RMIT UNIVERSITY

Business System Analysis and Design

ISYS 2395

Individual Project

System Deconstruction Using UML Models

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I. Executive Summary

This report presents a comprehensive deconstruction of the eToro system, an innovative Fintech solution that not only provide a social trading platform in which investor can perform trades while engaging with others, but also standout for its CopyTrading feature that enables investors to automatically replicate the trades of experienced professionals. The analysis focuses on exploring the architecture of this platform and systematic process using the unified modeling language UML diagrams, consisting of Activity, Use-Case, Class, and State-Machine models.

The evolution of digital trading platform is outlined in the business case, which situates eToro within the growing social trading industry. The background emphasizes its mission to democratize financial investment through transparency, education, and automation. Besides indicating eToro as a leader in such market thanks to its intuitive interface that is appeal to novice user, this report also highlights the success of integrating social network concepts together with financial trading core processes, such as investor onboarding, financial transaction, and risk management, to offer an accessible environment for investors worldwide. It also illustrate how they align with eToro's customer-centric business models.

Through these analytic perspectives, the end-to-end process of performing eToro's CopyTrading feature is inspected via the Activity Diagram, from selecting Popular Investor, setting up copy parameters, to esecuting mirrored positions in real time. In the meantime, the Use-Case and Class Diagram identify the system's primary actors, define their business requirements, and finally examine attributes and interrelationship. The State-Machine Diagram further demonstrates the life cycle of the most important class CopyTrade, beneficiating further system's understandability and intepretability.

Eventually after the deconstruction, the proposed improvement introduces a CopyTrading simulation for testing the CopyTrade relationship before commiting real funds. This is anticipated to enhance investor confidence and financial literacy by transforming decision-making into and interactive learning process, which ultimately contributes to business growth by increasing trust, engagement and brand credibility. By achieving that, the proposed improvement reinforces its vision to make investing accessible, informed, and community-driven for investors across all levels of experties.

II. Business Case

1. *Industry Background*

In the last two decades, the rise of digital trading and investment platforms has transformed how individuals access financial markets in the world. The industry has shifted from traditional approaches, in which investing in financial markets such as stocks, commodities, or currencies required special expertise and knowledge, large capital, and a reference to a licensed broker, to the revolution of Financial Technology's digital trading platform, also known as FinTech, that offers trading accessibility and ensures the role of financial literacy as a mediator (Rao & Bhanoto, 2025). Moreover, according to Fedor and Alexandr (2020), the development of international trade via FinTech online platforms assists investors in increasing their performance productivity while reducing marginal costs as well as any potential risk of investment. Thus, this progress has lowered the entry barrier by integrating social media-style interactivity into brokerage functions that not only enable real-time updates but also democratize investing for complex trading automation.

Within this Fintech ecosystem, investment execution integrated with community interaction, designated as social trading, has emerged as a prominent trend, allowing investors to observe, follow, and automatically replicate the trades of professionals with several years of experience active in the market (Wohlgemuth et al., 2016). The idea of copying expertise rather than diving into advanced investing techniques reflects the reassurance of seeing others do the same. Based on Global Market Insights (2024), the global social trading platform market was valued at over 3 billion and was projected to grow at an annual growth rate of approximately 10% by the year 2034, supported by a report from the National Bureau of Economic Research about the doubling in daily trading activity thanks to the popularity of copy trading and peer-to-peer review. Additionally, Singh (2025) confirmed that the growth of social trading is highly driven by the increasing performance of copy-trading platforms, which is as important as any other economic drivers. On the other hand, the same openness also brings industry-wide challenges to find the balance between investor autonomy and algorithmic assistance.

2. *Company Background*

eToro, founded in 2007, is established with the vision of building the world's largest social investment network that has the ability to equip an amateur observer with the right tools and infrastructure to take control of their own investment decision (Assia, 2016). Looking forward to bringing global financial markets to everyone, the online platform can be run on multiple devices through the website or mobile application. Nowadays, eToro is well-known for its reputation as a leader in operating a multi-asset

brokerage and social trading platform, which is regulated in several jurisdictions around the globe, consisting of the UK's Financial Conduct Authority (FCA), Europe's Cyprus Securities and Exchange Commission (CySEC), US's Securities and Exchange Commission (SEC), Australian Securities and Investments Commission (ASIC), and other expanded authorities from more than 140 nations. The company identity centers on combining transparency, education, and accessibility to empower individual investors with a wide range of provided services that differentiate it from other competitors. In general, eToro has positioned itself as a pioneer by integrating trading, education, and social engagement into a single regulated ecosystem.

3. Problem Statement and Services Provided

Most of individual traders, particularly beginners, are facing some shared challenges. The most visible instance is the knowledge gap in investing, in which investors lack proper training or time to monitor markets continuously, whereas the majority of traditional brokerage firms only provide tools but little guidance. This issue forms a high-entry barrier, causing first-time investors to be discouraged due to their fear of loss, information overloads, and the lack of community support.

Focusing on addressing these concerns, the eToro platform offers automation of expertise via CopyTrading – allowing users to evaluate popular investors based on transparent performance statistical metrics and prompt the system to automatically replicate each new trade proportionally in their portfolio using their chosen fund allocations and risk rules. Trading history, returns, drawdowns, and composition of holdings are all displayed in a user-friendly interface, highlighting the transparency that enables investors to keep track, monitor, and comprehensively study strategies for effective investment. Also, all registered users have access to social feeds, discussion threads, courses, and webinars for promoting a learning environment via a strengthened engagement with not only peers but also experts.

4. Opportunities and Strategic Potential

The eToro presents several growth and innovation opportunities. As such a low-cost, multilingual platform, it is to become more appealing to emerging markets through democratized finance, where a global demand for trading platforms rises. Furthermore, leveraging artificial intelligence integrated with its database to personalize recommendations based on each investor's behavioral clustering, risk tolerance, and sentiment analysis. Especially for the CopyTrading feature, a simulation mode that enables investors to replay historical trade events before confirming the CopyTrading relationship, aiming to lower psychological barriers and enhance decision-making confidence.

III. Activity Diagram

According to the study of Kuznetsov and his team (2023), eToro is appealing to novice investors and those interested in the CopyTrading feature. Thus, besides supporting individuals to monitor trading positions and capture real-time financial market movements, the most important process of this platform is the CopyTrading feature. The Diagram in Figure 1 breaks down this business process into a flow of activity.

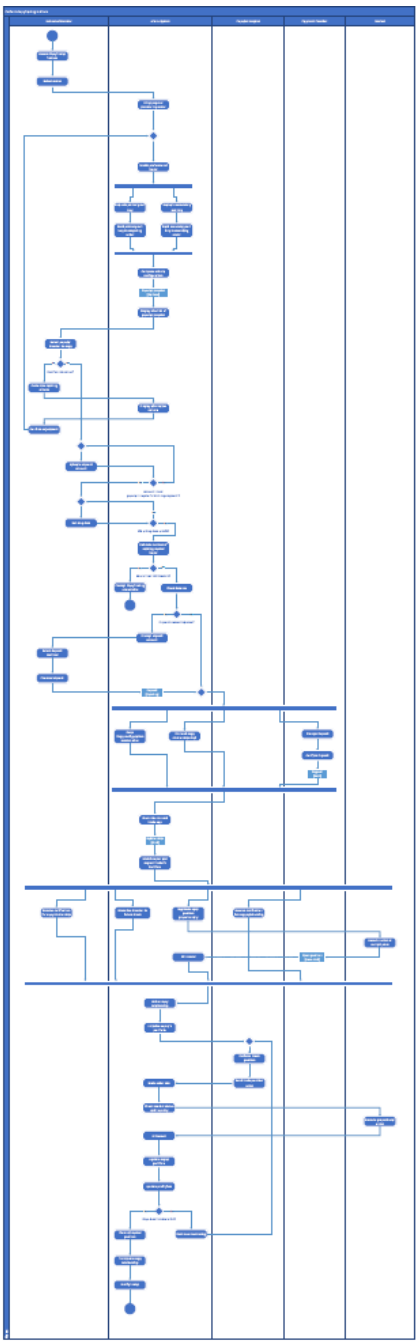

Figure 1: Activity Diagram of “Perform CopyTrading” Process

Initially, individual investors need to have access to the CopyTrader feature to select the popular investor they want to copy by filtering their specialty trading sector. The platform system will automatically generate a shortlist of popular investors while ranking them by their return ratio and number of copiers. It retrieves each popular investor's profile metrics, historical performance, and risk score, shown in their portfolio. With the shortlist of popular investors, users have the opportunity to customize the ranking criteria by changing it to either risk score, profitable trades, or active weeks, etc., enabling them to find the most appropriate ones who match their investment strategies.

By confirming the popular investor to copy, the individual investor configures copy parameters, including deposit amounts and a stop-loss limit, before the system validates the request's eligibility and sufficiency. In particular, since each popular investor sets their own minimum requirement for copy amount, the system will prompt the individual investor to re-enter in the event the amount is insufficient. Then, the retail investor must ensure the stop-copy limits fall between 5% and 95%. This is eToro's safety protocol to safeguard against the risk of losing all, especially when the investor decides to trigger margin trading. Noticeably, eToro only allows one account to copy 100 traders, and exceeding this limit will automatically terminate the newly copied relationship.

After proceeding with the deposit amount, the platform system will keep the copy-configuration session alive while pre-loading the copy relationship shell. In the meantime, the payment provider will validate the funds, process them, and then confirm them before sending them to the portfolio allocation. Upon the successful validation process, all the risk rules and trade caps will be stored accordingly before the system links the copier and copied investors together. Subsequently, eToro will allocate the funds to proportionally mirror the currently open positions of the popular investor at the current market price, then record the results in real-time after the market venues execute it, while ensuring the retail investor is subscribed to future trade positions. Both investors will receive the notifications in parallel with those activities. As long as the copy relationship is active, the popular investor can perform any trade, and the system will automatically replicate it in the individual investor's portfolio. The portfolio will continue to be updated with real-time prices and Profit/Loss until the stop-loss threshold is hit, which immediately terminates the relationship.

IV. Overall Use-Case Diagram

After analyzing the business requirements, the Overall Use-Case Diagram in Figure 2 below determines the requirements from different actors and the services provided by the eToro platform.

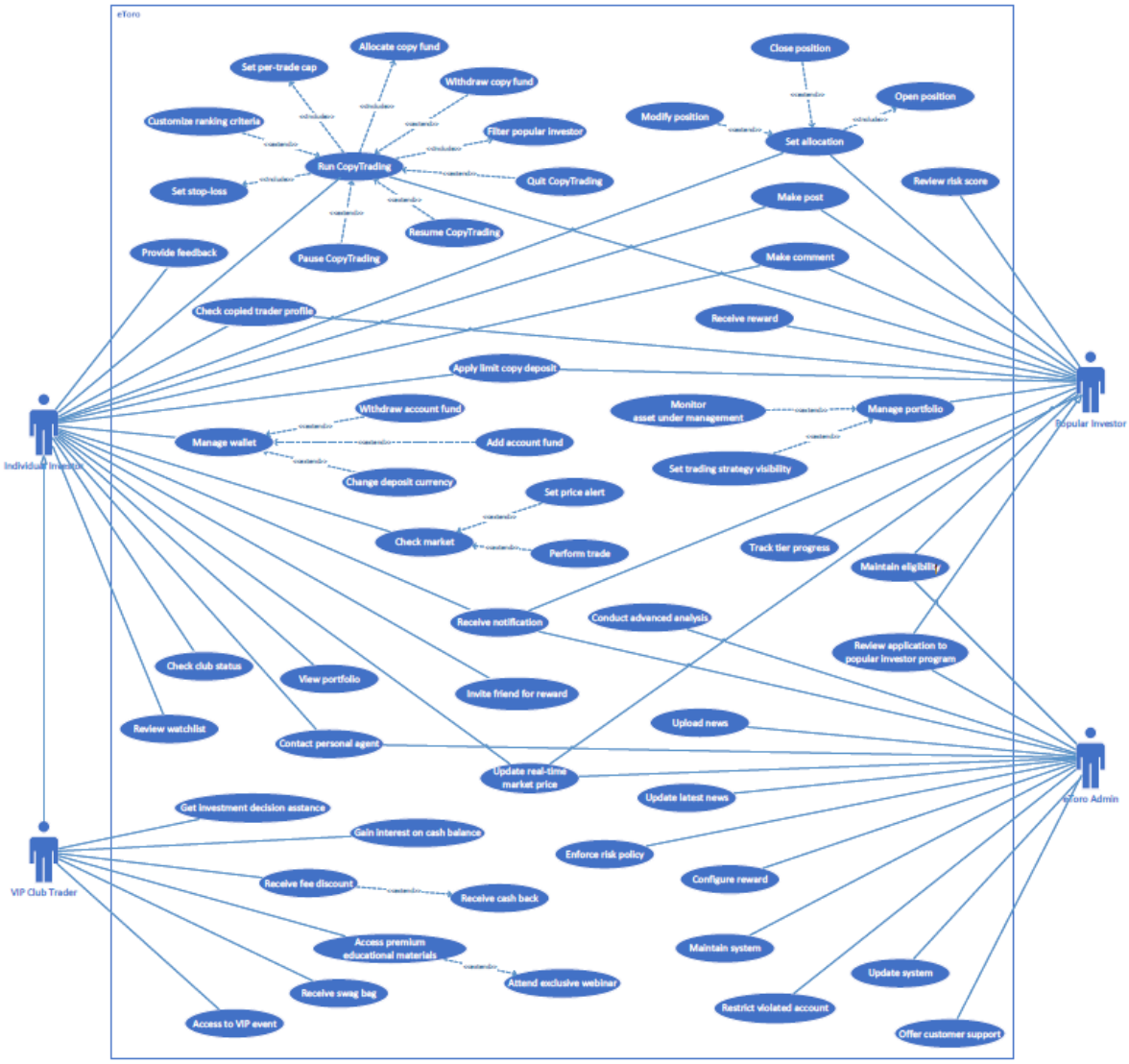

Figure 2: Use-Case Diagram of the eToro platform

There are four main actors who will mostly use this system: Individual Investor, Popular Investor, eToro Admin, and the VIP Club Trader. In the top-left corner lies the main actor, Individual Investor, whom the platform is focusing on. As a result, most of the use cases belong to this investor. The most important requirement – "Run CopyTrading", is examined and designed with multiple <<include>> and <<extend>> relationships. As mentioned in the previous Activity Diagram, Set stop-loss, Set per-trade cap, Allocate

copy fund, and Filter popular investor are the prerequisites to run a CopyTrading. Besides, Customize ranking criteria, Withdraw copy fund, Quit CopyTrading, Resume CopyTrading, and Pause CopyTrading are subject to choice during the CopyTrading relationship is active depending on the investor's decision. Except for the Customize ranking criteria use-case that happens before the copier and the copied are bound, individual investors will have the option to pause and resume the CopyTrading relationship. While being paused, the platform will temporarily unsubscribe the investor from new orders, but keep the current positions unchanged until it is resumed, or even quit accordingly. Furthermore, an individual investor is able to withdraw parts or all of the funds. If part of the copy funds is withdrawn, the system needs to recalculate and reallocate the remaining funds to proportionally match the copied investor's positions.

In addition to CopyTrading, eToro provides the wallet section, where investors, regardless of individual or popular, can manage their balance with multiple options to add, withdraw, and modify currency. The platform also allows investor to check the real-time market, review their watchlist, and monitor their personal portfolio. Especially, since individual investors can get access to exclusive offerings by upgrading their Club status, those VIP (Gold – Platinum) traders not only inherit from normal investors, but also be granted with benefits such as interest on available cash, discount and cashback, advanced investment advice, and permission to VIP webinar/event.

Popular investors are those who are eligible to join the Popular Investor Program, forcing the popular investor to have a different perspective and use cases after registering. Although these investors are not able to perform any CopyTrading, they can be copied by novice users; therefore, the platform allows them to set trade allocation by themselves, and it will reflect on their copiers, with different actions including open, close, and modify positions. Popular investors will also become the ones to initiate the social feeds by creating posts and threads, enabling other individual investors to interact with their posts via comments or shares. Furthermore, they need to monitor assets under management (AUM), which is the overview total balance of their copiers using their specific Popular Investor Portfolio. Furthermore, popular investors can gain extra benefits by accomplishing a set of achievements and advancing in the tier list.

Eventually, the admin of the platform is responsible for offering customer support, updating the system, uploading news, and complying with the policy. Moreover, eToro provides the admin team with the capability to review and evaluate the application from an individual investor to become a member of the popular investor program.

V. Detailed Use-Case Diagram

Use Case Name:	Run CopyTrading
Scenario:	Individual investor runs CopyTrading to gain exposure to the financial markets without actively managing trades.
Trigger Event:	Individual investor looks for passive alternatives to avoid the risk of self-directed trading due to the lack of expertise and bandwidth.
Brief Description:	• Individual investor evaluates popular investors' trading profiles (volatility, leverage, historical drawdowns,…) to copy. • Individual investor set per-trade cap, stop-loss, and deposit fund for allocation. • The feature implements allocations, automatically mirrors real-time positions, and applies minimum investment thresholds. • Individual investor tracks and monitors performance.
Actors:	• Individual investor • Popular investor
Related Use Case:	• Include: Set stop-loss, Set per-trade cap, Allocate copy fund, Filter popular investor. • Extend: Customize ranking criteria, Withdraw copy fund, Quit CopyTrading, Resume CopyTrading, Pause CopyTrading.
Stakeholders:	• Financial authorities: to monitor compliance with financial laws and protection standards. • Marketing department: to promote CopyTrading feature to attract new users and retain existing ones via campaigns. • Product manager: to drive acquisition and position eToro as a leader in the social investing market.
Pre-conditions:	• Individual investor must have an active eToro account. • Individual investor must have sufficient funds available in the wallet. • Popular investor must opt into the CopyTrading program.
Post-conditions:	• A CopyTrading allocation is reserved. • Individual investor's portfolio is updated, mirroring popular investors. • Individual investor is subscribed for future trade positions. • Risk rules are armed and automatically active if the threshold is reached.
Flow of Activities:	***Actor*** / ***System***
	1. Individual investor clicks "CopyTrader"
	2. System loads the CopyTrader screen
	3. Individual investor selects sector

		4. System displays the list of trending popular investors.
	5. Individual investor views the list. 6. Individual investor sets filter criteria. 7. Individual investor filters the list	
		8. System applies the filter and reloads the list.
	9. Individual investor selects the popular investor to copy.	
		10. System opens that popular investor profile.
	11. Individual investor clicks “Copy”.	
		12. System opens “Copy this Investor” screen.
	13. Individual investor sets deposit amount. 14. Individual investor sets stop-loss.	
		15. System enables “Deposit Now” button.
	16. Individual investor clicks “Deposit Now”	
		17. System opens “Fund Your Account” for adding funds.
	18. Individual investor enters fund amount. 19. Individual investor selects payment methods. 20. Individual investor clicks “Deposit” to proceed.	
		21. System creates a copy relationship. 22. System match copier and copied investor. 23. System mirrors the open positions. 24. System set copy

		allocation using individual investor funds. 25. System sends notifications to update both investors. 26. Individual investor is redirected to their portfolio page, with the copy relationship displayed.
Exception Conditions:	6. If individual investor does not set filter criteria, system will sort the list of trending popular investor by Return% and Copiers. 13. If individual investor sets a deposit amount that does not meet the popular investor's limit requirement, system will prompt that the amount is insufficient. 14. If individual investor sets a stop-loss that is not between 5% and 95%, system will prompt to set a valid values. 15. If the deposit amount and stop-loss are not properly set, system will not enable "Deposit Now" button. 16-17-18-19-20. If individual investor has sufficient funds in their wallet, system will direct them to step 21.	

VI. Class Diagram

In the Class Diagram shown in Figure 3, 24 classes are assessed and presented, along with several relationships with multiplicities, especially including association, inheritance, composition, and aggregation.

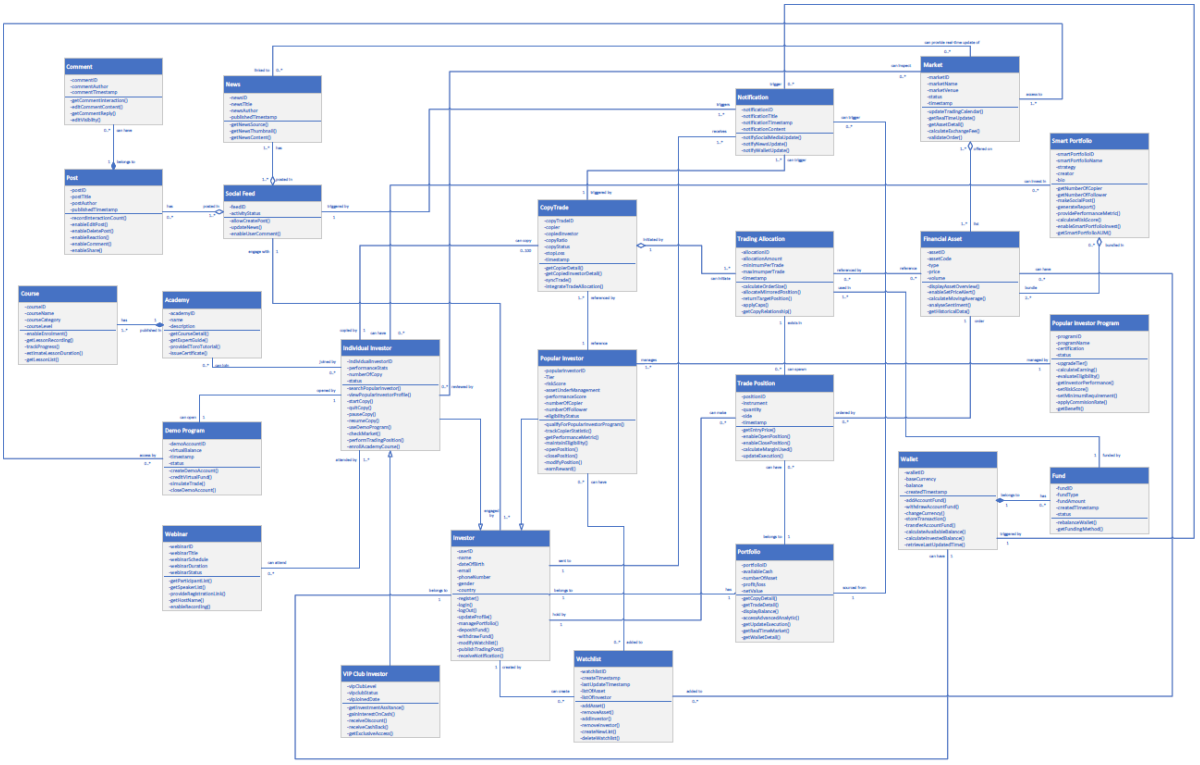

Figure 3: Class Diagram of the eToro Platform

Investor is one of the core domain classes, which is also a superclass containing 2 subclasses: Individual Investor and Popular Investor. If there is any relationship that corresponds to both investors, it will be linked with the superclass to avoid redundant relationships. For instance, any of the investors can receive one-to-many notifications, while one notification can be sent to only one investor. Furthermore, each investor has their own portfolio, regardless of individual or popular, and one designated portfolio belongs to one investor. Similarly, one investor can have 1 wallet, which cannot be shared with any other investors. An investor also has engagement with the social feed, with one investor can engage with one feed, but one feed can be engaged by multiple investors, since popular investors might post some threads while other individual investors comment on those posts. However, there are 2 associations between watchlist and superclass investor, as well as between watchlist and popular investor. One investor can create multiple watchlists, and one watchlist is designated by only one investor. However, one watchlist can have

multiple popular investors added inside, and one popular investor can be added to zero to many watchlists. This is because, no matter whether they are individual or popular investors, they can add other popular investors to their watchlist alongside multiple financial assets, using them for personal strategies.

In order to avoid redundant association between two investor classes, there is a class named “CopyTrade”, represents the copy relationship between them. One individual investor can copy 0 to 100 CopyTrades, and each of the CopyTrades can only be copied by 1 individual investor while being referenced by one popular investor. For individual investors, since they are the primary actors of the platform, this class has heaps of associations that are related to different classes, such as the Smart Portfolio class, where a group of assets is created to allow investors to gain exposure to a wider range of commodities in a single managed portfolio, or the Academy and Webinar, where investor can attend for further learning materials. This class also has one generalization for the VIP Club Investor, which inherits all the attributes and functions of a normal individual investor.

Trade Allocation is one of the most interesting classes, which explains how the CopyTrading feature works. The class helps calculate and compare the proportions of each Trade Position done by a copied investor to the individual investor’s allocated deposit amount. For example, if the individual investor copies a popular investor using $1000 deposit, who is holding NVIDIA (NVDA) stocks for 14.54% of their total net asset values (NAV), the Trade Allocation will take $145.4 (14.54% of $1000) to mirror the open position. Therefore, Trade Allocation is a part of CopyTrade, and CopyTrade has Trade Allocation, making it an aggregation of CopyTrade.

There are a couple of aggregations and compositions in this Class Diagram. Besides Trade Allocation and CopyTrade, Posts and News are aggregations of Social Feed, as the Social Feed has Posts and News, and these two classes are part of the Social Feed. Also, the relationship between Financial Assets and the Market is an aggregation. This is because one market contains multiple Financial Assets, and Financial Assets are part of one or more Markets. For composition, there are three of them, including the association between Comment and Post, Course and Academy, and Fund and Wallet. Post has Comment, Comment is part of Post, and Comment can not live by itself without the existence of Post. Similarly, a Course is a part of the Academy and cannot survive if the Academy is deleted. Eventually, Fund is a part of Wallet, Wallet contains Fund, and if it is deleted, Fund can not survive on its own, as without a Wallet, an investor is not able to add Fund to their account for any further Trade Allocation or CopyTrade.

VII. State Machine Diagram

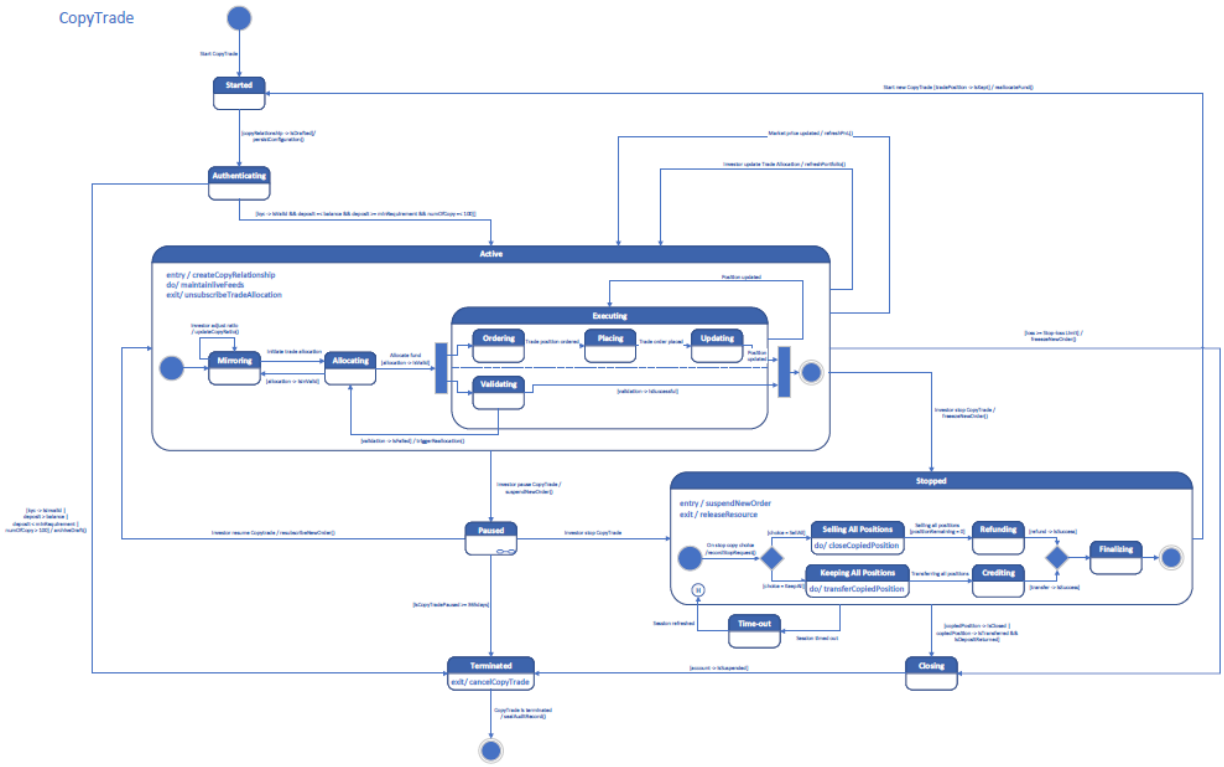

Figure 4: State-Machine Diagram of CopyTrade Class

The class CopyTrade is selected to analyse its different states via the State-Machine Diagram presented in Figure 4. The CopyTrade is first created and marked in the “Started” state, which is later automatically transitioned to the “Authenticating” state after the CopyRelationship is temporarily drafted. In this state, the CopyTrade goes through a KYC verification process, a deposit validation process, and risk rules checks before moving on to the next stage. The transition is automated as long as all the conditions are satisfied; otherwise, the CopyTrade will be terminated immediately if the authentication fails. In this State-Machine Diagram, there are two big composite states showing the key processes, which are considered “Active” and “Stopped”.

The “Active” state is in progress once the guard conditions are met, which then turns the draft CopyRelationship into an actual one on its entrance to this new state. At the beginning of this stage, the CopyTrade mirrors the positions of the copied investor in the “Mirroring” state and will remain in this state if the individual investor keeps adjusting the copy ratio. “Allocating” is the next state, where the trade allocation fund is initiated and applied. Once the allocation is valid, the fund will be allocated for executing

the open positions and further trades in the future; in the absence of that, CopyTrade is unable to proceed to the next state, “Executing”, and must move backward. “Executing” state, an orthogonal state, where the process of performing a trade and validating each position is being done in parallel. The allocated fund will be used to order the position with the market in “Ordering” state, then advance to the “Placing” state to place the trade order. Immediately after the trade position is placed, it will be transferred to the popular investor’s portfolio, then gets updated accordingly in the individual investor’s portfolio via the “Updating” state. In the event the popular investor continues to perform new trades, or to modify the existing one with multiple re-allocation, the self-transition happens to keep the CopyTrade in the “Executing” state until the investor decides to stop, pause, or the stop-loss threshold is reached. If the risk rule is violated, the CopyTrade will automatically transition to the “Closing” state to suspend the relationship for risk management.

Differentiate from the “Closing” state, the CopyTrade, on the other hand, is only in the “Stopped” state on the individual investor decision, as in this composite state, the investor has two options to either keep the existing positions or sell all of them. If the choice is to “Keep All”, the system will suspend the copy relationship, which means that any future trades happening by the popular investor during this state will not reflect on the individual investor’s portfolio; however, the currently copied positions that are still active at the beginning of this state will be transferred to their personal portfolio, and they have to manage all the trades by themselve. Otherwise, the “Sell All” selection will instantly sell all the holdings and refund the balance to the investor’s wallet. Especially, there is a historical state to ensure the process will start from what they have left once interrupted by any technical issue causing the session time-out.

For the “Terminated” state, it can be transitioned to from either the “Paused” or “Closing” states automatically. For the “Paused” state, it has a decomposite that is not considered in this diagram at this moment to prevent overloads and might need a separate diagram to present clearly.

VIII. UI Design Narratives

Renowned for its user-friendly interface, the eToro platform designs its intuitive UI highlighting the accessibility and usability, which represents a fusion between a financial dashboard and a social network. Unfortunately, while the design successfully engages non-professional investors, especially those who are driven by its signature feature, CopyTrading, there are certain elements that are still posing cognitive and navigational challenges, which cause a significant impact on the overall user experience.

1. *The Good*

- **Intuitive Navigation and Accessibility**

The eToro platform exemplifies a strong design principle to turn complex financial interactions into an approachable interface that aligns with the company's customer-centric objectives. In Appendix 2, the dropdown menu on the left-hand side is organized in a clean way that not only provides the intuitive navigation structure to differentiate between separated features, but also maintains the consistency between the web and the mobile application version (Appendix 3). The responsiveness of this interface, with adaptive layout, ensures continuity of experience across devices. With clearly labeled menus such as "Home", "Portfolio", "Watchlist", "Wallet" and further additional "More" features, users can efficiently guide and move fluidly between viewing markets and managing investments. The visual hierarchy is highlighted with clean typography, spacing, and iconography, which aims to minimize the cognitive load.

- **Integrated Social Layer**

One of the standout strengths of the platform is the integration between social network and trading elements. By designing the homepage of an investor modeled after familiar social media patterns nowadays (Appendix 4), with New Feeds and Social Posts, eToro has successfully retained users thanks to a familiar interface that allows users to follow, comment, and interact with others' activity. It reduces learning curves for beginners and supports efficient information retrieval.

- **Data visualization**

Data visualization is well-executed through real-time updates and an interactive dashboard, assisting investors in interpreting portfolio performance and market trends significantly. Specifically, the use of a color-coded palette, for instance, with red indicating loss and green indicating profit, in the displayed performance indicators, provides instant feedback that supports investors in evaluating their investment efficiency and promptly highlights the importance of early intervention. Furthermore, the beginner-friendly overview dashboard is personalized for each investor, using financial abbreviations with adequate contextual explanation, avoiding cognitive overload for users with limited financial knowledge.

2. *The Bad*

- **Inconsistent Depth between Web and Application**

That being said, despite the consistent and mobile-friendly layout, there are some minor weaknesses that come from the depth difference between the two versions. While the desktop interface offers detailed analytics and advanced order management, some of these capabilities are simplified or even absent on mobile. That, unfortunately, disrupts users' expectations and continuity when jumping back and forth between web and apps. For example, in Appendices 5 and 6, the performance statistics of a popular investor are displayed monthly over the past 3 years, enabling users to make year-over-year comparisons with ease. Whereas on mobile, the data is condensed to a single year, which limits comparative analysis across time periods. Additionally, notification management can be intrusive to some extent. Even though the platform enables price alert settings, which is extremely valuable to keep track of the market's price movement, the current placement of the notification button reduces its prominence, especially on desktop, potentially leading to missed important alerts.

- **Limited Functionalities for Higher Proficiency**

As novice investors are the targeted segment, the interface minimizes the abundance of advanced numerical indicators and visualization, which, on the other hand, becomes insufficient for individuals with partial to advanced levels of expertise. Investors have limited customization power to rearrange widgets, include advanced metrics, or drop unnecessary visualizations to suit personal preferences. Finally, the platform only shows the market price and indicators upon selection, without listing all financial assets published on that exchange. This makes it challenging for investor to locate their preferred stocks or commodities, requiring them to search individually before adding to their watchlist.

3. *The Ugly*

- **Clutter in High-Information Screens**

In screens such as Asset Explorer or Popular Investor Profiles, the overview performance with graphs and metrics is displayed on the same screen as the Discussion Threads. The excessive scrolling creates visual clutter that leads to potential detractions from the minimalist aesthetics.

- **Color and Accessibility Limitations**

The heavy reliance on red-and-green color coding to communicate profit and loss may possess unreadability for color-blind users, with no option to enable color-vision inclusive.

IX. Improvement Suggestions

In the social trading industry, the two critical challenges that discourage investors from initiating trades are confidence and trust, resulting in lower participation. Despite eToro successfully establishing CopyTrading to mitigate hesitation among less confident investors by allowing them to mirror trade positions from experienced ones, the secondary trust concern appears as a barrier when individual investors doubt entrusting someone with financial responsibility for handling their money. Reith et al. (2020) computed and figured out that risk aversion, the measurement of an investor's tendency to avoid taking risks, mainly affects intention to use social trading platforms.

In this situation, the proposal of an additional feature implemented in the CopyTrading, declared as CopyTrading Simulation, is recommended to address these two challenges in social trading platforms. The simulation is expected to enable individual investors to replay historical performance using real market data, compressed into a short virtual session that shows the hypothetical outputs before proceeding with copying the selected popular investor. The report will not only present the profits, losses, drawdowns, and risk metrics for the chosen simulation time frame to compare with the actual performance, but also outline all the trade positions that support investors, specifically those with intermediate knowledge, to understand the drivers behind each decision. According to Teall (2022), the integration of simulation in trading increases investors' perception of control and learning retention, building confidence and trust for them to adopt future investments without financial risk. Also, as Balakrishnan and Dwivedi (2021) indicated, human-to-machine interactions influence positively on building user experience and trust. By taking advantage of this, eToro can witness growth in user engagement, satisfaction that later results in an expanded revenue stream. Dissimilar to the Demo program, in which an investor can create a demo account with 100 thousand credits to practice investing but cannot transfer their performance to the real account, this simulation feature allows them to convert the CopyTrade into an active state once the results satisfy their preferences, reducing the time-consuming process of setting copy parameters.

XI. Diagrams with Improvement Incorporation

1. *Improved Use-Case Diagram*

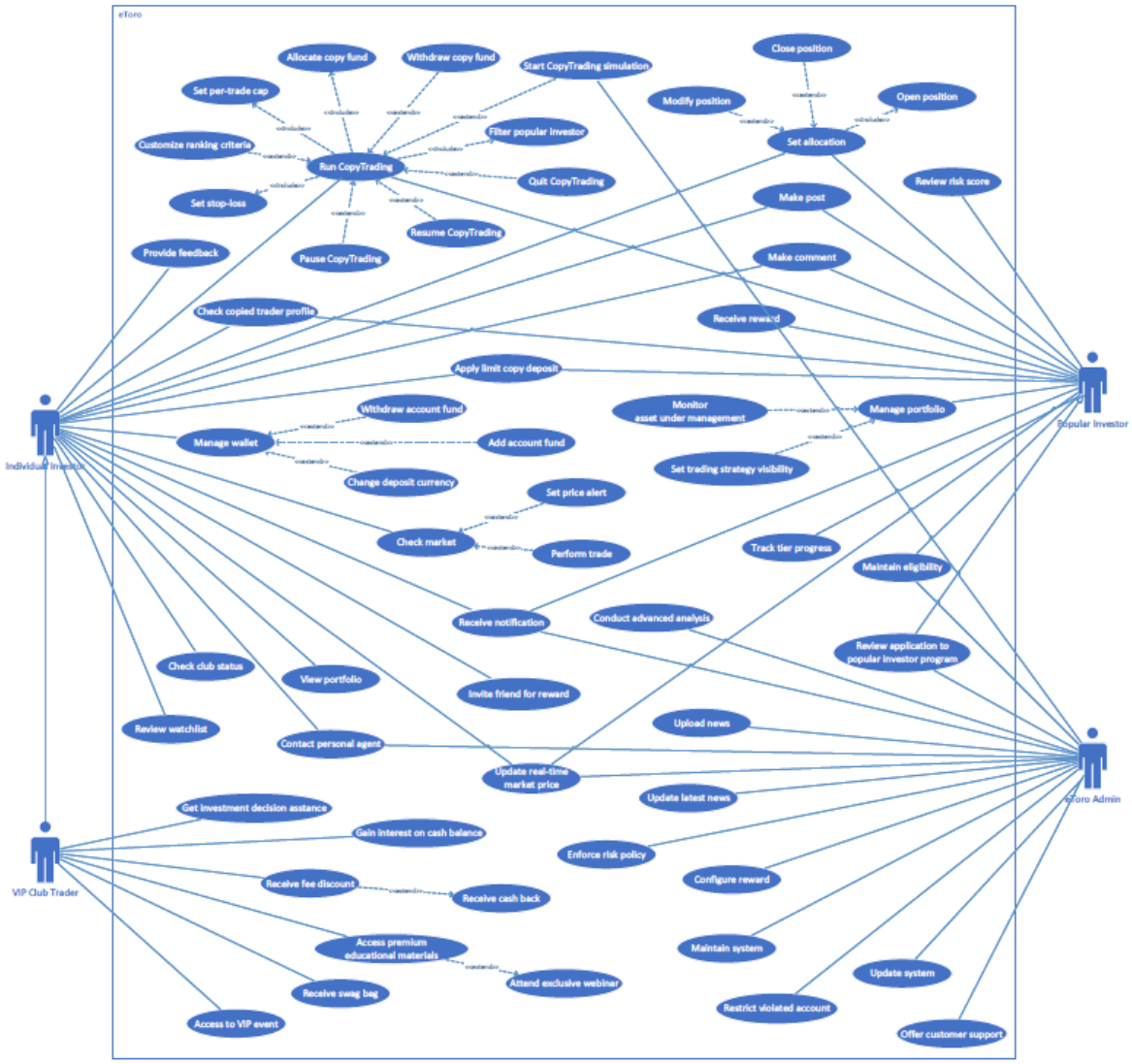

Figure 5: Improved Use-Case Diagram of The eToro Platform

Shown in the improved Use-Case Diagram as an <<extend>> relationship of the main use case Run CopyTrading, the CopyTrading Simulation will be integrated after the process of selecting Popular Investor, setting up risk rules, and confirming the deposit amount for the CopyTrade relationship. The simulation is optional and can be run multiple times until the CopyTrade is either converted to a live relationship or terminated before moving onto a different popular investor, upon individual investor decision. The improved Expanded Use-Case below outlines how the new feature is embedded.

Use Case Name:	Start CopyTrading Simulation
Scenario:	Individual investor requests a simulation preview before confirming the chosen copy relationship and committing real funds.
Trigger Event:	Individual investor wants to test how their portfolio would perform under the popular investor's historical decision.
Brief Description:	• Individual investor selects a past time frame to run the simulation. • The system aligns timestamps between historical trades and asset price series. • The system creates a virtual portfolio. • The system starts the replay engine while applying real-time risk rules, then conducts a summary report • Individual investor reviews performance and makes a decision.
Actors:	• Individual investor • Popular investor • eToro admin
Related Use Case:	N/A
Stakeholders:	• Data team: to ensure accuracy, realism and perofrmance of the simulation model. • Marketing department: to promote the new Simulation feature to attract new users and retain existing ones via campaigns.
Pre-conditions:	• Individual investor starts a CopyTrade but does not proceed with confirming the copy relationship. • Copy parameters are set and frozen to create a temporary relationship. • Historical data is available for the chosen time frame.
Post-conditions:	• Real funds and positions are not affected. • CopyTrade is created and becomes active if conversion is selected
Flow of Activities:	***Actor*** / ***System***
	1. System displays "Run" and "Simulate" buttons.
	2. Individual investor clicks "Simulate". 3. Individual investor sets a time period. 4. Individual investor selects "Start Simulation"
	5. System creates a virtual portfolio. 6. System loads historical trades and prices 7. System applies risk rules.

		8. System replays trade events in compressed time 9. System compute performance metrics. 10. System displays a Summary Report. 11. System enables "Convert to Live"
	12. Individual investor clicks "Convert to Live"	
Exception Conditions:	1. This step starts after step (20) in "Run CopyTrading", where instead of creating the copy relationship directly, system provides one more option to try simulation. 4. If there is any data error, simulation will be aborted, investor will be prompted to stay in the setup time frame (3) and re-select. 8. If there are any data gaps, system will warn investor and prompt that investor may continue/cancel/re-select the period. 9. If stop-loss hits during the simulation, simulations will continue, but the event is recorded for the final report. 12. After click the convert button, system will start from step (21) in "Run CopyTrading" to finalize the copy relationship. 12. If investor is not happy with the simulation, they can proceed with terminating the CopyTrade.	

3. *Improved State Machine Diagram*

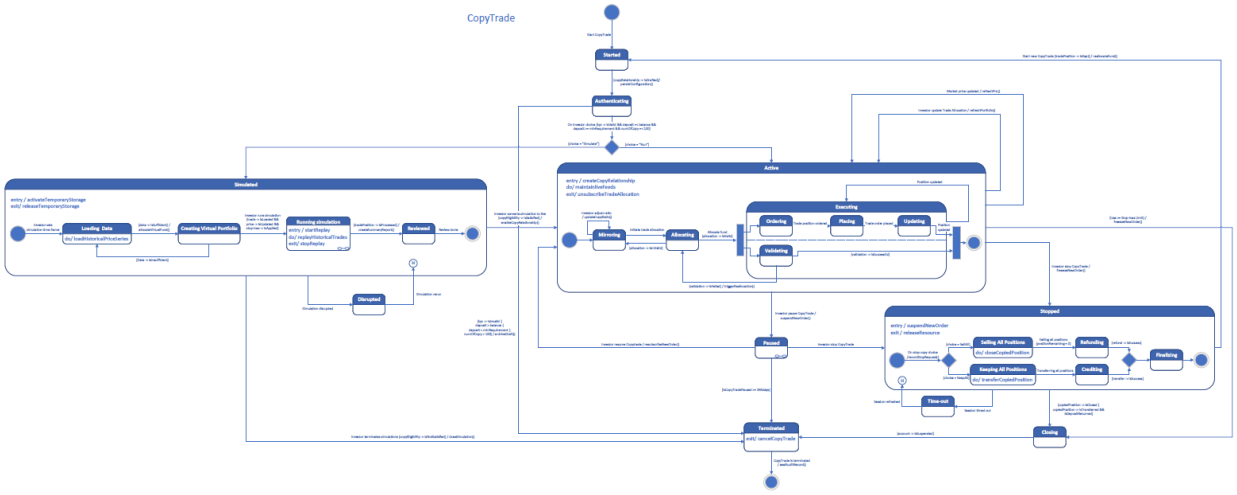

Figure 6: Improved State-Machine Diagram of CopyTrade Class

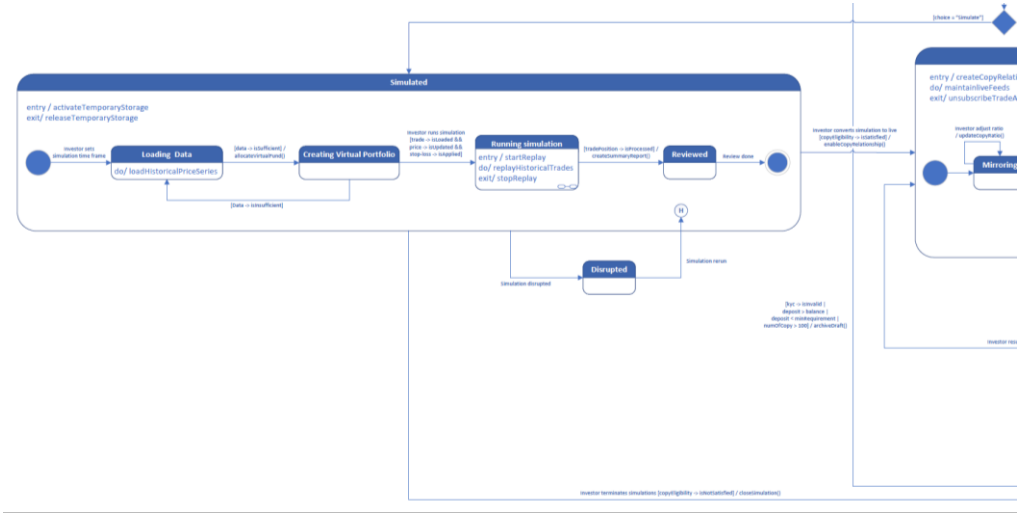

Figure 7: Simulated State of the Improved State-Machine Diagram

Before the relationship becomes active, individual investors are offered the option to “Simulate”, where they have the opportunity to select a lagged period for the simulation backtesting engine. eToro will then compress the data into a short virtual replay, apply it to the newly created virtual portfolio in the “Creating Virtual Portfolio” state, emulating how it would have performed. Not only are the data with past trades, prices loaded that the stop-loss is applied to run simulation in “Running simulation” state”. With the conducted summary report, the CopyTrade advanced to “Reviewed” state, where individual investor can decide to convert convert to “Active” state, or terminate it if the results are not satisfied. History state is also considered in this simulation to avoid starting the simulation from scratch after any potential disruption. During this time, the CopyRelationship is temporarily held with no live orders or funds involved.

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XIII. Appendix

Appendix 1: eToro System Deconstruction Proposal

System Deconstruction Proposal: UML Analysis of eToro

System Description

eToro is a global multi-asset investment and social trading platform offering users to trade a wide range of financial assets, including stocks, ETFs, commodities, and cryptocurrencies. Available on both website and mobile application, what makes eToro stand out is its CopyTrading feature, which allows individual traders to automatically replicate the trades of professional or popular investors in real-time without having to take action themselves. The platform also integrates social media functions, enabling an interactive community, especially with professional traders.

Link: https://www.etoro.com

Stakeholders

- Individual Trader (end user)
- Professional Investor
- Admin and Compliance Officer
- Payment and Banking Services
- Regulatory Authorities

Core Process

- Account Registration
- Legal Verification
- Funds Deposits and Withdrawals
- Market Research
- Trade Execution
- CopyTrading
- Portfolio and Risk Management
- Social Interactions
- Compliance and Reporting
- Customer Support and Dispute Resolution

Business Model Fit

eToro's revenue model relies on commission on trades (CFDs, crypto, equities,…), bid-offer spread, uninvested money interests, and other trading-related charges.

Verification and compliance protect eToro from fraud and money laundering. Reliable execution of trades and portfolio tracking reinforce user trust, which are essential for attracting and retaining investors. CopyTrading and social interaction encourage more transactions and long-term retention by building engagement, supporting profitability, and community-driven growth.

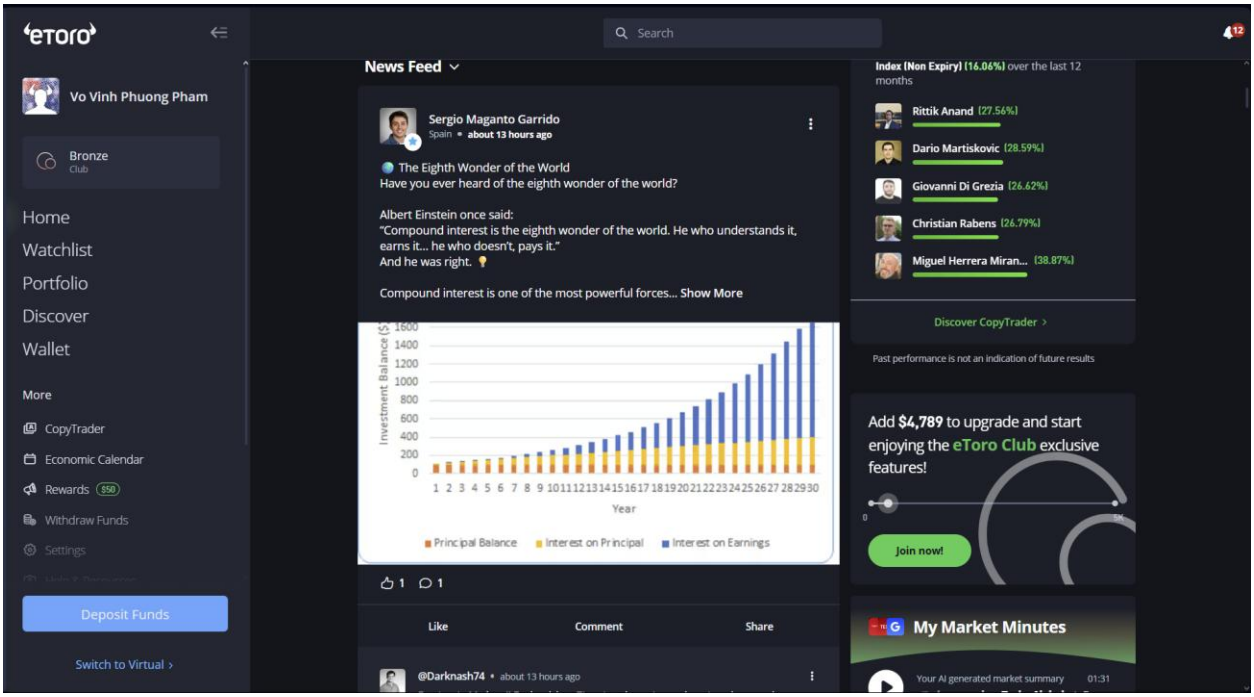
Why chosen?

eToro is a live, globally used platform that combines finance and social networking, offering rich processes for UML deconstruction. It has well-defined actors and flows suitable for Activity, Use Case, Class, and State diagrams. Its integration of regulation, trading, and social interaction makes it academically valuable and practically relevant.

Appendix 2: Home Page Website Interface

Appendix 3: Home Page Mobile Apps Interface

Appendix 4: Social Feeds Interface



Appendix 5: CopyTrader Statistics - Website Interface

Appendix 6: CopyTrader Statistics – Mobile Apps Interface