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A

Project Report

on

Investify

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By

Ananya Sharma (2000290100022)

Anjuman Hasan (2000290100023)

Under the supervision of

Dr. Parita Jain

KIET Group of Institutions, Ghaziabad

Affiliated to

Dr. A.P.J. Abdul Kalam Technical University, Lucknow

(Formerly UPTU)

May, 2024

DECLARATION

We hereby declare that this submission is our own work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Signature

Name:

Roll No.:

Date: 20/05/2024

CERTIFICATE

This is to certify that Project Report entitled “Investify” which is submitted by student name in partial fulfillment of the requirement for the award of degree B. Tech. in Department of Computer Science & Engineering of Dr. A.P.J. Abdul Kalam Technical University, Lucknow is a record of the candidates own work carried out by them under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

Dr. Parita Jain

(Associate Professor)

Dr. Vineet Sharma

(Head of Department)

Date: 20/05/2024

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Date: 20/05/2024
Signature:
Name : Ananya Sharma
Roll No.: 2000290100022

Date: 20/05/2024
Signature:
Name: Anjuman Hasan
Roll No.: 2000290100023

ABSTRACT

Picture this: a world where investing is as thrilling as a high-stakes game, where the next big opportunity lies just a swipe away. Welcome to our story, where fintech meets innovation in a groundbreaking app fueled by React Native and Firebase. Embracing the familiar swipe mechanic of Tinder, users embark on a thrilling journey of discovery, navigating through a curated selection of entrepreneurial ideas and business ventures.

With the seamless integration of React Native, our app offers a fluid and responsive user experience across iOS and Android devices, ensuring accessibility for a diverse audience of investors and entrepreneurs. Leveraging Firebase's real-time database and authentication features, users engage in a secure and interactive platform, where each swipe brings them closer to uncovering the next big opportunity. Much like the electrifying atmosphere of Shark Tank, our app transforms the investment process into a captivating experience, where users can effortlessly explore, evaluate, and express interest in promising ventures with a simple swipe. Whether you're a seasoned investor seeking new avenues for growth or an aspiring entrepreneur in search of funding and support, our platform provides the perfect convergence of innovation and opportunity in the fintech landscape. It will revolutionize the way investments are made, one swipe at a time, and embark on a journey where every swipe holds the potential to shape the future of finance.

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LIST OF ABBREVIATIONS

NFT	Non Fungible Token
JS	Javascript
DOM	Document Object Model
UI	User Interface
IPFS	InterPlanetary File System
KYC	Know Your Customer
2FA	Two-Factor Authentication
API	Application programming interface

CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

In recent years, the startup ecosystem has seen remarkable growth globally, and India has been at the forefront of this wave of innovation. India's startup ecosystem has witnessed significant growth, with over 127 thousand startups officially recognized by DPIIT as of April 2024. Since 2016, the startup economy has burgeoned across the country, supported by initiatives like Startup India. Additionally, the Digital Transformation Market Size is projected to reach $2.1 trillion by 2030, with a compound annual growth rate of 23.72%, as per research. With advancements in technology and changes in consumer behavior, startups are disrupting traditional industries and paving the way for new opportunities. However, alongside the increase of startups comes the challenge of navigating the investment landscape. For investors, identifying the proverbial "diamonds in the rough" amidst a sea of startups can be akin to finding a needle in a haystack. Traditional investment avenues often lack transparency, accessibility, and real-time engagement, leading to missed opportunities and suboptimal investment decisions. Looking at this problem, our project offers a solution that bridges the gap between investors and startups in a manner that is intuitive, interactive, and impactful. By infusing the familiar swipe mechanic with the thrill of discovery and the promise of financial growth, our app transforms the investment process into a dynamic and engaging experience.

At its core, this app harnesses the power of React Native and Firebase technologies, epitomizing the marriage of finance and technology in the digital age. React Native provides a robust framework for building cross-platform applications, ensuring a seamless user experience across diverse devices, while Firebase offers a suite of backend services, facilitating real-time interactions and secure authentication. Against the backdrop of India's rapidly expanding startup landscape, characterized by a surge in venture capital investment and a proliferation of innovative ideas, this project holds immense promise. By providing a dynamic platform for investors to discover, evaluate, and engage with promising ventures, the

app aims to foster a culture of entrepreneurship and drive economic growth. Through curated startup profiles and interactive features, users can gain valuable insights into potential investment opportunities and engage with founders in real-time. This human-centered approach to investing sets our app apart from traditional investment platforms, creating a dynamic and collaborative ecosystem where innovation thrives.

This report will provide a comprehensive overview of the project's objectives, methodologies, outcomes, and implications. We will delve into how finance and technology intersect to shape the future of investing and startup culture in India, driving us towards a more vibrant and inclusive economy.

1.2 PROJECT DESCRIPTION

Investify is a pioneering app aimed at revolutionizing investment opportunities by bringing the excitement of Shark Tank to your fingertips. Developed using React Native and Firebase, this innovative platform offers a unique blend of user-friendly features and seamless functionality.

1.2.1 Key Features of Investify:

Idea Selection with Swipe Mechanism:
Users can browse through a curated selection of startup ideas with a simple Tinder-like swipe interface. Right swipe to express interest and connect with investors via chat or call directly within the app. Left swipe to pass on an idea.

Investor Connectivity:
Investors and entrepreneurs can seamlessly connect and communicate through the app's integrated chat and call features. This facilitates real-time discussions and negotiations, streamlining the investment process.

Investment Portfolio Management:

Users can track and manage their investment portfolio within the app, providing a comprehensive overview of all their investments. This feature enables users to stay organized and informed about their financial endeavors.

Chat History and Filtering:

The app includes a dedicated chat tab where users can access their chat history with investors and other users. Advanced filtering options allow users to customize their feed or the businesses they see according to their preferences.

User Authentication and Security:

Secure user authentication mechanisms such as two-factor authentication and encryption to protect user data and transactions.

1.2.2 **Tech Stack used in our Project**

React Native:

React Native is a popular framework for building mobile applications using JavaScript and React. It allows for the development of cross-platform apps with native-like performance and user experience. In Investify, React Native is utilized for the frontend development, ensuring a responsive and intuitive interface for users.

Firebase:

Firebase is a comprehensive platform provided by Google for building mobile and web applications. It offers a range of features including authentication, real-time database, cloud storage, and hosting. Investify leverages Firebase for user authentication, real-time communication, and data storage, ensuring secure and seamless user interactions.

Node.js:

Node.js is a JavaScript runtime built on Chrome's V8 JavaScript engine. It allows developers to build scalable server-side applications. In Investify, Node.js is utilized for backend development, enabling efficient communication with databases, APIs, and other services.

IPFS (InterPlanetary File System):

IPFS is a decentralized storage protocol that enables users to store and access files in a peer-to-peer network. In Investify, IPFS is utilized to securely store files such as project documents and pitch decks.The IPFS client allows us to retrieve files from the IPFS network using their unique content-addressed hash. This ensures that data remains accessible and immutable, enhancing the reliability and security of the platform.

Blockchain (Ethereum):

Blockchain technology is integrated into Investify to provide secure and tamper-proof storage for documents. It deploys smart contracts on the Ethereum blockchain to store references (such as IPFS file hashes). By utilizing blockchain, Investify ensures data integrity and transparency, enabling users to trust the information stored within the app.

Stateful Transactions:

Stateful transactions are a mechanism for optimizing gas fees on the blockchain network. They enable our platform to store some of the transaction data off-chain and only submit the essential data to the network. This reduces the amount of gas required for each transaction and lowers the cost for users. In our project, stateful transactions are used for optimizing gas fees and minimizing the cost of transactions for users.

Overall, Investify employs a robust and versatile tech stack ReactJS and NodeJS provide a powerful frontend and backend development environment, while Firebase and IPFS provide efficient data storage and retrieval capabilities. Ethereum and stateful transactions ensure the security, authenticity, and cost-effectiveness of transactions on the blockchain network.

CHAPTER 2

LITERATURE REVIEW

In this part, we outline the various challenges and opportunities we discovered after analyzing various research papers on startups and funding them using different platforms.

There has been a rise in startup activity, drawing both male and female entrepreneurs to new businesses, according to Sumit Mishra's [1] research. A growing number of women are starting their own businesses and demonstrating a willingness to take calculated risks while upholding integrity. A different number of elements like education , talent , creativity and help from organizations like funding agencies , incubators have also helped in the growth of India's startup culture. Government efforts have also helped make this ecosystem better and put India to the third position globally, with over 65% growth in 2015. Entrepreneurs overcome obstacles to make critical decisions that advance the economy. Initiatives aim to generate jobs during a downturn in the industrial sector by offering quicker patent registration, easier exits, tax benefits, and approvals. The community, government, and stakeholders' assistance, collaboration, and mentorship are essential to success. Mishra indicates the importance of the role that startup plays in the growth of the economy and promoting innovation in the country. She also says to provide support to keep this going.

Anjani K. Singh and Nasimuddin Ahmad's [2] research indicates that India is rapidly developing a thriving startup environment, driven by a youthful, educated labor population that appreciates creative ideas. Although the bulk of startups are situated in major cities, there is a growing desire for them to expand nationwide. Support for promising ideas with economic potential is increasing, particularly through channels such as seed finance and private equity. SEBI's recognition of crowdfunding as an alternate funding option for early-stage entrepreneurs is a great step, but policies must be reviewed to further improve crowdfunding and loan financing in India. Furthermore, reevaluating restrictions for launching new enterprises, banking interest rates, and increasing investments in R&D are critical. Comparing global standards is necessary to create a more favorable environment for startups in India.

Startups are becoming increasingly significant in quickly tackling large challenges through the generation of new ideas. More and more young people want to establish their own enterprises, and locations like

India have plenty of resources to help them get started. Some people believe that startups may change the world , which may be overly optimistic, but those that thrive can make a significant influence. Even in the event that a startup fails, the participants get important experience. Finding a job via working with startups is becoming more and more common. The nature of labor has changed over time, with many individuals now working as freelancers or temporary workers for startups.[3].

The Indian government is promoting industrial growth through many initiatives, including 'Make in India,' 'Startup India,' MUDRA, and 'Vocal for Local'. The 'Make in India' campaign encourages enterprises to manufacture goods domestically, which boosts investment in regional manufacturing and the number of new ventures established in the nation.'Startup India' aims to create a solid support system for startups, hence stimulating economic growth and job creation. Successful entrepreneurs who invest in startups contribute significantly to the economy by creating new job opportunities. However, entrepreneurs have a variety of challenges, including gaining resources and ensuring long-term profitability. India's massive population gives various market opportunities for entrepreneurs to satisfy a wide range of demands, from basic essentials to cutting-edge technology. Some of these startups could become really big and known all around the world [4].

The research paper brings out the importance of businesses understanding the social media's hand for their success. Companies use social media to show their services and learn about their customers' needs. Companies must find the best ways to use social media, use different content for better engagement, and strengthen their customer relationships . Facebook users are more likely to share content, interact with the company posts, leave comments which promotes word-of-mouth marketing and direct customer relations. Facebook can help startups' to attract and keep new clients[5].

Third-placed India has a thriving startup culture with over 26,000 companies, 26 of which are "unicorns" with a total valuation of over $1 billion. The primary forces behind this growth are government programmes like Startup India and private investments, which helps in India to shift to a digital economy. But, there are still problems, like broken markets, unclear laws, poor infrastructure, and complex processes. To take full advantage of this , it is important to increase public knowledge of government initiatives , improve credit, increase networks to smaller areas, and simplify tax and investment rules. [6]

CHAPTER 3

PROPOSED METHODOLOGY

3.1 OVERVIEW

The development of Investify application requires a structured and systematic approach to ensure its successful implementation. This section presents a comprehensive methodology that outlines the key steps involved in developing Investify application.

This methodology is really an important component of software development. Each software according to its requirements requires different methodologies to be followed in order to have the best results. Software development methodology will be required to identify the problems, in-depth analysis of it, and the plan of action needed to achieve the objective.

The methodology of developing the software requires to understand the problem statement thoroughly and follow SDLC. Software Development Life Cycle includes all the necessary phases that are an essential phase of any software. If it is followed in the development process the quality of the software is automatically enhanced and less maintenance will be required. So, for the successful execution of it in your software, it is necessary to understand it well. Software Development Life Cycle has all the phases of software that are- Requirement gathering and analysis, feasibility study, designing, coding, testing, deployment, and maintenance. This SDLC is carried out by every software throughout its software and the purpose of the software will be fulfilled if it is adopted well in its development process.

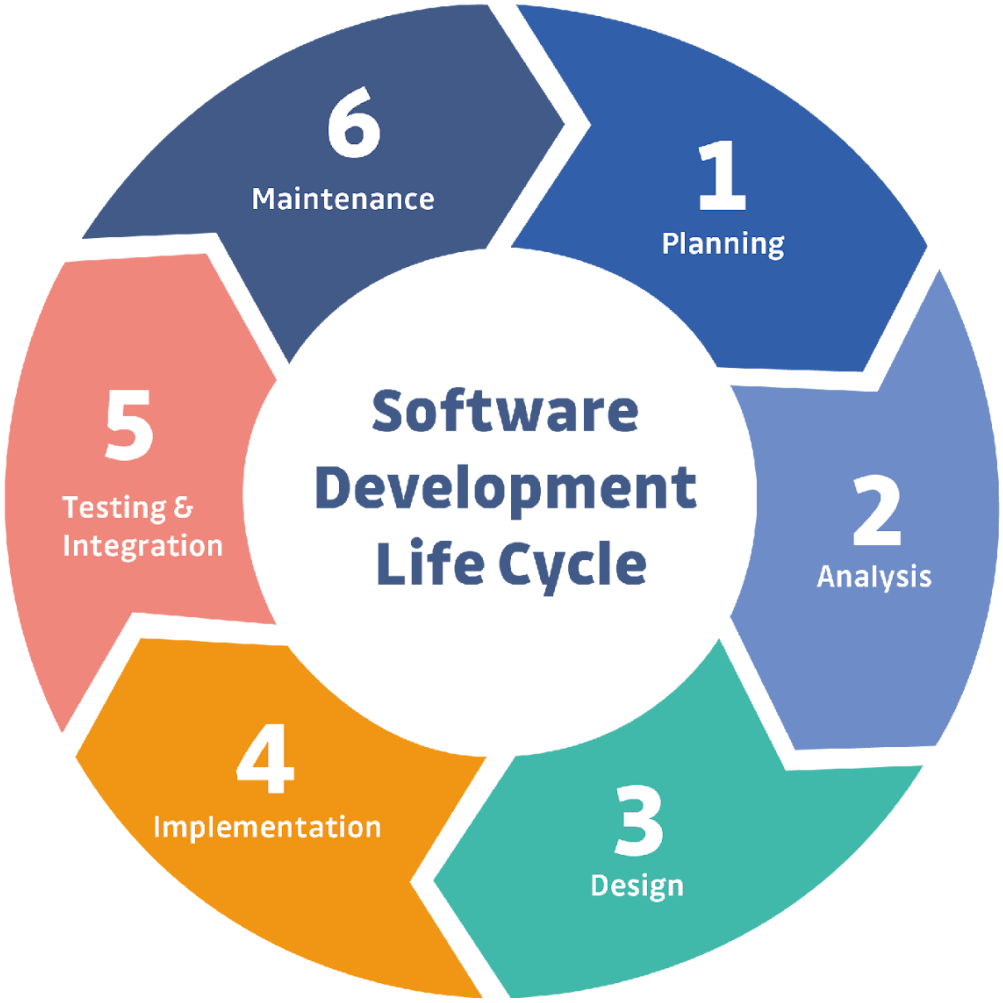


Figure 3.1 Phases of SDLC

In Investify, the idea of revolutionizing the investment process emerged, aiming to streamline the efforts and challenges faced during investment decisions. To address this, a structured plan of action was devised to assess the feasibility of solving this problem within the available resources and time frame. The methodology entails formulating a clear problem statement, drafting a Software Requirements Specification (SRS), and conducting a feasibility study. Based on the findings, the appropriate software development model will be selected to guide the development process.

3.2 REQUIREMENT ANALYSIS

In Investify, the significance of requirements in software development is paramount, serving as the foundational asset in the development process. Requirement gathering and analysis represent the initial and crucial steps in the software development lifecycle. Before proceeding with development, it is imperative to clearly define the problem statement and collect relevant information pertaining to the problem domain. The requirement specification team plays a vital role in framing and reviewing this information, ensuring its accuracy and completeness. Any ambiguity in the specifications could lead to significant setbacks in the development process.

Requirement specification might seem straightforward, but it involves a meticulous process of identifying the problem statement, tasks required for solving the problem, and gathering information related to these tasks. This information is consolidated into a Software Requirements Specification (SRS) document, which outlines the scope, objectives, performance expectations, risk analysis, and other pertinent details from the perspective of all stakeholders involved in the software development.

Exploring more about the requirements, these may be classified into the following:

- **Functional Requirements:** These are the requirements that are related to the tasks performed in the software. The basic functions of the software require specific information and input-output of the system.

  In Investify, functional requirements encompass a range of essential features, including the ability to browse startup ideas, express interest through swiping, connect with investors via chat or call directly within the app, and seamlessly pass on ideas with a swipe.

- **Non-Functional Requirements:** These are the requirements that are supplementary with the functional requirements and can enhance the utility of the software. It includes requirements such as performance, security, user support documents.

  In Investify, non-functional requirements extend to ensuring robust security measures for user documents and chats within the app, guaranteeing the reliability of the platform's featured startup

ideas, optimizing the efficiency of information analysis and retrieval processes, and maintaining a seamless user experience throughout the investment journey.

- **Interface Requirements:** The requirements that are used to describe the utility of the interfaces.
- **Inverse Requirements:** The requirements that are used to specify which the software is not supposed to do.
- **Design and Constraints Requirements:** The requirements required to resolve the design-related issues in the software.

Software Requirement Gathering and Analyzing are carried out with the help of a set of activities and how these activities were carried out in Investify:

- **Requirements Elicitation:** This activity discovers the client's requirements regarding the software and the problems faced. These requirements are identified by the specifications team through the interaction of clients. There are various ways that may be used for this activity - On-site observation, Interviewing, Reviewing Written Documents, Questionnaires, and brainstorming. These activities let them know about the root causes of the identified problems by the clients.

  In the case of Investify, addressing the needs of both investors and project owners is paramount. To ensure a comprehensive understanding of these requirements, surveys are conducted among potential investors and project owners within the investment community. Key functional and non-functional requirements identified include efficient deal evaluation mechanisms, solutions for managing high traffic volumes, preventing duplication of investment opportunities, effective project management tools, crowd control measures, streamlined inventory management, and insightful user analytics to facilitate informed investment decisions.

- **Requirements Analysis:** The required information is further analyzed and categorized accordingly. This activity may help in identifying if some required information is still to be recognized from the client’s end. The analysis processes the requirements in such a manner that the collected information is the manner common people understand. And it needs to be formatted to the technical terms and then proceeded for the further steps.

During this phase for Investify, requirements specified by investors and project owners are carefully analyzed to identify challenges and opportunities. Solutions are proposed to address issues such as inefficient deal evaluation processes and lack of transparency in project management.

- **Requirements Specification:** This activity will model all the requirements into a formal document which will be used as a reference for further activities. The data documented is also realized in the form of ER diagrams, DFDs, FDD, and data dictionaries. This modeled data is referred to by the developers in the further phases of SDLC. Hence it needs to be complete and accurate.

  This activity considers the collected information and formats the requirements into a form of the document that will be shared with clients as well as the developer's team. This prepared SRS follows the fixed format and is shared further.

- **Requirements Validation:** In the validation activity, the document prepared and the model designed is sent to the review team to review it, optimize the documents, and ensure that requirements are conflicting, redundant, and unachievable. The validation activity involves both the specification team and the clients for the mutual agreement on the data collected and the solution proposed.

- **Requirements Management:** This activity is used to manage all the changes that need to be incorporated into the prepared document. And the structuring is done in such a manner that changes at later stages can be easily incorporated. This helps in the grouping of the requirements and proposing a planned manner to implement the activities.

Software Requirement analysis is a step that bridges the gap between system-level software engineering and system design. That is, it is the link that keeps the clients as well as developers connected and avoids the ambiguity caused in between them. The proposed and finally approved SRS should be in a fixed format that would be convenient for both clients and users.

The format which is used while drafting Investify's SRS is as follows:

I. Introduction

    A. Overall Description

    B. System Function Statement

    C. Software Project Constraints

II. Information Description

    A. Information Flow: Use-Case Narratives

    B. System Interface

III. Functional Description

    A. Functional Partitioning: Courses of Events

    B. Functional Contracts

    C. Control Specification

    D. Design Constraints

IV. Behavioral Description

    A. System States

    B. Actions

V. Software Validation

    A. Performance Bounds

    B. Classes of Tests

VI. Appendices

3.3 FEASIBILITY STUDY

Feasibility analysis involves assessing the software requirements to ensure the project's successful completion. This phase aims to evaluate the project's practicality across various dimensions and identify strengths and weaknesses in each component and task. By conducting this study, the team aims to streamline problem-solving efforts and achieve optimized solutions. The findings of the feasibility analysis are documented within the Software Requirements Specification (SRS) in a clear and structured manner. This document is then reviewed by the specifications team to address any necessary changes.

For instance, when a client assigns a project to the development team, the team gathers all necessary information and conducts a feasibility study based on this data. During this study, the team thoroughly examines whether the software can be developed within the available time and resources. If any challenges or constraints are identified, the specifications team is consulted to devise appropriate solutions. Additionally, feasibility analysis extends to various sectors such as technical, financial, and legal aspects, ensuring thorough examination within the project's constraints.

The following feasibility studies were carried out in Investify:

- **Economical Feasibility:** In this feasibility study, we study the effectiveness of our proposed solution against the amount of spent throughout the process. At this stage, the costs involved in the process of development and throughout its maintenance is included and then compared whether this investment is under the budget of the client or not. If the estimated cost is higher than the expectation then, the whole system is analyzed so that this estimated cost is minimized.
- **Technical Feasibility:** In this feasibility study, the technical requirements needed to implement the proposed solution are considered. Sometimes, the technical support that is required to implement is provided by the clients themselves. So, it is the responsibility of the team to analyze the compatibility of the tech specified with the requirements of the clients. If it meets the criteria then it is technical feasibility. During this feasibility check, the pros and cons of technology are taken care of and if it needs to be changed would be replaced with the most suitable one that satisfies the client’s requirements.

Investify achieves technical feasibility through blockchain for secure file storage, React Native for cross-platform mobile development, and Firebase for backend services. This combination ensures data integrity, streamlined frontend development, and robust backend functionality, delivering a secure and user-friendly investment platform.

- **Social Feasibility:** The proposed software to be developed will be used by the people after deployment, so the impact of its solution on society should be considered. That is, whether it would be accepted by society or not. The solution should be in such a manner that it eases the problems of society and beneficial for them at a larger scale irrespective of their class, area, age, etc. It should be easily adaptable by society members.

  The proposed solution is designed in an easy manner and simple to use by the day to day customers. It can be easily operated by the customer and is socially feasible.

- **Operational Feasibility:** This feasibility check is done to assure the operations that may be taken by the clients or developers in the long run of the software. The degree to which The changes required to be done, the functionalities to be extended, and the use of other tech is supported in the developed software ensures the operational feasibility of the software. All these operational feasibilities need to be checked by the developers, which is believed by the clients, that is, operational feasibility is an inherent requirement of the clients.

  In Investify, all the latest and stable methodologies are adopted for the development and they are verified in the requirement analysis that they won't create issues even in the long run and with heavy loads. Node.js is used as the backend, React Native for mobile app development. So, this project is operationally feasible.

- **Legal Feasibility:** In this feasibility check, we check the probability of having security breaches, cybercrime through this software. This ensures the safety of the clients as well as their users. The software that assures high-level security as a feature is more likely to be trusted by the users. So, any measure that tends to have the probability of illegal activities must be taken care of through this check, and an improved version is expected.

Investify uses blockchain for secure storage of files and a through verification is done to decrease any discrepancies in the investment opportunities.

- **Time Feasibility:** The clients offer any team with the development of software along with some deadline so, during the phase, it is checked whether the provided time frame is sufficient for the complete development of the product and deliver the quality product to the clients. This estimation of times must include the time required for planning, designing, coding, teasing, and reviewing. This check lets them collect about the actual plan of action that they would need to deliver the product as early as possible.

  In Investify, each phase is deeply analyzed and the time required to complete each phase even in the worst case is evaluated. And is found that the project can be completed within the required time frame with all the testing and the product will be ready for the deployment.

- **Market Feasibility:** This is something that seems to be related to economic feasibility but again it is not true. Market feasibility is its tendency to compete with other similar products available in the market. This feasibility study enhances the developing product from others in terms of its durability, efficiency, and other quality factors along with cost-effectiveness. The end-users prefer the products which require fewer efforts from them. So making a market feasibility study makes the product adaptable to the market variability.

3.4 Models Used

In the context of Investify, before delving into software development, it's essential to determine the appropriate model for the project. Software Development Life Cycle (SDLC) offers various models, each with its own approach and flow, although the development phases remain consistent. To choose the most suitable model for Investify, let's explore some commonly used SDLC models:

Waterfall Model: This linear model follows sequential steps in software development, starting from feasibility study to requirement gathering, system design, implementation, testing, and maintenance. While it's straightforward and requires fewer efforts initially, it's less adaptable to changing client demands.

V-shaped Model: This model emphasizes verification and validation, with development and testing occurring simultaneously. Each step of development is accompanied by corresponding testing phases, ensuring continuous improvement. However, it may struggle with accommodating changing requirements.

Prototype Model: Prototyping involves creating an initial version of the software for user feedback and iterative improvements. While it fosters better client-developer relations and reduces costs associated with changes, it may prolong the development process due to increased client involvement.

Spiral Model: This model involves iterative development in loops, with phases like planning, risk analysis, engineering, and evaluation. While it allows for risk analysis and gradual enhancements, it may lead to higher costs due to multiple iterations, making it suitable for larger projects.

Incremental Model: Software is divided into small chunks, with each iteration adding new functionalities. This approach enables early identification of risks and easier error resolution. However, clear initial requirements are crucial to avoid complications during later stages.

Given the nature of Investify's development requirements, we've chosen to adopt a methodology different from traditional SDLC models: Agile Methodology. This iterative and incremental approach involves continuous collaboration between developers and clients, ensuring adaptability to changing needs.

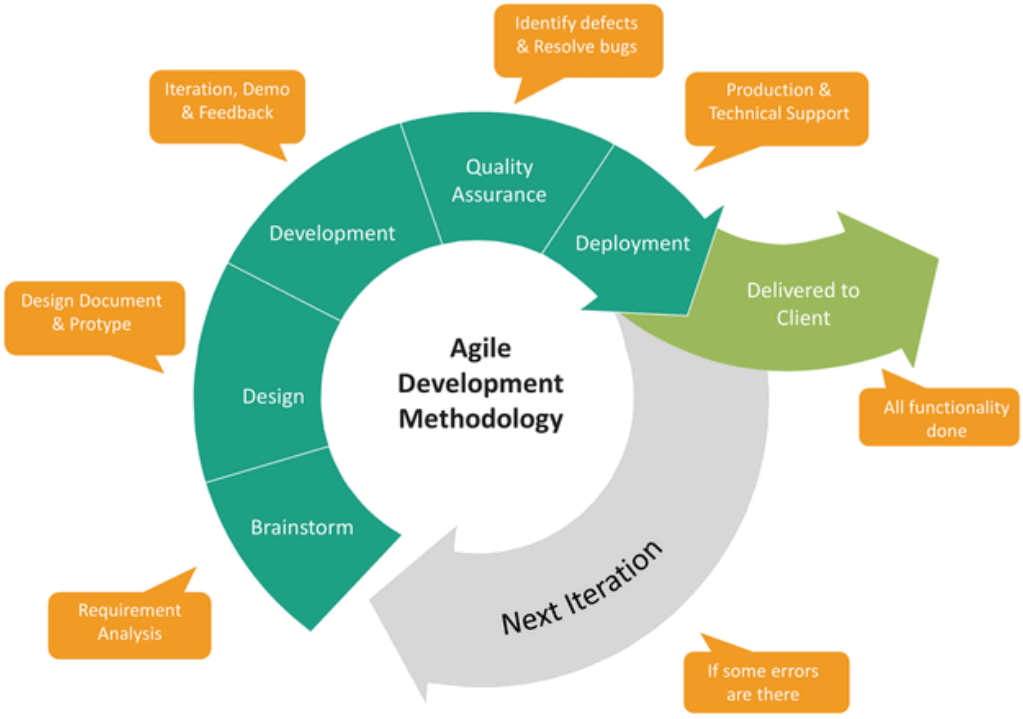


Figure 3.2 Agile Methodology

Agile methodology facilitates adaptive planning, timeboxing, and iterative development, allowing for continuous testing and client feedback throughout the development lifecycle. This aligns well with Investify's goal of delivering a customer-centric, flexible, and high-quality product within stipulated timelines.

Incorporating Agile methodology, particularly through the Scrum framework, enables efficient development within bounded timeframes called sprints. With roles like Product Owner, Scrum Master, and development team, along with artifacts such as Product Backlog and Sprint Backlog, and events like Sprint planning and daily scrum, Investify can ensure timely reviews, client feedback, and quality enhancements throughout the development process. This iterative approach will lead to the delivery of a robust and customer-satisfactory product, fulfilling Investify's vision.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 UML Diagrams

Once the necessary analysis is complete, understanding the flow of the required software becomes crucial to providing the expected solution to clients. This entails a clear grasp of the problem statement and the proposed solution. A rough sketch is then created to draft a roadmap towards achieving the target, allowing efforts to be directed accordingly. While various conventions exist for designing workflow, adhering to quality standards and accepted software development processes necessitates a standard solution to represent the workflow effectively. This standard solution is known as an activity diagram.

The activity diagram serves as a solution for depicting the behavioral flow of the system, illustrating how the solution will be executed step-by-step in real life, rather than focusing on the implementation phase. As a UML diagram, the activity diagram primarily emphasizes the actions taken at different work steps.

Utilized to model the activities of the software and its flow, activity diagrams provide a clear understanding of essential information crucial for the later development phases of the software. Similar to a flowchart, activity diagrams exclusively include activities and processes, enabling the modeling of use cases, interfaces, components, classes, and collaborations within a single diagram.

Several symbolic conventions are employed in designing activity diagrams, including:

Initial State: Used to initialize the workflow, represented by a filled circle.

Activity: Represents a set of actions, depicted by a rectangular box.

Flow: Denotes the sequence of execution, illustrated by an arrow.

Decision Node: Facilitates decision-making and path selection, depicted by a diamond-shaped box with output arrows on either side.

Fork Node: Splits into concurrent activities, shown by a rectangle with multiple arrows branching out.

Join Node: Combines concurrent activities into one, portrayed by a rectangle with multiple arrows converging.

Swimlanes: Provides a high-level grouping of a set of activities, represented by a rectangular cover enclosing a set of activities.

Final State: Indicates the termination of the workflow, depicted by concentric circles with a filled inner circle.

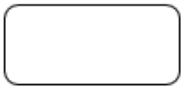
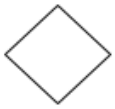
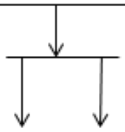
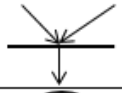
Sr. No	Name	Symbol
1.	Start Node	
2.	Action State	
3.	Control Flow	
4.	Decision Node	
5.	Fork	
6.	Join	
7.	End State	

Figure 4.1 UML Diagram: Symbols and Component

Using the above notations, the activity diagram for the Investify software is designed as follows:

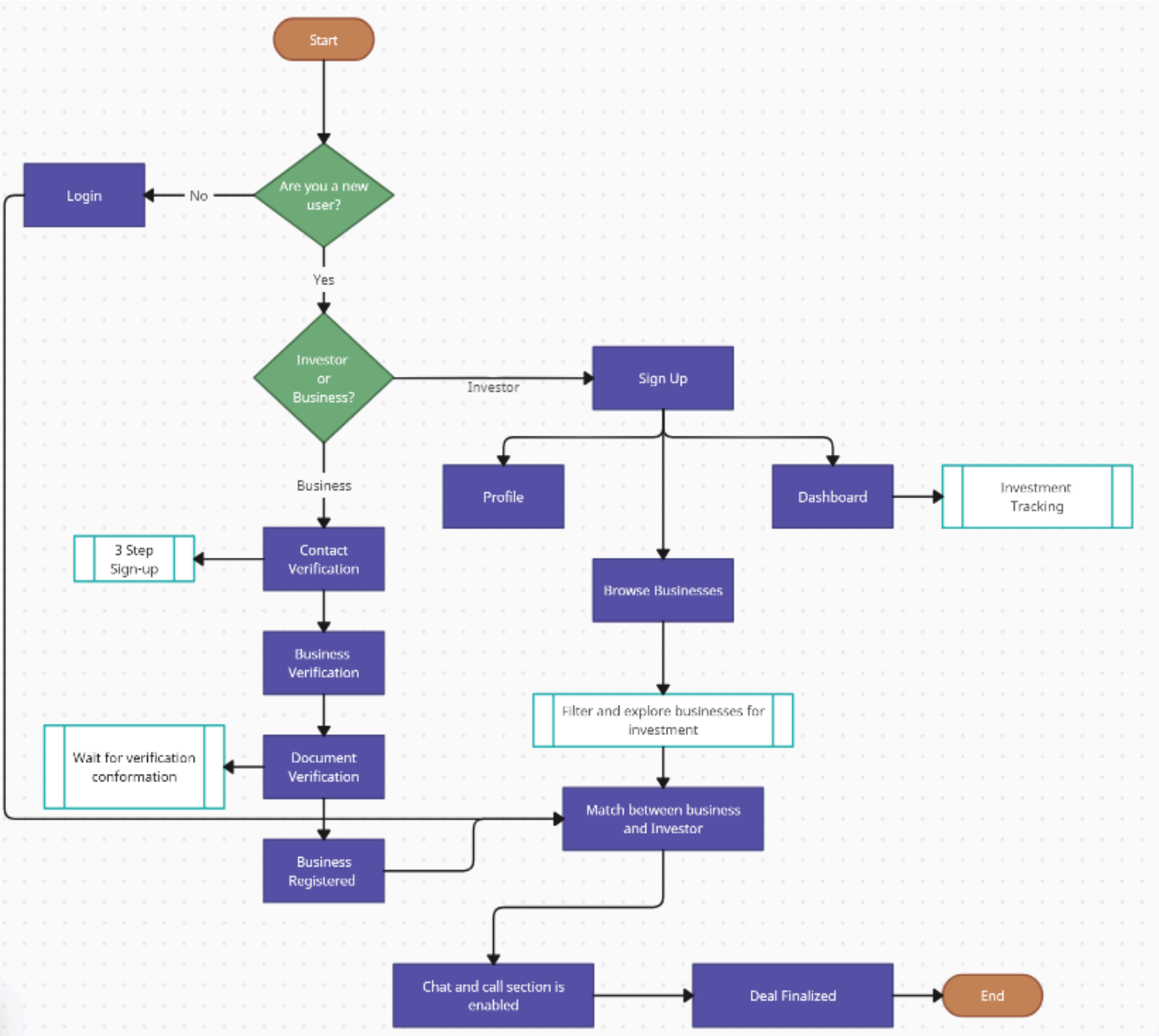


Figure 4.2 Activity Diagram for Investify

4.2 PROJECT FLOW

The development process keeps on simplifying with each activity covered in the software development lifecycle. Based on the above findings of the requirements and an overview of our workflow, let's understand the proposed solution of Shopkart in detail.

- Investify will be a user-friendly mobile application aimed at revolutionizing the investment experience, empowering users to make informed decisions and optimize their financial portfolios.
- Our primary objective with Investify is to simplify the investment journey for users and making business connect with investors, eliminating the need for complex calculations and budget management. Instead of worrying about intricate financial details, users can rely on Investify to access the best investment opportunities and stay updated on the latest market trends.
- To ensure security blockchain is integrated to store files and customer data. It provides tamper-proof storage of data.
- In the present scenario, we have a long list of businesses which require investment and a long list of investors looking for opportunities. Investify provides a platform for them to connect.
- With Investify , the investors get a chance to brows the business which are registered within the app. They can also use different filters to see only their preference.
- Investify allows user to select their business by swiping right on them and if they don't they can swipe left on them. After swiping right this enable a chat with the business and also send them a message that the investor is interested in them.
- After chat is enabled, It provides three options a chat , audio call and a video call to connect. They can talk out their requirements and finalize the deal.
- The app will also verify every business and their documents and will only put them on the app after verification. This will be done by verifying their GSTin number and previous finances and any equity structure.
- After a deal is finalized, The investor can put it on their profile to keep a track of their investments.

4.3 MODULES

Modularization, the process of breaking software into independent modules for separate development, is a widely favored approach in software implementation. This method involves dividing the software into

smaller fragments, which are then integrated to enhance flexibility and streamline the development process. By modularizing the system, components can be reused, simplifying both design and development and reducing time requirements.

This modular approach is particularly advantageous for complex and large projects where managing all components simultaneously can be challenging. Each module is equipped with interfaces to facilitate connections between different modules. Various factors, such as functionality, usage, rights, and outcomes, may influence how software modules are distributed. The distribution of modules is guided by principles of cohesion and coupling, with high cohesion and low coupling being key characteristics of well-designed software.

In Investify, a modular approach has been adopted to facilitate a clear understanding of the system, expedite the development process, and simplify code debugging. Each module serves a distinct objective and may be further subdivided into additional modules as needed. The primary classification of views in Investify includes the User Dashboard and the Admin Panel.

The Investor Dashboard is designed to fufil needs of users like browsing businesses , filters for preferences , investments tracking , a chat section and profile. With the objectives of Investor Dashboard in focus, the following modules are to be developed:

- Login/Sign up
- Browsing Businesses
- Filters
- Chat Section
- Investment tracker
- Profile

With the objectives of Buisness Dashboard in focus, the following modules are to be developed:

- Login

- 3 Step Sign-up
- Document Verification
- IPFS Storage
- Chat Section
- Profile

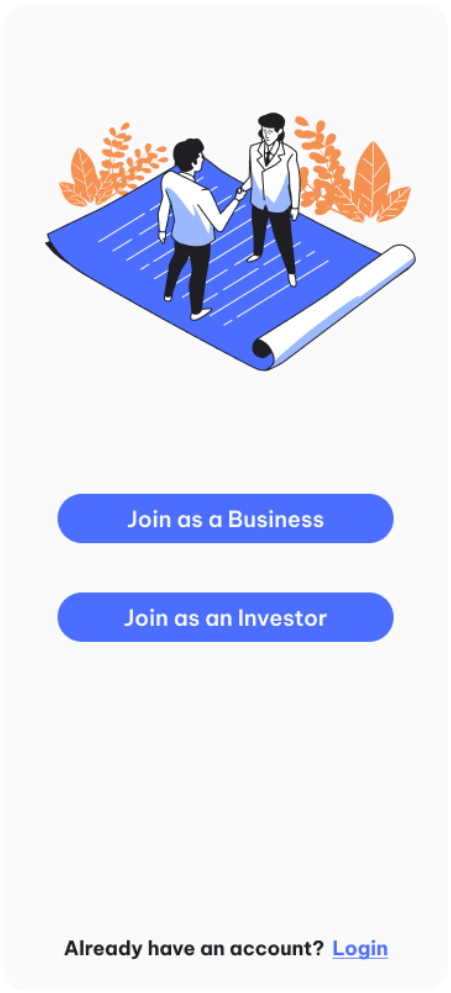
Breaking the solution into small, manageable chunks via these modules simplifies problem-solving. The software's quality hinges on how effectively these modules are integrated into a cohesive system. While modules facilitate easy development of solutions, their suitability for our project depends on whether various functionalities can be effectively distributed across them. Attempting to apply this concept in cases where functionalities are tightly interconnected could lead to compromises in cost or quality.

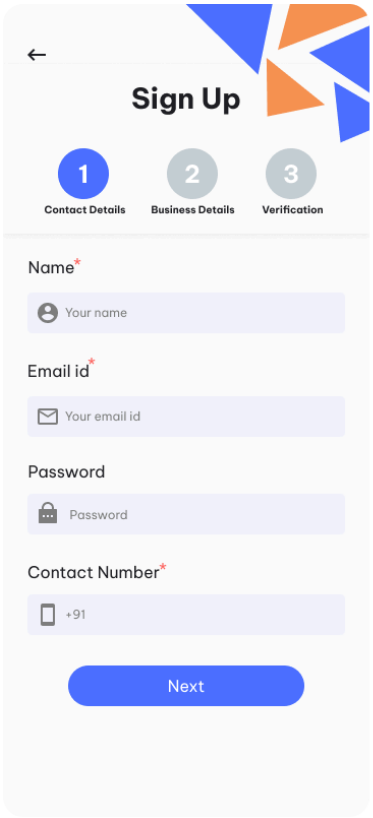
4.4 UI DESIGNING

Interface design is a critical aspect of software implementation, as it directly impacts user satisfaction. The primary goal of quality software development is to ensure user-friendly operation. A simple and convenient interface enhances user comfort and reflects the value of the software. While backend solutions may solve the problem, user involvement is often influenced by the quality of the user interface. UX and UI designers collaborate to create interfaces that enhance user experience by presenting solutions in a minimalistic and understandable manner. UI design focuses on user manipulation and is guided by factors that improve user interface, ensuring user support and engagement. The following steps can improve UI Design:

- The design should be simple and only the elements that are necessary should be used.
- The design must be uniform throughout the solution, that is, fonts, themes should be the same.

- The interface should not hinder in getting required information from it that is readability should be maintained.It should avoid the use of dynamic effects.




Sign Up
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Business Details
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Your name
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Password
Password
Contact Number*
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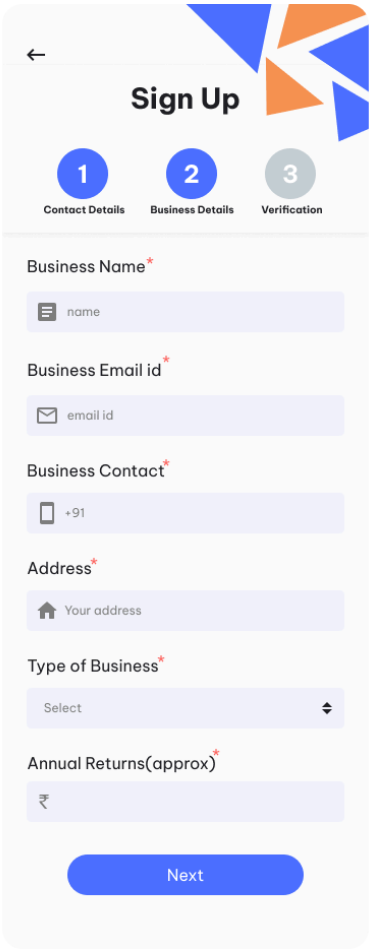
Sign Up
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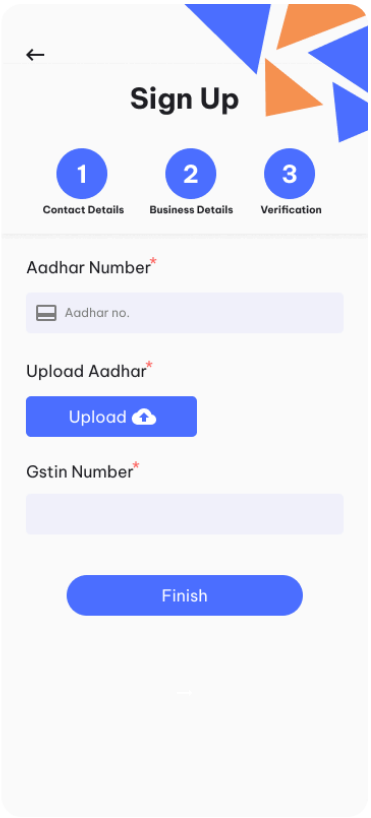
Sign Up
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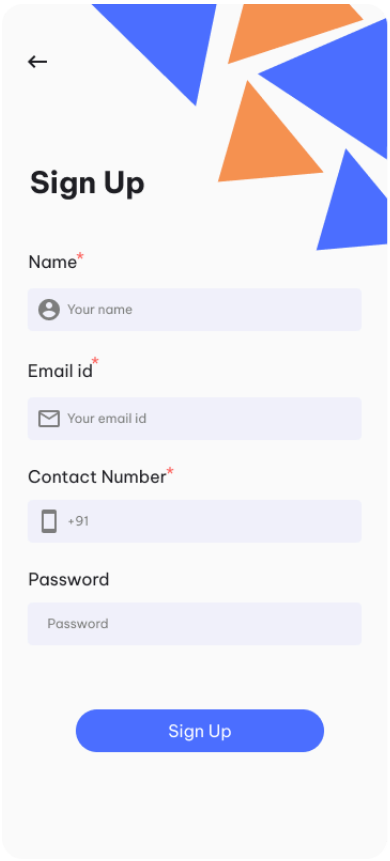
Sign Up
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Your email id
Contact Number*
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Password
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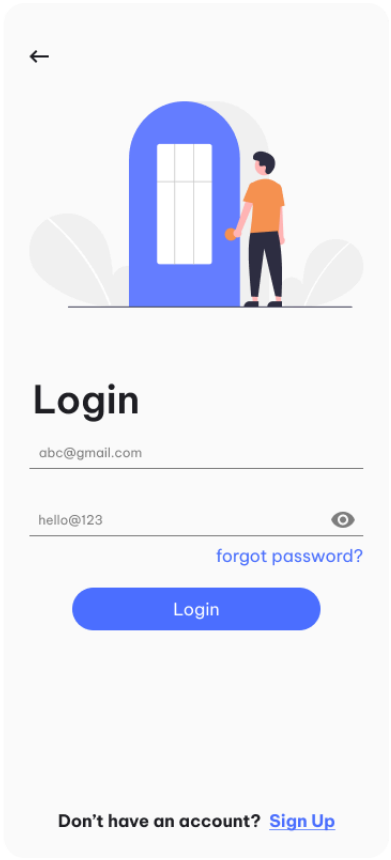

Login
abc@gmail.com
hello@123
forgot password?
Login
Don't have an account? Sign Up

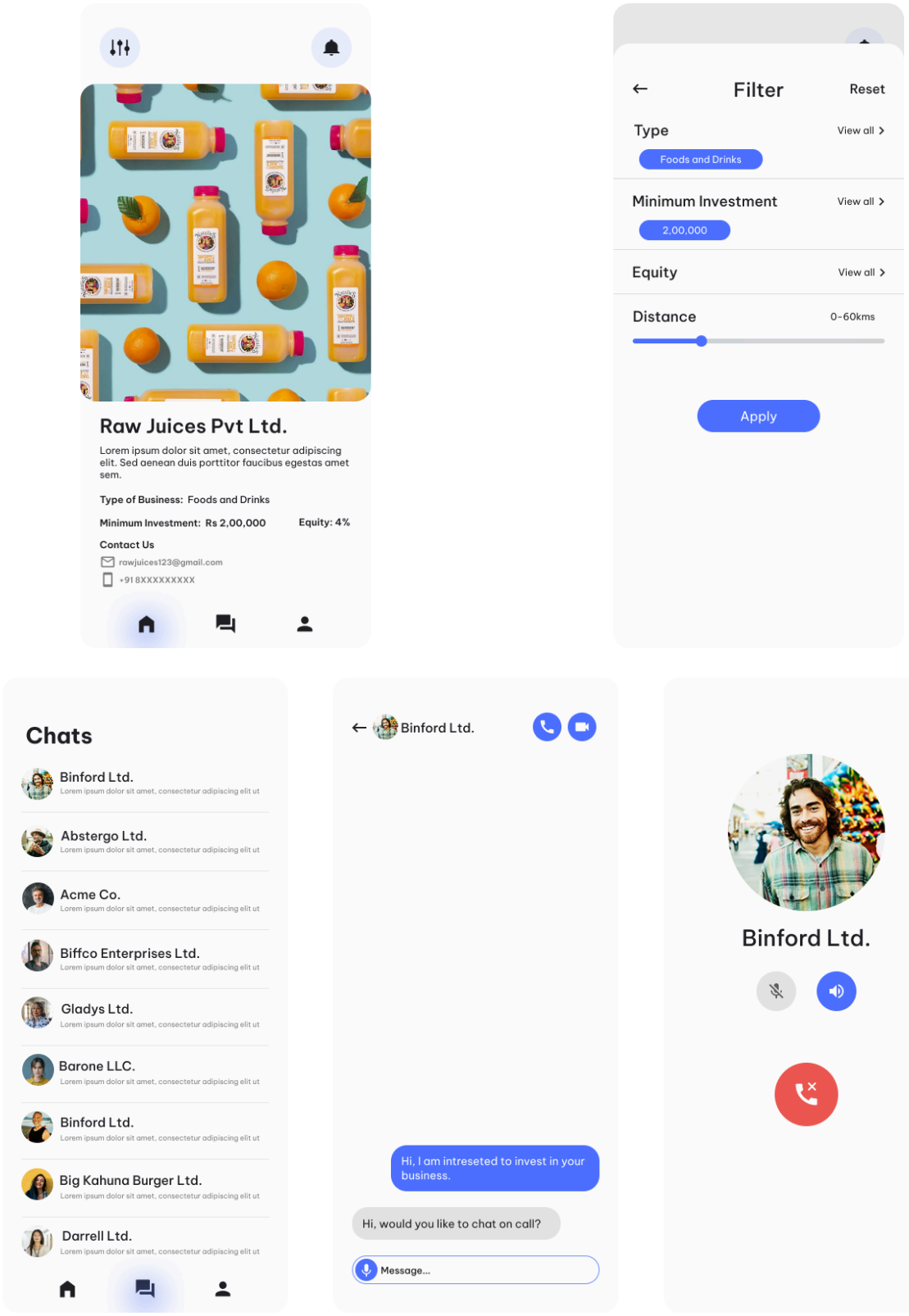


Figure 4.3 Snapshots of Investify app

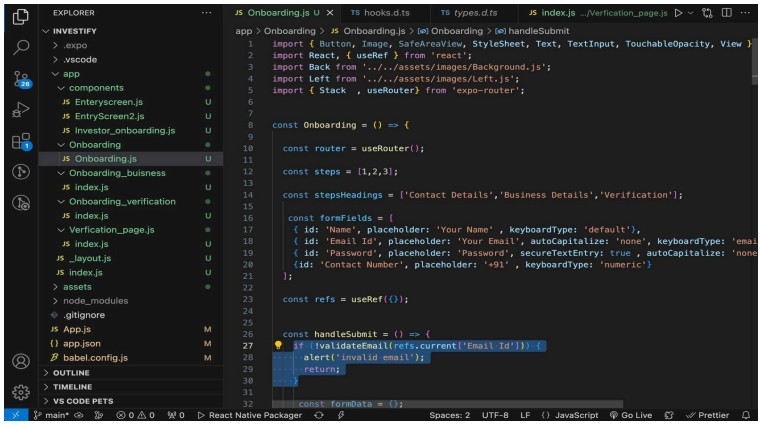
The UI design of Investify is pretty simple and minimal. All the guidelines have been strictly followed and the above are the screenshots of the Investify application available for the users.

4.5 Coding

After completing the design and analysis phases, the coding phase begins, where the designed models are translated into functional code. This phase involves integrating interfaces with the designed models to achieve the desired results. Coding is the process of transforming designs and documents into executable programs. It's during this phase that most bugs and errors are introduced, which will later be addressed during testing.

Developers need to refer to the documents, designs, and guidelines from earlier phases during coding. They perform unit testing during coding, which is both cost-efficient and time-saving. The code written in this phase should adhere to certain standards, including being well-structured, easy to understand, and properly documented with comments. Developers should also use version control applications and choose the necessary tools for coding and debugging.

Code inspection is a critical part of the coding phase, involving the review of code to identify and address issues early on. Common errors detected during code inspection include uninitialized variables, unexpected loops, non-terminating loops, incompatible assignments, improper allocation, inappropriate comparisons, and array index out-of-bounds errors. Conducting timely code reviews and inspections helps ensure code quality and reduces the likelihood of errors in the final product.



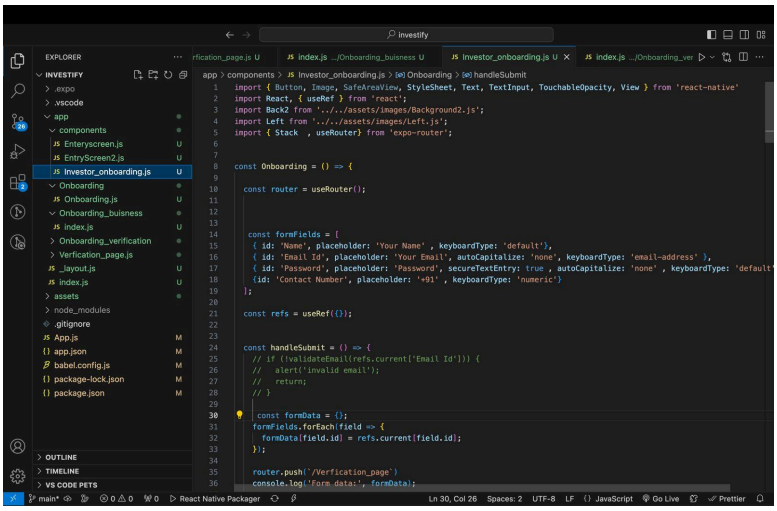


Figure 4.4 Snapshots of the code of Investify

4.6 Testing

The software development process involves various phases, including design, coding, and testing, to ensure the quality and functionality of the final product. Once the design and analysis are completed, the coding phase begins, where developers translate the designs into executable code. During this phase, unit testing is performed to identify and address bugs. The code should adhere to certain standards, such as being well-structured and documented.

After coding, the software undergoes testing, which is a crucial phase in the development process. Testing ensures that the software meets the specified requirements and is free of defects. Testing can be manual or automated, with each approach having its advantages and limitations. Manual testing involves testers manually executing test cases, while automated testing involves using testing software to automate the testing process.

Software testing follows certain principles, including proper planning, adherence to user requirements, and the identification of errors. Testing approaches can be categorized into black box testing, which focuses on the software's functionality, and white box testing, which examines the internal structure of the code. Testing is conducted at different levels, including unit testing, integration testing, system testing, and

acceptance testing. Each level of testing serves a specific purpose, such as testing individual modules or ensuring the software functions as a whole. Various testing methodologies, such as recovery testing, security testing, and performance testing, help assess different aspects of the software's quality and functionality.

Ultimately, thorough testing helps ensure the delivery of a high-quality software product to clients and minimizes the need for costly bug fixes after deployment.

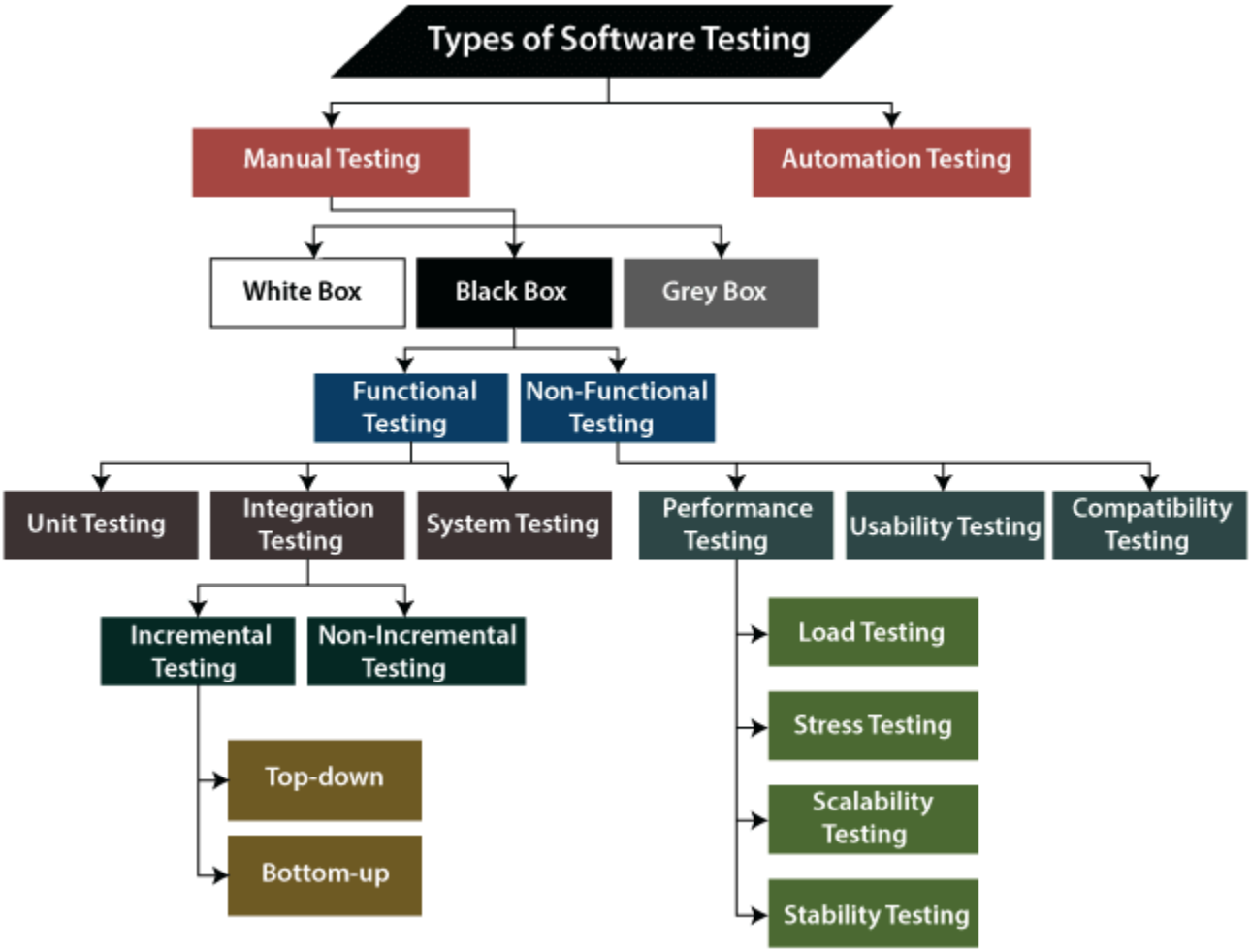


Figure 4.5 Software Testing Types

Investify's app has undergone all testing methods. Its app is also tested on various devices differing according to the configurations and is working fine.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 CONCLUSION

In evaluating the findings of this study, it is evident that Investify offers a more convenient and efficient alternative to traditional investment methods. The platform provides real-time data and analytics on investment opportunities, allowing users to track their investments and make informed decisions. With Investify, users can gain insights into market trends, portfolio performance, and investor preferences, empowering them to optimize their investment strategies.

Technological advancements have significantly enhanced the online investment experience, and Investify continues to leverage these innovations to provide users with a seamless and intuitive platform. As the investment landscape evolves, online platforms like Investify are poised to become increasingly popular, offering investors greater accessibility and flexibility.

With a growing number of investors turning to online platforms, the future of investment is expected to be dominated by digital solutions. While price competitiveness remains a key motivator for investors, Investify also prioritizes user experience and satisfaction, offering features like easy payment methods and quality customer service.

Investors' decision-making processes are influenced by various factors, including market prices, advertising, product quality, and brand reputation. Investify recognizes the importance of these influences and strives to provide a comprehensive investment platform that meets users' needs and preferences.

Overall, Investify aims to provide a satisfying and rewarding investment experience for its users, focusing on key aspects such as transparency, reliability, and customer service. By addressing these important considerations, Investify aims to attract more investors to the online investment space and contribute to the growth of digital investing

5.2 FUTURE SCOPE

The future scope of Investify holds immense potential for further growth and innovation in the realm of digital investing. Here are some key areas of opportunity:

1. **Enhanced Personalization:** Investify can leverage artificial intelligence and machine learning algorithms to provide personalized investment recommendations tailored to each user's financial goals, risk tolerance, and investment preferences. By analyzing user data and behavior patterns, Investify can offer more targeted investment strategies and insights.

2. **Expansion of Investment Offerings**: Investify can explore opportunities to expand its range of investment offerings, including alternative investments such as cryptocurrencies, real estate investment trusts (REITs), and socially responsible investing (SRI) options. Diversifying investment options can attract a broader range of investors and cater to evolving market trends.

3. **Robo-Advisor Integration:** Integrating robo-advisor capabilities into the Investify platform can automate portfolio management and rebalancing processes, providing users with a hands-off approach to investing. Robo-advisors can offer algorithm-based investment recommendations and optimize portfolio performance based on market conditions and user preferences.

4. **Education and Insights**: Investify can enhance its educational resources and market insights to empower users with the knowledge and information needed to make informed investment decisions. Providing educational content on investment fundamentals, market trends, and financial literacy can help users navigate the complexities of investing and build confidence in their investment strategies.

5**. Social Trading Features**: Introducing social trading features to the Investify platform can enable users to interact with and learn from other investors, share investment ideas, and collaborate on investment strategies. Social trading can foster a sense of community among users and provide valuable networking opportunities for investors of all experience levels.

6. **Integration with Financial Institutions**: Collaborating with financial institutions and brokerage firms can enable Investify to offer seamless integration with existing bank accounts, investment accounts, and retirement savings accounts. By streamlining the investment process and facilitating account aggregation,

Investify can provide users with a comprehensive view of their financial assets and simplify portfolio management.

Overall, the future of Investify lies in its ability to innovate and adapt to the evolving needs of investors in an increasingly digital and interconnected world. By embracing emerging technologies, expanding investment offerings, and prioritizing user experience, Investify can continue to drive growth and democratize access to investment opportunities for individuals worldwide.

REFERENCES

1. Sumit Mishra, “Start-Up in India : Opportunity and Challenges”, NATIONAL SEMINAR ON MULTIDISCIPLINARY RESEARCH AND PRACTICE (WORLD RECORD AIMING ANTHOLOGY),Jan. 2017
2. N.Ahmad , Anjani k Singh, “ Funding Trends for Startups in India”, JETIR June 2019, Volume 6, Issue 6,Jun. 2019
3. Meghasham Chaudhari, “Indian Startups - Challenges and Opportunities”, Nov. 2021
4. Mallikarjun M. Maradi, “Growth of Indian start-up: A critical Analysis”,JOURNAL OF MANAGEMENT AND ENTREPRENEURSHIP , Mar. 2023
5. Vidisha Sharma , S. Vijayakumar Bharathi, “Social Media for Start-Ups - An Effective Marketing Tool”,SSRN Electronic Journal, Jan. 2013
6. Dharish David, Sasidaran Gopalan, and Suma Ramachandran “The Startup Environment and Funding Activity in India”,Investment in Startups and Small
7. Business Financing (pp.193-232) Publisher: World Scientific Series in Finance: Vol. 17, Aug. 2021
8. Aleksandr Sobolev “Start-Ups Evaluation With The Help Of Web-Based Platforms”, Trends and Innovations in Economic Studies, Science on Baikal Session,Dec. 2020
9. Crunchbase https://www.crunchbase.com/
10. Pitchbook https://pitchbook.com/
11. M. Singh, N. Sukhija, A. Sharma, M. Gupta, P. K. Aggarwal, "Security and Privacy Requirements for IoMT-Based Smart Healthcare System". Big Data Analysis for Green Computing, 17–37, Taylor & Francis, 2021.
12. V. K. Reshma, Ihtiram Raza Khan, M. Niranjanamurthy, Puneet Kumar Aggarwal, S. Hemalatha, Khalid K. Almuzaini, and Enoch Tetteh Amoatey, “Hybrid Block-Based Lightweight Machine Learning-Based Predictive Models for Quality Preserving in the Internet of Things- (IoT-) Based Medical Images with Diagnostic Applications”, Computational Intelligence and Neuroscience, Vol. 2022, pp. 1-14, 2022.

13. Parita Jain, Puneet Kumar Aggarwal, Kshirja Makar, Riya Garg, Jaya Mehta, Poorvi Chaudhary, “Machine Learning in Risk Analysis” Applications of Computational Science in Artificial Intelligence to be published by IGI Global, pp. 190-213, 2022 ISBN: 978-1-7998-9012-6

APPENDIX 1

Analyzing Start-up Potential via Web-based Platforms: A Comprehensive Overview

Ananya Sharma and Anjuman Hasan and Dr. Parita Jain

Department of Computer Science and Engineering, KIET Group of Institutions, Ghaziabad, Uttar Pradesh, India
ananya23102001@gmail.com

Department of Computer Science and Engineering KIET Group of Institutions, Ghaziabad, Uttar Pradesh, India
anjuman.2024cse1157@kiet.edu

Department of Computer Science and Engineering, KIET Group of Institutions, Ghaziabad, Uttar Pradesh, India
parita.jain@kiet.edu

Abstract. Start-up investing is evolving, making it increasingly difficult for investors to identify the best new businesses to engage in. To assist with this, there are websites that connect people with new company ideas, investors looking to invest in them, and experts who can provide guidance. These websites make it easy to determine whether a business idea is viable and to minimize the risks associated. They even make money doing this! However, these platforms have significant drawbacks, such as being biased and requiring more than simply data to make decisions. Making these websites better is critical so that they can be more accurate and equitable. This study examines how these websites assist in selecting start-ups and how they can be improved.

Keywords: Web-based evaluation platforms, Start-up assessment, Data-driven decision-making, Holistic evaluation frameworks, Qualitative and quantitative metrics, Investment decision-making, Advanced evaluation methodologies.

1 INTRODUCTION

Start-ups are like the heartbeats of economies because they bring in new ideas and create a large number of jobs. However, predicting which start-ups will succeed is extremely difficult. People used to make decisions based on company plans and presentations, but these methods do not always tell the complete story. Nowadays, there are useful websites that can aid with this. They collect a variety of information on

a start-up, such as how much money they make and what others are saying about them on social media. Then they employ smart computer programmes to determine whether the start-up has a good probability of success. In today's environment, start-ups do things differently. They're experimenting with new concepts and discovering new methods to expand without needing a large sum of money up front. Even with so many start-ups popping up all over the place, it's difficult to predict which ones will succeed.

Because so many start-up enterprises fail, it's critical to have effective strategies to screen them out. This article discusses why it is important to examine start-ups and how websites are changing the game. It examines how these websites work, what they do to help users pick where to put their money, and analyzes several of them to determine which are the best.

2 RELATED WORK

In this part, we outline the various challenges and opportunities we discovered after analyzing various research papers on startups and funding them using different platforms.

There has been a rise in startup activity, drawing both male and female entrepreneurs to new businesses, according to Sumit Mishra's [1] research. A growing number of women are starting their own businesses and demonstrating a willingness to take calculated risks while upholding integrity. A different number of elements like education , talent , creativity and help from organizations like funding agencies , incubators have also helped in the growth of India's startup culture. Government efforts have also helped make this ecosystem better and put India to the third position globally, with over 65% growth in 2015. Entrepreneurs overcome obstacles to make critical decisions that advance the economy. Initiatives aim to generate jobs during a downturn in the industrial sector by offering quicker patent registration, easier exits, tax benefits, and approvals. The community, government, and stakeholders' assistance, collaboration, and mentorship are essential to success. Mishra indicates the importance of the role that startup plays in the growth of the economy and promoting innovation in the country. She also says to provide support to keep this going.

Anjani K. Singh and Nasimuddin Ahmad's [2] research indicates that India is rapidly developing a thriving startup environment, driven by a youthful, educated labor population that appreciates creative ideas. Although the bulk of startups are situated in major cities, there is a growing desire for them to expand nationwide. Support for promising ideas with economic potential is increasing, particularly through channels such as seed finance and private equity. SEBI's recognition of crowdfunding as an alternate funding option for early-stage entrepreneurs is a great step, but policies must be reviewed to further improve crowdfunding and loan financing in India. Furthermore, reevaluating restrictions for launching new enterprises, banking interest rates, and increasing investments in R&D are critical. Comparing global standards is necessary to create a more favorable environment for startups in India.

Startups are becoming increasingly significant in quickly tackling large challenges through the generation of new ideas. More and more young people want to establish their own enterprises, and locations like India have plenty of resources to help them get started. Some people believe that startups may change the world , which may be overly optimistic, but those that thrive can make a significant influence. Even in the

event that a startup fails, the participants get important experience. Finding a job via working with startups is becoming more and more common. The nature of labor has changed over time, with many individuals now working as freelancers or temporary workers for startups.[3].

The Indian government is promoting industrial growth through many initiatives, including 'Make in India,' 'Startup India,' MUDRA, and 'Vocal for Local'. The 'Make in India' campaign encourages enterprises to manufacture goods domestically, which boosts investment in regional manufacturing and the number of new ventures established in the nation. Some Indian states have implemented their own policies to encourage investment in start-up businesses. 'Startup India' aims to create a solid support system for startups, hence stimulating economic growth and job creation. Successful entrepreneurs who invest in startups contribute significantly to the economy by creating new job opportunities. However, entrepreneurs have a variety of challenges, including gaining resources and ensuring long-term profitability. India's massive population gives various market opportunities for entrepreneurs to satisfy a wide range of demands, from basic essentials to cutting-edge technology. Some of these startups could become really big and known all around the world [4].

The research paper brings out the importance of businesses understanding the social media's hand for their success. Companies use social media to show their services and learn about their customers' needs. Companies must find the best ways to use social media, use different content for better engagement, and strengthen their customer relationships . According to statistics, Facebook is the most effective social networking tool for businesses. It enables them to broaden their reach, increase visibility, and strengthen partnerships. Facebook users are more likely to share content, interact with the company posts, leave comments which promotes word-of-mouth marketing and direct customer relations. Facebook can help startups' to attract and keep new clients[5].

Third-placed India has a thriving startup culture with over 26,000 companies, 26 of which are "unicorns" with a total valuation of over $1 billion. The primary forces behind this growth are government programmes like Startup India and private investments, which helps in India to shift to a digital economy. But, there are still problems, like broken markets, unclear laws, poor infrastructure, and complex processes. To take full advantage of this , it is important to increase public knowledge of government initiatives , improve credit, increase networks to smaller areas, and simplify tax and investment rules. [6]

Table 1. Summary of literature review.

Reference Number	Summary
1	The study by Sumit Mishra highlights the rising tide of startups in India, driven by an increase in the number of male and female entrepreneurs, government initiatives, and essential ecosystem components. The success of ventures depends on the cooperation and essential support of stakeholders.

2	The essay by Anjani K. Singh and Nasimuddin Ahmad discusses how the startup scene in India is expanding and how to improve it for business owners. They argue that it's critical to increase businesses beyond urban areas, increase crowdfunding, and make rules which align with the international markets.
3	Startups are increasingly viewed as catalysts for innovation and problem-solving, particularly among young entrepreneurs, with India emerging as a hub for startup support and employment opportunities, offering valuable lessons even in failure.
4	The Indian government's initiatives like 'Make in India', 'Startup India', MUDRA, and 'Vocal for Local' aim to create a favorable environment for industries and startups, fostering economic growth and job creation through investment, support, and innovation.
5	The study highlights the crucial role of social media in startup growth, particularly emphasizing Facebook's effectiveness in reaching and engaging customers, thereby underscoring its significance as a valuable advertising platform for startups.
6	India's thriving startup ecosystem, ranked third globally with numerous unicorns, is propelled by private investments and government initiatives like Startup India, yet faces challenges such as fragmented markets and unclear policies, necessitating improved awareness and infrastructure to foster growth.

3 EXPERIMENTAL/COMPUTATIONAL METHODOLOGY

This approach makes use of computer programmes that use internet data to make predictions about the future.They employ various predictive models utilizing machine learning algorithms and in order to estimate a startup's potential success, risk, and market size, these programmes analyze a large amount of data from past years on startups obtained from web-based platforms. Moreover, these programmes test various scenarios to analyze the behavior of different companies in real time and future. These new perspectives on companies, enabled by more powerful computers, provide additional insights beyond simple factual analysis when determining their likelihood of success.

3.1. Data Aggregation and Processing

Web-based platforms use complex algorithms to analyze and combine large and varied datasets. They include processes like financial statistics , trends , competition and an overview on user behavior and social media engagement indicators. After processing and structuring, this data provides valuable insights and a thorough picture of a start-up's performance and its position in the market.

3.2. Predictive Analytics and Machine Learning

Predictive analytics and machine learning algorithms are the foundation of assessment approaches, which makes use of past data and patterns. By assessing patterns , correlations and anomalies of the given data, these algorithms make it possible to create prediction models. Stakeholders receive important and crucial insights from these models by detecting risk factors , forecasting possible developments and anticipating market trends.

3.3. Sentiment Analysis and User Feedback Processing

Understanding customer mood and feedback is essential for evaluating startups.Web-based systems employe sentiment analysis algorithms to interpret and analyse user reviews, social media sentiments and customer feedback. Through the conversion of qualitative data into quantitative measures, a start-up's product or service's public views and user satisfaction levels are measured.

3.4. Market Fit and Competitive Analysis

These platforms use methods to evaluate a start-up's competitiveness and market fit. They assess a start-up's market demand , uniqueness in market , competitive advantages and unique selling point(USP) through in-depth market study and competitive landscape mapping. This evaluation facilitates comprehension of the start-up's place in the market and its potential for growth.

3.5. Integration of Key Performance Indicators (KPIs)

Key performance indicators, such as customer acquisition cost, customer lifetime value, burn rate, and revenue growth, are integrated into evaluation methodologies. These KPIs serve as benchmarks for measuring a start-up’s financial health, scalability, and operational efficiency, offering quantitative metrics for assessing performance.

Financial Health

Revenue Metrics: Revenue-related KPIs, such as total revenue, monthly recurring revenue (MRR), or annual recurring revenue (ARR), show a start-up's capacity to earn income over time. Monitoring revenue growth rates can provide excellent insights into the sales success and market momentum of a start-up.

Profitability Metrics: The profitability and financial sustainability of a start-up are exhibited by Key Performance Indicators (KPIs) such as net profit margin, gross profit margin, and EBITDA (earnings before interest, taxes, depreciation).These helps the stakeholders to invest by judging these parameters.

Cash Flow Indicators: Cash flow-related KPIs like cash burn rate , operating cash flow and cash conversion cycle provide an insight on how well a start-up can handle its cash inflow and outflow. Cash flow KPI monitoring is essential to maintain the operations and control liquidity.

Scalability

Customer Acquisition Cost (CAC) and Lifetime Value (LTV): A startup's scalability and the possibility of expanding it are determined by a lower CAC in relation to LTV. These KPIs help in determining the start-up's scalability by comparing the effectiveness of bringing on new clients with long term value such clients provide.

Churn Rates: The KPIs that track attrition or customer churn rates provide insight into a start-up's capacity to hold onto clients. Low churn rates indicate happy customers and a scalable company plan that can sustain enduring connections with customers.

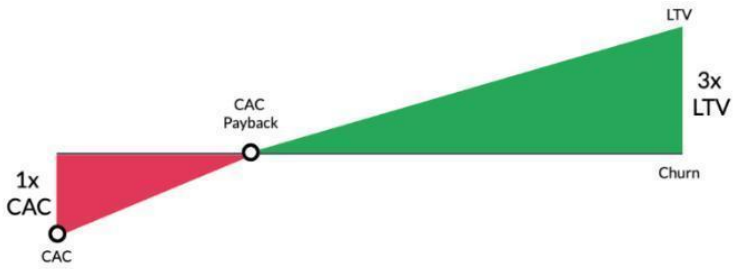


Fig. 1. CAC Payback Model

Figure 1 shows the Early phase of the acquisition Process(highlighted in red) where the company spends time and money Ideal CAC to LTV ratio is 1:3. This Graph shows the ideal ratio CAC to LTD ratio .The green highlighted area shows the profit that is generated from the customer.

Operational Efficiency

Efficiency Ratios: KPIs like inventory turnover ratio, asset turnover ratio, and accounts receivable turnover indicates how well a start-up utilizes its assets or manages its resources. A higher ratio signifies a more effective operation.

Productivity Metrics: The Key Performance Indicators(KPIs) that indicate productivity and operational efficiency of a start-up includes information like sales per day.

Operational Costs: Key Performance Indicators (KPIs) that measure operational costs, including cost per unit, cost of goods sold (COGS), or operating expenses as a proportion of sales, show how well a start-up manages costs while providing goods or services.

By measuring and analyzing these KPIs, startups may gain a quantitative understanding of their financial performance, growth potential, operational efficiency. Start-up founders, investors, and stakeholders can utilise these indicators as quantitative benchmarks to evaluate progress, identify areas for development, and make data-driven choices in order to enhance overall performance and achieve sustainable growth.

3.6. Real-time Monitoring and Dynamic Analysis

Web-based tools allow for the analysis of new trends and market developments by allowing real-time start-up monitoring. This feature allows stakeholders to respond quickly and make informed decisions to shifting market conditions by keeping the assessments up to date and flexible.

4 IMPACT ON INVESTMENT DECISION

4.1 Risk Mitigation and Decision Support

Investors may obtain an analysis of a start-up's financial stability, market potential, and competitive environment through web based platforms. By examining many data sources and running the data through various scenarios to learn about possible favourable outcomes and risks, they facilitate risk assessment and help investors make well-informed decisions by pointing out possible dangers related to a start-up. Investors may have a better understanding of risks factors involved such market volatility, technical dependencies, and difficulties in acquiring customers and can reduce or control the risks and spend resources wisely.

4.2 Enhanced Due Diligence

The integration of web-based evaluations into due diligence procedures enhances the breadth and profundity of evaluations. Investors learn about the past performance, growth patterns, client attitude, and market positioning of a start-up. This thorough evaluation of different factors helps to verify the claims made by a start-up, examine business plans, and determine whether the development is feasible, all of which lead to better investment choices.

4.3 Influence on Investment Strategies

Not only does web-based evaluations influence the portfolio of an investor by providing support to the diversification of their investments, they also help find anomalies and outlier startups that are aligned with their investment strategy. Evaluating how well a startup will scale along with the rising costs and demand can also be estimated along with the sustainability index of the startup. Even the risk assessment process can help decide the investment. This information can then be used to inform investment allocation and portfolio diversification strategies.

4.4 Validation of Market Potential

To evaluate a start-up's potential investors need information and data. Web-based platforms provide them with this data using which the market fit as well as the traction a startup has in the market is measured. Things like scope of growth and how well it can meet the demands and requirements of the customer can be evaluated using such data. Investors majorly want to predict two things, Market share and rate of disruption. To predict these elements, understanding of startup-up's positioning is needed.

4.5 Long-term Viability Considerations

One of the most significant concerns an investor has is the viability of the start up in the long run. To judge this the key parameter is Key Performance Indicators or KPIs and the best source of KPIs in the increasingly digital world are web based portals. Now only can these portals provide data on traditional KPIs but also provide quantitative data on things like conversion rate and click rate. Thus Sustainability, which is another major pillar for startup evaluation can be measured due to web based platforms.

4.6 Alignment with Investment Objectives

The synergy between the objectives of investors and the startups they invest in is crucial for overall satisfaction for both parties. To take data-driven decisions that promote this harmony web based portals provide significant advantages and help build strategic focus. Therefore an investor looking to support environmental safety and sustainability along with gender equality can identify suitable startups accordingly. This helps bring the necessary balance as well as direction to the portfolio of an investor.

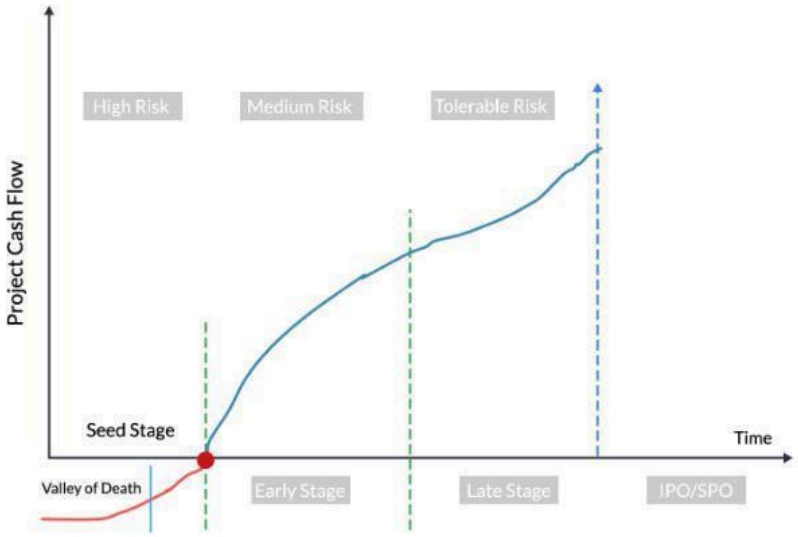


Fig. 2. The structure and volume of investment depend on the stage of the start-up's life cycle as well as on the sources of funding [7]

5 COMPARATIVE ANALYSIS OF WEB BASED EVALUATION PLATFORM

A comparative analysis of the various web based evaluation platforms acts as a guide to traverse the intricate environment of information heavy tools. To facilitate the decision making various technology platforms like Crunchbase and PitchBook have come on top as hubs that offer data and insights into various startup ecosystems. This study neatly defines where each platform shines with respect to its strengths and where there is scope of improvement. This can help stakeholders like investors and venture capitalists make informed decisions utilizing the different methodologies, and frameworks of these platforms according to their needs.

5.1 Crunchbase

Strengths

Large Database: Crunchbase[8] contains huge amounts of data from cash flow statements to data on investment rounds by various funds and investor reports along with financial records of funding rounds. All of these help provide the accurate image of the landscape the startup faces.

Effective UI/UX : Intuitive interface that focuses on keeping itself friendly to non tech enthusiasts while providing options for tech savvy users to utilize the various options and dashboards.

Global Coverage: With increase in globalization and impact of international relations on business and trade in every country the necessity of having a global outlook has increased. Crunchbase covers startups and industries across the borders something other platforms lack.

Limitations

Limited Financial Details: While extensive data can be found related to finances of a startup it fails to provide the required depth some investors might want, this limits the utility it provides as compared to platforms like PitchBook which are entirely financial focused.

User-Generated Data: Data integrity and consistency is paramount in startup evaluation but crunchbase relies a lot on user contributions which might cause concerns to stakeholder and reduce trust and transparency.

Uniqueness

Only Focused on Start-up Ecosystem: Crunchbase focuses on the niche of startups and entrepreneurs and puts all its focus on these, therefore the fastest updates on new data and emerging companies can be found here.

5.2 **PitchBook**

Strengths

In-depth Financial Analysis: Unlike its competition PitchBook[9] goes in depth and provides extensive information on financial records of startups and various companies. It is a finance focused platform that provides cash flow statements along with their analysis upfront.

Private Market Focus: Pitchbook has carved out a niche for itself in the private market. Information as well as insights can be found on venture capitals as well as merger and acquisitions that contains as well as goes beyond the startup world.

Limitations

Complexity and Learning Curve: The information rich financial dashboard has the side effect of adding a layer of complexity while using this platform. Experienced investors can find their way around easily but PitchBook can be daunting for others.

Cost Barrier: The accessibility to PitchBook is reduced due to the premium it commands along with the long list of features it offers. Small firms or investors are not comfortable with such an arrangement.

Uniqueness

Focus on Private Market Data: PitchBook's focus on private market data sets it apart, providing extensive details on private companies, investors, and funding activities, enabling in-depth due diligence in the private investment landscape.

The comparison of these portals Crunchbase and PitchBook shows the intricacies of these web-based evaluators. Investors can now customize the use of such platforms according to their own needs and requirements. These platforms are essential tools that shape decisions of stakeholders according to their investment philosophy and objectives.

6 FUTURE DIRECTIONS AND IMPLICATIONS

6.1 Evolving Landscape of Start-up Evaluation

AI-Powered Evaluations: With Large Language models becoming ubiquitous the evaluation sector is also picking up. Technologies like Artificial Intelligence and machine learning are increasingly being integrated with web based portals for better analysis and intent generation. The increased speed and productivity these technologies provide help process significantly large amounts of data.

Real-time Performance Measurement: The requirement of quick decision making and swift actions is driving the development of real time monitoring tools that are gradually becoming the status quo. Constant and continuous evaluation of a startup's performance can help make decisions as soon as data shows any variations.

6.2 Integration of Advanced Technologies

Blockchain and decentralization for transparency : The incorporation of blockchain would entail increased accountability and thus foster more trust. The immutability and accuracy of data is a priority especially when financial statements and records are involved.

Big Data analytics and predictive analysis: By accommodating a much wider array of data sources predictive analysis and big data technology improves the confidence interval of predictions and forecasting of startup success. This paired with machine learning and AI provides further accuracy.

6.3 Challenges and Opportunities

Privacy and Security of data : The one dependency of data driven decision making through web portals is the data itself. To ensure the integrity and safety of data and compliance with regulatory bodies is critical and significant resources should be spent on this.

Slow Adoption: The two major stakeholders: investors and startups might be resistance to change or averse to the potency of web based portals. This might hamper the overall adoption of such methodologies and technologies within the startup ecosystem.

7 CONCLUSIONS

The research work undertaken highlights the role of web based evaluation and contribution of such frameworks and technologies in improving the evaluation of startups and aid in decision making. The comparative study dives deeper into the intricacies of various such platforms and underscores the diversity of choice and fundamental differences one should consider while choosing a platform.

The research showcases the benefits of web-based evaluation platforms over traditional evaluation methods. Their growing significance in the startup environment and their increasing relevance and necessity is further elaborated in the section on future scope. These frameworks promote sound and accurate data presentation that is crucial for investors decision making.

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REFERENCES

1 Sumit Mishra, “Start-Up in India : Opportunity and Challenges”, NATIONAL SEMINAR ON MULTIDISCIPLINARY RESEARCH AND PRACTICE (WORLD RECORD AIMING ANTHOLOGY),Jan. 2017

2 N.Ahmad , Anjani k Singh, “ Funding Trends for Startups in India”, JETIR June 2019, Volume 6, Issue 6,Jun. 2019

3 Meghasham Chaudhari, “Indian Startups - Challenges and Opportunities”, Nov. 2021

4 Mallikarjun M. Maradi, “Growth of Indian start-up: A critical Analysis”,JOURNAL OF MANAGEMENT AND ENTREPRENEURSHIP , Mar. 2023

5 Vidisha Sharma , S. Vijayakumar Bharathi, “Social Media for Start-Ups - An Effective Marketing Tool”,SSRN Electronic Journal, Jan. 2013

6 Dharish David, Sasidaran Gopalan, and Suma Ramachandran “The Startup Environment and Funding Activity in India”,Investment in Startups and Small Business Financing (pp.193-232) Publisher: World Scientific Series in Finance: Vol. 17, Aug. 2021

7 Aleksandr Sobolev “Start-Ups Evaluation With The Help Of Web-Based Platforms”, Trends and Innovations in Economic Studies, Science on Baikal Session,Dec. 2020

8 Crunchbase “https://www.crunchbase.com/”

9 Pitchbook “https://pitchbook.com/”

10 Book- Puneet Kumar Aggarwal, Parita Jain, Jaya Mehta, Riya Garg, Kshirja Makar, and Poorvi Chaudhary, “Machine Learning, Data Mining and Big Data Analytics for 5G-Enabled IoT”, Blockchain for 5G enabled IoT: the new wave for Industrial Automation, pp. 351-375, Springer, 2021

11 N. Gautam, A. Singh, K. Kumar, P K Aggarwal, Anupam, “Investigation on performance analysis of support vector machine for classification of abnormal regions in medical image”, Journal of Ambient Intelligence and Humanized Computing, 2021

12 M. Singh, N. Sukhija, A. Sharma, M. Gupta, P. K. Aggarwal, "Security and Privacy Requirements for IoMT-Based Smart Healthcare System". Big Data Analysis for Green Computing, 17–37, Taylor & Francis, 2021.

13 V. K. Reshma, Ihtiram Raza Khan, M. Niranjanamurthy, Puneet Kumar Aggarwal, S. Hemalatha, Khalid K. Almuzaini, and Enoch Tetteh Amoatey, “Hybrid Block-Based Lightweight Machine Learning-Based Predictive Models for Quality Preserving in the Internet of Things- (IoT-) Based Medical Images with Diagnostic Applications”, Computational Intelligence and Neuroscience, Vol. 2022, pp. 1-14, 2022.

14 Parita Jain, Puneet Kumar Aggarwal, Kshirja Makar, Riya Garg, Jaya Mehta, Poorvi Chaudhary, “Machine Learning in Risk Analysis” Applications of Computational Science in Artificial Intelligence to be published by IGI Global, pp. 190-213, 2022 ISBN: 978-1-7998-9012-6

15 Pranshu Saxena, Kanu Priya, Sachin Goel, Puneet Kumar Aggarwal, Amit Sinha, Parita Jain, “Rice Varieties Classification Using Machine Learning Algorithms”, Journal of Pharmaceutical Negative Results, Vol. 13, Issue 7, pp. 3762-3772, 2022.

16 Mandeep Singh, Megha Gupta, Anupam Sharma, Parita Jain and Puneet Kumar Aggarwal, “Role of Deep Learning in Healthcare Industry: Limitations, Challenges and Future Scope”, Deep Learning for Healthcare Services, pp. 1-22 Bentham Science Publishers, 2023.

17 Megha Gupta, Mandeep Singh, Anupam Sharma, Namrata Sukhija, Puneet Kumar Aggarwal, Parita Jain, “Unification of machine learning and blockchain technology in healthcare industry”, Innovations in Healthcare Informatics: From interoperability to data analysis, IET Digital Library, 20th June 2023,
18 Goel, S., Monica, Khurana, H., Jain, P. (2022). Social Media Analysis: A Tool for Popularity Prediction Using Machine Learning Classifiers. In: Singh, D., Garg, V., Deep, K. (eds) Design and Applications of Nature Inspired Optimization. Women in Engineering and Science. Springer

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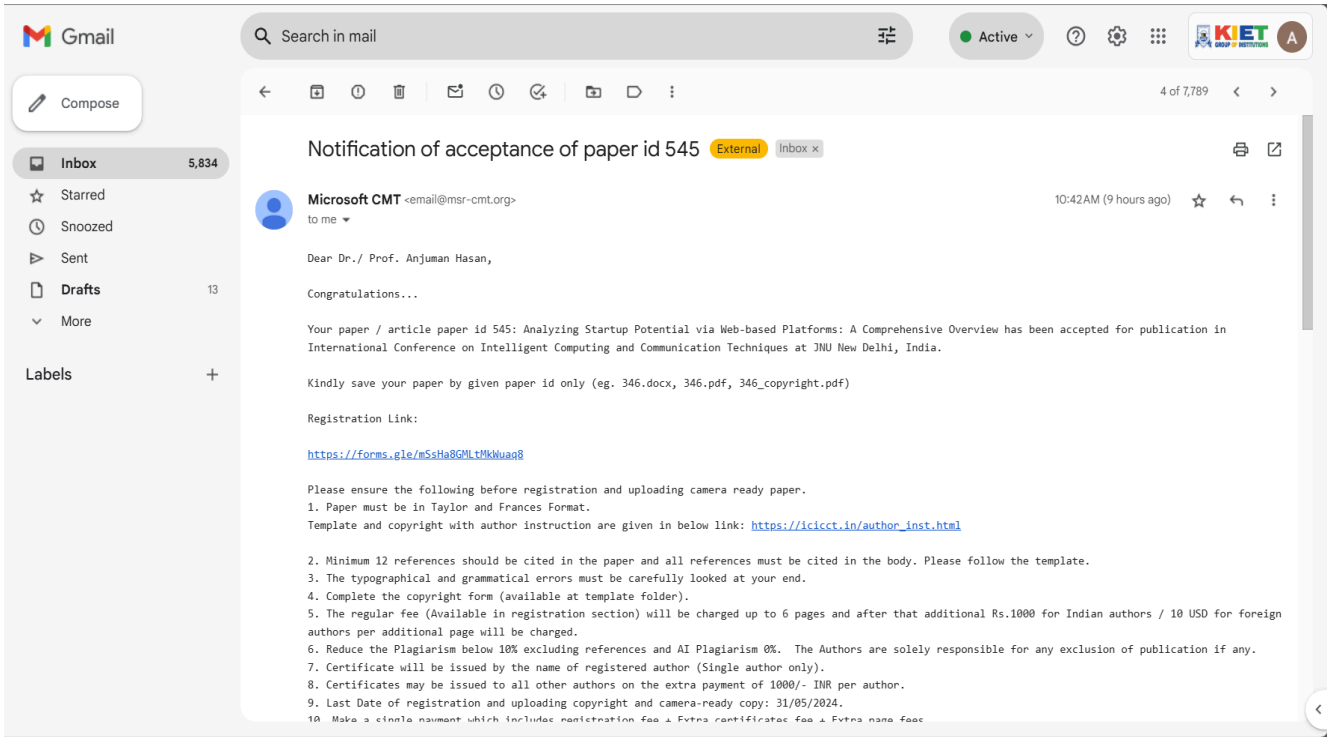

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