



UNIVERSITY OF PISA
School of Engineering

LARGE SCALE AND MULTI-STRUCTURED DATABASES

STOCKSIM: STOCK PORTFOLIO SIMULATOR

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Contents

I	Documentation	2
1	Introduction	4
2	Actors and requirements	5
2.1	Actors	5
2.2	Requirements	5
2.2.1	Functional requirements	5
2.2.2	Non-functional requirements	5
3	UML diagrams	6
3.1	Use Case diagram	6
3.2	Class diagram	6
4	Database	7
4.1	Dataset	7
4.1.1	Yahoo! Finance	7
4.1.2	NasdaqTrader	7
4.2	MongoDB	7
4.2.1	Aggregations	7
4.2.2	Indexes	7
4.3	Apache Cassandra	7
4.3.1	Aggregations	7
4.3.2	Indexes	7
4.4	Sharding and Replicas	7
4.5	Apache Cassandra vs MongoDB	7
5	Software architecture	8
6	Conclusions	9
II	User Manual	10
7	StockSim Server Manual	12

<i>CONTENTS</i>	1
8 StockSim Client Manual	13

Part I

Documentation

Chapter 1

Introduction

StockSim is a Java application which allows users to simulate stock portfolios. It uses statistical models built from U.S. stock market stocks and ETFs historical data day by day, starting from YEAR.

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

4.5 Apache Cassandra vs MongoDB

Chapter 5

Software architecture

Chapter 6

Conclusions

Content.

Part II

User Manual

Chapter 7

StockSim Server Manual

Content.

Chapter 8

StockSim Client Manual

Content.