

American International University-Bangladesh (AIUB)  
Department of Computer Science  
Faculty of Science &Technology (FST)  
Summer 22 23

Section: F  
Software Quality Assurance and Testing

FundFlow Navigator

A Report submitted

By

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Software Test Plan

for

FundFlow Navigator

Version 1.0 approved

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American International University-Bangladesh

25-08-2023

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# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| Revision | Date | Updated by | Update Comments |
| 0.1 | 2007.06.04 | Scot Robinson | First Draft |
| 0.2 | 2007.06.19 | Amit Nimse |  |
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# TEST PLAN IDENTIFIER:TP\_FundFlowNavigator\_1.03

# REFERENCES

* Any reference documents with the test plan. For example: Software Requirement Specification (SRS) Document

# INTRODUCTION

## Background to the Problem

In today's fast-paced and ever-changing financial landscape, achieving and maintaining a healthy financial status has become increasingly complex. Navigating through various investment options, keeping track of expenses, and making informed decisions that align with personal financial goals can be daunting tasks. Recognizing this challenge, our team has developed the "FundFlow Navigator" mobile application software. This innovative solution is designed to revolutionize the way individuals manage and improve their financial health.

In a world where financial choices are abundant and intricate, people often struggle to make optimal decisions for their financial well-being. The lack of real-time insights and personalized guidance leaves many individuals unsure about the right path to take. Existing financial management tools might provide basic tracking features, but they fall short in offering intelligent, data-driven recommendations based on both personal financial situations and market dynamics. There is a clear need for a comprehensive and proactive solution that empowers users to take control of their financial journey.

The FundFlow Navigator project stands at the intersection of cutting-edge technology and the pressing need for comprehensive financial guidance. By offering real-time insights, personalized recommendations, and a user-friendly interface, this mobile application promises to be a game-changer in the realm of personal finance management. It aims to empower users to navigate their financial journeys with confidence, making informed decisions that pave the way for a secure and prosperous future.

The root cause of the problem described is the increasing complexity and dynamism of the modern financial landscape, coupled with the lack of personalized guidance and real-time insights. Several contributing factors can be identified:

Complex Financial Options: The proliferation of various investment vehicles, savings accounts, loans, and financial products has created a complex ecosystem that individuals must navigate. The multitude of choices available makes it challenging for individuals to determine the most suitable options for their unique financial situations.

Market Volatility: Financial markets are subject to constant fluctuations and unpredictable shifts. These dynamics impact investment values, interest rates, and overall financial performance. Individuals without access to up-to-date information and expert insights may struggle to make decisions that yield the best outcomes.

Personalization Gap: Generic financial management tools often fail to account for individual circumstances, goals, and risk tolerances. Without tailored guidance, users might make decisions that do not align with their specific needs, leading to suboptimal results.

Lack of Financial Literacy: Many people have limited understanding of financial concepts and strategies. This lack of financial literacy can hinder effective decision-making and cause individuals to overlook important opportunities or fall into financial pitfalls.

The described problem holds significant importance due to its far-reaching impact on individuals' financial well-being and overall quality of life:

Financial Security: Sound financial decisions are essential for personal and family security. Making suboptimal choices can lead to debt accumulation, insufficient savings, and even financial crises that have a profound impact on individuals' and families' lives.

Wealth Accumulation: Effective financial management is key to accumulating wealth and achieving long-term financial goals, such as homeownership, education, retirement, and entrepreneurship. Without proper guidance, these goals may remain out of reach.

Reduced Stress: Financial instability and uncertainty contribute to stress and anxiety. Providing individuals with tools and insights to manage their finances can alleviate this stress, leading to improved mental health.

Economic Growth: On a broader scale, a population with better financial management skills can contribute to overall economic growth. Individuals who make informed decisions are more likely to invest, save, and contribute positively to the economy.

Empowerment: Equipping individuals with real-time insights and personalized recommendations empowers them to take control of their financial destinies. This empowerment fosters a sense of agency and responsibility over one's financial future.

Bridge the Gap: The described problem bridges the gap between advanced financial knowledge and everyday individuals. It addresses the need for democratizing access to sophisticated financial insights that were traditionally available only to financial experts.

Lastly, the root cause of the problem lies in the complexity of the financial landscape and the lack of personalized guidance. This problem is crucial to consider because it affects individuals' financial security, wealth accumulation, stress levels, overall well-being, and the broader economy. Addressing this problem has the potential to transform how people approach their financial decisions and lead to more secure and prosperous futures.

* Write the background description that helps putting the project into the right context of a problem domain and gives everyone involved a common view of the project
* What is the root cause of this problem? why is this problem is so important to consider?

## Solution to the Problem

The Solution: FundFlow Navigator

FundFlow Navigator is a cutting-edge mobile application that leverages the power of Artificial Intelligence to address these challenges. By combining advanced AI algorithms with real-time market data, the application offers users a holistic view of their financial landscape. From tracking income and expenses to assessing investments and debts, the platform provides a 360-degree snapshot of the user's financial situation.

To address the challenges outlined in the problem description, we propose the following solutions within the context of the "FundFlow Navigator" project:

AI-Powered Financial Insights:

Develop an advanced AI engine that utilizes machine learning algorithms to analyze users' financial data and market trends. This engine will generate real-time insights and personalized recommendations, helping users make informed decisions aligned with their financial goals.

Goal-Oriented Planning:

Implement a feature that allows users to set and prioritize their financial goals, such as saving for a house, paying off debt, or building an emergency fund. The application should break down these goals into achievable milestones, offering a clear roadmap for users to follow.

Real-Time Monitoring and Alerts:

Enable users to monitor their financial progress on a daily basis. Implement alerts and notifications that inform users about deviations from their financial plans, market shifts, or missed milestones.

Educational Resources:

Create an educational hub within the application that offers easy-to-understand resources on financial concepts, investment strategies, and risk management. Empowering users with financial literacy will enhance their decision-making capabilities.

Customized Investment Recommendations:

Incorporate AI-driven investment recommendations that consider users' risk tolerance, financial goals, and market conditions. The system should suggest diversified investment portfolios to help users maximize returns while managing risks.

Expense Tracking and Budgeting:

Develop robust expense tracking and budgeting tools that allow users to categorize and monitor their spending habits. The application should provide insights into areas where users can cut back to save more.

Appropriateness of the Solution:

The proposed solutions are particularly appropriate for several reasons-

Personalization: The solutions prioritize personalization, catering to individual financial situations, goals, and risk appetites. This is vital to ensure that users receive recommendations that align with their unique circumstances.

Data-Driven Insights: By leveraging AI and real-time market data, the solutions provide intelligent, data-driven recommendations that go beyond basic tracking features. This addresses the root problem of lack of timely insights.

Empowerment and Education: The solutions not only offer recommendations but also educate users on financial concepts and strategies. This bridges the knowledge gap and empowers users to make informed decisions independently.

Holistic Approach: The combination of expense tracking, goal setting, investment recommendations, and education offers a holistic approach to financial management. Users are guided through every aspect of their financial journey.

User Engagement: The real-time monitoring, alerts, and educational resources enhance user engagement, encouraging consistent and active usage of the application.

Feasibility and Business Objectives:

The proposed solutions are feasible given the advancements in AI technology, mobile app development, and financial data integration. The success of similar AI-driven financial platforms in the market demonstrates the viability of these solutions.

The solutions are aligned with the business objective of the "FundFlow Navigator" project, which is to provide users with a comprehensive and proactive tool to navigate their financial journey. The solutions address the core challenges highlighted in the problem description and offer a user-friendly, AI-powered platform that empowers users to make sound financial decisions.

By providing users with real-time insights, personalized guidance, and educational resources, the proposed solutions not only meet the business objective but also have the potential to transform how individuals approach their finances, leading to greater financial security and success.

FundFlow Navigator is an innovative mobile application designed to revolutionize the way individuals manage their finances and achieve their financial goals. With the ever-increasing complexity of the financial world, our solution provides users with the tools, insights, and guidance needed to navigate this landscape with confidence and success.

Purpose:

The primary purpose of FundFlow Navigator is to empower users to achieve and maintain a healthy financial status by providing real-time insights, personalized recommendations, and educational resources. The application serves as a comprehensive financial companion, assisting users in making informed decisions that align with their unique financial situations and goals.

Benefits:

Intelligent Insights: FundFlow Navigator utilizes advanced AI algorithms to analyze users' financial data and current market trends. This results in tailored insights and recommendations that empower users to make optimal decisions about investments, expenses, and savings.

Personalized Guidance: The application understands the individual goals, risk tolerance, and financial preferences of each user. This personalized approach ensures that the recommendations provided are relevant and aligned with the user's aspirations.

Real-Time Monitoring: Users can monitor their financial progress in real time, tracking how their decisions impact their overall financial health. This dynamic tracking fosters accountability and allows users to adjust strategies as needed.

Educational Resources: FundFlow Navigator is not just a tracking tool but an educational hub, providing users with accessible explanations of financial concepts, strategies, and best practices. This enhances users' financial literacy and empowers them to make more informed choices.

Objectives and Goals:

Comprehensive Financial Management: FundFlow Navigator aims to offer a holistic solution that covers all aspects of financial management, from tracking expenses to making investment decisions.

Empowerment: The application seeks to empower users by providing them with the information and tools necessary to make confident and strategic financial decisions.

Financial Literacy: FundFlow Navigator aims to bridge the gap in financial knowledge by offering educational resources that empower users to better understand and navigate the world of finance.

Goal Achievement: The application's goal-setting features help users define their financial objectives and provide step-by-step guidance to achieve them.

Enhanced User Experience: The user-friendly interface and intuitive design ensure that users of all backgrounds can easily navigate the application and utilize its features effectively.

FundFlow Navigator is a powerful tool that combines AI-driven insights, personalized guidance, and educational resources to empower users in their financial journey. By addressing the complexities of modern finance and providing actionable recommendations, the application helps users achieve financial security and success.

As per the recent study there are several financial tracking apps and software present. But none of them has the ability to do computation on real time up to date data and generate a decision for investing in particular sector. There are no AI-powered apps, software or, tools available right now in the market of software products. Though, there are somewhat relatable software and apps present-

Budgeting Apps:

There are various budgeting apps available that allow users to track their income and expenses. These apps provide insights into spending patterns and help users create budgets. However, they often lack the sophistication of AI-driven insights and personalized recommendations.

Personal Finance Management Software:

Software like Quicken and Mint offer comprehensive personal finance management features, including expense tracking, investment tracking, and budgeting. However, their recommendations might not be as advanced as those offered by AI-driven solutions.

Robo-Advisors:

Robo-advisors are platforms that use algorithms to create and manage investment portfolios for users. They consider factors like risk tolerance and financial goals to suggest investment strategies. While they provide investment advice, they might not cover the broader financial management aspects.

Financial Planning Tools:

Financial planning software helps users create long-term financial plans, considering factors like retirement, education funding, and estate planning. These tools might not offer real-time insights or address day-to-day financial decisions.

Investment Research Platforms:

Some platforms provide market research and insights for users to make informed investment decisions. However, they might lack the integration of personal financial data and overall financial health assessment.

Educational Websites and Blogs:

Various websites and blogs offer financial education and guidance. While these resources are valuable for improving financial literacy, they might not provide the personalized insights needed for individual financial situations.

Banking and Financial Institution Apps:

Many banks and financial institutions offer their own apps with basic tracking features, but they might focus primarily on the services provided by the institution rather than holistic financial management.

It's worth noting that while these solutions provide value in their respective areas, the problem described in the project background calls for a more comprehensive and proactive approach. The need for real-time insights, personalized guidance, and AI-driven recommendations based on both personal financial situations and market dynamics is what sets FundFlow Navigator apart as a potential solution. It aims to bridge the gap between basic tracking tools and more advanced financial management by leveraging the power of AI to empower users in their financial journey.

* What are the solutions you are going to propose to deal with the problem? why is this   
   solution is particularly appropriate to solve the problem? Is the solution feasible to the   
   meet the business objective?
* Provide a short description of the software being specified and its purpose, including relevant benefits, objectives, and goals
* Existing studies presented in the problem area. What are the existing software solutions   
   are available to solve the aforementioned problem?

# REQUEIREMNT SPECIFICATION

## System Features

1. User Registration and Authentication:

Functional Requirements

1.1 The software shall allow users to create new accounts by providing a unique username, password, and valid email address.

1.2 Users shall receive a verification email upon registration, and their account shall be activated upon clicking the verification link.

1.3 The system shall provide a "Forgot Password" functionality to allow users to reset their passwords via email.

1.4 The application shall enforce password complexity requirements (e.g., minimum length, combination of characters).

1.5 In case of multiple unsuccessful login attempts, the system shall display a CAPTCHA to prevent brute-force attacks.

1.6 Priority Level: High

Precondition: User has a valid email address for registration.

2. Personal Financial Dashboard:

Functional Requirements

2.1 The application shall display an interactive dashboard upon user login.

2.2 Users shall be able to view their current balance, recent transactions, and an overview of financial goals on the dashboard.

2.3 The system shall update the dashboard in real-time to reflect the most current financial information.

2.4 The dashboard shall provide a summary of income sources and expense categories.

2.5 Priority Level: High

Precondition: User is logged in.

3. Expense Tracking and Categorization:

Functional Requirements

3.1 Users shall be able to manually enter expenses, specifying the amount, date, and category.

3.2 The application shall provide predefined expense categories and allow users to create custom categories.

3.3 Users shall have the ability to edit or delete previously entered expenses.

3.4 The system shall allow users to upload receipts or images related to expenses.

3.5 Priority Level: High

Precondition: User is logged in.

4. Investment Portfolio Management:

Functional Requirements

4.1 Users shall be able to add, edit, or delete investment holdings, including type, quantity, and purchase price.

4.2 The system shall retrieve real-time market data to calculate the current value of each investment.

4.3 Users shall receive notifications for significant changes in the value of their investments.

4.4 The application shall provide a historical performance chart for each investment.

4.5 Priority Level: High

Precondition: User is logged in.

5. Goal Setting and Tracking:

Functional Requirements

5.1 Users shall have the ability to set financial goals with specific target amounts and deadlines.

5.2 The system shall break down larger goals into achievable milestones.

5.3 Users shall receive progress updates and notifications when milestones are reached.

5.4 The application shall provide a visual representation of goal progress.

5.5 Priority Level: Medium

Precondition: User is logged in.

6. AI-Generated Insights and Recommendations:

Functional Requirements

6.1 The application shall analyze user's financial data and market trends to generate personalized insights.

6.2 Users shall receive actionable recommendations for optimizing expenses and investments.

6.3 The system shall take into account user preferences and risk tolerance when generating recommendations.

6.4 Recommendations shall be presented in a clear and understandable format.

6.5 Priority Level: High

Precondition: User is logged in and has provided financial data.

7. Financial Education Hub:

7.1 The application shall provide educational resources and articles on financial concepts and strategies.

7.2 Users shall have access to tutorials, guides, and videos to improve their financial literacy.

8. Real-Time Monitoring and Alerts:

8.1 Users shall receive real-time alerts about significant changes in their financial situation.

8.2 Alerts may include overspending, missed goals, or investment opportunities.

8.3 Users shall have the option to customize alert preferences.

9. Data Security and Privacy:

9.1 The application shall ensure user data encryption during transmission and storage.

9.2 Users shall have the ability to control their data sharing preferences.

9.3 The system shall comply with relevant data protection regulations.

10. User Support:

10.1 Users shall have access to a support center to address technical issues and inquiries.

10.2 The application shall provide a comprehensive FAQ section and contact options for customer support.

* List down the system functional requirements that describes the system’s functionalities
* Example  
  1. System Login  
  Functional Requirements
  1. The software shall allow users to login with their given username and password
  2. If the username and/or password has been inserted wrong for more than three times, the random verification code will be generated by the system to retry login.
  3. If the number of login attempt exceed its limit (5 times), the system shall block the user account login for one hour *[optional function]*

Priority Level: High  
Precondition: user have valid user id and password

## System Quality Attributes

Usability: An average user should be able to navigate and utilize the main features of the FundFlow Navigator app within 5 minutes of their first interaction, without requiring extensive training.

Accuracy: The AI algorithms used in FundFlow Navigator should consistently provide accurate financial insights, recommendations, and market predictions with a margin of error of less than 5%.

Real-time Data: The application should ensure that all financial data, including market information and user transactions, is updated in real-time, minimizing data latency to less than 1 minute.

Personalization: The AI should tailor its recommendations based on individual user preferences, financial goals, risk tolerance, and current financial situation, ensuring that the advice is relevant and aligned with each user's unique circumstances.

Security: The app should employ strong encryption and secure authentication methods to safeguard user financial data, preventing unauthorized access or data breaches.

Reliability: The FundFlow Navigator app should have a system uptime of at least 99.9%, ensuring that users can access their financial information and recommendations whenever they need.

Scalability: The system should be able to handle a growing user base and increasing data volume without compromising performance, ensuring that response times remain consistent even as the user load increases.

Intuitiveness: The user interface should be intuitive and user-friendly, presenting financial information in a clear and easy-to-understand manner, thus enabling users to make informed decisions effortlessly.

Adaptability: The app should adapt to changing market conditions, updating its recommendations and predictions in response to economic fluctuations or changes in user behavior.

Integration: The system should be able to integrate with a wide range of financial institutions, allowing users to import and consolidate financial data from various sources such as banks, investment platforms, and credit card companies.

Mobile Compatibility: The mobile application should function seamlessly across different mobile devices and operating systems, ensuring a consistent experience for users regardless of their chosen device.

Data Privacy: The application should adhere to strict data privacy regulations, giving users full control over their data and providing options for data anonymization or deletion.

Educational Support: The app should offer educational resources and explanations for financial concepts, helping users better understand the implications of different financial decisions and enabling them to improve their financial literacy.

Feedback Mechanism: The app should provide users with clear feedback on the impact of following its recommendations, allowing users to evaluate the effectiveness of the advice given.

Proactive Alerts: The application should notify users of important financial events, such as upcoming bill payments, investment maturity dates, or significant market fluctuations, helping users stay on top of their financial responsibilities.

Customizability: Users should have the option to customize the types of alerts, insights, and notifications they receive, tailoring the app's features to their specific preferences and needs.

Customer Support: The app should offer responsive and knowledgeable customer support, available through multiple channels, to assist users with any issues, questions, or concerns they might have.

Continuous Improvement: The development team should regularly update the app to enhance its features, improve its AI algorithms, and incorporate user feedback to ensure that FundFlow Navigator remains a relevant and valuable tool for users' financial well-being.

* List down the quality attributes that describes how well the system should perform.
* Example:  
  Usability: *A trained user shall be able to submit a complete request for a chemical selected from a vendor catalog in an average of four and a maximum of six minutes.*

## System Interface

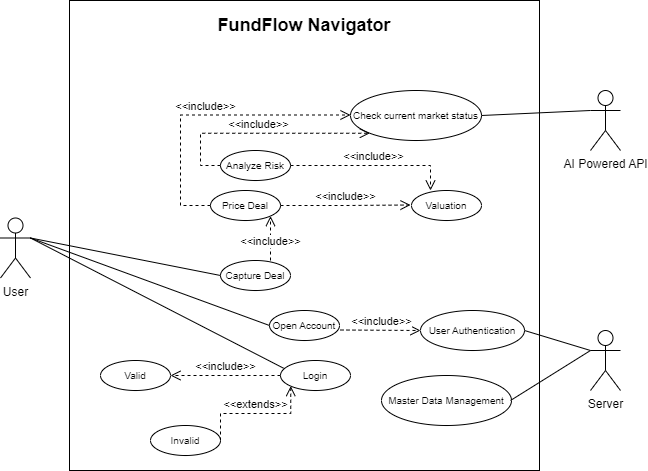


Figure: Use case Diagram.

* Draw the system interface where the users will interact with the system’s functionality.

## Project Requirements

Here are the project constraints that should be followed in the project management of the “FundFlow Navigator” system:

Total Budget: The project should be executed within a total budget of $XXXXX, which includes all development, testing, deployment, marketing, and operational costs. Budget tracking and management tools should be utilized to ensure adherence to the allocated budget.

Total Development Time: The development of the FundFlow Navigator app should be completed within a timeframe of 1 year and 6 months (18 months) from project initiation. Clear project milestones and deadlines should be established to track progress and manage the development timeline effectively.

Resource Availability: The project team should manage and allocate human resources efficiently to ensure that all required skills, such as AI development, mobile app development, UI/UX design, and financial domain expertise, are available throughout the project.

Technology Stack: The project should adhere to the predefined technology stack and infrastructure, ensuring compatibility, scalability, and security of the application. Any changes to the technology stack should be evaluated against their impact on the project timeline and budget.

Data Privacy and Compliance: The system should adhere to relevant data privacy regulations and financial industry standards. This includes implementing strong data encryption, secure authentication, and user consent mechanisms to protect sensitive financial data.

User Testing and Feedback: The project plan should include provisions for user testing and feedback collection at various stages of development. Iterative testing and refinement based on user feedback should be integrated into the project timeline.

Integration with External APIs: The application's integration with external financial data sources and market data APIs should be seamless and accurate, ensuring real-time updates. The development team should follow best practices for integrating and maintaining these connections.

Scalability Planning: The architecture and design of the application should take scalability into account, allowing for future growth in terms of user base and data volume. The application should be able to handle increased load without compromising performance.

Quality Assurance and Testing: The project management plan should allocate sufficient time for comprehensive quality assurance and testing, including functional testing, security testing, and performance testing, to ensure a stable and reliable application.

User Training and Onboarding: The project should include a plan for user training and onboarding to ensure that users can effectively navigate and utilize the application's features. User-friendly tutorials and support materials should be provided.

Change Management: Any changes to project scope, requirements, or features should be properly evaluated, documented, and communicated to all relevant stakeholders. A change management process should be in place to manage scope creep and ensure alignment with project goals.

Backup and Disaster Recovery: The project should include strategies for regular data backup and disaster recovery planning to minimize data loss in case of system failures or unforeseen events.

Stakeholder Communication: Regular communication with stakeholders, including investors, management, and potential users, should be maintained throughout the project to provide updates on progress, challenges, and achievements.

Legal and Intellectual Property Considerations: The project management should address legal agreements, intellectual property rights, and any licensing requirements associated with the development of the AI algorithms, software, and user interface components.

User Accessibility: The application should adhere to accessibility guidelines and standards to ensure that users with disabilities can effectively use the app. This includes considerations for screen readers, keyboard navigation, and other assistive technologies.

Deployment Plan: The project should outline a clear deployment plan, including testing in a staging environment before releasing the application to production, to minimize disruptions to users during the rollout.

Continuous Improvement: The project management plan should include provisions for ongoing maintenance, updates, and improvements to the application after its initial release, in order to address user feedback, fix bugs, and adapt to changing market conditions.

Risk Management: The project should identify potential risks and mitigation strategies, such as technology limitations, regulatory changes, market volatility, and unexpected resource shortages, to minimize their impact on the project's success.

User Privacy and Consent: The application should include features that allow users to control their data and give explicit consent for data usage. Privacy policies and terms of use should be transparently communicated to users.

Cross-Platform Compatibility: The app should be developed and optimized to work across multiple mobile platforms (iOS, Android) to maximize its reach and user base.

These project constraints will guide the project management team in successfully developing and delivering the FundFlow Navigator application within the defined budget, timeline, and quality standards.

* List down the project constraints (e.g. time, budget, resources, environment, etc.) that should be followed in the project management.
* Example: Total budget 3,60,000 BDT (Calculate proper budget estimation)  
   Total Development Time 1 year 3 months (Calculate proper time estimation)

# FEATURES NOT TO BE TESTED

External Financial Data Sources: The accuracy and reliability of external financial data sources, such as market data providers or banking APIs, are not directly under the control of the FundFlow Navigator application. Testing of data accuracy and consistency will rely on the performance of these external sources.

Device and Operating System Compatibility: While the FundFlow Navigator aims to be compatible with various mobile devices and operating systems, comprehensive testing of every possible device configuration and OS version is not feasible. Instead, the application will be tested on a representative sample of devices and operating systems.

User Behavior and Decision Making: The application cannot directly control or test how users interact with the financial recommendations and insights provided. User behavior, decision-making processes, and actions taken based on the app's suggestions will not be directly tested.

Market Predictions and Investment Outcomes: The accuracy of market predictions and investment outcomes provided by the AI algorithms cannot be fully tested in real-world scenarios, as these predictions are based on complex market dynamics and cannot be guaranteed to align with actual market results.

External Security Factors: While the application will implement strong security measures, factors outside its control, such as user device security, network vulnerabilities, and user behaviors, may impact the overall security of the user's financial data.

Third-party Integrations: The correct functioning of third-party integrations, such as connecting to external investment platforms or banks, relies on the API specifications and reliability of those third-party services. Testing of these integrations will be indirect and may be limited by the availability and behavior of these external services.

Regulatory and Legal Compliance: While the application aims to adhere to data privacy regulations and financial industry standards, the legal interpretation and compliance with specific regional or industry regulations may vary. Users and stakeholders are responsible for ensuring that their use of the application aligns with relevant regulations.

External Market Conditions: The application's recommendations and insights are based on real-time market data, which can be affected by various external factors such as economic events, geopolitical developments, and market sentiment. The application's response to such conditions cannot be tested directly.

User Financial Literacy: The application can provide educational resources, but the user's level of financial literacy and understanding of financial concepts are not directly testable. The effectiveness of these educational resources will depend on individual user engagement and comprehension.

Internet Connectivity: The application's real-time data updates and external service interactions depend on a stable internet connection. Testing of the application's behavior under poor or unstable network conditions is limited to what can be replicated in a controlled testing environment.

Historical Data Accuracy: The accuracy of historical financial data used for analysis and predictions may be subject to errors or inconsistencies inherent in the data sources. The application's reliance on historical data accuracy cannot be fully tested.

Non-Financial External Factors: The application's recommendations do not account for non-financial factors that may influence a user's decisions, such as personal preferences, emotional responses, or life events.

User's Financial Goals: While the application can provide recommendations aligned with user-defined financial goals, the application cannot directly test the user's ability to set achievable and realistic goals.

These areas will be indirectly influenced by the performance of the FundFlow Navigator application and its interactions with users and external services, but testing in these areas will be limited by factors outside the direct control of the application.

The following is a list of the areas that will not be specifically addressed. All testing in these areas will be indirect as a result of other testing efforts. For example:

* PC based spreadsheet analysis applications using Reassigned Sales data. Because these applications are completely under the control of the customer and are outside the scope of this project. The necessary data base format information will be provided to the customers to allow them to extract data. Testing of their applications is the responsibility of the application maintainer/developer.

# TESTING APPROACH

## Testing Levels

* The testing for the SMS project will consist of Unit, System/Integration (combined) and Acceptance test levels. It is hoped that there will be at least one full time independent test person for system/integration testing. However, with the budget constraints and timeline established; most testing will be done by the test manager with the development teams’ participation.
* UNIT Testing will be done by the developer and will be approved by the development team leader. Proof of unit testing (test case list, sample output, data printouts, defect information) must be provided by the programmer to the team leader before unit testing will be accepted and passed on to the test person. All unit test information will also be provided to the test person.
* SYSTEM/INTEGRATION Testing will be performed by the test manager and development team leader with assistance from the individual developers as required. No specific test tools are available for this project. Programs will enter into System/Integration test after all critical defects have been corrected. A program may have up to two Major defects as long as they do not impede testing of the program (I.E. there is a work around for the error).
* ACCEPTANCE Testing will be performed by the actual end users with the assistance of the test manager and development team leader. The acceptance test will be done in parallel with the existing manual ZIP/FAX process for a period of one month after completion of the System/Integration test process.

## Test Tools

The only test tools to be used are the standard AS/400 provided utilities and commands.

* The Program Development Manager (PDM) will be used as the source version configuration management tool in conjunction with the in-house check-in/check-out control utility. The check-in/out utility is part of each developer’s standard AS/400 access menu.
* The initial prototypes for the new screens will be developed using the AS/400 Screen Design Aid (SDA). The initial layout and general content of the screens will be shown to the sales administration staff prior to proceeding with testing and development of the screens.

## Meetings

The test team will meet once in every week to evaluate progress to date and to identify error trends and problems as early as possible. The test team leader will meet with development and the project manager once every two weeks as well. These two meetings will be scheduled on different weeks. Additional meetings can be called as required for emergency situations.

# TEST CASES/TEST ITEMS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Project Name: | | | Test Designed by: | | |
| Test Case ID: FR\_1 | | | Test Designed date: | | |
| Test Priority (Low, Medium, High): Medium | | | Test Executed by: | | |
| Module Name: Login Session | | | Test Execution date: | | |
| Test Title: verify login with valid username and password | | |  | | |
| Description: Test website login page | | |  | | |
| Precondition (If any): User must have valid username and password | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the website 2. Enter username 3. Enter password 4. Click submit | Username: 99999999999  Password: 321 | User should login into the application | | As expected, | Pass |
| Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database. | | | | | |

# ITEM PASS/FAIL CRITERIA

The test process will be completed once the initial set of distributors have successfully sent in reassigned sales data for a period of one month and the new EDI data balances with the old ZIP/FAX data received in parallel. When the sales administration staff is satisfied that the data is correct the initial set of distributors will be set to active and all parallel stopped for those accounts.

# TEST DELIVERABLES

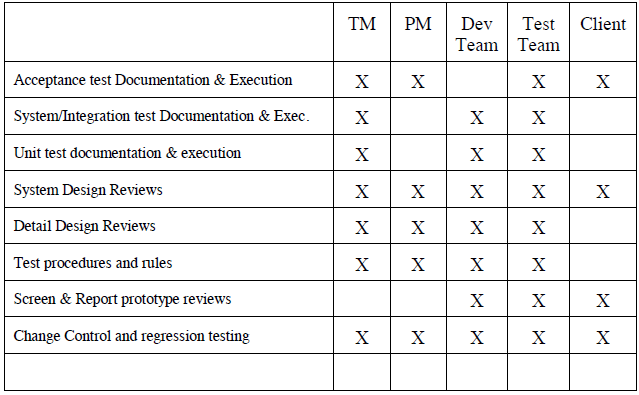
* Acceptance test plan
* System/Integration test plan
* Unit test plans/turnover documentation
* Screen prototypes
* Report mock-ups
* Defect/Incident reports and summaries
* Test logs and turnover reports

# STAFFING AND TRAINING NEEDS

It is preferred that there will be at least one (1) full time tester assigned to the project for the system/integration and acceptance testing phases of the project. This will require assignment of a person part time at the beginning of the project to participate in reviews etc... and approximately four months into the project they would be assigned full time. If a separate test person is not available the project manager/test manager will assume this role. In order to provide complete and proper testing the following areas need to be addressed in terms of training.

* The developers and tester(s) will need to be trained on the basic operations of the EDI interface. Prior to final acceptance of the project the operations staff will also require complete training on the EDI communications process.
* The sales administration staff will require training on the new screens and reports.

# RESPONSIBILITIES



# TESTING SCHEDULE

A screenshot of a computer

Description automatically generated

Time has been allocated within the project plan for the following testing activities. The specific dates and times for each activity are defined in the project plan timeline. The persons required for each process are detailed in the project timeline and plan as well. Coordination of the personnel required for each task, test team, development team, management and customer will be handled by the project manager in conjunction with the development and test team leaders. Schedule must be done using any PM tool.



# PLANNING RISKS AND CONTINGENCIES

* Limited Reassigned Sales staff. The Reassigned Sales administration staff currently has two positions unfilled. As a result of this staff shortage there may be delays in getting staff to review appropriate documents and to participate in the Acceptance test process. Should client staff become a problem, the appropriate dates for reviews and acceptance testing will slip accordingly. No attempt will be made to bypass any part of the review and testing processes.

# APROVALS

