University of Pisa
School of Engineering

Large Scale and Multi-Structured Databases

StockSim: Stock Portfolio Simulator

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Part I

Documentation

Chapter 1

Introduction

StockSim is a Java application which, as main feature, allows users to simulate stock market portfolios. The StockSim application is composed by two main programs:

- **StockSim Server**: supposed to be running 24/7 to ensure historical data is always up-to-date;
- **StockSim Client**: can be launched in either `admin` or `user` mode.

The StockSim Server is not thought to be distributed to end users, whereas the StockSim Client can be used by both administrators and normal users. The choice was made to provide the same program to both administrators and normal users with different running modes. Administrators can add new ticker symbols, new administrator accounts, delete both administrator and normal user accounts. Normal users have access to stocks and ETFs historical data, day by day, starting from 2010. They can create their own stock portfolios, run simulations a visualize the resulting statistics.

Chapter 2

Actors and requirements

Blablabla.

2.1 Actors

Something about requirements in general.

2.2 Requirements

2.2.1 Functional requirements

Something about functional requirements.

2.2.2 Non-functional requirements

Something about non-functional requirements.

Chapter 3

UML diagrams

Blablabla.

3.1 Use Case diagram

Something about functional requirements.

3.2 Class diagram

Something about functional requirements.

Chapter 4

Database

Something in general about the dataset and then about the choice of the DB architectures we choose (e.g. "We decided to use a documentDB because blablabla and a column DB because financial analytics on these volumes of data are performed

4.1 Dataset

4.1.1 Yahoo! Finance

4.1.2 NasdaqTrader

4.2 MongoDB

4.2.1 Aggregations

4.2.2 Indexes

4.3 Apache Cassandra

4.3.1 Aggregations

4.3.2 Indexes

4.4 Sharding and Replicas

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Part II

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