

# Requirements and Analysis Document for ASTRO

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**Version: 0.2**

*Date: 2012-04-17*

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*This version overrides all previous versions.*

## 1 Introduction

*This section gives a brief overview of the project.*

### 1.1 Purpose of application

We want to offer an alternative to private day trading, where someone who's financially and programming savvy buys and sells financial instruments at desired intervals and times. Ideally, the same day trader could write one or several trading algorithms, load them into the ASTRO environment and not having to do all the "dirty work" themselves. ASTRO is a level of abstraction for traders.

### 1.2 General characteristics of application

Most of this application's functionality will not be visible to the end user, it will make heavy use of databases and user created algorithms. It will include HTML and possibly json parsing, depending on what data sources end users want to use.

The GUI will display real-time stock quotes and price graphs. Traders will be able to track their own portfolios and algorithm performance as they run. Optionally we will add support for intervening and placing buy or sell orders that are not done by the robot.

### 1.3 Scope of application

Our focus is not to design algorithms. It is to have a framework for traders, where the users can design algorithms themselves. We will not focus on defending against security threats.

### 1.4 Objectives and success criteria of the project

1. Private traders should be able to use our framework and extend it for their own purpose.
2. The program should be able to run by itself and not by commands from the user.
3. Standalone working algorithmic stock trading framework with database, for private people to use for free.

### **1.5 Definitions, acronyms and abbreviations**

ASTRO - Automated Stock Trading RObot

GIT - Version control system

GUI - Graphical user interface

Java - Platform independent

JDBC - Java database connection

JPA - Java persistence API

JRE - Java runtime environment

JUnit - Testing framework for java

MVC - Model View Controller

## **2 Requirements**

*In this section we specify all requirements*

The framework will function on most platforms since it will be written in java. However it will also depend upon a database, which is not included.

### **2.1 Functional requirements**

The user should be able to:

1. Create new portfolios, and select algorithm to use.
2. Run simulation of algorithms from given settings.
3. View graphs on a specific stock.

### **2.2 Non-functional requirements**

Usability is high priority, however to fully use the system a rather large computer skills is required to fully use this application.

#### **2.2.1 Usability**

Everything, GUI wise, that we provide should be quick and responsive to users. However our GUI will also depend on algorithms the user's define themselves. We can therefore not guarantee any maximum processing time frame.

#### **2.2.2 Reliability**

We use reliable systems such as Java, JPA and well known databases. Other than that no reliability is guaranteed. *Best effort* reliability. (The user will never lose more money than they have invested.)

### **2.2.3 Performance**

We cannot guarantee any maximum times for processing data since users will be able to define their own trading algorithms, possibly taking lots of time.

We use big tested tools in this projects.

### **2.2.4 Supportability**

We have designed the system in a way that supports and enforces loose coupling between the data storage and the user interface parts. It should be easy to develop additional user interface applications such as Android or iPad front ends.

The robot should be easy for users to deploy to their own machines. It should include a readme file that explains how to set up the system.

It is easy for users to change the portfolio database according to their own wishes.

**ÄNDRA INGET UNDER DETTA VECKA 16!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!**

### **2.2.5 Implementation**

x

### **2.2.6 Packaging and installation**

x

### **2.2.7 Legal**

Anyone using this program "IRL" must understand that it could lose them money!

## **2.3 Application models**

x

### **2.3.1 Use case model**

UML and a list of UC names (text for all in appendix)

### **2.3.2 Use cases priority**

A list

### **2.3.3 Domain model**

UML, possible some text.

### **2.3.4 User interface**

Text to motivate a picture.

## **2.4 References**

Domain Model: <http://stock-robot.googlecode.com/files/domainmodel.png>

Design Model: <http://stock-robot.googlecode.com/files/designmodel.png>

## APPENDIX

### GUI

Domain model

Use case texts