

InvestTrack: Design and development of online system for startups investment funding

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Abstract

This study aims to develop a website that facilitates startup funding, particularly on creating and tracking funding rounds. This will enable investors to invest seamlessly, track investments and ownership percentages, and support startups in managing their funding activities effectively while fostering transparency and trust. The researchers employed an Agile Development approach because it enables teams to manage their workloads successfully and create the highest-quality product while staying within their allocated budget. The six fundamental phases are planning, design, development, testing, release, and feedback. The web application received commendation from the users based on the ISO/IEC 25010 evaluation, with an overall weighted mean of 3.84, rated as very good. The key strengths identified were functionality, compatibility, and maintainability. The startup owners rated the system with an overall weighted mean of 4.18, and the investors rated it with 4.01. The results reflect positive user feedback on ease of use, interface design, and effectiveness in tracking investments. The results of the evaluation from startups and investors show that the web-based system effectively supports funding management and fosters an intuitive user experience. Future versions of the system should consider developing mobile applications or offering cross-platform support to cater to a wider audience. The researchers recommend that local and regional incubation hubs implement the website to further support the startups in terms of funding.

Keywords: startups, funding, investor, react JS, website development

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1. Introduction

Startups are newly founded companies that struggle for existence. These entities are mostly formed based on brilliant ideas and grow to succeed (Salamzadeh & Kawamorita Kesim, 2015). The concept of startups can be traced back to the early 20th century, but the modern startup ecosystem emerged in the mid-20th century, primarily in Silicon Valley, California. The term "startup" gained prominence during the 1970s and 1980s with the rise of technology-driven companies like Apple, Microsoft, and Intel. These companies exemplified a new breed of business: small, agile, and focused on innovation, particularly in the technology sector. They are characterized by their high growth potential, scalability, and reliance on external funding to develop and expand. Startups differ from traditional businesses in their approach to opportunity creation, risk-taking, and resource mobilization. This entrepreneurial spirit is a cornerstone of the modern startup ecosystem (Sarasvathy & Dew, 2005).

The late 20th century and early 21st century witnessed a significant transformation in the startup ecosystem, largely fueled by the rise of the internet and globalization. The dot-com bubble of the late 1990s was a defining moment, as it gave birth to numerous internet-based companies that pioneered digital commerce, social networking, and online services. Despite the bubble's eventual burst, companies like Amazon and Google emerged as enduring giants, showcasing the potential of startups to achieve monumental success (Goodnight & Green, 2010).

The startup ecosystem continued to evolve with the advent of mobile technology, cloud computing, and artificial intelligence. This era also witnessed the globalization of startups, with regions like China, India, and Southeast Asia becoming hubs of entrepreneurial activity. Governments, venture capitalists, and incubators played pivotal roles in supporting startups through funding, mentorship, and policy reforms. Businesses play a critical role in driving economic growth, fostering innovation, and creating employment opportunities. Startups contribute to solving real-world problems through creative solutions, making them vital to industries such as technology, healthcare, and sustainability.

Funding is critical for startups because it provides the resources needed for development and scale. Small business enterprises can achieve the desired economic development if they are prepared for the appropriate climate and the necessary financing and allowed to prove themselves (Jaber & Al-ali, 2021; Krishnan et al., 2024). Funding ensures that startups can execute their vision without being constrained by financial limitations.

Financing is a critical element in the success of small businesses. Lack of capital often limits their ability to scale operations, invest in new technologies, and compete in larger markets. Governments and financial institutions have implemented initiatives like microfinancing, grants, and startup incubators to address these gaps. In regions like Southeast Asia, programs such as the Innovative Startup Act in the Philippines provide financial and technical support to small enterprises, enabling them to thrive despite economic challenges (Department of Trade and Industry, 2019).

Across the globe, startups have seen dramatic growth. In 2023, venture capital funding worldwide attained \$445 billion despite stiff competition from economic decline. The United States of America, European, and Asian countries are at the forefront of the startup ecosystem, with Southeast Asia emerging as a strong contender. For the Philippines, the startup ecosystem is slowly developing, with over 700 active startups to date in 2022 (Teves et al., 2023). This development is aided by government initiatives such as the Innovative Startup Act, which provides entrepreneurs with technical and financial support. The Philippine startup ecosystem is forecasted to grow by 13-15% annually, showcasing its potential as a regional innovation hub. Funding for startups is usually complex and lacks an effective mechanism to manage and track investment rounds, especially for transparency and accountability. This causes issues in the allocation of ownership, investor relations, and financial decision-making. There is intense competition for finance, and just a fraction of startups receives the money they need.

Closing the gap in startup finances is necessary to allow startups to achieve their goals and contribute to the growth of the economy. Ownership structure becomes complicated without adequate mechanisms in place. Uncertainty in terms and absence of transparency create room for disagreement between founders and investors, making relations even more complicated. Furthermore, poor governance frameworks tend to lead to poor risk management and disclosure practices, which discourage potential investors and result in vulnerabilities within the organization. Competition for funding is fierce worldwide, and there are only a limited number of startups that manage to raise the funds necessary to expand and scale. Most startups are situated within environments that lack adequate regulation, and this would have a multiplier effect on governance issues and erode confidence among investors. Consequently, potential startups lack the funding they require to stay afloat or scale up. Closing this financing gap is important, not just for individual startups but also for overall economic growth. Studies show that stronger governance practices like putting in place effective internal controls, having open financial reporting, and interacting with stakeholders ethically can mobilize more (Sabnavis, 2022).

This research aims to enhance the efficiency and inclusivity of the Philippine startup ecosystem, empowering entrepreneurs to achieve sustainable growth. Hence, it aims to develop an online system for startups to successfully track funding rounds, manage investor interests, and manage equity allocation. After the development, the quality of the web application is evaluated according to software quality standards through the ISO/IEC 25010 model, in order to assess the usability and satisfaction of the web application among startup users and investors through usability testing. The result of this study will create a platform wherein startups will be given a chance for funding and investors will be able to help potential startups under the local and regional incubation hubs that will utilize the system.

2. Literature review

The increasing rate of startup expansion around the world has been increasingly studied, and funding has been identified to be the key driver of their survival and success. Venture capital is essential in providing funding to startups with the necessary equity capital to scale businesses, acquire talent, and rationalize business models (Jeong et al., 2020). Startups are confronted with financial needs, from research and development to marketing and operating expenses, all of which need to be invested continuously (Janeway et al., 2021). Venture capital investment fills the gap where conventional financial institutions, including banks, are not willing to participate because of the risky nature of startups. It allows firms to attain product-market fit, scale up their operations, and gain a market presence (Kaplan & Strömberg, 2003). Research emphasizes that venture capital-backed firms enjoy better success rates owing to both financial investments and strategic advice from investors (Hoque, 2024). Funding also fosters innovation by providing resources for research and development, thereby enhancing the creation and commercialization of groundbreaking ideas (Kartika, 2024).

Equity distribution is another critical aspect of startup funding. A well-structured equity split aligns incentives among founders, investors, and employees, supporting long-term strategic goals (Lebret, 2017). Transparent and strategic equity allocation helps secure funding, motivates employees, and builds investor trust, increasing the likelihood of sustained growth (Deias & Magrini, 2023). Additionally, cap table management is vital in tracking ownership

stakes, investor contributions, and security issuances, ensuring transparency in multiple funding rounds (Sabarinathan, 2023).

Despite the availability of funding sources, startups face significant challenges in securing capital. One major issue is the financing gap, particularly during early-stage development when startups lack revenue or collateral to attract traditional investors. In emerging markets, such as the Philippines, startups struggle with fragmented funding ecosystems and limited investor awareness (Startup Genome, 2023). Regulatory and policy constraints further complicate the funding landscape. In regions like Greece, systemic inefficiencies such as complex regulations and inadequate tax incentives create barriers to investment (Ziakis et al., 2022). The lack of government support and private-sector engagement limits opportunities for startups to access capital, restricting their ability to grow and compete.

Another challenge is the role of investor trust. Many investors are hesitant to fund earlystage ventures due to the high failure rate of startups. Angel investors and venture capitalists play different roles in addressing this challenge. Angel investors typically provide seed funding to high-risk startups, leveraging personal networks and industry expertise. Venture capitalists, on the other hand, invest at later stages, offering not only financial resources but also strategic mentorship. However, research suggests that startups often remain within a single financing stream, as companies funded by angel investors are less likely to transition to venture capital (Hellmann et al., 2021). Social networks also influence funding accessibility, particularly in equity-based crowdfunding. Entrepreneurs that best leverage platforms such as Facebook and Twitter in establishing networks enhance their prospects of securing capital (Saxton & Wang, 2014). The robustness of social networks has direct implications for the success of crowdfunding campaigns, making strategic networking and participation a key factor (Wahjono et al., 2019).

Online platforms for startup funding have emerged as viable alternatives to conventional funding channels, reducing the problems associated with early-stage firms' access to capital (Hoque, 2024). Based on Crunchbase, a well-known platform for tracking startup investments, having the capacity to track and analyze funding rounds efficiently is essential in enhancing transparency and accountability in financial decision-making processes (Deias & Magrini, 2023). These platforms use blockchain technology in addition to state-of-the-art web infrastructure. However, the challenges continue to arise in the form of intricately designed

regulations and infrastructure barriers (Patil et al., 2024). Though crowdfunding has brought money closer to people, its success is contingent upon several factors, like the type of innovation and the caliber of entrepreneurs (Hoque, 2024). The inclusion of professional investors as intermediaries on these sites has increased capital flows to emerging markets by 33% and enhanced the choice process for startups, with funded projects having a 37% higher chance of earning above-median returns. Nevertheless, social networks are a significant barrier to further democratization, influencing how investors assess intermediaries (Catalini, 2025). Government and private entities particularly local and regional innovation hubs that implements support programs for startups can utilize the funding platform to empower homegrown startups.

Several online platforms have been developed to facilitate startup funding and investor interaction. Crowdfunding platforms, venture networks, and blockchain-based investment platforms have revolutionized startup capital raising. Kickstarter and Indiegogo are platforms that enable startups to raise funding from a wide range of investors, building community-backed support (Startup Genome, 2023). Blockchain technology has also increased investor participation by providing safe and transparent equity management. Such platforms as AngelList and Republic use blockchain characteristics to allow for direct investments and irrevocable equity transactions, increasing trust and minimizing administrative expenses. Investment tracking platforms such as Crunchbase also give startups instant access to funding trends, investor activity, and market dynamics. Crunchbase allows startups to track their financial status and make informed decisions, enhancing transparency and accountability (Deias & Magrini, 2023).

3. Methodology

The study applied an Agile development methodology in creating the InvestTrack system. This is an approach renowned for its adaptability, iterative methodology, and strong emphasis on teamwork among cross-functional teams. It was adopted for its success in handling complex projects with changing needs. The Agile process included six significant steps: plan, design, develop, test, release, and feedback. This structured and adaptive process ensured that the online system was developed properly, of superior quality, and on budget demands (Sigongan et al., 2023).

Figure 1

Agile methodology



Plan. A Work Breakdown Structure (WBS) and the Gantt chart were formulated during this phase to detail the order of tasks in designing of the InvestTrack system. This phase began with the identification of critical information necessary to define the website's purpose and ended with the submission of the completed final site. Before the proposal, the team had established the fundamentals of the website, which included major features like user authentication and investment tracking. Through collaborative discussion, the team enhanced the website's functionality and architecture to meet the goals. Additionally, the planning process involved developing compact timelines, assigning resources effectively, and defining roles in the team to achieve a seamless and efficient development process.

Design. At this stage, the team collaborated to create user-friendly and intuitive wireframes and layouts from the perspective of both investors and startups. These wireframes and designs serve as the foundation for providing a seamless user experience on the platform. The design process began by creating wireframes for the sign-up pages, log-in, and other primary features, which serve as the gateway to the platform for every user.

Figure 2 shows the initial wireframe of the sign-in page, where the design is kept simple and secure to make it is easy to use. The aim was to keep the complexity minimal and ensure that users could access their accounts quickly and securely.

Figure 2

Sign-in page wireframe

Sign In weetraak Excess Excess Experi- Exal Passeord Forgot Passeord Sign in Don't have an account? Bign.pa

Figure 3

Sign up wireframe

	Create Account First Name	Laot Name
"Empow Start Tracl Investr	Email Confirmation Sent	Sender C
	Sign Already have an	1 up account? Sign_in

Figure 3 illustrates the wireframe of the sign-up page, which is intended to be simple and secure. It includes critical features like email verification mechanism, which is crucial in ensuring user authenticity and preventing fraudulent sign-ups. This wireframe was targeted at ensuring that users would be able to get a clear and straightforward path towards account creation with high security.

For the startups, there were wireframes designed for startup profile creation and administration of rounds of funding. The design included a dashboard, which tracked major metrics such as funding round progress, cap table modifications, investor requests, and overall financial standing. This provides a straightforward and comprehensive view of all important aspects of a startup's life cycle. The dashboard serves as the main interface for tracking and controlling a startup's performance. It integrates vital information like funding activities, investor interactions, and financial data, all in a user-friendly and easy-to-consume format. The

design was carefully crafted to enable users to access and comprehend critical metrics effortlessly.

Figure 4

Startup dashboard wireframe

LOGO				Alcordo, Roxanne
Roxanne Alc	ordo Startup Dash	board		Create
Dashboard	Highes	t-Funded Company	Top Investment	t Contributor
🖶 Companies	Funded Companies	s Company Count Investor	Count Funding Rounds	Total Amount Funded
S Funding Ro	und			
🚉 People	Monthly Funding	g Overview		Recent Activity
PAQs				
[→ Log Out				
	MY FUNDING ROUNDS	MY STARTUPS MY CAP TABLE	INVESTOR REQUESTS (0)	

Figure 4 is the initial design idea for the dashboard. It indicates key features, such as the monthly funding graph, recent activity, and various tabs to manage the startup profile, funding round, cap table, and investor requests. The wireframe focuses on the layout and structure, ensuring all essential information is easily accessible and well-organized, providing a clear foundation for the final design.

Figure 5

Startup profi	le creation	wireframe
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	Roxanne	Overview				eate
-	Dashboa	Company Name				
-	Compani	Company Description				Funded
9	Funding	company beact aption				itv
ő	FAOs					
[→	Log Out	Founded Date Month	Day	Date		
		Type of Company	No. of Employees	Phone Number		
		Contact Email				
-	user Gu					

Figure 5 shows that the startup profile creation and management flow are crucial for ensuring that startups can effectively represent themselves on the platform. The design process for this feature began with wireframes that outlined the essential fields and layout for creating a startup profile. It illustrates the initial design concept for creating a startup profile, which includes key fields for entering startup information – such as name, description, industry, and contact details – as well as layout elements that organize these sections for clarity.

Figure 6



	LOGO						0	Borinag	ga, Rob
	Rob Borinaga	Investor Dashbo	bard	I					
в	Dashboard	Top Company Invested	Ľ	Investment Count	Ľ.	Average Investment Size		Total Inve	stment Amount
5	Companies	None		•		e			U
0	Funding Round	PENDING REQUEST (1)	MY I	NVESTMENTS					
<u></u>	People	Date		Company Name	Shares	Total Shares	St	atus	Action
0	FAQs	October 14, 2024	5	Alcordo International Inc.	1	P 5,000	pen	ding	CANCEL
[→	Log Out			<	1	>			
A	User Guide								

Figure 6 showcases the investor dashboard and highlights its key metrics, including the top company invested in, investment count, average investment size, total investment amount, and a table presenting pending requests in a structured format. The table displays details such as the request date, company name, shares, total shares, status, and an action column for canceling requests.

Develop. This stage involves the actual development, which is done after designing a website. For the InvestTrack platform, the front end was developed with ReactJS, a well-known JavaScript library noted for flexibility and efficiency in developing dynamic user interfaces. MUI (Material UI) was utilized for styling to ensure a uniform and sophisticated design system to make the platform user-friendly and as pleasing to the eyes. The backend was

created using Node.js along with NestJS, a scalable and modular framework that efficiently manages server-side logic and business rules.

The MySQL database was used to store and manage critical data like startup profiles, funding rounds, and investor details. VSCode was the preferred code editor for the development team, taking advantage of its powerful features like IntelliSense and a built-in terminal to ease the coding process. To enable easy collaboration, version control was achieved through GitHub where team members could work on different features simultaneously and merge codes easily. Vercel was used to host the front end, enabling instant global access to the platform, while Railway was used for the back end, offering scalable and reliable back-end services.

Figure 7

InvestTrack system architecture



Administrator activities. The Administrator, who holds the highest system privileges, has the responsibility to secure and protect InvestTrack's integrity. The primary responsibility of the Administrator is to track and approve or reject newly added startups to verify their

genuineness and prevent fraudulent activities. The administrator dashboard shows key metrics like the number of Investors, Startup CEOs, Startups, and Funding Rounds created within the web application. This gives them complete visibility of the activity and growth of the platform.

Startup CEO activities. Startup CEOs manage their company profiles and fundraising activities in InvestTrack. They can start and organize fundraising rounds by setting parameters like target size, price per share, and investment terms. Moreover, they also manage the cap table to track investment equity between investors. CEOs also review and decide on proposals for investment, accepting or rejecting them based on what meets their needs.

Investor activities. InvestTrack investors can filter and search startups for investment by industry or funding requirement. Investors can issue proposal offers and view the status of their current and past investments. Investors can also insert their own contact information in order for startups to find and get in touch with them easily.

Figure 8

Figure 9

Sign-up interface

Sign-in page interface



Figure 8 shows the final UI of the sign-in page, with the design having been polished to offer a smoother, user-friendly interface. The UI features visual cues, simplified navigation, and secure login capabilities, ensuring that the sign-in process is seamless and intuitive for users.



Figure 10

Startup dashboard interface

S InvestTrack		🥮 Morgan, Shelli
Shelli Morgan	Startup Dashboard	GREATE
Dashboard	Highest Funded Startup	estment Contributor
Companies		-
Funding Round	Funded fiturityps Company Count Investor Count Punding Rounds 3 out of 4 4 3 4	Total Amount Funded 363,600
AL People	Monthly Funding Overview	S Recent Activity
EAQs	400,000	Bolt Energy Systems funding round created
E- Logout	20.00 •	successifully. Betes 5 funding round created. November 15, 2024 at 5:40 Ptil
	20.00	BrightView Health funding round created successfully. Seed funding round created. Neverther 15, 2024 at 5:39 Pill
	2 96.00 96.00	EcoSphere Packaging funding round created successfully. Pre-Seed funding round created. Neverater 15, 2004 at 5:39 Ptil
	50,000	Verdant Casis Farms funding round created successfully.
A User Guide	New 2024 Morethin	Pre-Seet funding round created. November 15, 2024 at 5.38 Ptd

Figure 10 shows the final UI design for the dashboard, where the wireframe is developed into a completely polished interface. The final design consists of better visual elements and user interactions, and a more unified look and feel. The funding graph on a monthly basis is made more interactive. The startup profile management, funding round management, and investor request tabs are designed to be intuitive and easy to use, providing users with a smooth experience for users updating their startup's data and activities.

Figure 11

Starup profile creation form

S InvestTrack				Morgan, Shelli
Shelli Morgan	Startup Dashbol	• You can create as many startup profiles as you'd like, Add more p	erollins to track different businesses and familing rounds at any line.	×
Destboard		Overview		en Contributor
Companies		Startup Name *		a Blong
Funding Round	Fund 3	Description *		Total Arrount Funded 353,590
AA Picote	Monthly Funding			Recent Activity
Ø FAQs	430,500			Bott Energy Systems funding round created
E+ topoul	200.000			Successfully Series 21 failing month timeses
	306,000	Founded Date *	Type of Company *	November 15, 2024 at 5 at 244
		MIEDDYYYY	*	ErightView Health funding round created
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Figure 11 presents the end UI design detailing the wireframe, improving the visual layout and user interaction. The design guarantees a smooth experience for users when entering and revising their startup details, with easy navigation and understandable instructions.

The figure further shows how to conveniently input the required information such as funding targets, investment levels, and investor information. The easy-to-use interface streamlines the process, allowing startups to deal with every step of funding round setup in a better way.

The Startup Profile Management Tab is an important function for updating and managing a startup's details. The tab is the central location where users can see, edit, and monitor important information about their startup, including financial data, progress, and other vital updates. The functionality and simplicity of the design allow users to browse and control their startup information in a single location.

Figure 12

Funding rou	nd creation form
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S InvestTrack	1						See Mor	gan, Shelli
🛞 Shelli Morgan	Startup Dashboa	Organization				×		CREATE
Dashboard		Startup Name *				-	ent Contributor	0
Companies		Add Funding Round Details					14 Elong	-
Funding Round	Fund 3	Funding Name *			Funding Type *		Total Amount Funded 363,600	
<u>at</u> People	Monthly Funding	Opening Date *		Closed on Date *		•	Recent Activity	
FAQs	400,000	11/25/2024		MMIDD/YYYYY			Bolt Energy Systems funding round of	eated
E+ Logout	201.000	Target Funding Amount *			PESO	-	successfully Series B funding round created. November 15, 2024 at 5.40 PM	
	206.000 206.000 206.000 206.000	Pre-Money Valuation *	toney you need to seed to invest P10.	pay to purchase one	share of a company's stor	ck. For example,	Bright/Vew Health funding round creat successfully: Seed funding round created Nevember 15, 2024 at 5.35 PM	ted
	196,000	Price per Share *			Currency PESO		Pre-Seed funding round created. November 15, 2024 at 5.39 PM	
	50.000	Add Investors to this Funding F	Round				Verdant Oasis Farms funding round c successfully.	reated
A User Guide	Nov 2024	Sharaboldaris Name Ta	Months	_	Charge		November 15, 2024 at 5 38 PM	

Managing funding rounds is a vital platform function, much like managing startup profiles. The Funding Round Management Tab is used by individuals to properly manage and monitor their record of founding rounds, investor participation, funding, status, and status updates on the rounds. It also has layout sections for tracking the round's progress, following investments, and reviewing updates of the status of the round. This is to provide a precise and organized picture of all relevant information, allowing it to be straightforward for users to keep track of and update their round funding information. Users can also interact with the table through the View and Delete buttons. The View button allows users to edit and make changes to funding round details, while the Delete button provides the option of deleting the round. This improved design enhances the management of funding rounds and streamlines the monitoring progress of and user actions when needed. The Cap Table Tab is a startup software utilized to organize equity ownership by monitoring equity distribution among founders, investors, and stakeholders. It is a systematic presentation of the startup equity in which the user can see how shares are distributed and witness equity changes over time. This shows columns for Shareholder Name, Title, Shares, Total Shares, and Percentage of Ownership. This structure allows the users to follow and maintain equity allocation with ease, making it convenient to see what the current ownership is and how it changes.

The Investor Request Tab is a very important tool for handling investor interactions and requests. It enables startups to handle and reply to investor questions efficiently, allowing expedient communication and interaction with potential investors who want to fund the business. For investors, wireframes were designed for a dashboard showing important metrics and updates on the companies they have asked to invest in. The design also has a pending investment request management section, as well as a feature enabling investors to send requests directly to startups of interest, especially during live funding rounds. This feature was added to simplify interactions between investors and startups, enabling easy engagement.

Figure 13	G	InvestTrack						Marasa Debb
Figure 15		Debby Morgan						
Figure 13 Investors dashboard	Investor Dashboard	Investment Count		Average Investment Size	Tatal Inv	pstment & mount		
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	•	FAOs	Date November 17, 2024	Startup Name	8hares	Total Shares	Status	Action
	G-		December 3, 2024	NexaWave Bolitions	5	₩ 17.500	pending	Cancel
			Desember 3, 2024	E Tradiption Periodicity	,	P 375,000	pending	Carcol
			December 3, 2024	Mosakäpate	\$	P 37.500	pending	Onicel
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Figure 13 shows the actual user interface being used, laying out the finished design as a simple, static format. It is focused on clarity and simplicity, displaying essential metrics neatly and visually as well as keeping a legible table format for outstanding requests. The UI is intended to allow investors to have easy access to view and manage their data.

Figure 14

Investment requests

ø	InvestTrack					💷 Morgan, Debl
	Debby Morgan	lawater Daubbarred				
5		The Company Investing	Investment Count		rate Investment Size	Total Investment Amount
		My Company	1		10,000	10,000
		PENDING REQUEST (4) MY INVESTMENTS				
						Generate Report
0		Startup Name	Funding Name	Туре	Shares	Total Investment
		My Company	Inventory Upgrade	Series B	10	₱ 10,000
				Total	10	P 10,000
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Figure 14 presents the actual user interface, where investors can click on a row to be redirected to the funding round details of the selected company. Additionally, a "Generate Report" button is available, allowing investors to download the data from the table in CSV format, providing a record of their investments. Figure 15 demonstrates the actual result when the "Generate Report" button is clicked within the "My Investments" tab, showcasing the CSV file containing the investment details.

Figure 15

Investment report

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Ready Statisticity Union	URICH C													8 2		+ 107%

Figure 15 illustrates the CSV file generated upon clicking the 'Generate Report' button. This file contains the data displayed in 'My Investments' in a structured format.

Test. This stage of the study focuses on comprehensive user testing, ensuring that all aspects of the web application are thoroughly tested. Special emphasis was placed on identifying bugs and unexpected exceptions in the code and evaluating the overall user experience, including the usability of the InvestTrack application. The performance of the web application was evaluated to determine its compliance with ISO/IEC 25010 Standards. 26 respondents evaluated the system using the ISO/IEC 25010 tool. 24 of them were IT professionals working in various software development roles, and two were college instructors. One instructor specializes in software development, while the other one specializes in business, management, and financial processing. For the system usability testing, there were 13 start-up owners and 13 investors who evaluated the system. A total of fifty-two (52) respondents participated in the evaluation. They were purposively selected as respondents of the study. The researchers used the Likert scale to present the results, including the overall average for the ISO/IEC 25010 and the system usability evaluation.

Release and Feedback. Figure 15 shows the system in use by the users, accompanied by a thorough walkthrough provided by the researchers. The demonstration involved guiding users through the key features and functionality of the web application, showing them how each aspect works in real time. This hands-on presentation allowed the respondents to interact with the web application, ask questions, and experience its features firsthand, fostering a clear understanding of its design and capabilities.

Figure 15

User Feedback



4. Findings and Discussion

The evaluation results of the web application, as shown in table 1, reveal strong positive feedback from users across various aspects of its functionality and usability.

	<u>Neer</u>	X 7 L - L T A - A - A + A	
Area	Mean	verbal interpretation	
Functional Suitability	3.97	Very Good	
Performance Efficiency	3.88	Very Good	
Compatibility	4.00	Very Good	
Usability	3.86	Very Good	
Reliability	3.81	Very Good	
Security	3.58	Very Good	
Maintainability	3.83	Very Good	
Portability	3.81	Very Good	
OVERALL RATING	3.84	Very Good	

 Table 1

 InvestTRACK Evaluation System ISO/IEC 25010

Legend: Poor 1.00–1.79; Fair 1.80–2.59; Good 2.60–3.39; Very Good 3.40–4.19; Excellent 4.20–5.00.

Table 1 presents the evaluation results, showing that the developed web application met the requirements as assessed through the ISO/IEC 25010 standards. The web application was rated very good across all characteristics: functionality suitability with a mean of 3.97, performance efficiency with a mean of 3.88, compatibility with a mean of 4.00, usability with a mean of 3.86, reliability with a mean of 3.81, security with a mean of 3.58, maintainability with a mean of 3.83, and portability with a mean of 3.81. Noticeably, security got the lowest mean score since the IT professionals who tested the system recommended that the developers ensure full encryption in all important user data and conduct rigorous penetration testing and other security testing on the website before deployment. The overall weighted mean of 3.84 confirmed the web application's very good evaluation, reflecting its quality and effectiveness as perceived by the respondents.

Table 2

Usability testing evaluation for startup

Question	Mean	Interpretation
1. I can easily create and verify my account in the system/application.	4.62	SA
2. I found it easy to register my company and manage its profile in the application.	4.15	А
3. The application allows me to track my company's funding and investors in an effective way.	4.38	SA
4. I felt confident in using the funding round form to input information about my company's funding.	3.69	А
5. The ability to manually add an investor to my company's cap table was straightforward and intuitive.	4.00	А
6. I found the display of the cap table, including investor shares and percentages, clear and easy to understand.	3.92	А
7. It was easy to track key metrics, such as the number of funding rounds, investor count, and total companies funded.	4.23	SA
8. I found the process of accepting or rejecting investor requests to be smooth and easy to navigate.	4.15	А
9. The app's layout and design made it simple for me to find the information I needed.	4.38	SA
10. The documentation or in-app help has been useful in understanding how to use the app.	4.38	SA
11. Would you like to recommend this system/application?	4.08	А
Overall Weighted Mean	4.18	Α

Legend: Strongly Disagree (SD) 1.00–1.79; Disagree (D) 1.80–2.59; Fair (F) 2.60–3.39; Agree (A) 3.40–4.19; Strongly Agree (SA) 4.20–5.00.

Table 2 presents the evaluation results of the web application. It reveals strong positive feedback from users across various aspects of its functionality and usability. The respondents

rated their experience as "agree." The web application excelled in several areas: ease of account creation and verification (mean score: 4.62), tracking company funding and investors (mean score: 4.38), and clarity of the layout and design (mean score: 4.38). Additionally, users found the documentation or in-app help particularly useful in navigating the web application with a mean of 4.38. Key areas for improvement were noted in the ease of using the funding round form (mean score: 3.69) and the display of the cap table (mean score: 3.92). These features, while rated positively, offer opportunities for refinement to enhance user experience further. The overall weighted mean of 4.18 confirms the system's "agree" evaluation, highlighting its effectiveness, usability, and strong potential for user recommendation at 4.08 mean, which has an "agree" verbal interpretation.

Table 3

Question	Mean	Interpretation
1. I can easily verify my account in the system/application.	4.15	А
2. I could easily manage and keep track of my accepted and rejected investment	4.08	А
proposals.		
3. The information provided about startups was clear and sufficient to make	4.00	А
investment decisions.		
4. I was confident in using the platform to propose an investment to startups.	4.00	А
5. The process of viewing funding rounds and startup financial details was simple	4.08	А
and straightforward.		
6. I found the investor dashboard easy to use for tracking my investment	4.15	А
opportunities and decisions.		
7. I could easily manage and keep track of my accepted and rejected investment	4.08	А
proposals.		
8. The process of updating my profile as an investor was intuitive.	3.77	А
9. The application layout made it easy to navigate between different startups and	3.92	А
funding opportunities.		
10. The documentation or in-app help has been useful in understanding how to use	3.85	А
the app.		
11. Would you like to recommend this system/application?	4.00	А
Overall Weighted Mean	4.01	Α

Usability testing evaluation for investor

Legend: Strongly Disagree (SD) 1.00–1.79; Disagree (D) 1.80–2.59; Fair (F) 2.60–3.39; Agree (A) 3.40–4.19; Strongly Agree (SA) 4.20–5.00.

Table 3 presents the evaluation results that reflect positive user experiences with the web application, with an overall weighted mean of 4.01, rated as "agree". Users found the platform effective for managing and tracking investment proposals (mean score: 4.08), as well as navigating between startups and funding opportunities (mean score: 3.92). Key strengths include the ease of account verification (mean score: 4.15), usability of the investor dashboard rated (mean score: 4.15), and the clarity of information provided about startups for investment decisions (mean score: 4.00). Respondents also appreciated the simplicity of viewing funding rounds and financial details (mean score: 4.08). Areas for improvement include the intuitiveness of updating investor profiles (mean score: 3.77) and the helpfulness of documentation or in-app guidance (mean score: 3.85). The application's usability and functionality have been well-received, with many users expressing a willingness to recommend it (mean score: 4.00).

5. Conclusion

Based on the evaluation results from the ISO/IEC 25010 standards and the system usability testing from the user feedback gathered through surveys, the developed web application received commendation and acceptance from the respondents, consisting of IT professionals, professors, investors, and startup owners. The system performed well across all quality characteristics, including functionality, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. The ISO/IEC 25010 overall weighted mean of 3.84, graded as "very good", indicates a high level of compliance with established software quality standards. The usability testing assessment of startups and investors had an overall weighted mean of 4.18, with high ratings in usability and layout design. Investors gave the web application a general mean of 4.01, highlighting its ease of use in handling investment proposals and navigating the dashboard. Both teams liked the web application to be easy to use and effective for its intended functions, with small areas of improvement in documentation and profile management procedures. Overall, the respondents recommended streamlining the user experience for ease and accessibility. The experts also recommended conducting full encryption of important user data and further security testing before deployment. The web application was praised for its functionality and usability, with respondents showing overall satisfaction and a willingness to recommend the system.

Future enhancements include additional tools for data analysis, such as interactive charts for investors and startup metrics, to provide more value to users. AI-driven analytics for funding trends and investment suggestions can also be integrated. Furthermore, communication features within the system could streamline processes and improve user experience, and may be added in future development. The web application enhances funding management by fostering transparency and efficiency for both startups and investors. Startups benefit from streamlined funding activities and enhanced investment appeal, while investors gain valuable insights to make informed decisions. Moreover, the study recommends that local and regional startup incubation hubs consider utilizing InvestTrack as a funding platform to generate capital for potential startups under their supervision.

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