MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE

Deemed to be University
(Declared under Distinct Category by Ministry of Education, Govt. of India)
NAAC Accredited with A++ Grade

Project Report

on

Development of ETF analysis system

Submitted By:

Yashika Thakur

(0901CA221076)

Industry Mentor:

Mrs. Sweety Gupta, (Project Guide, Praedico Global Research Private Ltd.)

Faculty Mentor:

Dr. Parul Saxena (Assistant Professor)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE
GWALIOR – 474005 (MP) Estd. 1957
JAN – JUNE 2024

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A project report submitted in partial fulfilment of the requirement for the degree of

MASTER IN COMPUTER APPLICATION

in

COMPUTER SCIENCE AND ENGINEERING

Submitted By:

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CERTIFICATE

This is certified that **Yashika Thakur (0901CA221076)** has submitted the project report titled **Development of ETF analysis system** under the mentorship of **Mrs. Sweety Gupta,** (Project Guide, Praedico Global Research Private Ltd.) in partial fulfilment of the requirement for the award of degree of **Master in Computer Application** of Computer Science and Engineering from **Madhav Institute of Technology and Science, Gwalior.**

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24/4/24

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Computer Science and Engineering

Dr. Manish Dixit
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DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfilment of requirement for the award of the degree of Master in Computer Application in Computer Science and Engineering at **Madhav Institute of Technology & Science, Gwalior** is an authenticated and original record of my work under the mentorship of **Mrs. Sweety Gupta**, (Project Guide, Praedico Global Research Private Limited).

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE

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ABSTRACT

An essential part of a larger financial platform, the admin module for ETF (Exchange-Traded Fund) analysis allows for effective management and supervision of ETF data and operations. To meet the demands of financial website, investment businesses, and private investors alike, this module is made to provide extensive administrative functions that optimize the procedures involved in assessing ETFs.

Fundamentally, the admin module offers instruments for data gathering, cleaning, and standardization, guaranteeing the precise and effective collection of ETF-related data from diverse sources. It has tools for handling metadata, including regulatory compliance data, expense ratios, historical performance data, and fund composition. In order to adapt the analysis process to particular needs, the module also gives administrators the ability to set and modify analysis parameters, including risk measures, performance standards, and investment targets. Moreover, the admin module usually has strong reporting and visualization features that enable users to create informative reports, graphs, and charts to learn more about the risk exposures, portfolio compositions, and performance patterns of ETFs.

All things considered, the admin module for ETF analysis is essential to provide investors and financial experts with the knowledge and resources they need to properly manage the ever-changing world of ETF investments, make well-informed judgments, and optimize portfolio strategies. In the world of contemporary finance, its user-friendly design, potent analytical capabilities, and adaptable features make it an invaluable tool.

The admin module for ETF analysis has strong security protections in addition to its essential functionality to protect private financial information and guarantee regulatory compliance. To guard against fraud, illegal access, and data breaches, advanced access controls, encryption techniques, and audit trails are put in place. Additionally, the module makes it easier to integrate with other financial systems and data sources, which enables automated processes, real-time data updates, and infrastructure compatibility.

Moreover, the admin module acts as a focal point for coordination and dialogue amongst all parties participating in ETF analysis. It offers communication tools, task management capabilities, and discussion boards to facilitate teamwork, exchange knowledge, and efficiently plan activities. This cooperative setting improves openness, responsibility, and information exchange, allowing users to take advantage of group knowledge and make wise choices in the constantly changing world of exchange-traded funds (ETF) investing. In the end, the admin module for ETF analysis is a vital tool for financial professionals looking to maximize their ETF investment strategies since it not only simplifies administrative work but also promotes collaboration and improves security.

सार

एक बड़े वित्तीय मंच का एक अनिवार्य हिस्सा, ईटीएफ (एक्सचेंज-ट्रेडेड फंड) विश्लेषण के लिए व्यवस्थापक मॉड्यूल ईटीएफ डेटा और संचालन के प्रभावी प्रबंधन और पर्यवेक्षण की अनुमति देता है। वित्तीय वेबसाइट, निवेश व्यवसायों और निजी निवेशकों की मांगों को समान रूप से पूरा करने के लिए, यह मॉड्यूल व्यापक प्रशासनिक कार्य प्रदान करने के लिए बनाया गया है जो ईटीएफ का आकलन करने में शामिल प्रक्रियाओं का अनुकूलन करता है।

मौलिक रूप से, व्यवस्थापक मॉड्यूल डेटा एकत्र करने, सफाई और मानकीकरण के लिए उपकरण प्रदान करता है, जो विभिन्न स्रोतों से ईटीएफ से संबंधित डेटा के सटीक और प्रभावी संग्रह की गारंटी देता है। इसमें मेटाडेटा को संभालने के लिए उपकरण हैं, जिसमें नियामक अनुपालन डेटा, व्यय अनुपात, ऐतिहासिक प्रदर्शन डेटा और फंड संरचना शामिल हैं। विशेष आवश्यकताओं के लिए विश्लेषण प्रक्रिया को अनुकूलित करने के लिए, मॉड्यूल प्रशासकों को जोखिम उपायों, प्रदर्शन मानकों और निवेश लक्ष्यों सहित विश्लेषण मापदंडों को सेट और संशोधित करने की क्षमता भी देता है। इसके अलावा, व्यवस्थापक मॉड्यूल में आमतौर पर मजबूत रिपोर्टिंग और विज़ुअलाइज़ेशन विशेषताएं होती हैं जो उपयोगकर्ताओं को ईटीएफ के जोखिम जोखिम, पोर्टफोलियो रचनाओं और प्रदर्शन पैटर्न के बारे में अधिक जानने के लिए सूचनात्मक रिपोर्ट, ग्राफ़ और चार्ट बनाने में सक्षम बनाती हैं।

सभी बातों पर विचार किया गया, ईटीएफ विश्लेषण के लिए व्यवस्थापक मॉड्यूल निवेशकों और वित्तीय विशेषज्ञों को ज्ञान और संसाधनों के साथ प्रदान करने के लिए आवश्यक है, जिन्हें उन्हें ईटीएफ निवेश की कभी-बदलती दुनिया को ठीक से प्रबंधित करने, अच्छी तरह से सूचित निर्णय लेने और पोर्टफोलियो रणनीतियों का अनुकूलन करने की आवश्यकता होती है। समकालीन वित्त की दुनिया में, इसकी उपयोगकर्ता के अनुकूल डिजाइन, शक्तिशाली विश्लेषणात्मक क्षमताएं और अनुकूलनीय विशेषताएं इसे एक अमूल्य उपकरण बनाती हैं।

ईटीएफ विश्लेषण के लिए व्यवस्थापक मॉड्यूल में निजी वित्तीय जानकारी की रक्षा और नियामक अनुपालन की गारंटी के लिए इसकी आवश्यक कार्यक्षमता के अलावा मजबूत सुरक्षा सुरक्षा है। धोखाधड़ी, अवैध पहुंच और डेटा उल्लंघनों से बचाव के लिए, उन्नत अभिगम नियंत्रण, एन्क्रिप्शन तकनीक और ऑडिट ट्रेल्स लगाए गए हैं। . इसके अतिरिक्त, मॉड्यूल अन्य वित्तीय प्रणालियों और डेटा स्रोतों के साथ एकीकृत करना आसान बनाता है, जो स्वचालित प्रक्रियाओं, रीयल-टाइम डेटा अपडेट और बुनियादी ढांचे की संगतता को सक्षम बनाता है।

इसके अलावा, व्यवस्थापक मॉड्यूल ईटीएफ विश्लेषण में भाग लेने वाले सभी पक्षों के बीच समन्वय और संवाद के लिए एक केंद्र बिंदु के रूप में कार्य करता है। यह टीम वर्क, विनिमय ज्ञान और कुशलतापूर्वक योजना गतिविधियों को सुविधाजनक बनाने के लिए संचार उपकरण, कार्य प्रबंधन क्षमताओं और चर्चा बोर्डों की पेशकश करता है। यह सहकारी सेटिंग खुलेपन, जिम्मेदारी और सूचना विनिमय में सुधार करती है, जिससे उपयोगकर्ता समूह ज्ञान का लाभ उठा सकते हैं और एक्सचेंज-ट्रेडेड फंड (ईटीएफ) निवेश की लगातार बदलती दुनिया में बुद्धिमान विकल्प बना सकते हैं। अंत में, ईटीएफ विश्लेषण के लिए व्यवस्थापक मॉड्यूल वित्तीय पेशेवरों के लिए एक महत्वपूर्ण उपकरण है जो अपनी ईटीएफ निवेश रणनीतियों को अधिकतम करना चाहते हैं क्योंकि यह न केवल प्रशासनिक कार्य को सरल करता है बल्कि सहयोग को बढ़ावा देता है और सुरक्षा में सुधार करता है।

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Chapter 1: Introduction

ETF (Exchange Traded Fund) analysis is the part of the stock market that is related to the most valuable product created for individual investors in recent years. This website helps customers check all updates here on one platform. Providing investors with a unified platform to obtain comprehensive ETF data can be a useful tool for helping them make well-informed selections. Make sure the website has an easy-to-use layout that makes it simple for investors to explore and get the information they want.

“Investing in exchange-traded funds (ETFs) can now be simple and enlightening with Admin module for ETF analysis system”. We propose a novel platform for individual investors looking for a thorough and user-friendly approach to ETF research in the constantly changing stock market analysis. Our goal is to make the often complex process of collecting ETF data easier by compiling all the necessary data in one easily accessible location. ETFs are the most useful product developed for individual investors in recent years. Our platform is committed to provide users with the knowledge and resources they need to make wise investing decisions. ETFs offer a wide range of options. When it comes to fully realizing the potential of your ETF investments, Admin module for ETF analysis system is the place to go for everything from real-time updates and customisable watchlists to in-depth research and instructional materials."

1.1 Problem identification

Exchange Traded Funds (ETFs) are becoming an increasingly important component of the investing landscape, which makes it necessary to have a specialized platform for ETF research. ETF diversified exposure and liquidity advantages are drawing more and more attention from individual investors; the difficulty, though, is in effectively locating and analysing the vast amount of data dispersed across several sources. This urgent demand is met by Admin module for ETF analysis system, which provides investors with a central location from which to easily browse through extensive ETF data. There has never been a greater need for an intuitive user interface, real-time updates, and analytical tools. Admin module for ETF analysis system meets this need by offering investors a consolidated platform where they can confidently research, evaluate, and comprehend ETF. Acknowledging the dynamic changes in the market and the intricacy of ETF research, Admin module for ETF analysis system is at the forefront, filling the void between fragmented data and empowering investors.

(a) Lack of Consolidated ETF Data Access: Diverse sources make it difficult for investors to obtain all of the ETF data; a single platform would facilitate efficient access.

(b) Complex Data Retrieval Procedures: Simplifying the interface to make it easier to use is necessary since the current approaches for getting ETF information are laborious and wasteful.

(c) Delays in Information Updates: Investors find it difficult to make prompt judgments when they are not updated in a timely manner, which emphasizes the need of real-time information sharing.

(d) Complex Comparative Analysis: It might be difficult for investors to compare many ETFs at once, which emphasizes the need for easy-to-use tools for comparative analysis.

(e) Resources for Financial Literacy Education: A lack of resources for financial literacy makes it difficult for investors to comprehend the complexities of exchange-traded funds (ETFs), which highlights the need for easily available instructional materials.

(f) Insufficient Tools for Portfolio Management: Investors do not have sufficient resources to manage and optimize their ETF portfolios, which emphasizes the need for features that assist in making strategic decisions.

(g) Unclear Risk Assessment Methods: The need for transparent risk assessment tools is highlighted by the complexity of investment decisions caused by ambiguity in risk appraisal.

(h) Limited Opportunities for Community participation: The dearth of forums for investors to share knowledge and experiences highlights the need of encouraging community participation.

(i) Vulnerable Data Security Measures: Investor confidence is at risk due to data security concerns, which calls for better procedures to protect user data and financial information.

1.2 Parent organization

Praedico Global Research Pvt. Ltd.: Revolutionizing Financial Literacy in India

At Praedico, our goal is to democratize financial literacy in India, and we're taking this task on for free. We've led the way in the creation of financial neurons—sophisticated neural networks that underpin our state-of-the-art stock market intelligence offerings—inspired by the neural architecture of the human brain.

We are the first finance neuron developers in India, not simply another finance firm. We are able to anticipate stock market performance globally with high accuracy by utilizing the capabilities of neural networks that have been properly created. As a cutting-edge fintech business, we use artificial intelligence to find new financial research products with the goal of providing people with free, top-notch research and insights.

With forecasts in the Indian stock market and financial goods over 80% precision, our products have an amazing track record of accuracy. This implies that ordinary Indian investors, who usually had to pay high fees for research and advisory services, may now use our services for free.

Our goal is to spearhead the global effort to eradicate financial inequity. We're leveling the playing field and making sure that everyone, regardless of financial means, has the chance to prosper in the market by offering free access to financial information and tools.

We're dedicated to creating financial solutions that beat the market in terms of pricing and performance in order to realize our mission. Our goal is to become the industry leader in financial product creation by setting the bar for performance and cost-effectiveness in the marketplace.

At Praedico, we're changing the financial environment as a whole, not simply financial literacy. We are enabling people all throughout India to take charge of their financial lives with our creative strategy, steadfast attention to accuracy, and unwavering commitment to accessibility.

At Praedico Global Research Organization, we blend finance and technology seamlessly. As a web developer, my role revolves around creating user-friendly interfaces that facilitate efficient access to financial information and analysis. We're deeply involved in stock and ETF (Exchange Traded Fund) analysis, covering a wide range of assets, including GoldBees, NiftyBees, and SilverBees. Our joy stems from the comprehensive calculations and insights we derive from these analyses.

1.3 Hardware and Software Specifications

a. Hardware Specification

To guarantee optimum performance and dependability, we have specified precise specs for the hardware needed for our project. First, we have a Ryzen 5 CPU from the 5000 series, which has a frequency of 2.30 GHz. This processor has a strong processing capacity, which is necessary to effectively manage the computational needs of our project. Our system will have enough memory to facilitate multitasking and manage big datasets with ease when combined with 8 GB of RAM. We will use a 512 GB hard disk drive to store our project files and data, which will be enough storage for our purposes. We'll also include a 512 GB SSD (Solid State Drive), which improves overall system performance and provides quicker data access rates. Our system will run on a 64-bit OS X64 H-Processor to maximize performance and ensure compatibility with contemporary software. With these hardware requirements in place, we can start our project with confidence since we know that our system can handle the demands of our jobs in an effective and efficient manner.

b. Software specification

Window 11 operating system: The decision to utilize Windows 11 as the operating system stems from its advanced features, enhanced security measures, and improves user interfaces, with its modern design and optimized performance, it provides a stable and secure environment for software development.

Visual Studio Code: As the primary coding environment, VS Code offers a plethora of features tailored for modern development workflows, Its support for various programming languages, extensive libraries of extensions, and integrated version control systems streamline the coding process, fostering productivity and collaboration among team members.

MySQL Workbench: The selection of MySQL workbench for database management ensures efficient handling of data throughout development lifecycle. Its intuitive graphical user interface simplifies tasks such as database design, modelling, and administration, empowering developers to create and optimize databases with ease. Additionally, its compatibility with Windows 11 ensures seamless integration into the development environment.

We are looking for people that are skilled in a variety of technologies that are necessary for our project in order to fill positions. We are specifically seeking applicants with front-end programming experience, who can construct responsive and aesthetically pleasing user interfaces using HTML, CSS, JavaScript, and Bootstrap 5. We also need someone with experience in back-end development, namely with Python and Django, to manage database integration and server-side logic effectively. Furthermore, MYSQL knowledge is highly preferred for control-end activities. The appointed

individuals will assume a pivotal function in the advancement and sustenance of our project, offering their specialized knowledge to guarantee its triumph and expandability.

Our team has to be multi-technologist adept in order to complete the job. Front-end developers with experience in HTML, CSS, JavaScript, and Bootstrap 5 are needed to create user interfaces that are both aesthetically pleasing and responsive on many platforms. We also need back-end developers, especially those that know how to work with Python and Django, to handle server-side logic and smoothly integrate databases. For control-end activities, MYSQL experience is also necessary. Our hiring procedure looks for applicants who can make a meaningful contribution to the growth and success of our project, so that we have a knowledgeable team that can produce excellent work.

Chapter 2 : System Analysis

2.1 Problem Analysis

(a) Split Sources of Information: The scattered nature of ETF data across several sources is a common cause of frustration for investors, making it difficult to effectively compile extensive information.

Solution : Provide investors with simple access to all relevant information in a single, central spot by combining ETF data from several sources into a single, comprehensive platform.

(b) Complex data Retrieval Processes: The complexities of ETF information, such as holdings, performance measures, and historical data, can be daunting, necessitating the need for a streamlined and intuitive platform to facilitate retrieval.

Solution : Simplify the process of retrieving ETF data by putting in place a user-friendly platform that offers strong search capabilities, intuitive navigation, and easy access to extensive holdings, performance, and historical data information for investors.

(c) Exhaustive Research Procedure: For individual investors who want to make decisions quickly, it can be time-consuming and bulky data to do extensive research on several websites to gain current ETF information.

Solution : Provide investors with a consolidated platform that compiles up-to-date ETF information from many sources, streamlining the research process and eliminating the need for time-consuming manual research across several websites.

(d) Restricted Comparison Analysis: Investors find it challenging to evaluate many ETFs at once when there are no tools available for side-by-side comparison, which impedes their ability to select the best solutions for their investing objectives.

Solution : Improve investor decision-making by including tools that allow users to compare different ETFs side by side, giving them the ability to assess and choose the best investment alternatives that are in line with their goals all on one platform.

(e) Insufficient Educational Materials: It is possible that investors lack a basic grasp of ETFs and the market as a whole, which emphasizes the need for an integrated platform with educational tools to improve financial literacy.

Solution : To close the knowledge gap and increase investors' comprehension of ETFs and the overall market environment, the platform should provide extensive educational resources like as articles, tutorials, and interactive tools.

(f) Not Getting Real-Time Updates: Conventional approaches could not give investors fast, real-time alerts on news, market trends, and ETF prices, which might lead to lost opportunities or a delay in making decisions.

Solution : Make sure that investors are informed and able to act quickly by putting tools in place that provide real-time notifications on news, market trends, and ETF pricing. You may leverage technologies like as the Django framework to process and analyse data efficiently.

(g) Risk Ambiguity: The absence of accessible risk assessment tools makes it difficult for investors to quantify and manage the underlying risks associated with different ETFs, demanding a more transparent and user-friendly approach.

Solution : Improve risk assessment by including user-friendly tools that let investors openly measure and manage the risks connected to various ETFs, using sophisticated computation techniques to deliver informative risk assessments.

(h) Insufficient Community Involvement: It is important to note that investors frequently lose out on the advantages of group conversations and exchanged perspectives, underscoring the necessity of a platform that encourages cooperation and education among investors.

Solution : Promote community engagement by developing a forum, discussion group, and social feature-rich platform that facilitates investor cooperation and knowledge exchange; this way, community insights may be leveraged to improve decision-making and educational possibilities.

(i) Security Issues: The demand for secure settings that shield user data and financial information from possible attacks and breaches is growing as online platforms become more and more important.

Solution : Put security first by putting strong security measures in place to protect user data and financial information, such as multi-factor authentication, encryption protocols, and frequent security audits. This will make sure that investors can buy and sell ETFs directly on the platform in a safe and reliable environment.

2.2 Feasibility Study

2.2.1 Economic feasibility study

Personnel:

S.no.	Roles	Cost
1.	System Analyst: 4 days per month (in 4 month)	Rs. 3000/-
2.	Programmer: 60 days (in 4 month)	Rs. 5000/-
3.	Database Specialist (1): 15 days (in 4 month)	Rs. 2000/-

Other expenses:

S.no.	Specification	Cost
1.	Electricity (in 4 month) 150/- per month	Rs. 550/-
2.	Stationary	Rs. 200/-
3.	Workplace facilities	Rs. 1000/-
4.	System	Rs .1000/-

Hardware & Software expenses:

S.no.	Specification	Cost
1.	Development Server (Django)	Rs. 3000/-
2.	Server Software (O.S.)	Rs. 2000/-
3.	DBMS Server (MYSQL)	Rs. 1000/-
Total		Rs. 18,750/-

2.2.2 Technical feasibility study

In technical feasibility study, we will check the existing computer system support in our project. We will define basically software and hardware (equipment) requirements.

(a) Hardware Requirement

S.no.	Specification	Description
1.	Processor	Ryzen 5 in 5000 series 2.30 GHz
2.	RAM	8 GB
3.	Hard disk drive	512 GB
4.	System type	64 bits OS X64 H-Processor
5.	SSD	512 GB

(b) Software Requirement

S.no.	Specification	Description
1.	Front-end	HTML, CSS, JavaScript, Bootstrap 5
2.	Back-end	Python , Django
3.	Control-end	MYSQL
4.	Application	Visual Studio Code
5.	Other application	Microsoft Browser, Google chrome
6.	Operating System	Window 11
7.	Network	Wi-fi

2.2.3 Behavioural feasibility study

As we all know that behavioural feasibility study should be maintain by the co-ordination and how to made strategy.

(a) We had conducted regular meeting between team members and team leader. Gather some ideas from them for implementing.

(b) We can also provide training to use this technical support. Describe the user training schedule for the new system. Shared the approach for continuing maintenance and support.

(c) Twice a month expertise or specialist took a meeting with team for maximum involvement and satisfaction through our development process. They check all the activities from the team member and give better suggestion to resolve their query.

(d) Make that the system confirms with all applicable terms and conditions, including those pertaining to data security and privacy. Any ethical issues, such as the gathering and use of visitor data, should be addressed.

(e) Determine your training needs to use the system efficiently. We make sure that you are prepared and eager to learn the new technology by assessing the time and resources required for training.

(f) To make sure the system is simple to use and intuitive, assess the user interface and overall user experience. Lower adoption rates and resistance can result from poor UX.

(g) Analise the financial implications of putting the system into place, taking into accounts like development expenses, training costs, and anticipated benefits. For manage our activities and expenses in order to minimize the overall budget.

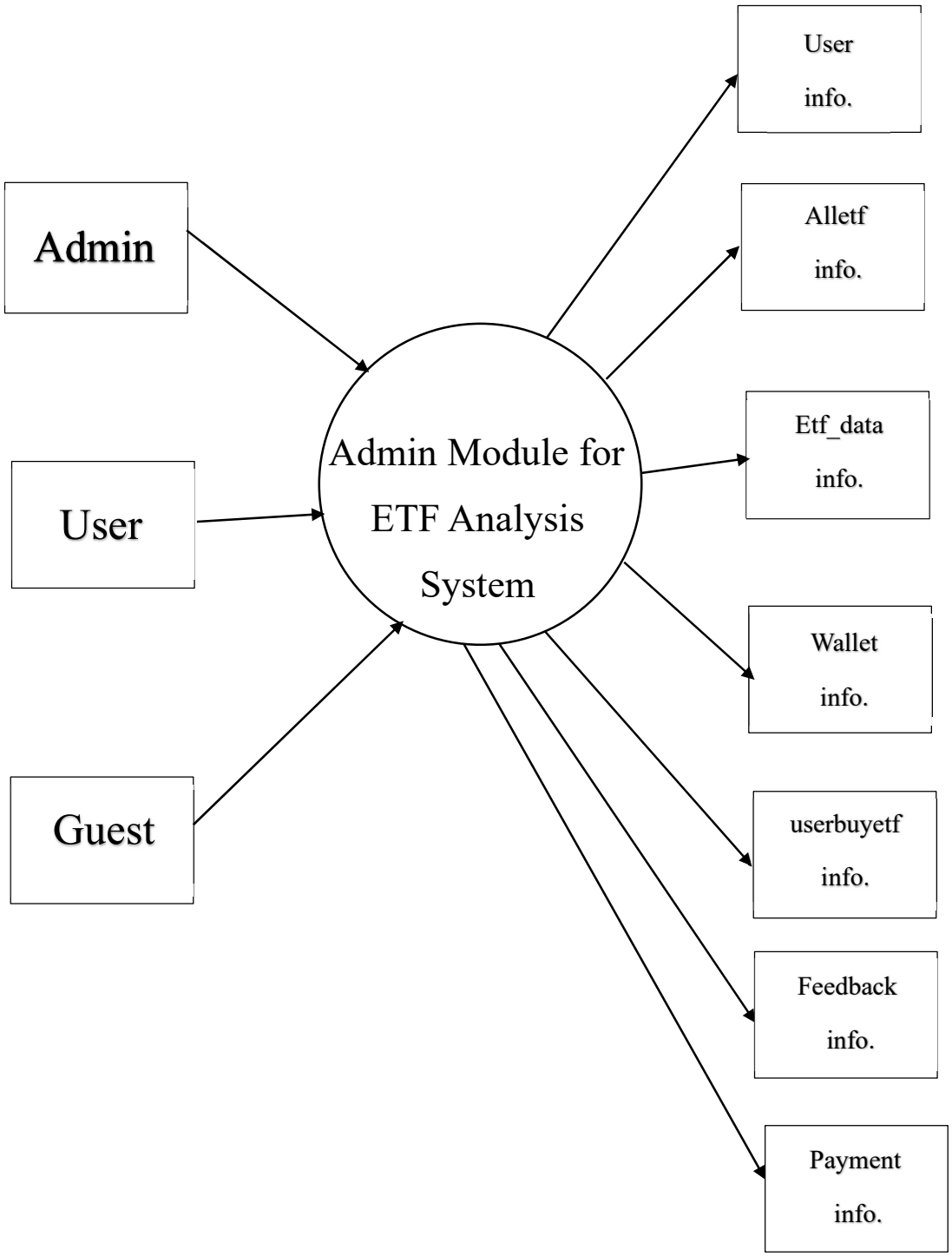
(h) Keep yourself updated on compliance requirements and regulatory changes to make sure the platform offers the data needed to compile with regulations. Make sure users have access to the data needed for compliance and reporting by updating information offerings on a regular basis in response to modifications in financial legislation.

(i) Use data analytics and technological breakthroughs to find fresh, creative approaches to information presentation that suit consumer preferences. To improve the platform's capacity to provide pertinent and perceptive information, investigate cutting-edge technologies like machine learning and data visualization tools.

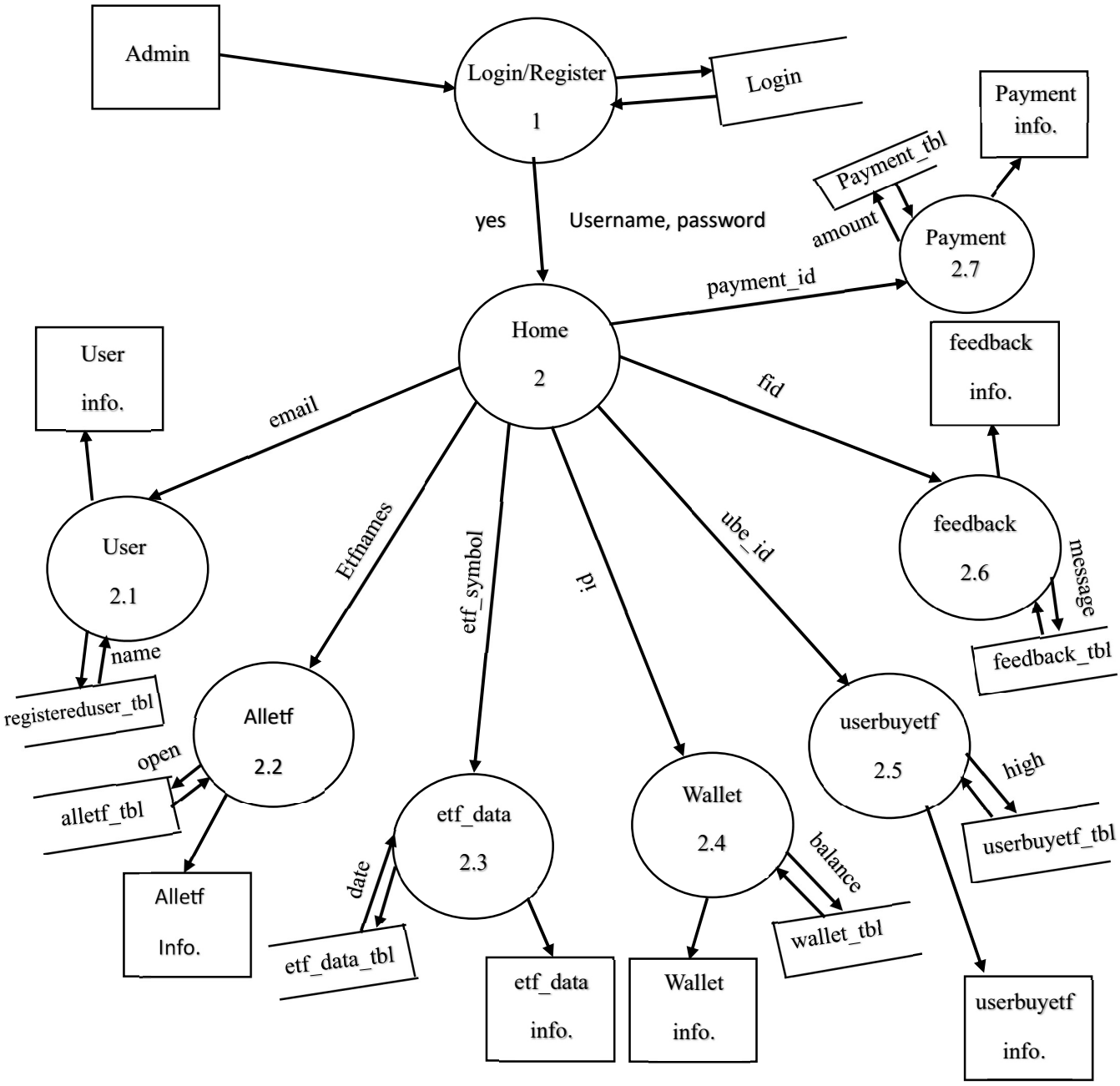
(j) Our website makes 24*7 with proper accessibility to user without any inconvenience it is quite scalable. Scalability doesn’t affect over functionality. Implement feedback forms and surveys to gather user opinions and suggestions. Act on this feedback to enhance the user experience continually. Implement personalization features such as user account dashboards, personalized product recommendations, and targeted marketing emails to enhance user engagement.

2.3 Data Flow Diagram

2.3.1 DFD 0



2.3.2 DFD 1 For Admin



Chapter 3 : System Design

3.1 Table Structure

a) registereduser_tbl

S.no	Field	Type	Constant
1.	username	Varchar (50)	Primary key
2.	name	Varchar (50)	-
3.	email	Varchar (70)	-
4.	date_of_birth	Date	-
5.	phone_number	Bigint (10)	-
6.	login_status	Tinyint (1)	-
7.	is_verified	Tinyint (1)	-
8.	token	Varchar (100)	-
9.	password	Varchar (50)	-

b) alletf_tbl

S.no	Field	Type	Constant
1.	Etfnames	Varchar (225)	Primary key
2.	open	Double (20)	-
3.	high	Double (20)	-
4.	low	Double (20)	-
5.	close	Double (20)	-
6.	asset_type	Varchar (20)	-

c) etf_data_tbl

S.no	Field	Type	Constant
1.	Etf_symbol	Varchar (100)	Primary key
2.	Etfnames	Varchar (225)	Foreign key
3.	date	Date	-
4.	Open	Double (20)	-
5.	high	Double (20)	-
6.	low	Double (20)	-
7.	close	Double (20)	-
8.	volume	Double (20)	-
9.	dividends	Double (20)	-
10.	stock_splits	Double (20)	-

d) wallet_tbl

S.no	Field	Type	Constant
1.	id	Bigint (20)	Primary key
2.	balance	Decimal (17)	-
3.	user_id	Varchar (254)	Foreign key
4.	period	Varchar (10)	-
5.	sub_status	varchar (20)	-
6.	end_date	Date	-
7.	remaining_days	Int (11)	-
8.	start_date	Date	-
9.	amount	int(10)	-

e) userbuyetf_tbl

S.no	Field	Type	Constant
1.	ube_id	Bigint (20)	Primary key
2.	Date_time	Datetime	-
3.	Quantity	Double (22)	-
4.	Cost	Double (22)	-
5.	Etf_purchased_id	varchar (225)	Foreign key
6.	Username_id	Varchar (225)	Foreign key
7.	Purchase_close_value	Double (22)	Foreign key
8.	trans_type	Varchar (20)	-

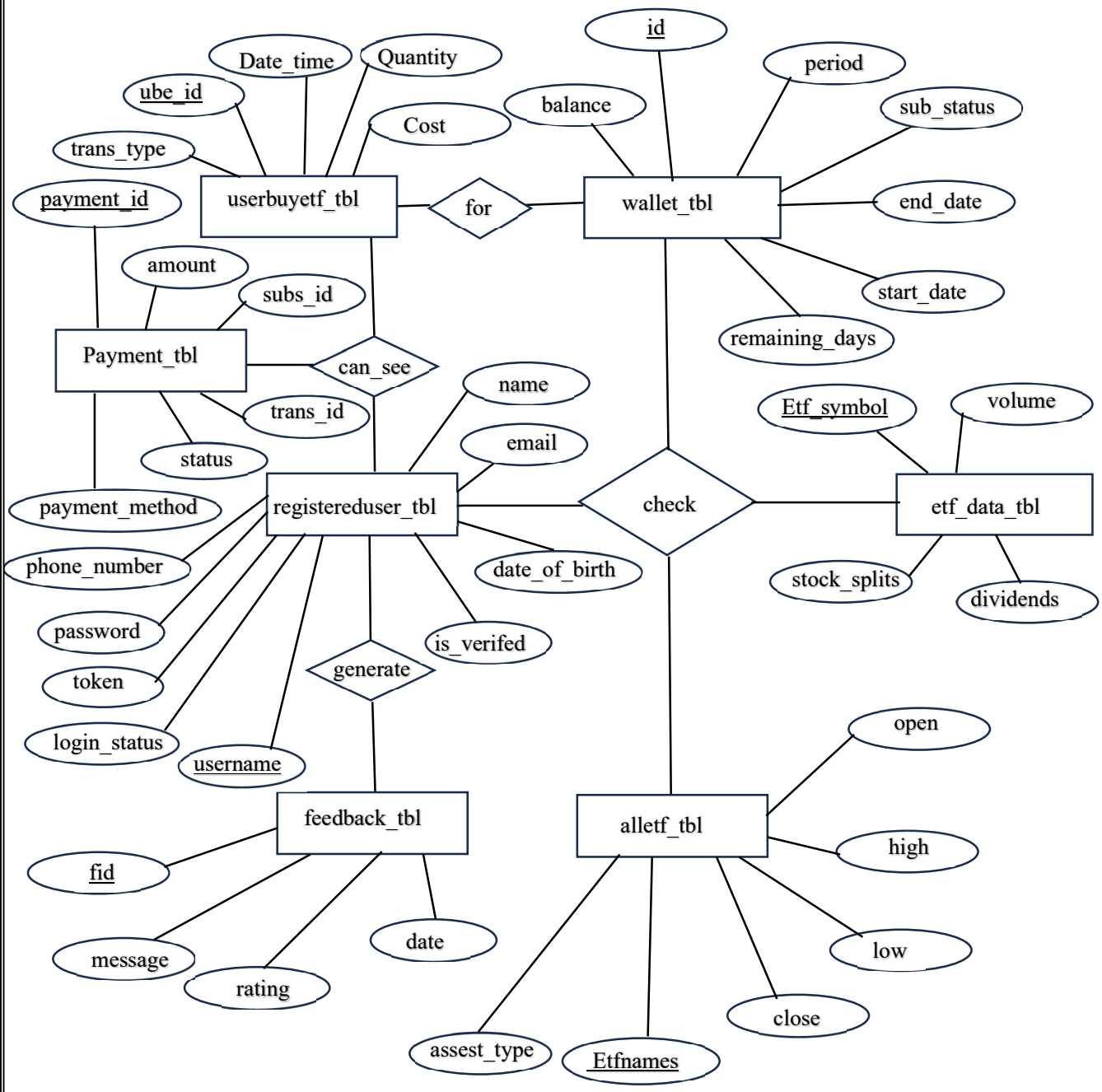
f) feedback_tbl

S.no	Field	Type	Constant
1.	fid	int	Primary key
2.	rating	int	-
3.	username	Varchar (50)	Foreign key
4.	message	Varchar (500)	-
5.	date	Date	-

g) Payment_tbl

S.no	Field	Type	Constant
1.	payment_id	int	Primary key
2.	amount	int (10)	-
3.	Date_time	Date(10)	Foreign key
4.	subs_id	int (10)	Foreign key
5.	trans_id	int (10)	Foreign key
6.	Username	Varchar (50)	Foreign key
7.	payment_method	Varchar (50)	-
8.	status	tinyint (4)	-

3.2 Entity Relationship Diagram



Chapter 4 : Testing

4.1 Unit Testing

We performed unit testing in each and every smallest unit of the project individually to check it's working. We used test data to perform the testing. We try each and every type of possible input to check their corresponding outputs and its working. We performed these tests on admin login, registereduser login , email verification , payment information. We also tested individual admin module.

Test Case ID	**Section**	**Element Name**	**Test Data**	**Expected Result**	**Actual Result**
L1-1	admin_login	username, password	No Data	Please fill out the field.	Test case passed
L1-2	admin_login	username, password	23Admin2**** adm****	Error occurred	Test case passed
L1-3	admin_login	username, password	admin admi***	Successfully logged in	Test case passed
L2-1	registereduser_login	username, password	No Data	Please fill out the field	Test case passed
L2-2	registereduser_login	username , password	Yashika@/' yas*****	Error occurred	Test case passed
L2-3	registereduser_login	username , password	Yashika yas@**** After checking your email verification has done after you fill correct username and password	Successfully logged in	Test case passed

L3-1	alletf_tbl	Etfnames, open , high, low , close , assest_type, 20dma, 50dma, 100dma, perc_diff_20dma, perc_diff_50dma, perc_diff_100dma	No Data	No changes occurred	Test case passed
L3-2	alletf_tbl	Etfnames, open , high, low , close , assest_type, 20dma, 50dma, 100dma, perc_diff_20dma, perc_diff_50dma, perc_diff_100dma	NiftyBees, 33.9, 44.4, 11.3, 33.8, stocks, ??`, 55.3, 12.3, 4.33, ??,	Error occurred	Test case passed
L3-3	alletf_tbl	Etfnames, open , high, low , close , assest_type, 20dma, 50dma, 100dma, perc_diff_20dma, perc_diff_50dma, perc_diff_100dma	NiftyBees, 33.9, 44.4, 11.3, 33.8, stocks, 13.8, 55.3, 12.3,	Successfully showing correct data to the user or admin	Test case passed
L4-1	feedback_tbl	Fid, username, rating, message, date	No Data	Please fill out the field	Test case passed
L4-2	feedback_tbl	Fid, username, rating, message, date	Yashika@12, good, this is good website, 12/04/2024	Error occurred	Test case passed
L4-3	feedback_tbl	Fid, username, rating, message, date	Yashika, good, this is good website, 12/04/2024	Successfully shared	Test case passed
L5-1	userbuyetf_tbl	ube_id , Date_time, Quantity, cost, Etf_purchased_id, username_id,	No Data	Please fill out the field	Test case passed

		purchase_close_value, trans_type			
L5-2	userbuyetf_tbl	ube_id , Date_time, Quantity, cost, Etf_purchased_id, username_id, purchase_close_value, trans_type	18:20 10/04/2024, 2, ..?, …., buy/sell	Error occurred	Test case passed
L5-3	userbuyetf_tbl	ube_id , Date_time, Quantity, cost, Etf_purchased_id, username_id, purchase_close_value, trans_type	18:20 10/04/2024, 2, 108, 54, buy/sell.	Successfully buy or sell etf.	Test case passed

4.2 System testing

System testing is a type of software testing that evaluates the entire system including all its components. Tests how the different component of the application navigate to another component. Verify that only admin can able to access the admin module. Verify that admin dashboard has all the required option to manage all types of data.

Test Case ID	**Description**
Test Case 1	Only authorized admin or superuser can login
Test Case 2	Only the login admin can make changes if required
Test Case 3	Verify that admin dashboard has all the required option to manage all the types of data

4.3 Performance Testing:

Load Testing: Analyze how the system responds to a large number of concurrent logins and logout, as well as the buys and sells of ETFs that are visible in the admin panel. To make sure the system doesn't crash, its performance may be assessed under stress by simulating high loads with tools like Apache JMeter. Finding possible bottlenecks and improving system performance for scalability are made easier by analyzing response times and throughput data under peak loads.

Response Time Testing: Ensuring that the system satisfies acceptable performance criteria involves timing its reaction to events such as admin logins, ETF buys, and sales. Potential performance issues can be found and fixed by monitoring reaction times under different load scenarios. In order to ensure seamless operation, proactive performance monitoring and optimization are made possible by setting SLAs for response times based on user expectations and system needs.

Scalability Testing: Testing for scalability determines whether or not a system can expand and evolve without sacrificing functionality. Scalability constraints and bottlenecks may be found by progressively raising the system's load while keeping an eye on its response times, throughput, and resource use. Tests for both horizontal and vertical scalability assist establish if the system can handle more work by adding nodes or resources while preserving peak performance, guaranteeing that it can grow to meet increasing needs.

4.4 Compatibility Testing

Compatibility testing refers to the process of testing its compatibility across different platforms, devices, browsers, operating system, and network environments. The objective is to ensure that the website functions work properly and consistently for users.

Test Cases

Test Scenario	Element Name	Element Type	Input	Expected Result	Actual Result	Test Result
1	Device Compatibility	Responsiveness on different devices	Checking Responsiveness on devices for e.g., Laptops, tablets, Smartphones	Website will adapt different screen sizes on different devices without any disbalancing	As expected, the website is full responsive and working perfectly	Passed
2	Operating System Compatibility	Checking website behavior on different operating systems	Working on different Operating Systems e.g., Android systems, macOS, iOS, Windows, etc.	There shouldn't be any changes in website Designing, Working, Accessibility and Performance speed, while switching the Operating System	As Expected, The Website is working all same even on different Operating System expect Linux operating system	Passed
3	Admin-user Security	Data Security	Testing security measures of admin	The logged in admin will be able to see his/her own details and check all information of user and make changes if required.	As Expected, Details of login username is shown, no one can see details of other user. Only admin can access hence, Secured .	Passed

Chapter 5: Implementation

First of all, we have to download some software to the system for the implementation of our project which are as follows: -

5.1 Visual Studio Code

6.1.1 Go to the official Visual Studio website https://visualstudio.microsoft.com/downloads/

6.1.2 Click on the "Download" button for the version of Visual studio you want to install.

6.1.3 Choose the components you want to install, such as languages, frameworks, and tools.

6.1.4 Click on the "Install" button to start the installation process.

6.1.5 Follow the installation wizard and select the options that suit your needs.

5.2 MySQL Workbench

a. First go to the official website of MySQL https://www.mysql .

b. There you will find the download button

c. Then click on MySQL community (GPL) downloads

d. Click on MySQL installer for windows

e. Click on the first download link

f. Then click on he custom button

g. Expand MySQL server then expand MySQL server 8.0

h. Then double click on the latest version

i. Click on next

j. Click on execute

k. Set your password click on next

l. Then automatically MySQL workbench window will open

5.3 Django installation and setup

Django installation and setup are simple procedures. The detailed instructions for installing Django and creating a new project on your computer are provided below.

Step 1: Install Pip

Open the command prompt and enter the following command-

python -m pip install -U pip

Step 2: Set Virtual environment:

You can change the dependence by setting up the virtual environment, something your system wouldn't normally let you do. To set up a virtual environment, do the following:

Step 3: create a virtual environment: To build a virtual environment in Django, we need to first navigate to the directory where we want to create it. Then, we need to run the following command.

python -m venv env_site

Step 4: Turn on the virtual world: Launch the activation script from the virtual environment folder's bin directory.

Windows - users can use.\env_site\Scripts\activate.ps1

Step 5: Install Django:

Install django by giving following command

pip install django

Django Setup -

Once Django is installed, we can start to create a new Django project.

Step 1: Start a new Django Project

Start a project by following command-

django-admin startproject myproject

Step 2: Navigate to the Project Directory

Change directory to myproject

cd myproject

step 3: Start the server

Start the server by typing following command in cmd-

py manage.py runserver

Step 4: Verify Server Status

To check whether server is running or not go to web browser and enter **http://127.0.0.1:8000/** as URL.

5.3 Python Web scraping

Data extraction from websites, or "web scraping," has become a potent method for obtaining information from the wide internet. This lesson will examine the many Python tools and modules that are frequently used for web scraping and explain why Python 3 is the best option for this kind of work. You may take the following actions to carry out web scraping in Python using the 'yfinance' library:

Step 1: Install yfinance:

If you haven't previously, you must first install the yfinance library. Using pip, you can accomplish this:

pip install yfinance

Step 2: Import yfinance: Add the yfinance library to your Jupyter Notebook or Python script: **import yfinance as yf**

Step 3: Indicate the Ticker Symbol: Select the stock or financial instrument for which you wish to use data scraping. You will be required to supply its ticker symbol. For instance, if you wish to scrape data about Apple Inc., use "AAPL" as the ticker symbol.

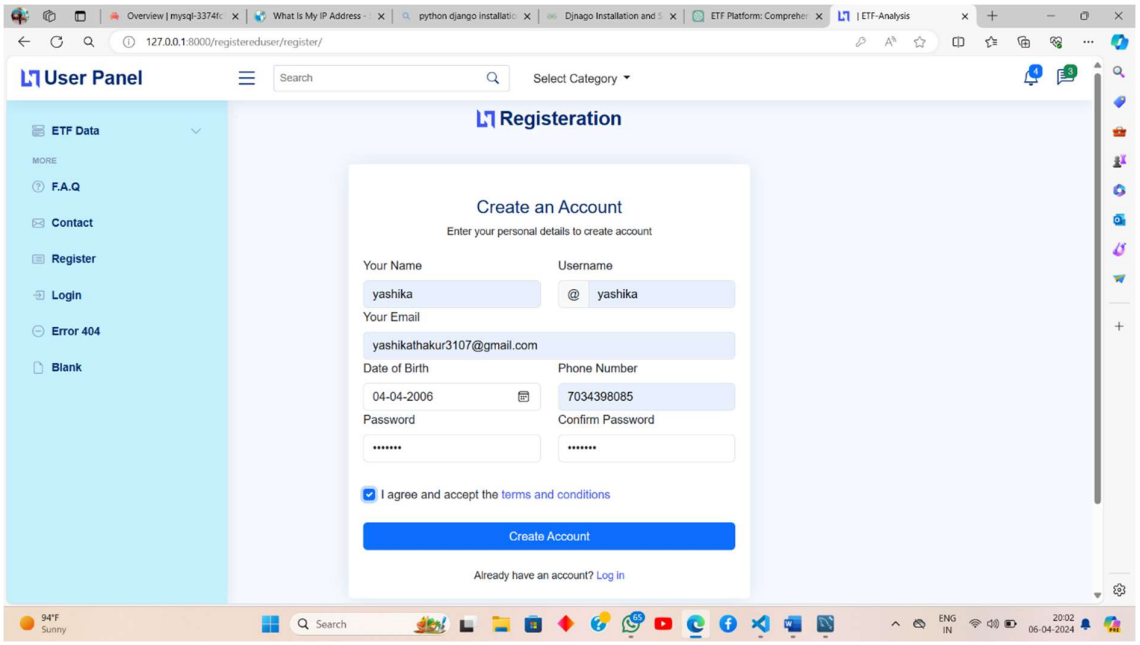
Step 4: Get Historical Data: To obtain historical market data for the given ticker symbol, use the **yf.download()** method. The data you wish to obtain can have its start and end dates specified, along with additional characteristics like the interval (daily, weekly, monthly, etc.) **data=yf.download("AAPL",start="2023-01-01",end="2023-12-31")**
This will get Apple Inc.'s historical market data for 2023.

Step 5: Error Management: It's critical to manage mistakes amicably, particularly when addressing web scraping. Ensure that you handle situations in which the connection fails or the ticker symbol is invalid.
Step 6: Data Storage: Depending on your use case, you may wish to keep the data that was scraped for later usage in a file or database.

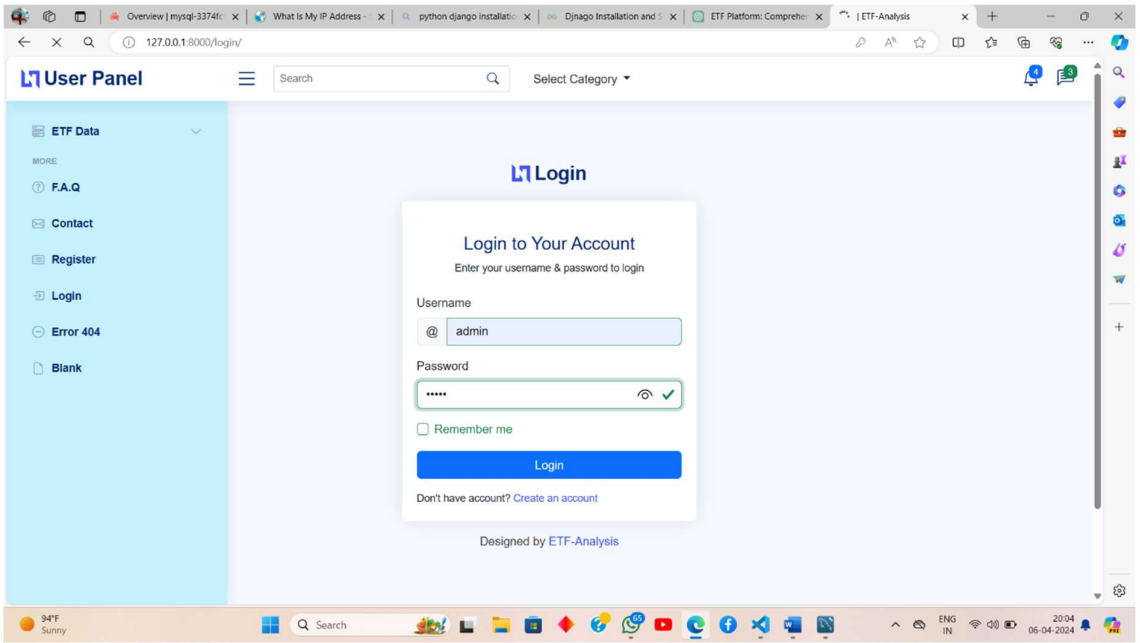
And that's it! These instructions should help you get started with utilizing Python's yfinance package for web scraping. To be sure you are following their rules, be careful to check the terms of service and usage policies of the website from which you are extracting data.

Chapter 6: Sample Forms and Reports

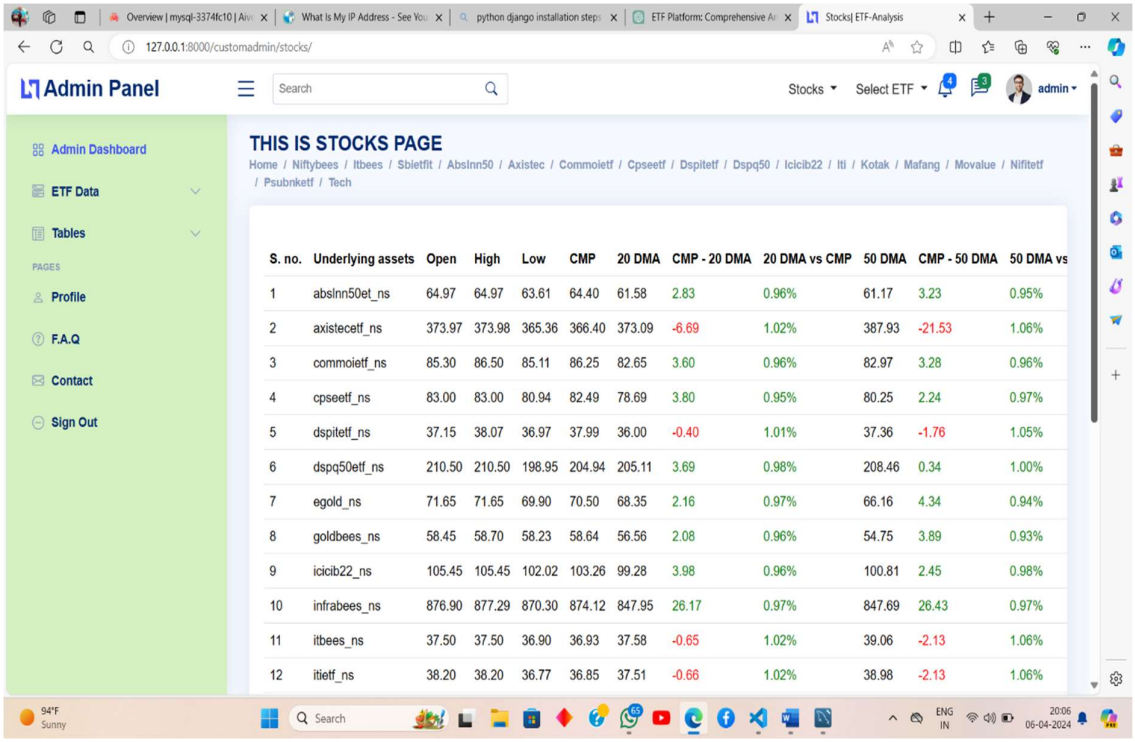
a) Registration Form



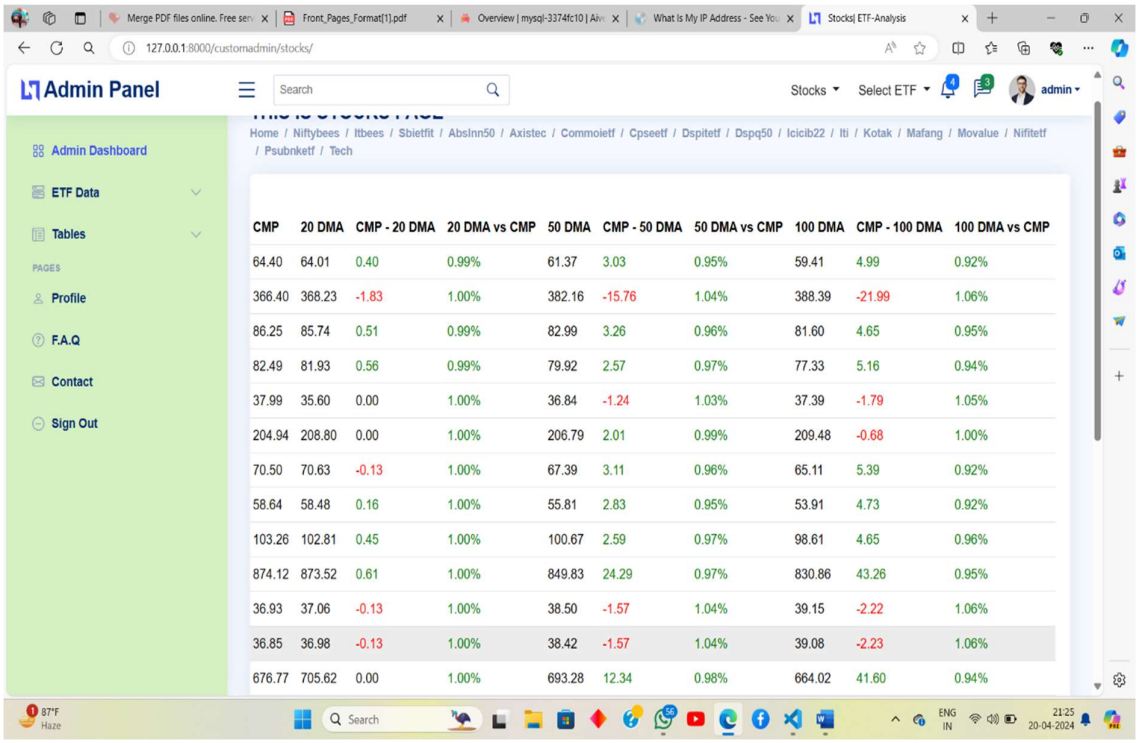
b) Login form



c) All ETF data with calculation

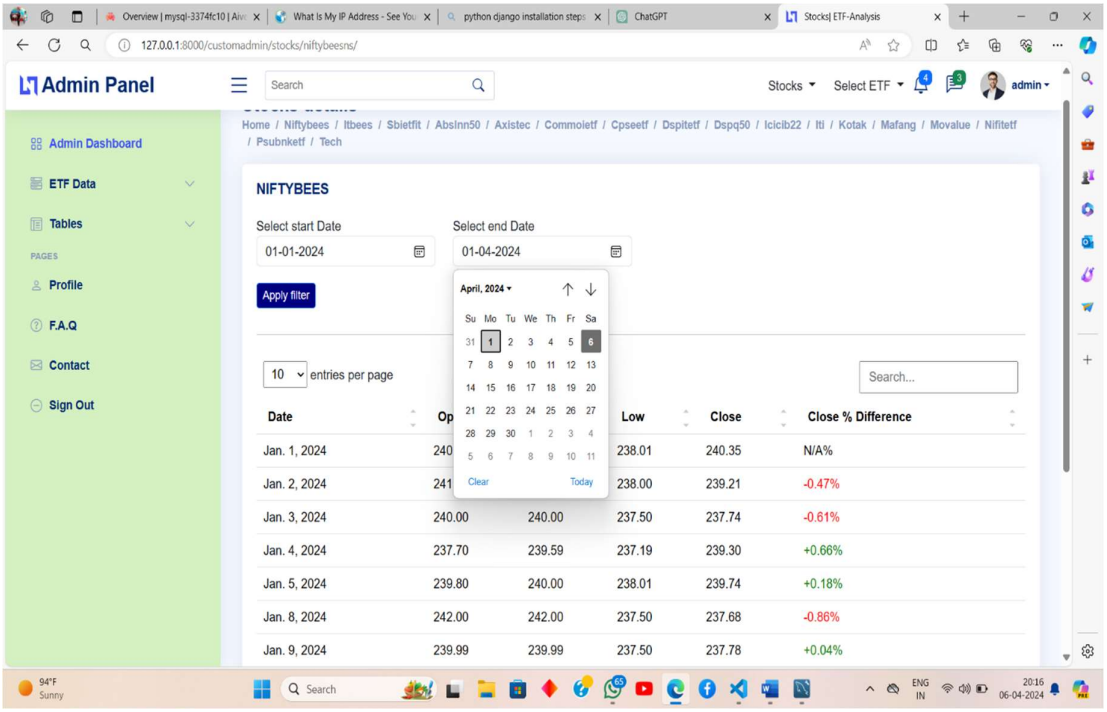


S. no.	Underlying assets	Open	High	Low	CMP	20 DMA	CMP - 20 DMA	20 DMA vs CMP	50 DMA	CMP - 50 DMA	50 DMA vs
1	absInn50et_ns	64.97	64.97	63.61	64.40	61.58	2.83	0.96%	61.17	3.23	0.95%
2	axistecetf_ns	373.97	373.98	365.36	366.40	373.09	-6.69	1.02%	387.93	-21.53	1.06%
3	commoietf_ns	85.30	86.50	85.11	86.25	82.65	3.60	0.96%	82.97	3.28	0.96%
4	cpseetf_ns	83.00	83.00	80.94	82.49	78.69	3.80	0.95%	80.25	2.24	0.97%
5	dspitetf_ns	37.15	38.07	36.97	37.99	36.00	-0.40	1.01%	37.36	-1.76	1.05%
6	dspq50etf_ns	210.50	210.50	198.95	204.94	205.11	3.69	0.98%	208.46	0.34	1.00%
7	egold_ns	71.65	71.65	69.90	70.50	68.35	2.16	0.97%	66.16	4.34	0.94%
8	goldbees_ns	58.45	58.70	58.23	58.64	56.56	2.08	0.96%	54.75	3.89	0.93%
9	icicib22_ns	105.45	105.45	102.02	103.26	99.28	3.98	0.96%	100.81	2.45	0.98%
10	infrabees_ns	876.90	877.29	870.30	874.12	847.95	26.17	0.97%	847.69	26.43	0.97%
11	itbees_ns	37.50	37.50	36.90	36.93	37.58	-0.65	1.02%	39.06	-2.13	1.06%
12	itietf_ns	38.20	38.20	36.77	36.85	37.51	-0.66	1.02%	38.98	-2.13	1.06%

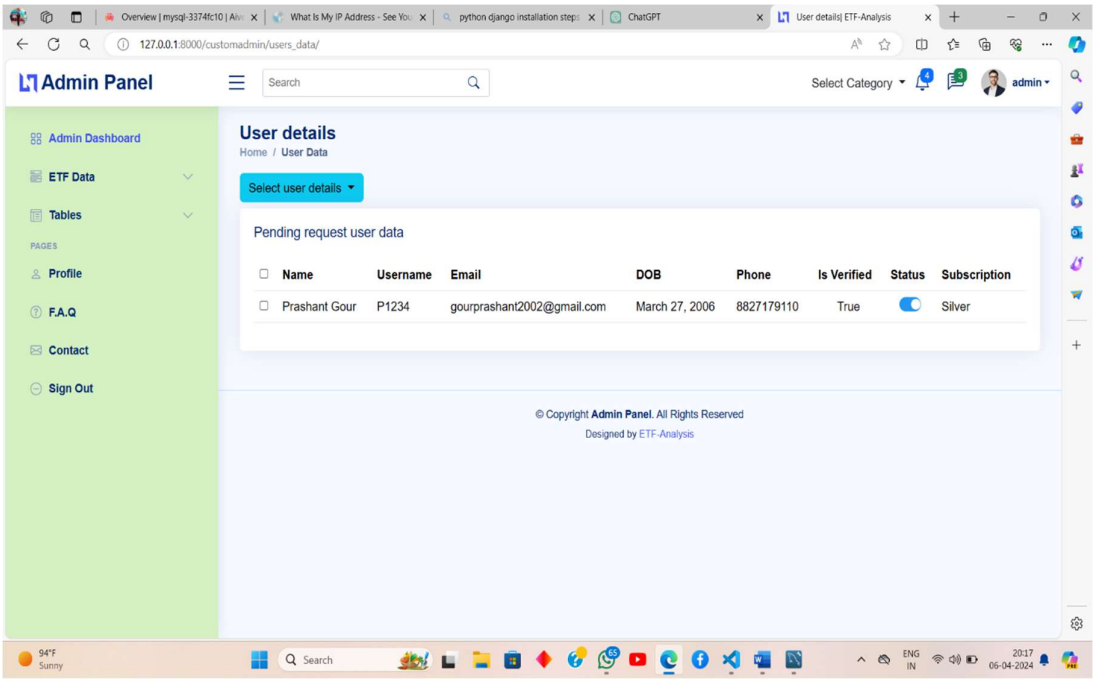


CMP	20 DMA	CMP - 20 DMA	20 DMA vs CMP	50 DMA	CMP - 50 DMA	50 DMA vs CMP	100 DMA	CMP - 100 DMA	100 DMA vs CMP
64.40	64.01	0.40	0.99%	61.37	3.03	0.95%	59.41	4.99	0.92%
366.40	368.23	-1.83	1.00%	382.16	-15.76	1.04%	388.39	-21.99	1.06%
86.25	85.74	0.51	0.99%	82.99	3.26	0.96%	81.60	4.65	0.95%
82.49	81.93	0.56	0.99%	79.92	2.57	0.97%	77.33	5.16	0.94%
37.99	35.60	0.00	1.00%	36.84	-1.24	1.03%	37.39	-1.79	1.05%
204.94	208.80	0.00	1.00%	206.79	2.01	0.99%	209.48	-0.68	1.00%
70.50	70.63	-0.13	1.00%	67.39	3.11	0.96%	65.11	5.39	0.92%
58.64	58.48	0.16	1.00%	55.81	2.83	0.95%	53.91	4.73	0.92%
103.26	102.81	0.45	1.00%	100.67	2.59	0.97%	98.61	4.65	0.96%
874.12	873.52	0.61	1.00%	849.83	24.29	0.97%	830.86	43.26	0.95%
36.93	37.06	-0.13	1.00%	38.50	-1.57	1.04%	39.15	-2.22	1.06%
36.85	36.98	-0.13	1.00%	38.42	-1.57	1.04%	39.08	-2.23	1.06%
676.77	705.62	0.00	1.00%	693.28	12.34	0.98%	664.02	41.60	0.94%

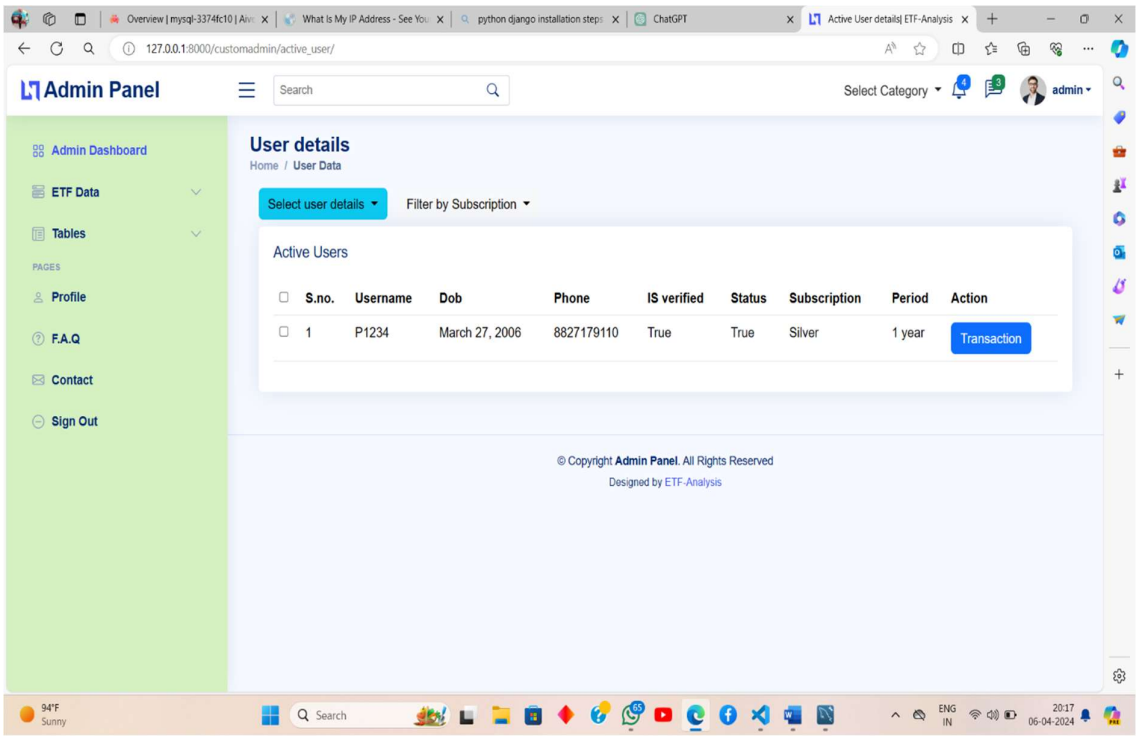
d) Date filter in stocks page for particular ETF



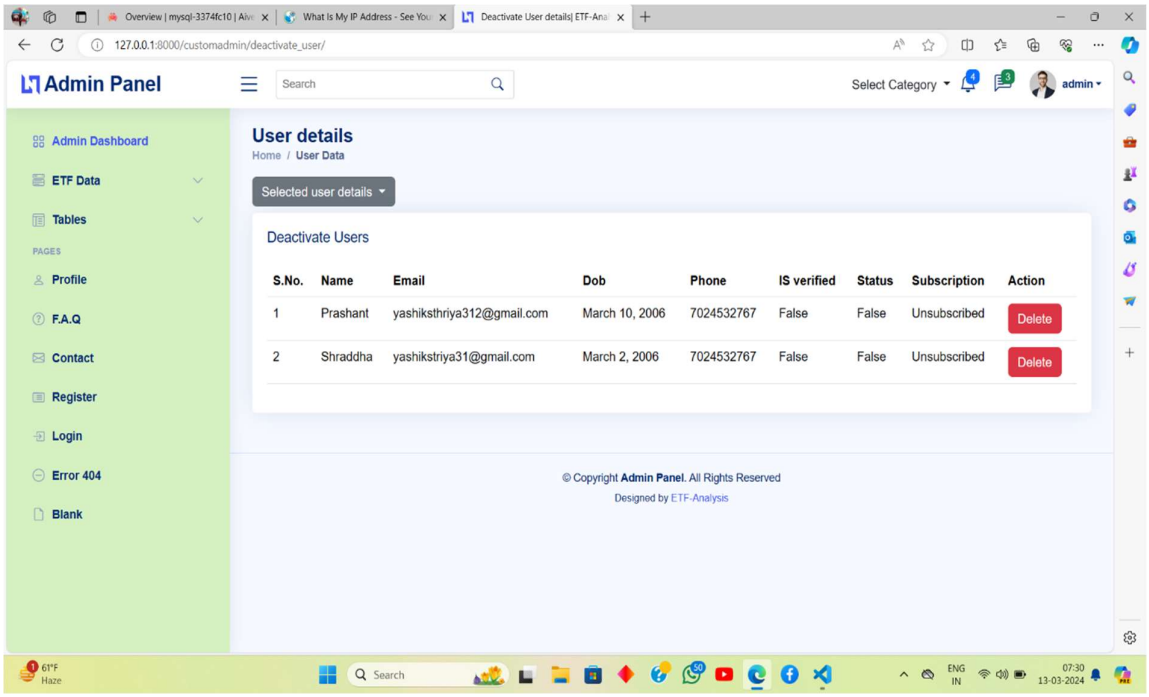
e) User details



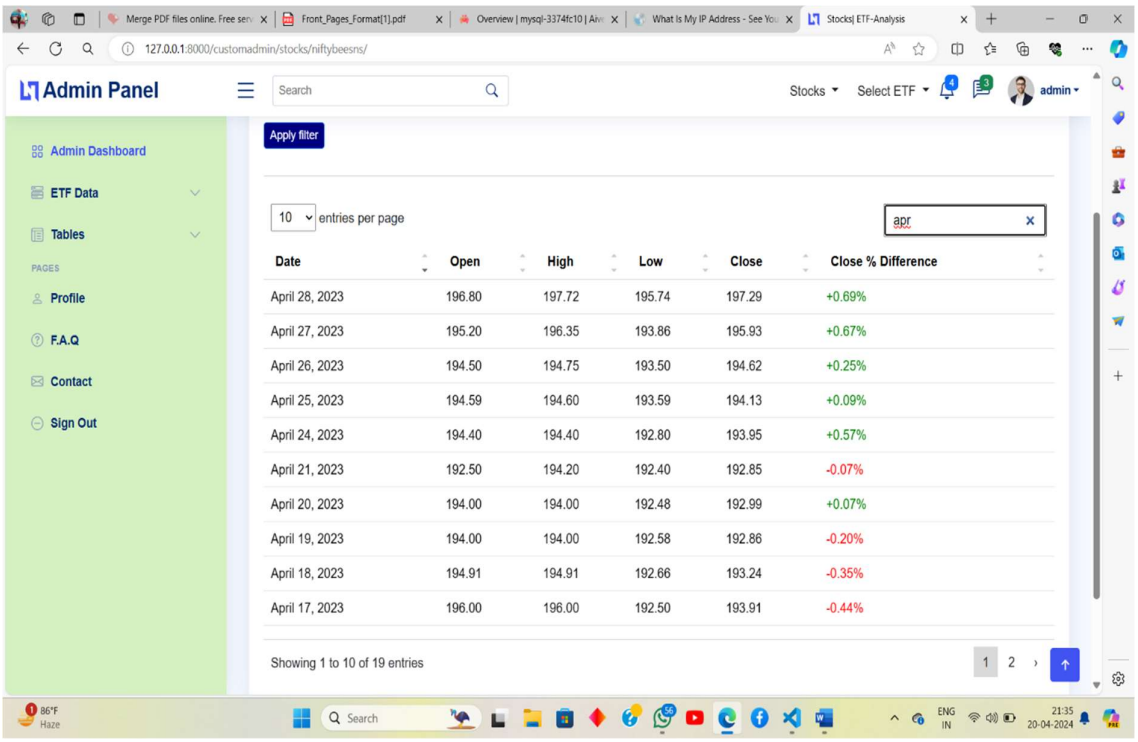
f) Active user details



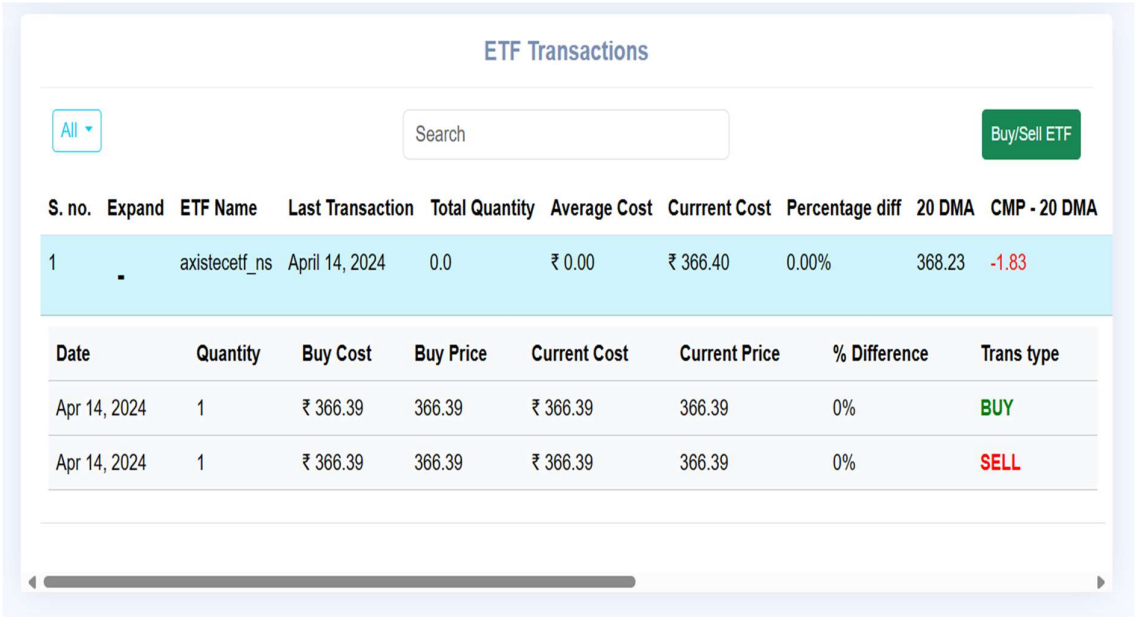
g) Deactivate user



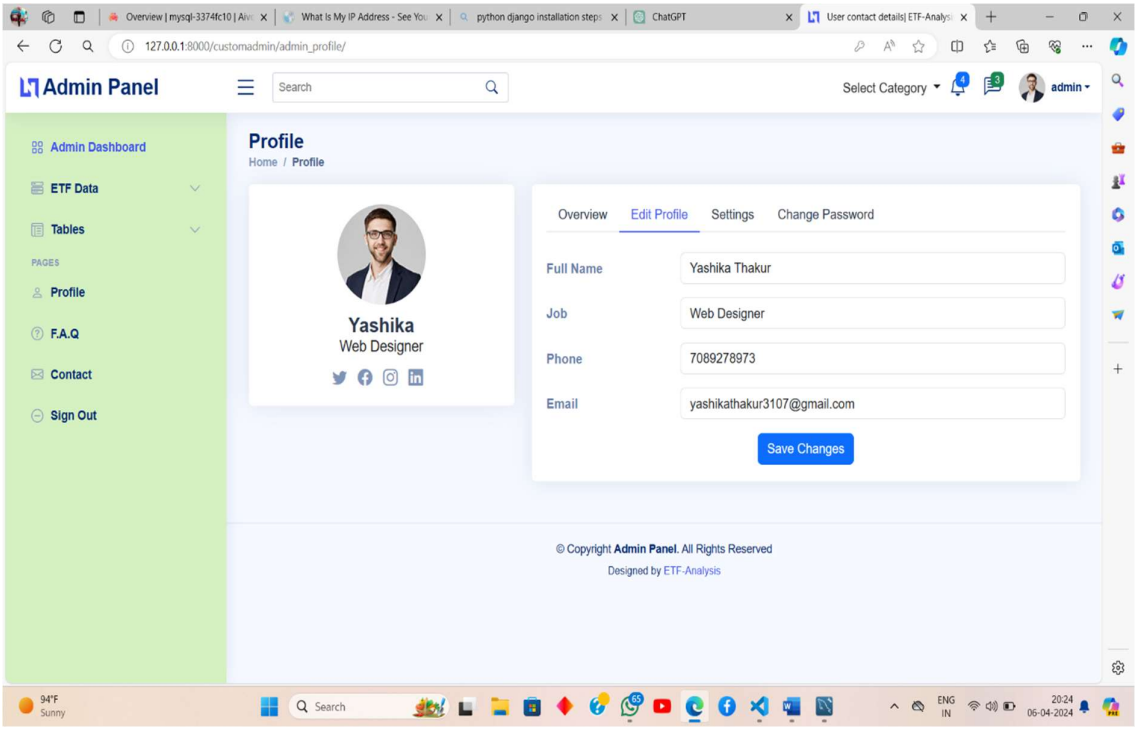
h) Search functionality



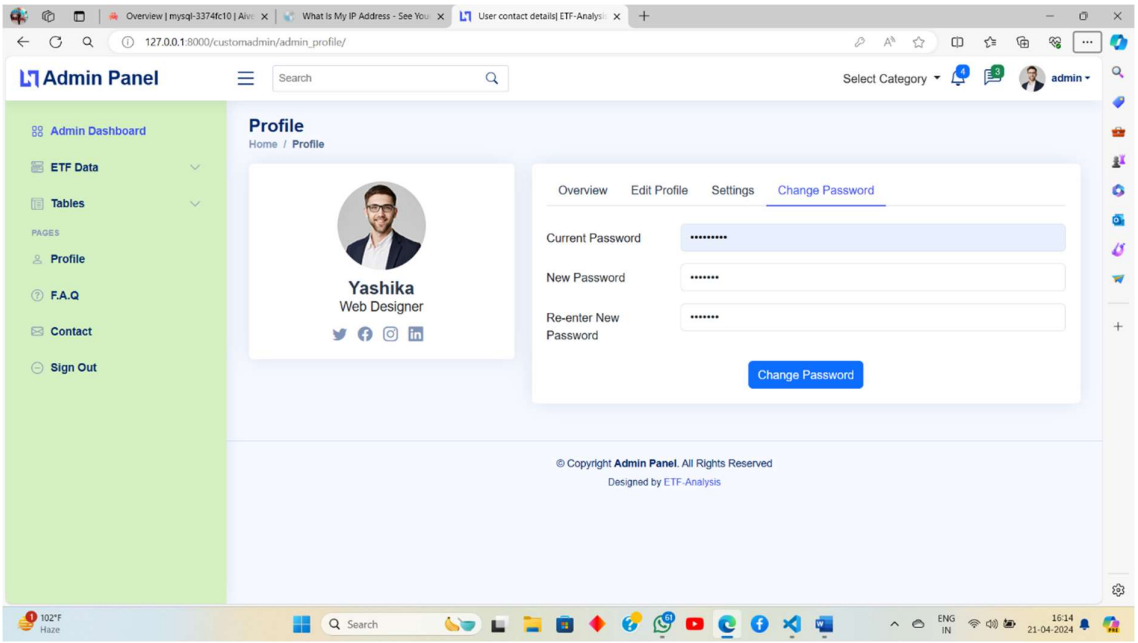
i) Transaction details



j) Admin profile update



k) Change Password



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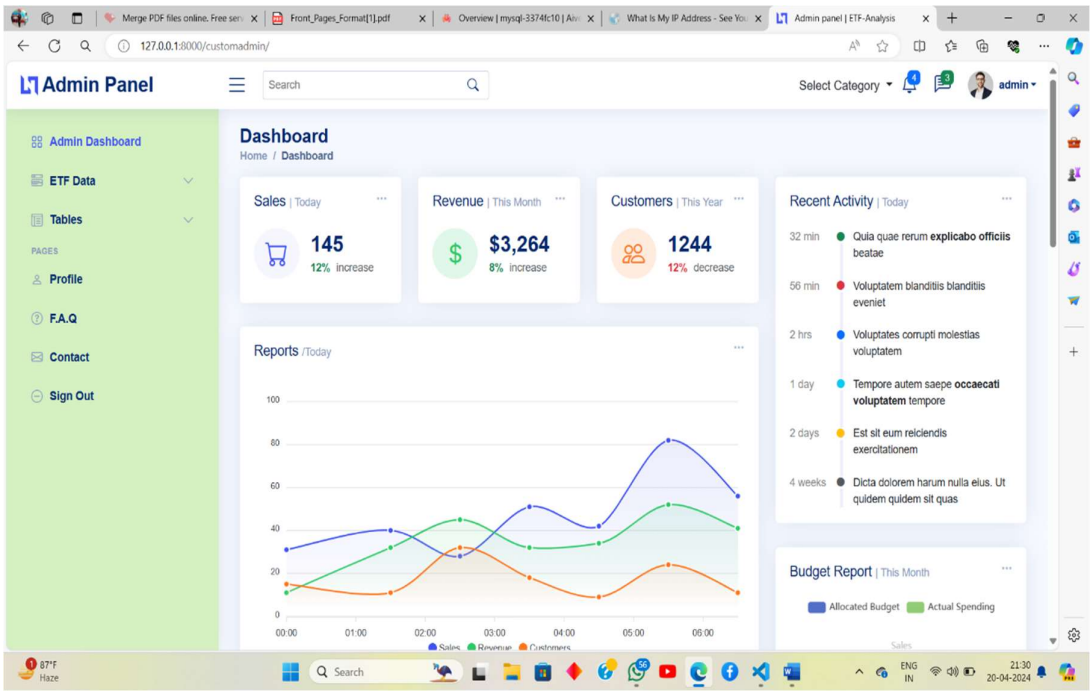
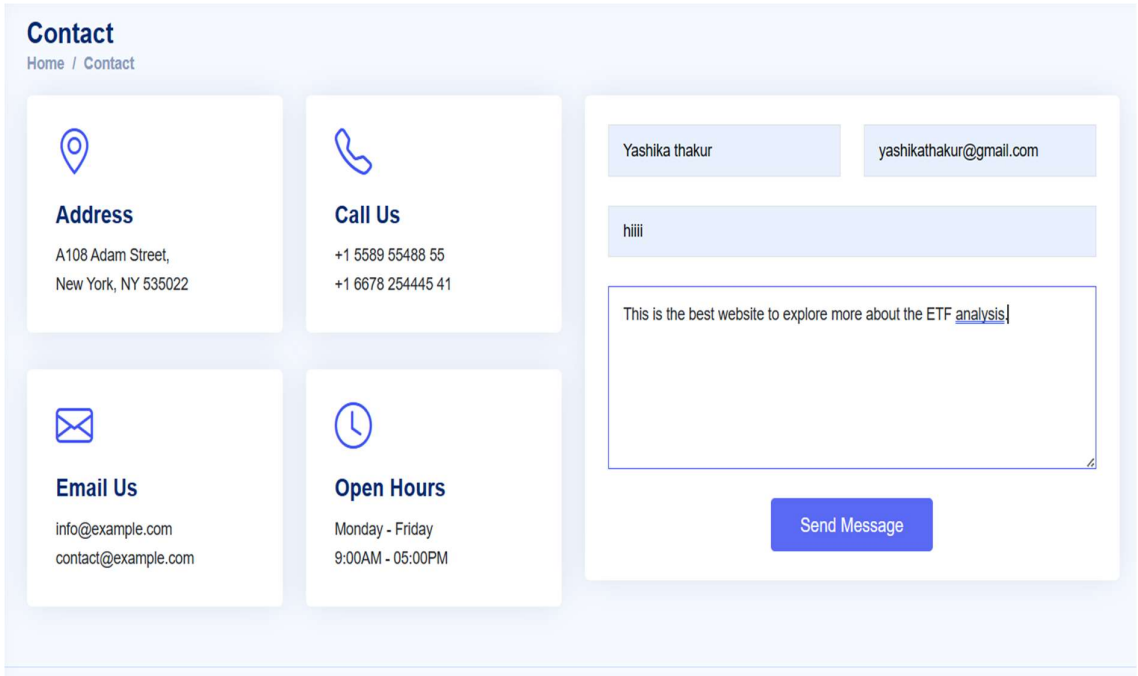


m) Feedback User data



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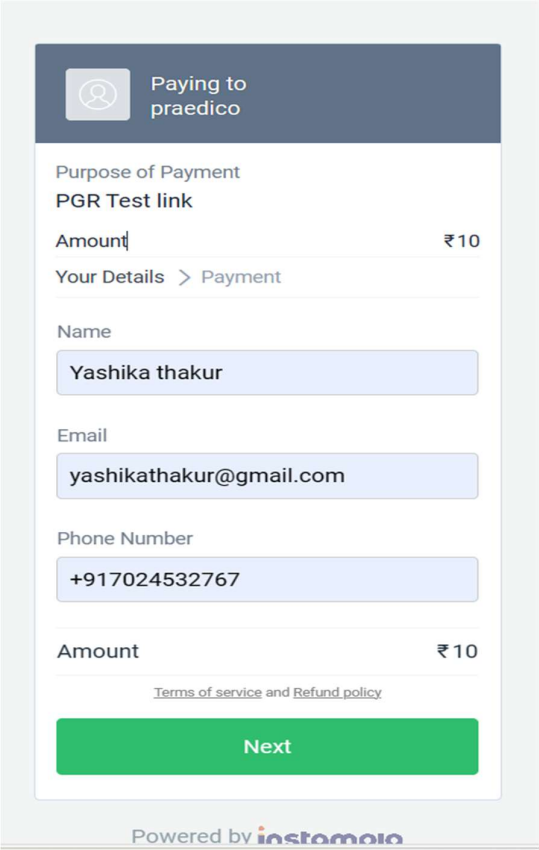

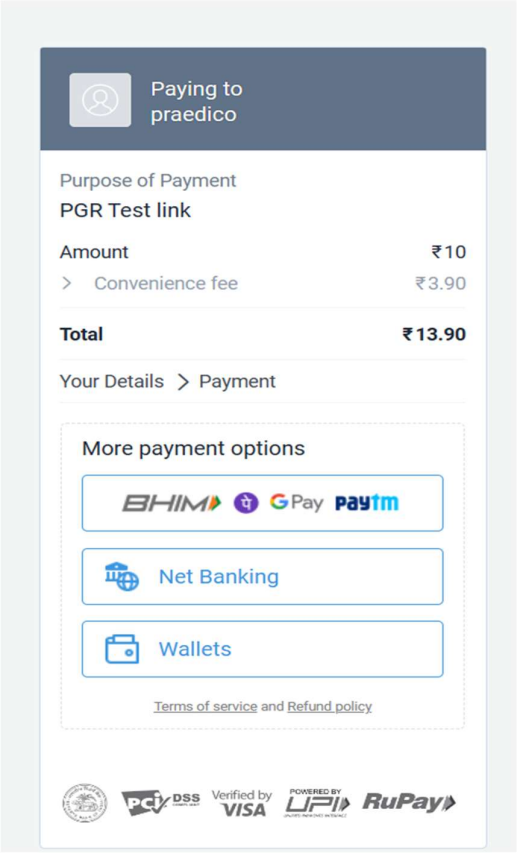

Chapter 7: Conclusion and Future Scope

To sum up, the administration module for ETF analysis is essential to the efficient operation of the entire analysis process. The admin module gives administrators the tools and features they need to manage users, enter data, and configure the system, enabling them to keep an eye on and govern control over the ETF analysis platform. The module's usefulness and worth in enabling precise and perceptive analysis are further enhanced by features like data validation, access restriction, and reporting capabilities. The admin module, which forms the foundation of the ETF analysis platform, acts as a primary centre for managing users, data, and system settings. This helps to ensure that the platform is dependable, efficient, and successful in providing investors with insightful information.

Many benefits make exchange-traded funds (ETFs) appealing to a diverse group of investors. First off, by diversifying their portfolio, exchange-traded funds (ETFs) offer investors exposure to a wide range of assets, reducing risk and the negative effects of underperforming individual investments. The accessibility of ETFs, which are traded on stock exchanges and enable investors to buy and sell shares at market prices during the trading day, just like individual stocks, complements this diversity. Additionally, ETFs often have lower expense ratios than traditional mutual funds, which helps investors save money on their investments. Transparency is still another important benefit; exchange-traded funds (ETFs) regularly reveal their holdings, giving investors a clear understanding of the fund's assets.

ETF investment is inherently flexible, providing a variety of trading strategies and enabling trades at any time during market hours. Furthermore, ETFs' tax-efficient design aids in capital gains distribution management, improving investors' overall tax efficiency. Reinvesting dividends enhances long-term growth potential, while real-time pricing and trading flexibility further enable investors to make well-informed decisions based on current market circumstances.

To meet the needs of individual investors, exchange-traded funds (ETFs) offer access to particular market segments and industries. ETFs democratize investing by making it accessible to a wider range of investors with their lower minimum investment requirements and ability to trade in increments of a single share. Additionally, ETFs provide worldwide exposure, enabling portfolio diversification across borders without requiring direct investments in foreign equities. In conclusion, investors looking for diverse, affordable, and transparent investment vehicles may find ETFs to be a desirable alternative due to their many advantages, which include lower management risk, accessibility, cost efficiency, transparency, diversity, and flexibility.

Future Scope - This platform has a bright future ahead of it, with many opportunities for growth and development. First of all, the functionality and user experience of the platform may be improved by ongoing technical improvements. Modern technologies like artificial intelligence and machine learning may be integrated to enhance data analysis capabilities, offer customized investment suggestions, and automate numerous tasks, all of which will increase the platform's efficiency and user-friendliness. By offering more financial goods and services, the platform may draw in more users and meet the demands of a larger spectrum of investors. This might entail adding new exchange-traded funds (ETFs) that span industries, asset classes, and geographical areas in addition to adding mutual funds, bonds, and alternative investments as additional investment vehicles.

Improving educational tools and resources can also help investors become more financially literate and enable them to make better selections. Long-term engagement and loyalty may be fostered by creating interactive tutorials, webinars, and individualized learning modules that assist users in understanding difficult financial concepts and investing methods.

The platform's offers and trustworthiness may be enhanced by collaborating with financial institutions, consultancy companies, and industry experts, who can give significant insights and knowledge. Partnerships can also improve the platform's value offer for users by making it easier to access specialized services and unique investment possibilities.

By entering new areas and markets, the platform may increase its user base diversity and open up new growth prospects. Gaining traction in new markets and building a solid worldwide presence may be facilitated by customizing the platform to match the unique requirements and preferences of various demographic groups and geographical areas.

In general, the platform's future potential consists in utilizing technology, broadening its range of products, improving educational materials, cultivating alliances, and entering new markets in order to establish an all-encompassing and cutting-edge financial ecosystem that enables investors and promotes sustained success and growth.

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Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work			✓		
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work			✓		
Comment on nature of work done/Area/Topic	Learn HTML ~~Tags~~ and learn Javascripts				
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	Sweety				
Signature of Industry Mentor	Gupta				

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Industry / Organization	Praedico Global Research Pvt. Ltd.		Date / Duration	16/01/24 - 31/01/24	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality / Timely completion of assigned work				✓	
Learning capacity / Knowledge up gradation			✓		
Performance / Quality of work				✓	
Behavior / Discipline / Teamwork			✓		
Sincerity / Hard work				✓	
Comment on nature of work done / Area / Topic	Learn Bootstrap, Advance Javascript (ES6), Introduction of React				
OVERALL GRADE (Any One)	**POOR / AVERAGE / GOOD / VERY GOOD / EXCELLENT** ✓				
Name of Industry Mentor	Sweety Gupta				
Signature of Industry Mentor	Gupta				

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Industry/Organization	Praedico Global Research PVT. Ltd.		Date/Duration	01/02/24 - 15/02/24	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation			✓		
Performance/Quality of work				✓	
Behaviour/Discipline/Team work			✓		
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic	React setup, Components, Hooks, Props and React Bootstrap Integration ✓				
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	Sweety Gupta				
Signature of Industry Mentor	Gupta				

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Performance/Quality of work					✓
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Working on frontend and Backend development on Project ✓				
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	Sweety Gupta				
Signature of Industry Mentor	Dutta				

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Industry/Organization	Praedico Global Research Pvt. Ltd.		Date/Duration	01/03/24 - 15/03/24	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
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Comment on nature of work done/Area/Topic	Worked on NodeJS, ExpressJS, MongoDB for Backend & DataBase				
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	Sweety Gupta				
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Sincerity/Hard work					✓
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OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	Sweety Gupta				
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Comment on nature of work done/Area/Topic	Worked on Project				
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Signature of Industry Mentor	Gupta				

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