the investor could judge whether the current sentiment around the stock/commodity is bullish or bearish and acquire a position of that stock/commodity in the market accordingly.
4. **Educational Resources**
   Many introductory courses and tutorials would be provided on the platform for all levels of traders, from amateurs to experts. Regular webinars and seminars hosted by experts would be uploaded on the platform too to discuss the new major news and their impact on the market. Many trading tools and a virtual simulator would also be provided to the users to help them become familiar with the trading environment.
5. **Portfolio Tracker**
   We will help users to track their investments across various asset classes on a single platform. This will make our website more convenient to the users and would increase user engagement. This feature would provide a consolidated view of all the investments made by the user, including stocks, mutual funds, bonds, and other instruments. We will provide them with different performance metrics like returns, gain/loss percentage, and absolute gain/loss, to assess the performance of their investments. Portfolio tracker data may also help us understand user behavior and enhance our website.
6. **Margin Trading**
   This feature would enable users to trade stocks and other products using broker money. The user would be required to maintain a certain amount of margin (collateral) with the broker to cover the risk of the borrowed amount. This would enable greater diversification and flexibility for users, allowing them to take advantage of market opportunities without having to wait for funds to become available. These benefits will ultimately lead to a better user experience on your website and increased loyalty from users.
7. **Customer Support**
   24x7 customer support would be provided to the users through calls, emails, and live chat to solve any kind of technical issue they face.

6.3.2. Small Business Investment Model

6.3.2.1. Features offered to investing firms

Small businesses will approach us to be listed on our portal, and in order for that to happen, we'll provide them with certain terms and conditions, some minimum requirements for sales, profit, outreach, etc. The portal model will calculate a certain valuation for the company, and based on that, we will distribute X% of the company's equity (it can be SEBI-regulated or decided by the company that wants to enlist only, say, 20% of the company's equity). As soon as the securities are listed, clients are permitted to purchase them based on a bidding system.

The model's valuation of the company will determine the minimum price for a bid. A fixed time interval of 7 days will be given for accepting bids from potential customers. The total bids can be more than the number of stocks up for bids (say there are 7 stocks and 10 bids from 10 people, then only the 7 highest bids will get the stocks). One additional piece of information available on the site would be the current highest bid for the private equity so as to allow the users to make decisions and bid accordingly. The process of selling the stocks for the first time to the customers will be over after this bidding. Now, if the customer wishes to sell back the shares they have purchased, then they would only be permitted to sell the stock directly back to the company. The customer enlists on the site that he or she wants to sell some of his equity, and the company gives the customer a window of time in which the company will buy back the equity from him or (say 15 days, then the customer has to wait a maximum of 15 days, while the company has up to 15 days to pay the customer and buy back the equity). The amount the company will pay to the customer for the bought-back equity will be SEBI-regulated (neither too much, so that the valuation is suddenly not spiked at the company's will, nor too low, so that the company gets the equity back at cheap rates; also, selling at too low will create panic in the market that the valuation is dipping, and more people will start selling their equity).

After the company has bought back the 'y' amount of equity from the customer (who wanted to sell their equity), the company will again list these shares/equity on the site, and bidding will be done similarly as was done the first time. For bidding, the price will depend on the valuation at present (the valuation will be done quarterly or once every 3 months), so the price will depend on the valuation at that time. So now, both the process of buying and selling equity have been dealt with.

We will permit a customer or buyer to sell his equity back only to the company and not to any other customer because a group of individuals can target the company, and person A will sell his stock to person B at a very low price. If multiple individuals start doing this purposefully, then the valuation of the company will sink drastically, which may cause the company's downfall. Also, in a customer-to-customer transaction, the more informed person can scam the other one as the price won't be regulated by a third party; the price will be agreed upon between them, and the informed one can make the less informed party agree on a very high or very low valuation for his own little profit, depending on whether he is selling or buying equity from the customer. As a result, we must ensure in our model that the customer can only sell the equity they purchased from the website back to the company by listing it on the website and in no other way.

6.3.2.2. Requirements of the platform

In order to establish a stock brokerage in India, there are certain criteria mandated by the government that our company will have to fulfil. These are:

- Obtaining SEBI registration as a stockbroker or sub-broker is the first stage in establishing a stock brokerage in India. Through their intermediary registration portal, you can register for SEBI registration online.
- Once you have obtained SEBI registration, you are required to create a business plan for your stock brokerage. This section should include information about your target market, services, pricing, marketing strategy, and financial projections.
- You must select a business structure for your stock brokerage, such as a sole proprietorship, partnership, or limited liability company. You must register your business with the Registrar of Companies (ROC), obtain a PAN card, and register for GST.

- You must establish the necessary infrastructure for your stock brokerage, which includes office space, computer systems, communication systems, and trading platforms. You may also need to employ traders, analysts, and customer service representatives.
- You must obtain the necessary licenses and approvals from SEBI and other regulatory bodies, including the Reserve Bank of India (RBI) and the Ministry of Corporate Affairs (MCA). This may include foreign investment approvals, if applicable.
- Comply with KYC norms: You must comply with SEBI's KYC norms, which require you to verify the identity and address of your consumers prior to permitting them to invest on your platform.
- After establishing your infrastructure and acquiring the essential license and certifications, you can begin to offer trading services on your platform. You can offer trading in a variety of markets, including equities, derivatives, commodities, and currencies.
- To attract clients, you must market your stock brokerage services. This could include online and offline marketing strategies like social media marketing, email marketing, and advertising.
- You must ensure continued compliance with SEBI regulations and all other regulatory requirements. This could involve routine audits, reporting, and compliance reviews.

We must encompass all of this in our platform to establish our stock brokerage services.

Here are the registration requirements and associated fees for the NSE:

1. **Documents required**:
    - Application form: For NSE registration, you must complete the application form, which is available on the NSE website.
    - SEBI registration certificate: As a stockbroker or sub-broker, you must submit a copy of your SEBI registration certificate.
    - You will be required to provide a net worth certificate from a chartered accountant demonstrating that you meet the NSE's minimum net worth requirements.
    - You will need to provide information regarding your infrastructure, including your office space, computer systems, and communication systems.
    - Compliance certificate: You must submit a compliance certificate from a chartered accountant that demonstrates your compliance with SEBI regulations and NSE regulations.
    - Additional documentation may be required, including a PAN card, an Aadhaar card, and bank statements.
2. **Fees**:
    - **Application fee**: A non-refundable application fee of Rs. 25,000 is required.
    - Once your application is approved, you will be required to pay a Rs 1 lakh registration fee.
    - **Annual fee**: An annual charge of Rs. 50,000 is required to maintain your NSE registration.

6.3.2.3 Requirements for stockbrokers

SEBI registration as a stockbroker or sub-broker, minimum net worth and infrastructure requirements, and compliance with SEBI regulations.

The following requirements must be met for a company to be listed on stock exchanges:

- must be registered with SEBI; - provide a copy of the SEBI stockbroker or sub-broker registration certificate.

- A net worth certificate from a chartered accountant must demonstrate that the NSE's minimum net worth requirements have been met.
- need to provide information about the company's office space, computer systems, and communication systems.
- A compliance certificate from a chartered accountant demonstrating compliance with SEBI regulations and NSE rules is required.
- need to file a red herring prospectus, which contains all information regarding the IPO, including the magnitude of the IPO, financial statements, company history, and future plans.
- PAN card is necessary
- Aadhar ID is necessary
- Bank statements must be provided.

6.3.2.4 Requirements for investors

In addition to the above, we will mandatorily acquire multiple documents for identification and verification from our investors in order to ensure legal trading on our platform. Here are a few of the requirements that investors will fulfill:

- **Government-issued identification**: This could be a driver's license, passport, or other valid government-issued ID to confirm the user's identity.
- **Proof of address**: A utility bill or other official document with the user's current address may be required to confirm their residency.
- **Tax identification number**: Users may be required to provide their Social Security number or other tax identification number for tax purposes.
- **Financial information**: Users may be asked to provide information about their income, net worth, and investment objectives.
- **Bank account information**: Users may need to provide bank account information for the purposes of making deposits or withdrawals.

6.4. Person-to-Person Lending (P2PL)

The microeconomics division of the LAFA platform provides the services of peer-to-peer lending (P2P), which serves as a form of investment interface for the lender and as a form of loan or funding for the borrower. Thus acting as a unifying link between both financing strategies, it offers some added benefits over the traditional banking or the loan-taking process.

6.4.1 Basic Operation Overview

P2P platforms have both the deficit spending units (DSU) or borrowers and Surplus spending units (SSU) or lenders as their customers. When a user wishes to apply for a loan, it enlists all the desired characteristics of the loan if wants to apply for, and similar is the case of the lender who submits all the details of the loan he wishes to invest in. Then the platform offers them all possible loan options that are being offered then that match the customised requirements of the user. When the user finds a suitable option, a contract is set up between both ends of the loan availing parties, to further finalise the contract. Then the platform's transaction system is incorporated to process all the required transactions that will be done as a part of the loan, including the transfer of loan amount, the interest payments and the fee payment to the interface. In contrast to the traditional banks, the transfer occurs between 2 entities, as per each's requirements. Unlike banks, which act as the central pool of funds, the task of the platform is to act as an intermediary broker between the 2 prospective entities, thus not needing the concept of deposits anymore. The earning of the platform is from a percent of the interest earned as a part of the loan, as well as, the brokerage fee involving the usage of the platform.

6.4.2. Why users would prefer our platform over banks

- **Better interest rates and higher returns**: Our P2P lending platform offers borrowers better interest rate options than traditional banks because the transaction cost, as well as other bank related overhead costs, do not account here. Also, it gives the borrowers an option to choose among various lending rates and an option to prioritise different characteristics of loan according to need. At the same time, lenders can earn high returns with very less risk associated with the investment, than they might get from a deposit in a bank's savings account or other investments. Platform also provides lenders an option to set the characteristics of the loan, alongwith the option to choose what credit bracket the borrower might fall into.
- **Flexibility**: Our platform offers more flexibility than traditional banks in terms of loan amounts, repayment terms, and eligibility criteria. This can be particularly attractive to borrowers who may not qualify for a traditional bank loan or who need a more flexible repayment schedule, as per their needs. Also, this will help the lender customise the type of contract he wants to invest in.
- **Community-driven**: Our platform is community-driven, with borrowers and lenders spread all throughout the country. This will provide the users a wide variety of options and choices.
- **Fast approval**: Our platform has a faster approval process than traditional banks, with loans often approved almost instantly, after the required security checks and transaction setup. This can be particularly important for borrowers who need funds quickly.
- **User experience**: Our platform is easy to use and navigate, with clear information about fees, interest rates, and repayment schedules, and the option to be able to filter and give preference to certain characteristics of loan above others. This can help to build trust and encourage users to use your platform.
- **Customer service**: Our platform offers excellent customer service, with prompt and helpful responses to user inquiries and concerns.
- **Lower fees**: Our platform aims to keep fees low for both lenders and borrowers, in order to attract more users and encourage a longer association with the platform.
- **Diversification of Portfolio**: P2P lending can offer lenders a diversification of their investment portfolio, allowing them to spread their investments across a range of borrowers and loans, reducing their overall risk and gaining maximum returns. The platform will also give suggestions on how users can further improve upon the loan characteristics that set by them to avail better options.
- **Control**: Lenders have control over which borrowers they lend to and the amount they lend, allowing them to make their own investment decisions.

Another new feature we plan to incorporate in the platform is introducing the concept of p2p based money market loans or investment. The most attractive concept about this facility is that the amount can be borrowed even for very small intervals of time. Varying from anything above 2 hours, the loan might be taken for any interval of time. This facility will help users to take the loan in any emergency or urgent situation rather than withdrawing the money from the savings account from the bank. This will also help seasonal loan requirements of people involved in primary or business-related activities which might involve the immediate need of funds, who later will be able to repay in sometime. This option will also act as an incentive for users to arrange the funds through this mechanism rather than borrowing from local lenders who might charge high interest rates seeing the need of the borrower, or using the funds in savings accounts or giving up on their fixed deposits, or mortgaging their assets.

6.4.3. Initial requirement/ One time requirements

- Legal documents for verification
  To ensure the authenticity of the user as well as to quantify the ability as well intention of the user to repay the loan, users will be required to submit some initial documents and information.

- **Age requirements**: the user should initially fill in his current age which will later be verified on the basis of date of birth as specified on the submitted government verification. If the age doesn't match an error will arise in the user's profile. For the lending facility minimum age requirement will be 21 and there is no upper cap on age to be able to lend the money. As for the borrower, the minimum legal age is 18 if he is able to produce a proof of constant source of income or declare any asset in the form of collateral and will then get the loan accordingly. In the case of self employment minimum age requirement is set to 21 with the upper cap being 65. This upper cap is adjustable on the basis of user history on the platform, credit history and his ability to produce the collateral guarantee of repayment. This feature is an additional benefit over the traditional bank in whose case it is difficult to get the loan after a certain age cap.
- **Proof of identity**: User will be required to submit a pdf copy of Aadhar card and PAN card, as a proof of identity and age, and the ability to be able to service the loan.
- **Proof of address**: User will be required to submit any of the documents among bank statements, voter id, utility bills or proof of residence issued by any gazetted office or government institution.
- **KYC verification**: As a part of the kyc verification user will be required to submit the details manually including name, address, bank account through which transactions will happen, formal picture, and final stage will involve video verification for facial recognition. This process will also include verification of phone numbers through OTP generation.
- **Risk assessment**: as a part of the process to risk assess the user, and to check his capability for payback, some demographic details will be required by the user to fill in. This will include employment and income details or salary slips, previous years tax returns, fixed obligation to income ratio (FOIR analysis) and signifies the amount of disposable income to spend on loan requirements and lower ratio makes the person more eligible. FOIR calculation is simple. The formula totals the monthly debts of the applicant, including existing EMI payments, Credit Card bill amounts, rent, and living expenses. This sum is divided by the gross total monthly income of the applicant. Other details include details about recent bank statements, previous investment and loan details. This whole data obtained from users will be securely stored in the platform's database. -Next step involves doing a background check and verification of the information submitted by the user. This step is essential to check the credibility of the user and his capability to be able to repay and finance the loan.

- Credibility parameters
  On the basis of previously obtained information, credit worth of a user will be obtained through the vantage model which accounts for different parameters as essential contributors, and that is developed by Experian, Equifax and TransUnion.
  - **Payment history (40%)**: measures how well you have paid your bills on time in the past. A good payment history will show that you have made most of your payments on time.
  - **Age and type of credit (21%)** : this metric covers how long a consumer has held credit accounts in good standing and whether they have a diverse mix of revolving credit and instalment loans.
  - **Percentage of credit limit used (20%)** : a consumer's credit utilisation rate, or debt-to-credit ratio, is the ratio of their outstanding credit balances to their total credit limits.
  - **Total Credit balances (11%)**: imply the already kept credit balances and how well they are paid down.
  - **Recent credit behaviour (5%)** : is calculated based on the new application for loans or credit cards.
  - **Available credit (3%)** : depends on a consumer's amount of available credit.
  - Additional intricacies as in ability to produce an endorsement from some authority of repayment assurance, track record on other financial platforms, social media footprint, transactions history on online platforms and business credit rating will be further contributory factors in determining credit worthiness. Also, this will be helpful in determining the credit score of people with limited credit history.

- Other usage of this enhanced credit rating procedure- the user credit ratings can be outsourced to other financial institutions, and will also be used as trust badges, a kind of parameter that will be allocated to each user and will be publicly displayed as a part of user profile.
- Incentive for better credit requirements- Users with better credit history will get some advantages over users that will act as incentive for them to have better track record on the platform.
    - The loan limits at a certain time will be more adjustable and accommodating for the users with better credit rating.
    - They will also get a chance to avail loans on less interest rates.

An important point in the backend of the platform at this initial stage involves verifying and analysing the submitted information and doing the relevant background checks by the platform. Firstly it will be done by verifying that the identity and residential proofs submitted by the user are legible and not tampered with. Third party apps and optical character recognition techniques will be used for the same. In case of some discrepancy documents can be manually checked, and users might be asked to submit the documents again. Followed by this, bank statements, income details and tax returns are analysed, and details such as income to debt ratio, type of transaction, amount, frequency, and performance of users on other platforms are studied. This information might be obtained from third party apps which provide a user credit worthiness and score, banks, and legal web scraping APIs. Services of companies such as IDfy or Veri5Digital can be availed for verification validation, and companies such a TransUnion, CIBIL score and CRIF High Mark can be used to obtain background banking information and credit worthiness. Public records such as the court, bankruptcy filings will be used to evaluate a user's financial history. Firstly, the platform will function under all data protection and privacy laws. Later, the platform might need to specify the reason for the access of records but can obtain a user's records from formal institutions. All these methods will also be used to verify the collateral documents.

6.4.4. Interaction between the 2 users

After the 2 entities are matched in the interface, a contact system is set up between both the parties. They contact on a chat based system, inbuilt on the platform, in which the identities of the users are kept anonymous. There they can discuss the details of the loans, and cannot be forced to reveal their identity, and if that condition arises other users can report that user on the platform. If the 2 users want to legalise or keep any binding characteristics of the loan such as repayment schedule, distribution in which the lender might want to lend the money etc, they can specify it in the final agreement to be submitted on the platform, and this agreement needs to be electronically signed by both parties. Later, while the loan agreement period is going on the lender and borrower are given the convenience to keep the contact and decide upon if any changes need to be made in the maturity time or the timeline of repayment schedule needs to be altered. Any changes need to be agreed upon by both the users and need to be accordingly updated on the platform loan schedule. Lenders also have the option to remind the borrower of any upcoming or missed deadline for the repayment. Also this entire chat will be stored in order to refer to it or in case of any dispute.

Anonymity: One of the important characteristics that the platform offers is the anonymity and privacy policy that the platform offers. Other than the initial process of registration and in case of any discrepancy or upgradation, users will not be required to submit any type of personal or professional information. Neither are the two parties in the loan binding agreement required to reveal their identity. Also the entire data obtained from the user will be stored in the secured storage with encrypted database and will only be accessed by authorised and relevant authorities. Securely encrypted data will be transmitted from the user to the interface with end to end encryption. Along with it the data will be stored in secure block chain technology with the users having keys or some secure password to access the relevant documents and the account.

6.4.5. Credit exchange interface description

The first glimpse of the interface will ask the user of whether he wants to lend or avail the loan, and later is directed to the required sections.

1. Lender's interface
   Following are the details the user will be required to submit as a part of credit giving application.
   - **Loan amount**: User will need to submit the upper cap, and if there is any lower cap on the amount he wants to lend.
   - **Maturity time**: set the desired upper and lower caps on the time period of maturity of the loan.
   - **Loan type**: whether the lender has any specific requirement of time to time EMI payments or whether there will be a single final face value payment along with the interest.
   - **Credit rating requirements**: the range of credit rating requirements of the borrower to whom the lender wants to give the loan and also whether he has any preference in lending to borrowers who are able to produce collateral.
   - **Interest rate**: on the basis of above characteristics set by the lender, the interface will suggest a suitable interest rate that the lender should fill in that is in accordance with the financial instruments with similar risk and leverages. Lender further has the independence to choose any adjustable range in which he is willing to lend.

After the above application is complete, the lender is asked for a confirmation of whether he wants to enlist the loan application on the platform. In case the lender revokes his application before the maturity time period set for the submitted loan, starting from the day of application his credit rating will be negatively affected.

Following this lender can set preferences in which he might want to filter the borrower's application, as in terms of priority to set maturity time period or loan limit. After this the user gets a list of credit applications matching his loan description, and varying in terms of first the set preference and then later on basis of other characteristics set, and finally the applications that might be similar. If the user likes any of the applications he can contact that particular user through the interface, and if the requirements meet for both the parties they enter into the agreement, and both their applications are removed from the pending application list. Also, if there are any new applications from borrowers that might meet the lender's requirements the user will be notified about the same.

1. Borrower's interface
   Following are the details the user will be required to submit as a part of credit taking application.
   - **Collateral**: whether he is willing to submit a collateral in the loan application. It will benefit him in getting loans at a lower interest rate. Collateral valuation and the ability to produce it will affect the amount he could borrow on the platform. If he is able to produce a collateral a maximum limit of loan worth 50%of its value could be taken, but the final amount will be determined on the basis of current credit standing and transaction history on the platform. In case he is not able to produce a collateral, an estimate will be produced on the amount of the loan that the user can get on basis of his credit standing and then can get a loan 80% of its value.
   - **Loan amount**: borrower is required to set the minimum loan amount that he wants to borrow, along with if there is any possible upper cap, and this specified range should be in line with the maximum possible credit amount as displayed by the interface in the previous section.
   - **Maturity time**: set the desired upper and lower cap on the time period of maturity of the loan.
   - **Loan type**: whether the borrower is fine with the regular EMI payments or wants to pay a final amount at the maturity time of the loan.

Following the above application, the credit application of the borrower is accepted and enlisted in the pending list option. Following this borrowers can set preferences and filter out the given loan options, for example, in terms of interest rate. After this user obtains all the loan options and can choose on the basis of his requirements and specifications. Further, he discusses the loan details with any prospective lender, and in case both parties agree with the loan description, they enter into an agreement, and following this their application has a common procedure.

Then the interaction interface and, correspondingly the interaction specifications that happen between both parties have been discussed before.Later, the lender is required to transfer the loan amount as decided upon in the agreement within one day and a maximum of 3-4 days. If the lender is not able to transfer within this time period, the loan agreement might be disbanded any time the borrower wants and also will have to submit a late fee in case the loan option still takes place. In case the agreement is disbanded, the lender will have a negative impact on credit rating, and his lending application will be given lesser preference in case of the next application. In the above scenario, the borrower will again get the option to choose from the loan applications and will get the discount on the fee that the platform charges for brokerage on his next loan contract.

Assuming the lender transfers the amount to the interface's account, the next step involves the transfer of funds from the platform to the borrower. This process happens in a single day and is necessary over the direct transfer of funds from the lender to the borrower, because it prevents any kind of fraudulent activities or transfer, internal disagreement or delay on behalf of transfer of funds from lender thus , making this more effective and time efficient.

After this process happens, on the basis of loan options selected the repayment process will initiate. In case constant EMI payments have been chosen as an option, and on the basis of agreed loan period, interest rate platform will devise a repayment schedule, and that will be informed to both the parties. Along with it, the borrower will be reminded by the interface a week before the deadline about the pending transaction. If the borrower repays on time, the funds are transferred to the lender alongwith a notification update about the transfer. In case the borrower is not able to repay, he can get a maximum extension of a week to repay the amount, with a late fee. The case of non repayment by the borrower is discussed in the following sections.

In case of repayment option involving only final transfer of money at the time of maturity, the same above procedure is followed at the maturity time.

Also in case of changes in the loan characteristics agreement, correspondingly all the timelines and notifications are automatically updated on the platform.

All the transaction characteristics of both the users are constantly monitored and dynamically affect their credit statistics. This way p2p lending systems provide multiple types of credit options with a huge variety of characteristics, flexibility, efficiency and most importantly security. * **Transaction charges of platform**: A base fee will be charged from both the lender and borrower, which is based on the brokerage or the intermediary services provided by the platform. As per the standard norms, the platform also charges from a payment of 0.5% from the interest spread decided on the loan value.

- **Loan limit and credit limit gradation**

    1. On December 23,2019 in a bid to protect the interest of customers , RBI set a Rs 50 lakh limit on the aggregate lending to all borrowers by a single lender. Further lenders investing over Rs 10 lakhs across P2P platforms should get a CA certified minimum worth of Rs 50 lakh. It has also been decided that the aggregate exposure of a lender to all borrowers at any point of time, across all P2P platforms, shall be subject to a cap of Rs 50,00,000 provided that such investments of the lenders on P2P plaŋorms are consistent with their net-worth. Also, All loans through P2P platforms come with a payback period that cannot be more than 36 months. The borrowing and lending limits will be imposed based on certificates obtained from the borrower or lender, which is a self-declaration.

    2. Specifications for our platform

        - Based on the above RBI guidelines, the loan limit for all lenders will be as follows: The lender can not lend more than Rs 50 lakh to all borrowers annually.
        - For a borrower, the loan limit will be decided based on his/her credit score and cannot be more than Rs 10 Lakh.

- The loan limit will be a linear function of credit score, and the present assets/salary of the borrower. The initial amount will be fixed at Rs 10,000 per user.
- Then as the credit score increases, the loan limit also increases in that proportion and this will be done using regression analysis.

3. Algorithm to be used for calculating credit score

Analyse each borrower's basic information through the multiple linear regression (MLR). Retain the information which has a great influence on the credit score according to the analysis results and detect the cluster-based outlier of the information to find out the abnormal value. Then find the corresponding borrower through abnormal values, namely, the bad credit score borrower. The internal rate of return, IRR, is a further optimised credit scoring mechanism, which is characterised by the ability to measure the benefits of borrowing and lending.

TABLE I. A STATISTICAL DESCRIPTION OF THE TARGET ATTRIBUTE

variable	Minimum	Maximum	Mean value		Standard Deviation	Variance
	Statistic	Statistic	Statistic	Standard Error	Statistic	Statistic
Credit score	662.00	967.00	700.0667	3.11193	38.11316	1452.613
Interest	532.00	11274.00	1514.5067	83.45492	1022.10984	1044708.520
House-ownership	1000.00	4000.00	2593.3333	75.14143	920.29078	846935.123
Registered monthly income	1167.00	66670.00	8303.3133	632.76560	7749.76419	60058845.04
Debt-to-income ratio	246.00	19884.00	2102.6200	142.59598	1746.43692	3050041.902
Loan Amounts	200.00	5200.00	2021.9000	89.26404	1093.25674	1195210.292
Open credit line	400.00	3300.00	1282.0000	48.66973	596.08004	355311.409
Total credit line	600.00	6600.00	2624.0000	103.55074	1268.23240	1608413.423
Revolving credit line	565.00	212065.00	21238.1200	2143.74015	26255.34752	6.893E8

Note: Data is from lending club

Following image depicts correlation statistics

TABLE II. CORRELATION

	Interest	House-ownership	Registered monthly income	Debt-to-income ratio	Loan Amounts	Open credit line	Total credit line	Revolving credit line
Credit score	0.001	0.493	0.019	0.387	0.003	0.026	0.144	0.166

Note: Data is from lending club

Using Machine Learning to create a credit score calculation model, we will use a K-clustering algorithm to train the model. First of all, we collect all the data into group K and calculate the centre. Secondly, we calculate all data objects that are closest to the centre. Thirdly, we calculate the relative distance β, and is β=D(d, centre)/ M(d i, centre), among which the distance between the data object and the nearest centre is D(d i, centre), M(d i, centre)is the median of the distance between all data objects and their nearest centre. Finally, we compare the gap between the relative distance and the specified threshold to get the results. This outlier detection method can be used as a method to find the bad credit score and finally find the abnormal lender in the P2P loan.

One of the loopholes that might arise in this credit score calculation system is that, if we were to base our credit score system on parameters like past record of lending and borrowing of the users, then this might lead to fraud. Two adversaries can lend and borrow amongst themselves, increasing their credit scores falsely. To prevent this fraud,

another attribute namely, the number of different borrowers/lenders that do the transaction with the lender/borrower respectively, on the platform will be considered. This number should be strictly greater than a certain threshold, say 3, to improve the credit score of the user.

- Collateral management process

Collateral will be a necessary requirement for loans above the value of Rs 1 Lakh. The borrower will have the option to choose the collateral and will get loan value allowance as per its value. For the same some forms of acceptable collateral will include land documents or assets such as gold. For the same, users will be required to upload original documents while finalising the loans. These documents will be verified for authenticity by previously described methods, and if the documents are declared authentic then only the loan agreement will be implemented. Also, after this collateral valuation will be done by the algorithms used in the crowdfunding interface for equity valuation. In case of discrepancy, the loan option is nullified, and the borrower will have a negative impact on his credit score. If the loan process is completed without any default with complete repayment by the borrower, the internal record of the documents submitted as collateral will be deleted. In case the borrower doesn't pay any of the instalments or the final loan value, even after several reminders, then after a considerable time period of 30 days, the collateral property is seized by the platform, which is then used to repay the loan amount to lender, and bear up the additional expenses suffered by the platform. The process involving the collateral seizure is done by human intervention. The resultant of the loan repayment failure in the borrower involves loss of collateral and a major decrease in the credit scoring.

- Non repayment issue addressed

The inability of the borrower to repay the loan, or his intention of some fraudulent activity has been tried to identify and avoid through several measures adopted on the platform. That includes the initial thorough background check of the user, verification of the authenticity and applicability of the documents and later the collateral agreements, regular credit scoring gradation based on machine learning algorithms to identify any forms of fraudulent tendency or activities across all the services of the platform and on the basis of dynamic data obtained from the online transactions of user, obtaining collateral or some form of underwrite for assurance of repayment on high valued loans, having a transparent communication system. Several of the problems faced by many existing p2p platforms have been tried to resolve through all the above mentioned description of the platform. The platform also follows all the norms and regulation set up by the RBI for any financial service provider platform.nsion include services like many lenders single borrower loans, having a more robust and secure system by providing insurance services to lenders against the risk of non repayment by involving and expanding through other financial institutions.

6.4.6. P2P loans as money market instruments

This is one of the new services introduced as a part of the P2P lending interface. This service will provide loans which can be obtained for lesser duration, that is starting from the minimum limit of half a day. It will benefit the people in case of urgent need of money, or will even be helpful in activities or businesses that are seasonal in nature. This will prevent people from using up their savings in the bank account or breaking the fixed deposits in bank Or even prevent them from borrowing money from local money lenders who might charge exorbitant amounts of interest rates. This service will not require any proper application by the lender. Borrowers can fill in the requirements, similar to in the previous scenario, and the lenders can then choose who to lend on the basis of their preferences. This service doesn't require any form of collateral and will initially have a maximum cap of Rs 50,000. Exclusively entrusted on the powers of credit rating, since these loans are applicable for less time period there is a lesser chance of default. These also doesn't have the option of payment in instalments for the same reason, as people will be able to repay them better in a single swing when they have availability of funds. Also these require immediate payment requirements by the lender. The interest rate will be declared by the borrowers in this case, with the interest in lines with the similar money market instruments.

Some other improvements and upgradation that might later be incorporated in the platforms can be making the money market counterpart of p2p more accessible and convenient, realising the concept of many lenders single borrower for diversification of risk and investment portfolio. Also many tools such as Microsoft, IBM and others, can prevent fraudulent activities. So later, cloud computing technology such as Microsoft Azure Sentinel can be used. This is a cloud-native security information and event management (SIEM) service that provides intelligent security analytics and threat intelligence across the enterprise. The service uses machine learning and artificial intelligence to detect and respond to security threats in real-time and can be easily integrated with existing workflows and systems.

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