Investment House System

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1.0

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1 System requirements

1.1 Introduction

In order to optimize processes, and reduce costs in management of an investment house, a digital system is established as an alternative to the classic investment house model.
This system will be used as transaction mediator between the clients and the stock market, and will display and manage the information of the investors.
It is invented in order to enable the investment house to be managed with minimal manpower, thus, the investment house will be able to allow the customer to receive investment services on the stock market with significantly low commissions in comparison to the classic investment house.
The system will allow the customer to increase the frequency of his activity and control over his account, at all times to his comfort. The system's success will be measured by the profit it will make to the investment house.

1.1.1 Purpose of the system

The system will allow the customer to increase the frequency of his activity and control over his account, and provide him various reports about his investments.

1.1.2 Scope of the system

The investments house system will enable bidding and dealing actions. It will provide relevant information regarding the trends and statistics of the stock market shares.
The system will produce reports in order to assist the Investment House in managing its accounts and information.
The investment house will not provide human consulting services.

1.2 Current system

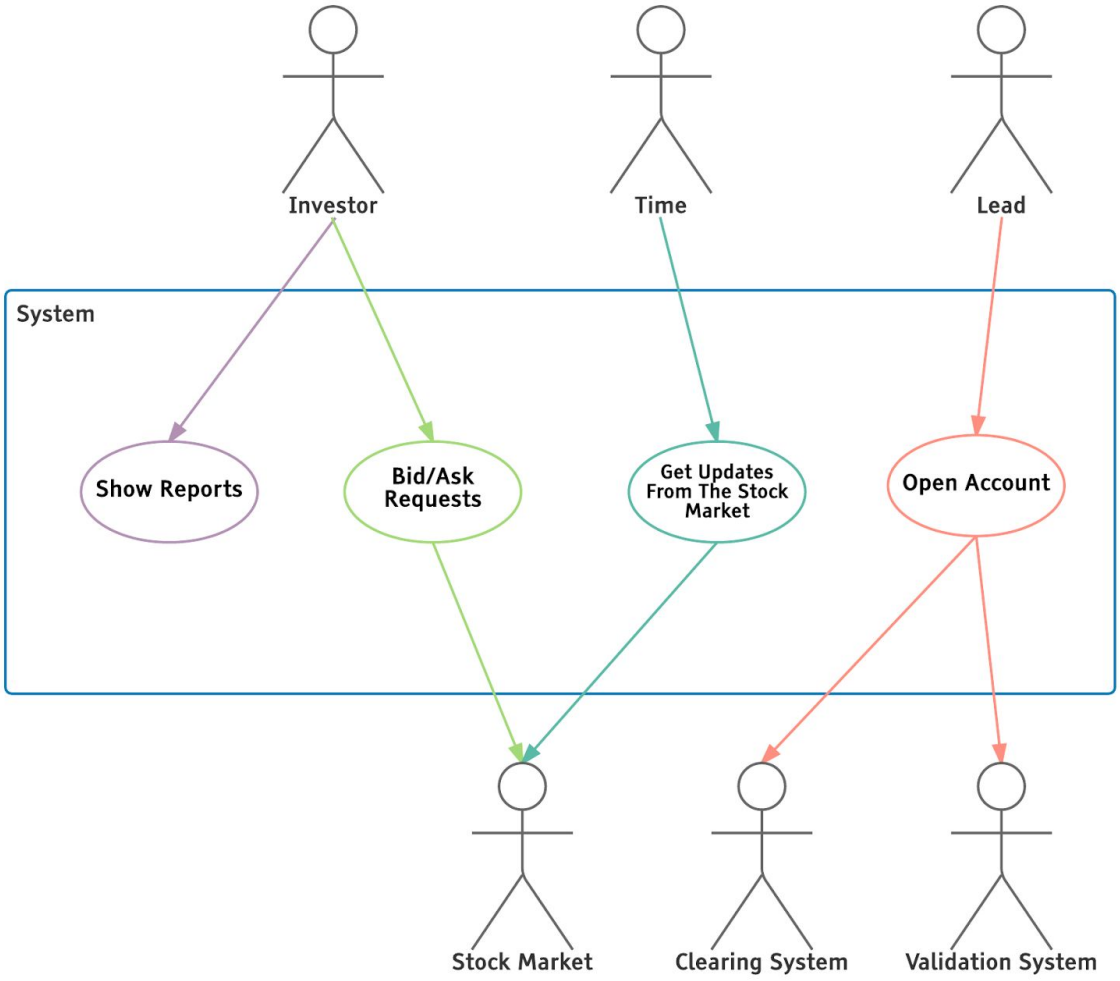
In the current non-digital Investment House system, all customer operations are carried out in front of the investment house representative.
A potential investor for example, is required to contact the investment house by phone or by physically getting into an office and walking through opening of an investment portfolio with the assistance of a representative. While most of the process is being taken using a digital management system that takes care for all the data storage and manipulation.
Any bid or ask operation the investor wants to make, requires him to contact (usually by phone) a representative which will make it for him.
Eventually, the company representative mainly plays the role of the interface between the customer and the company, while also taking a consulting part in the customer investment process.

1.3 Actors & Goals

Actor	Major	Description	Goals
Investor	✔	A person who has an account in the investments house.	To invest in the stock market.
Time	✗	This is a time trigger actor.	Initiate operations in the system based on a time schedule.
Stock Market	✗	The stock market connects between buyers and sellers.	To perform buy/sell requests
Lead	✔	This is a potential customer	To open an account in the investment house.
Clearing System	✗	The system uses the clearing system in order to perform money transactions.	Perform money transfers to the investment house system.

1.4 Functional requirements

1.4.1 Use case diagram



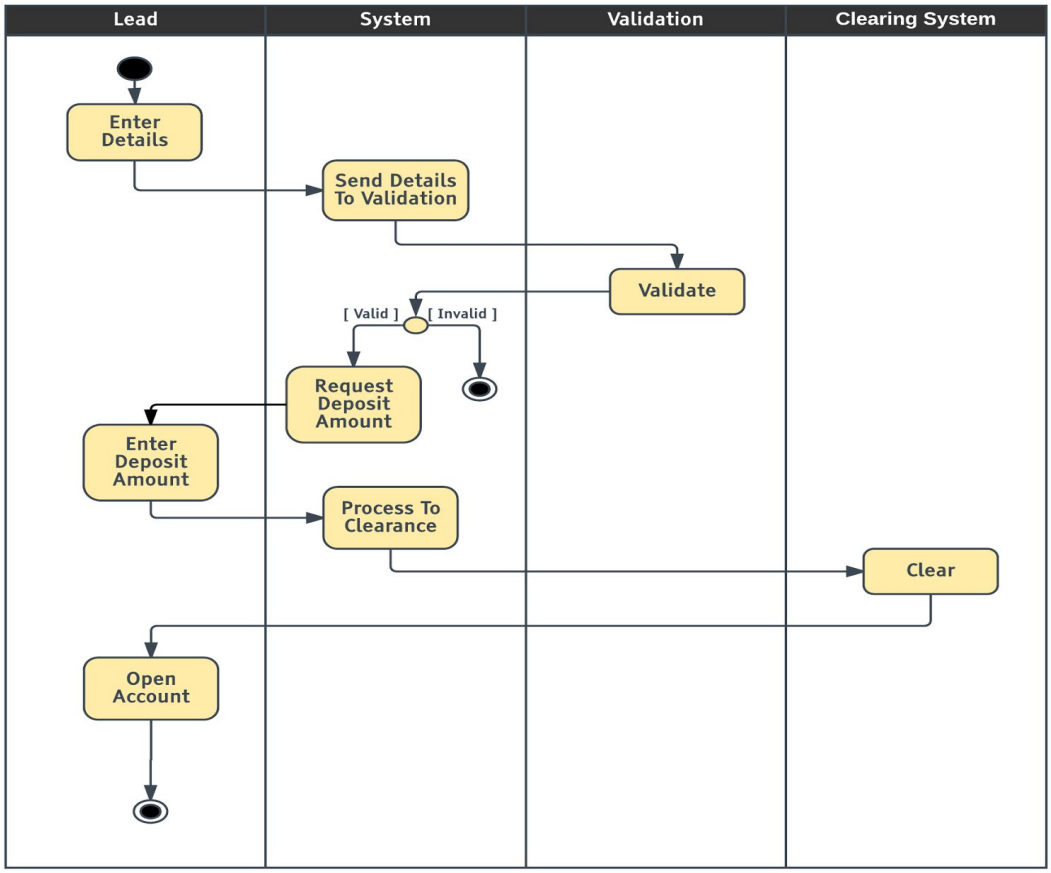
1.4.2 Use cases

Use Case Name: Open Account

Participating Actors: Lead (M), Clearing system, Validation system.

Goal: To open an account in the investment house and validate it using a third party system.

Activity Diagram :

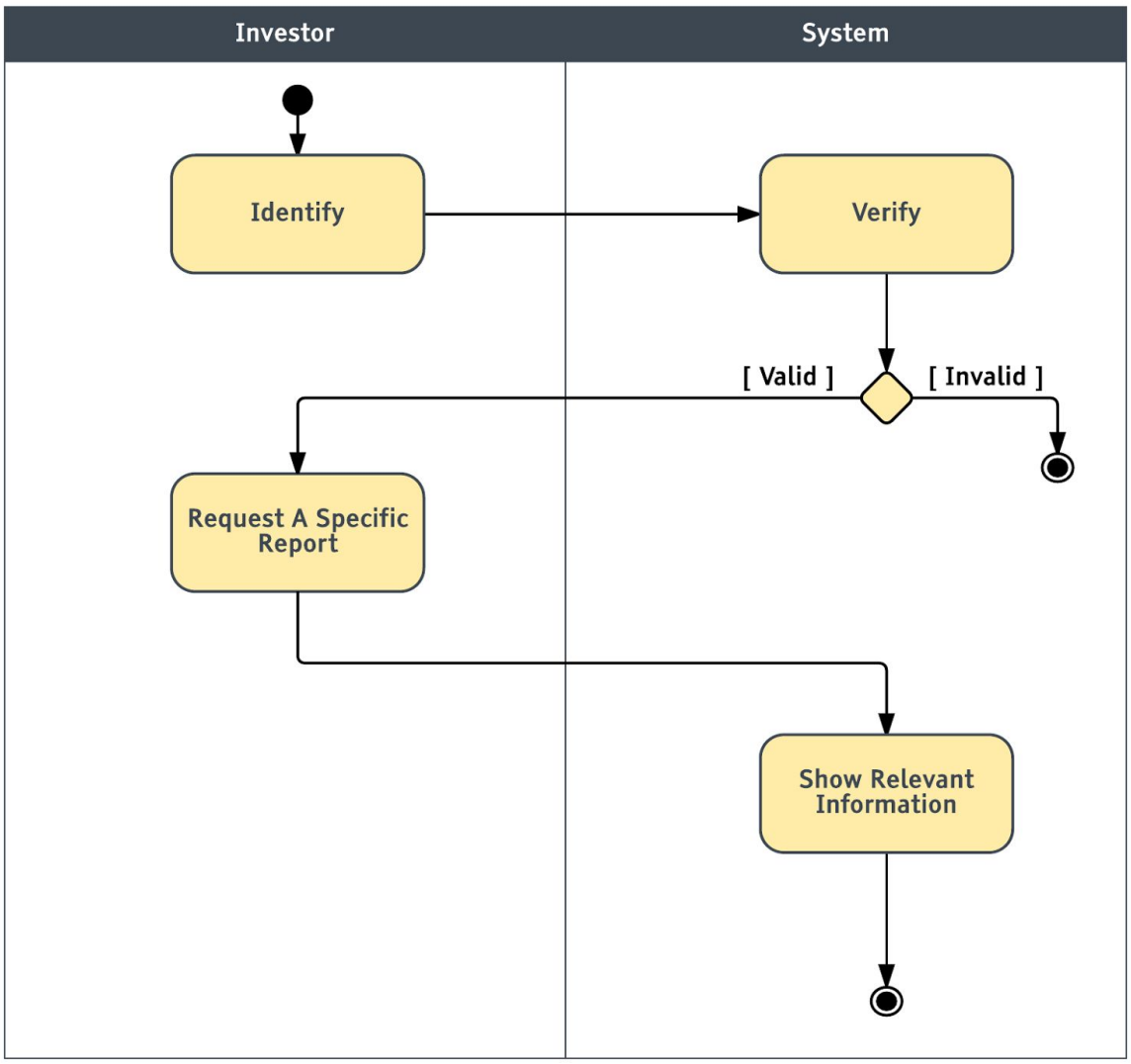


Use Case Name: Show Reports

Participating Actors: Investor (M)

Goal: To present relevant reports regarding stocks and account status.

Activity Diagram :

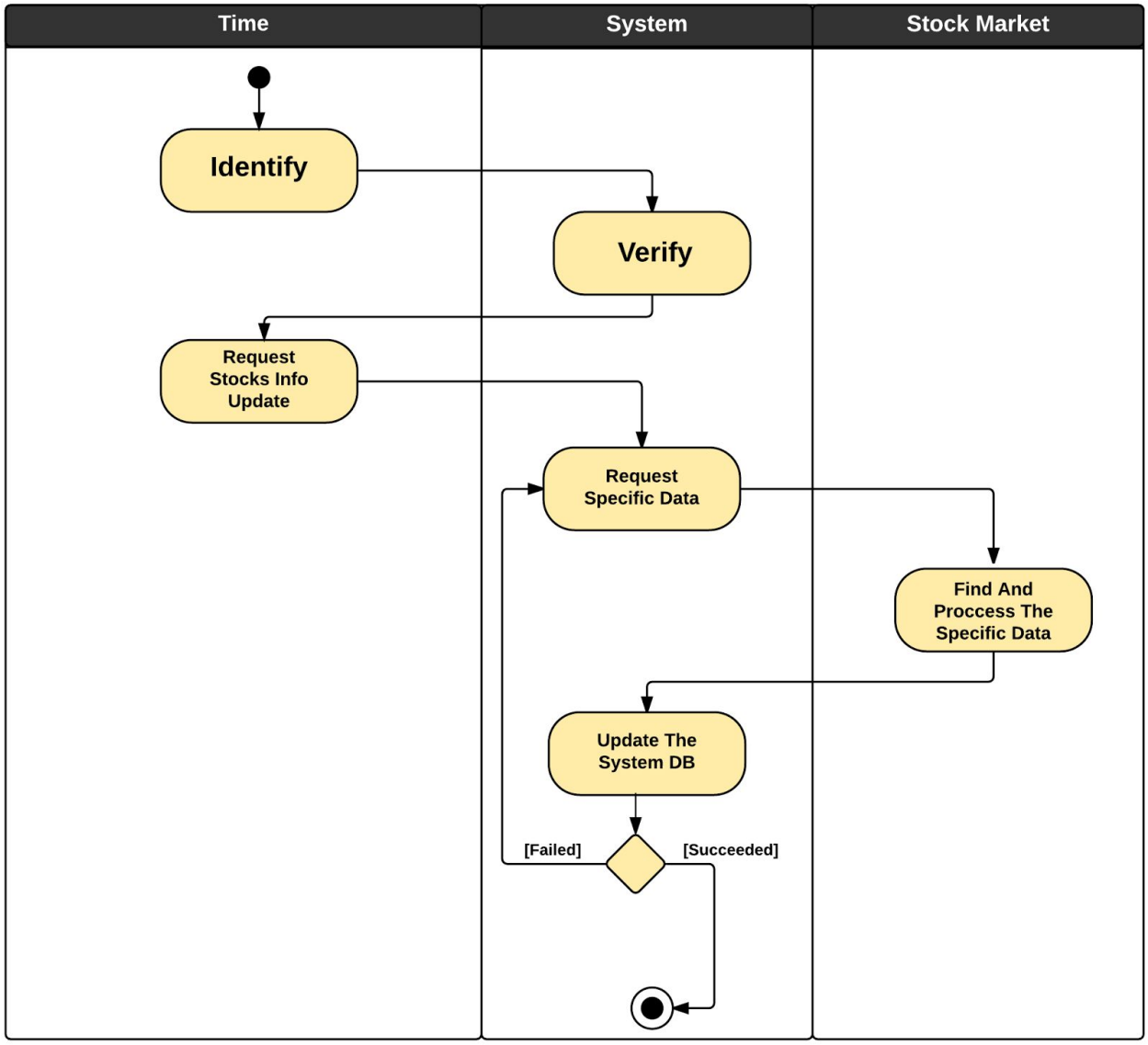


Use Case Name: Get Updates From Stock Market

Participating Actors: Time (M), Stock market.

Goal: To get up-to-date information from the stock market.

Activity Diagram :

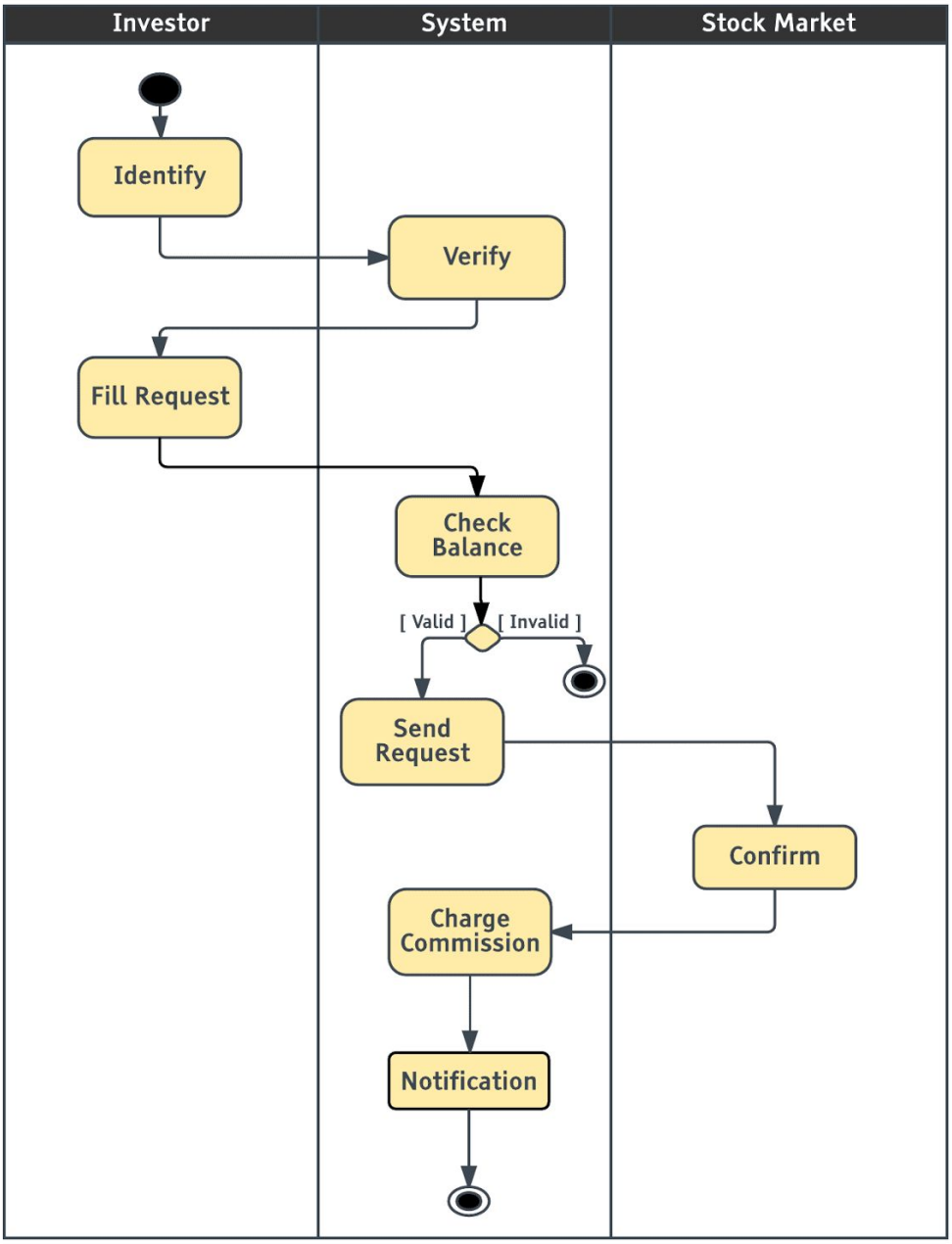


Use Case Name: Bid / Ask request

Participating Actors: Investor (M), Stock Market.

Goal: To send request to the stock market.

Activity Diagram :



1.5 Non functional requirements

Requirement name	Requirement type (U/R/P/S)[1]
Weekly uptime percentage of 99.9%.	R
Any transaction made by the system will be secured by PCI standard.	R
The system will show the investor for any changes in his portfolio.	U
The system UI will be in English	U
The system will not use more than 4 GB of RAM.	P
Every operation will be faster than 5 seconds.	P
The system will run on OSX and Windows operation system	S
The system will run on Java platform	S

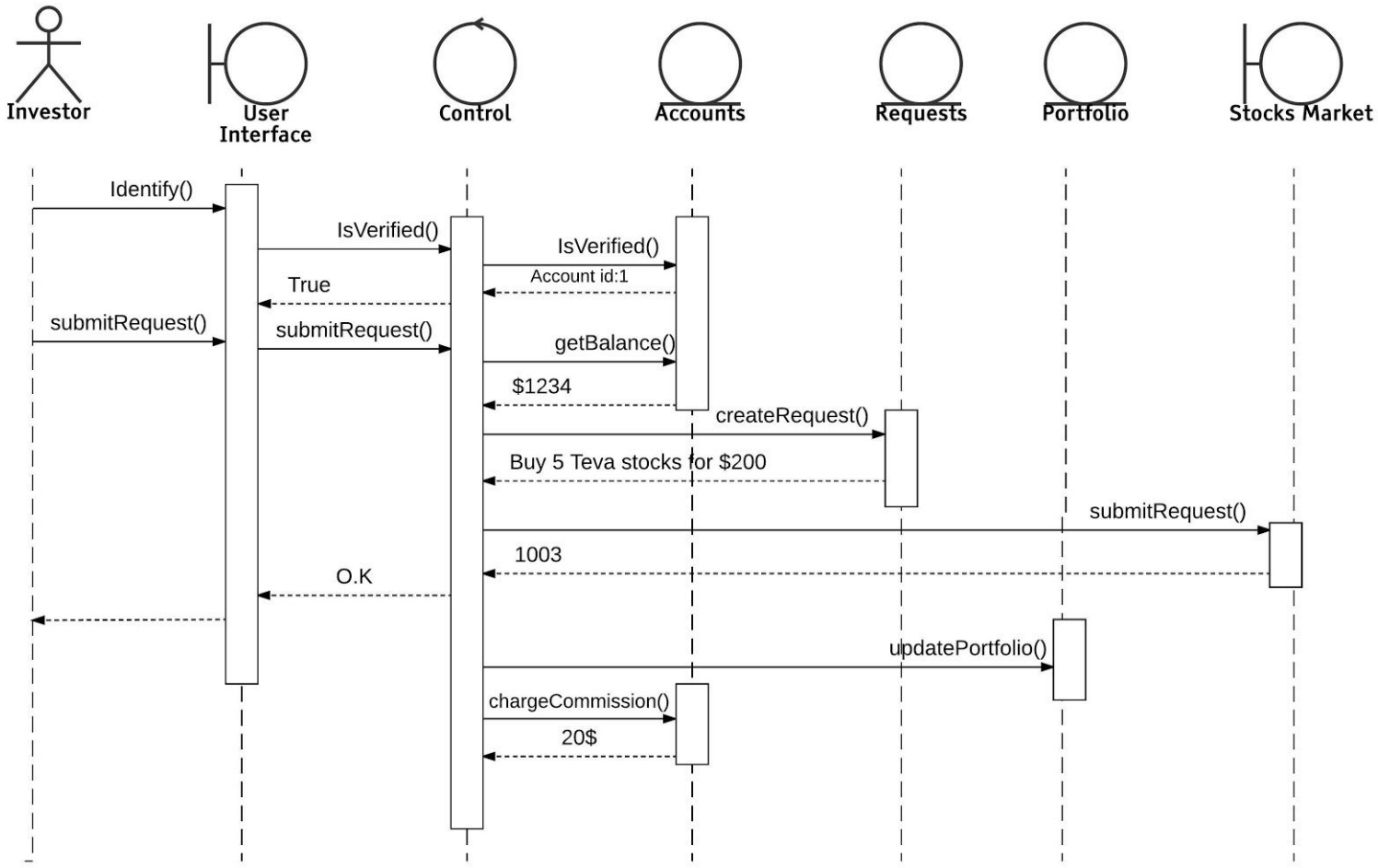
[1] Usability/Reliability/Performance/Supportability

2 System analysis

2.1 Dynamic model

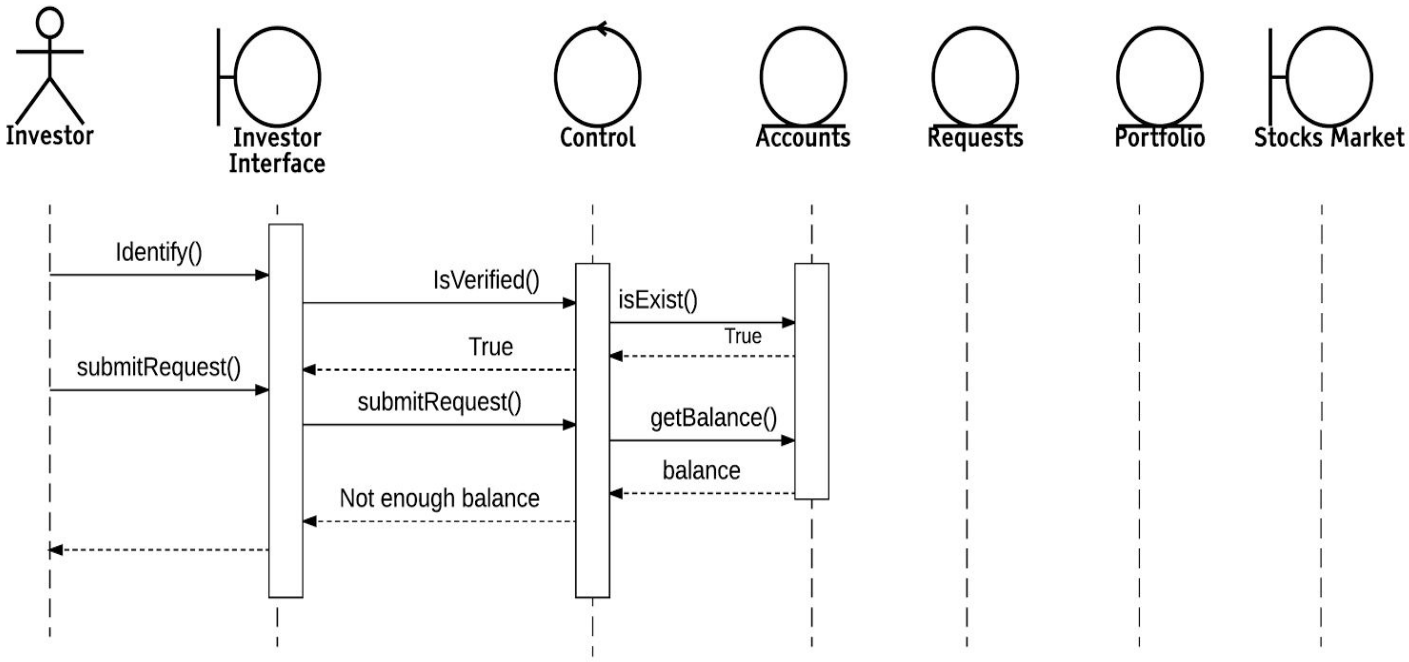
Use case name: Bid / Ask Basic Flow

Sequence diagram:



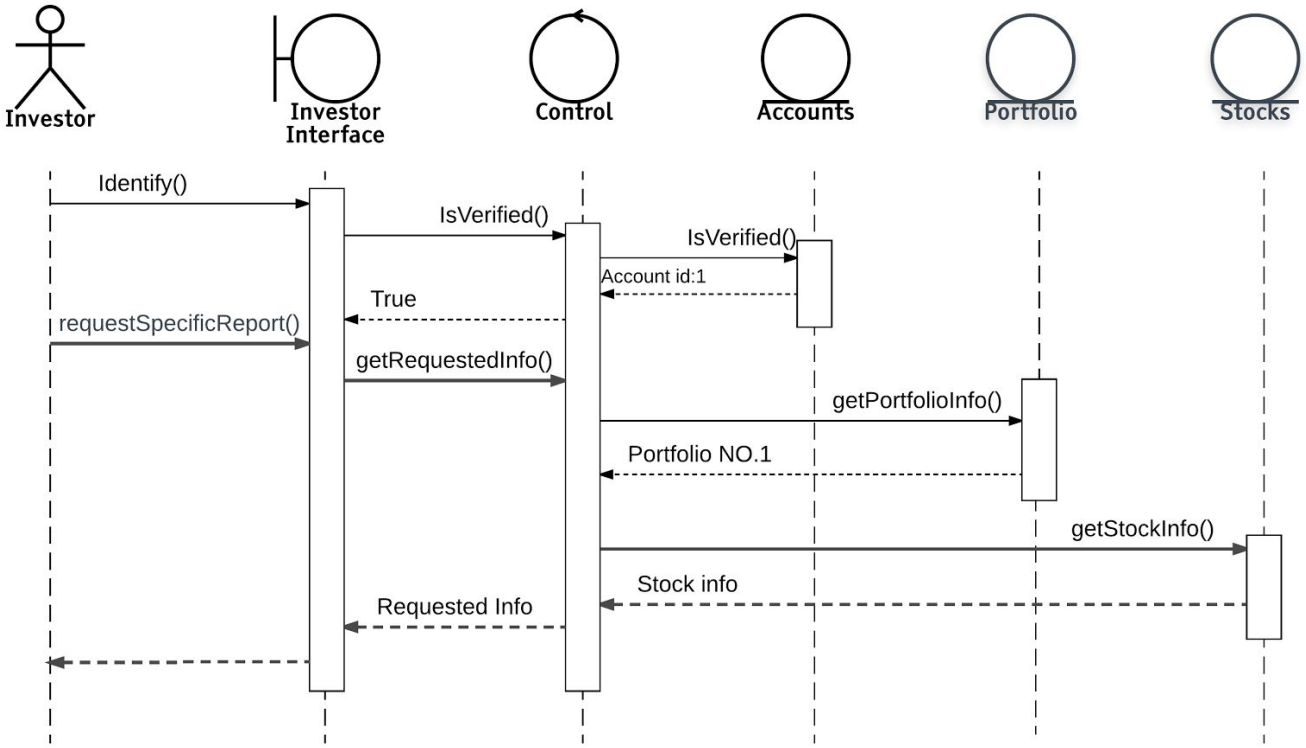
Use case name: Bid / Ask Alternative Flow

Sequence diagram:



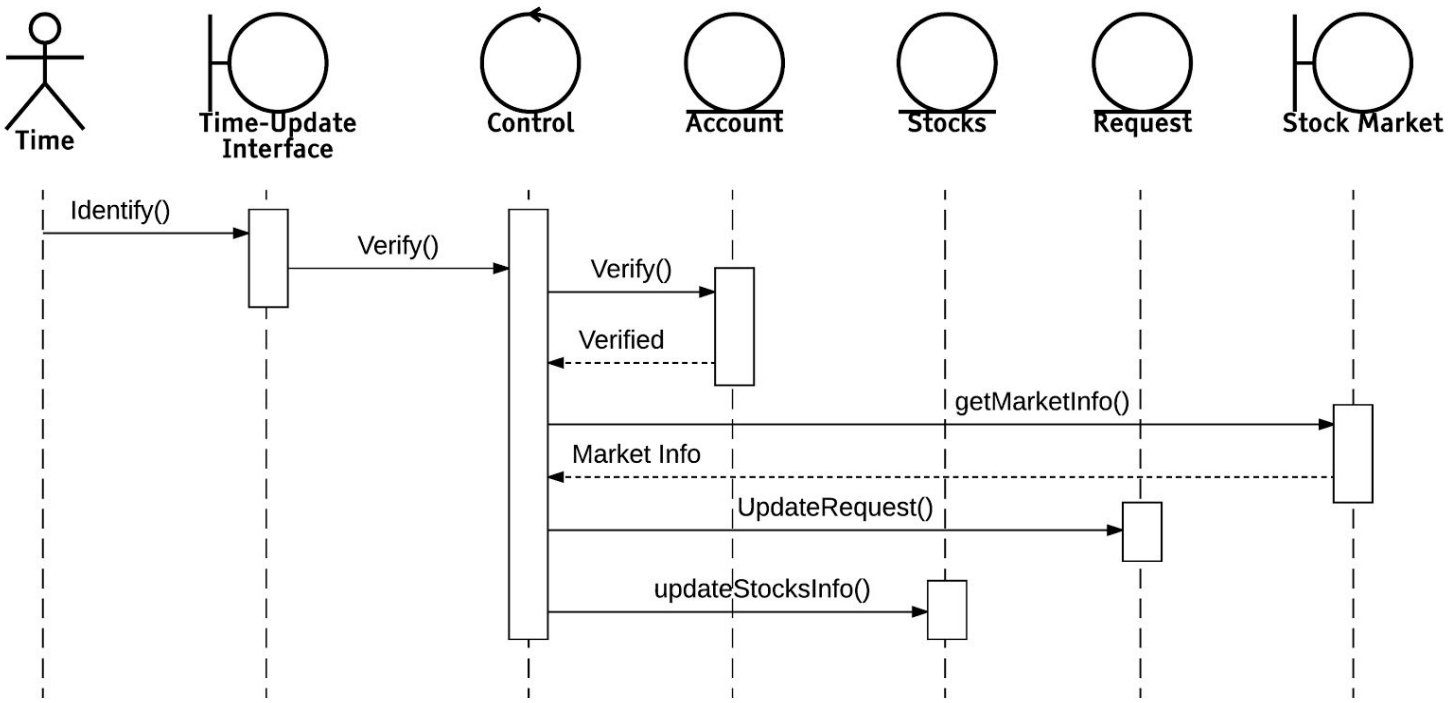
Use case name: Show Reports

Sequence diagram:



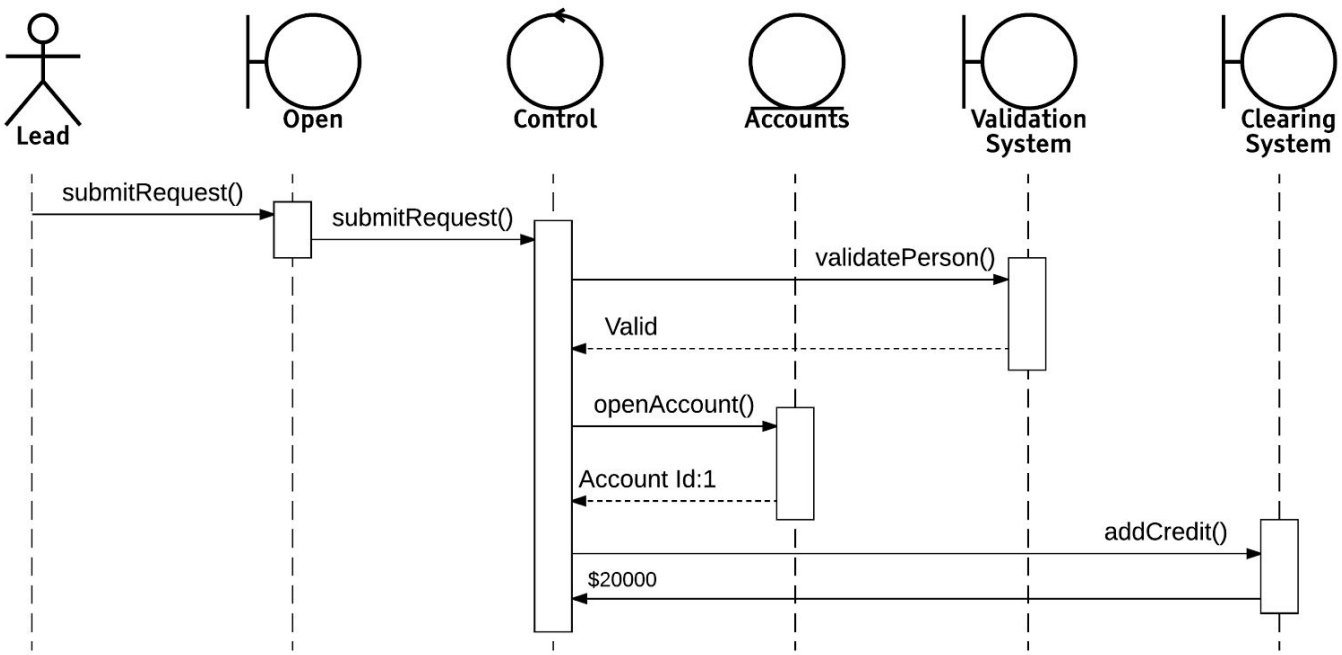
Use case name: Get Updates From Stock Market

Sequence diagram:

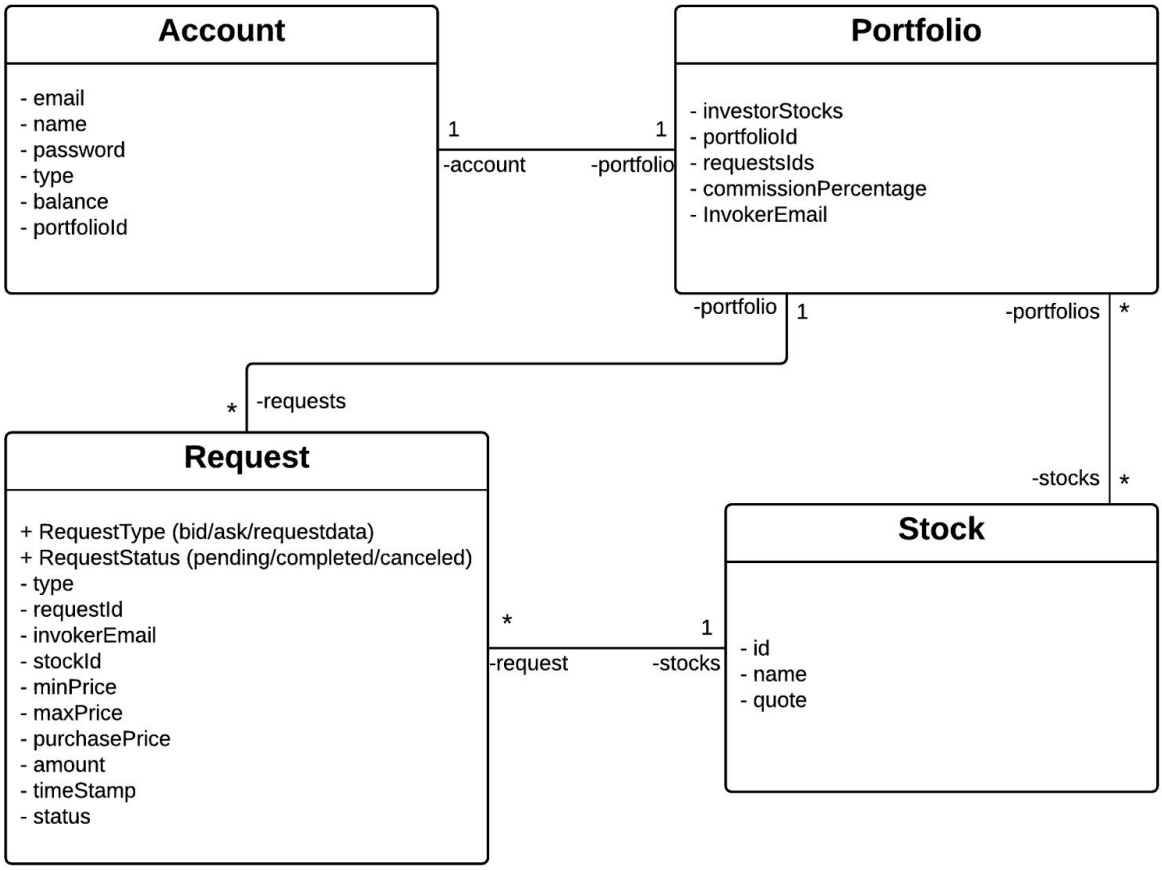


Use case name: Open Account

Sequence diagram:



2.2 Object model



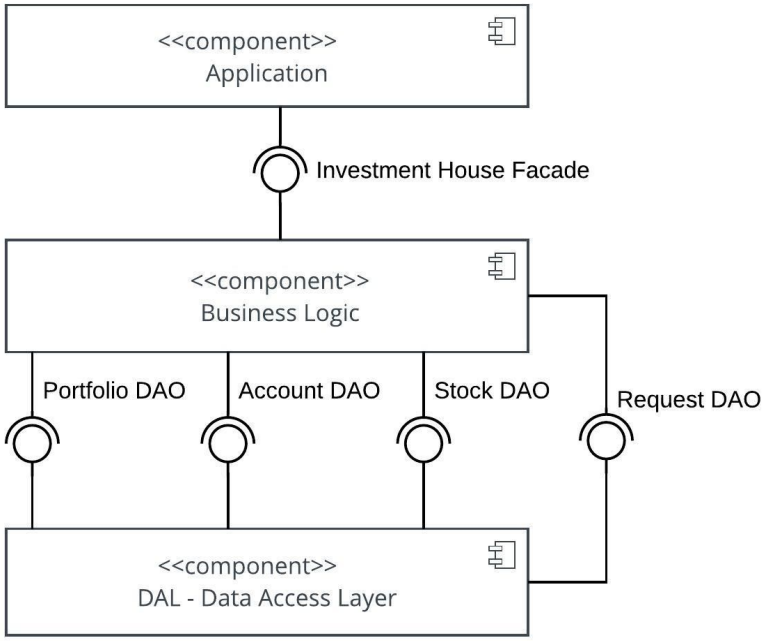
3 System design

3.1 Current system architecture

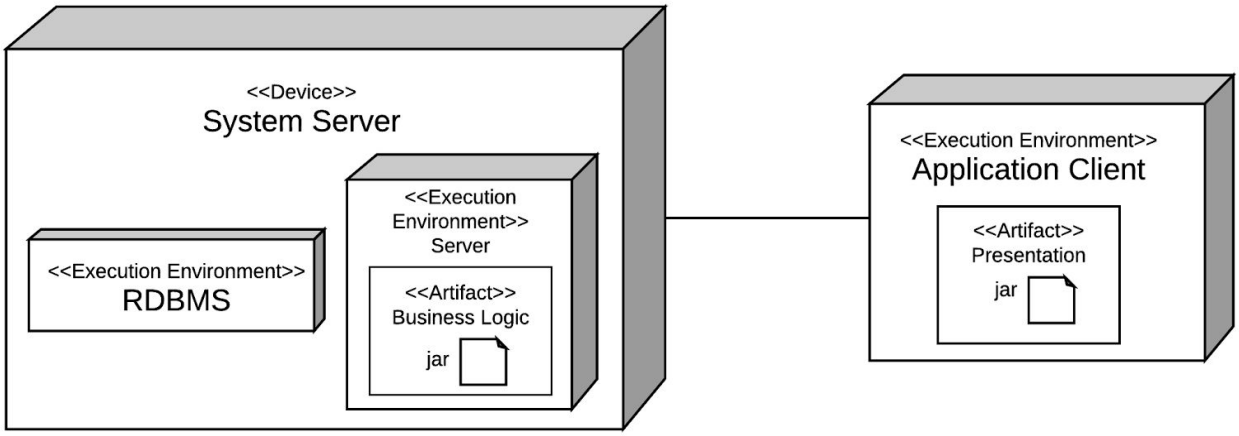
The current system architecture can be referred to as a main system that holds one storage unit and one processing unit with many end-points linked to it. Once the main unit is inoperable, the entire investment house activity is down. In this case, the investment house uses hard copies of data archived in the storage room.

3.2 Proposed system architecture

3.2.1 Subsystem decomposition



3.2.2 Hardware/software mapping



3.2.3 Persistent data management

The persistent data stored by the system will include all existing accounts details, portfolios details and their requests details.
Data management will be transmitted to relational model with MySQL database server.
This solution best fits our investment house needs thanks to its open source platform, trusted software by oracle with 24 / 7 support and free licensing .

3.2.4 Access control

Actor/Entity	Account	Portfolio	Request	Stock
Investor	R	RU	CR	RU
Lead	C	✗	✗	✗
Stock Market	✗	✗	✗	✗

3.2.5 Boundary conditions

3.2.5.1 Use Case Name: Install

Server Side:
Participating Actors:
System Admin / IT / Implementor

Flow of Events (or basic flow activity diagram):

1.Install mySql on the main server
2.Open Terminal and go to the path of the investment house server files

Client Side:
Participating Actors:
Investor, Lead.

Flow of Events (or basic flow activity diagram):

1. Download the 100Plus.jar file

3.2.5.2 Use Case Name: Startup

Server side:
Participating Actors:
System Admin / IT / Implementor

Flow of Events (or basic flow activity diagram):

1. The user opens the command line
2. The system opens the command line
3. The user changes the directory to the executable file location
4. The user enters the command: “java 100Plus”

Client side:
Participating Actors:
Investor, Lead.

Flow of Events (or basic flow activity diagram):

1. The user clicks the 100Plus.jar and start application

Alternate flows:

1. The user clicks the 100Plus.jar and start application
2. The operation system shows a warning that Java is not installed on the client computer.
3. The client clicks on the warning and referred to a link to download Java

3.2.5.3 Use Case Name: Shutdown
Server side:

Irrelevant flow because server does not shut down.

Client side:
Participating Actors:
Investor, Lead.

Flow of Events (or basic flow activity diagram):

1. The user clicks the exit button.
2. The system shutdown.

X. Glossary

Term	Description
Bid	The price a buyer is willing to pay for a stock.
Ask	Ask is the price a seller is willing to accept for a stock, which is often referred to as the offer price.
Stock	A single share of the stock represents fractional ownership of the corporation in proportion to the total number of shares.
Lead	A person who is nominated to be an investor.
Portfolio	grouping of financial assets such as stocks, bonds and cash equivalents, as well as their funds counterparts, including mutual, exchange-traded and closed funds.
Investor	person who commits capital with the expectation of financial returns.