



**CANKAYA UNIVERSITY
FACULTY OF ENGINEERING
COMPUTER ENGINEERING DEPARTMENT**

Project Report
Version 2

CENG 408
Innovative System Design and Development II

202123
CRYPTOCURRENCY PORTFOLIO TRACKER

Sanberk ZÜLFİKAR
201711402

Buğra ÜNALTAY
201311058

Atila Alperen İMAMOĞLU
201511031

Mustafa Mert YAVAŞ
201511065

Dorukhan TANRIVERDİ
201811054

Advisor: *Prof. Dr. Ahmet Coşar*

LITERATURE REVIEW

Abstract

Cryptocurrency technology is one of the most exciting technologies of today's world. There are more than 10.000 different coins with different technologies and purposes, so we wanted to build an application that easy to use yet effective to provide keeping track of multiple cryptocurrency assets. System will be a web application that gathers data from the third-party price monitoring systems and our application will make the user owned coins and their amounts are trackable in real-time with many useful insights.

1.Introduction

Since the introduction of Bitcoin in early 2010's, cryptocurrencies emerged as a different approach for financial situations and many different purposes. Today, they used in many areas and purposes including transferring money, accepting money, financial investment assets and more. Our Project, Cryptocurrency Portfolio Tracker, aims to give users an easy yet effective platform for tracking multiple cryptocurrencies. So an user can see their asset performance, along with many insights.

History of bitcoin

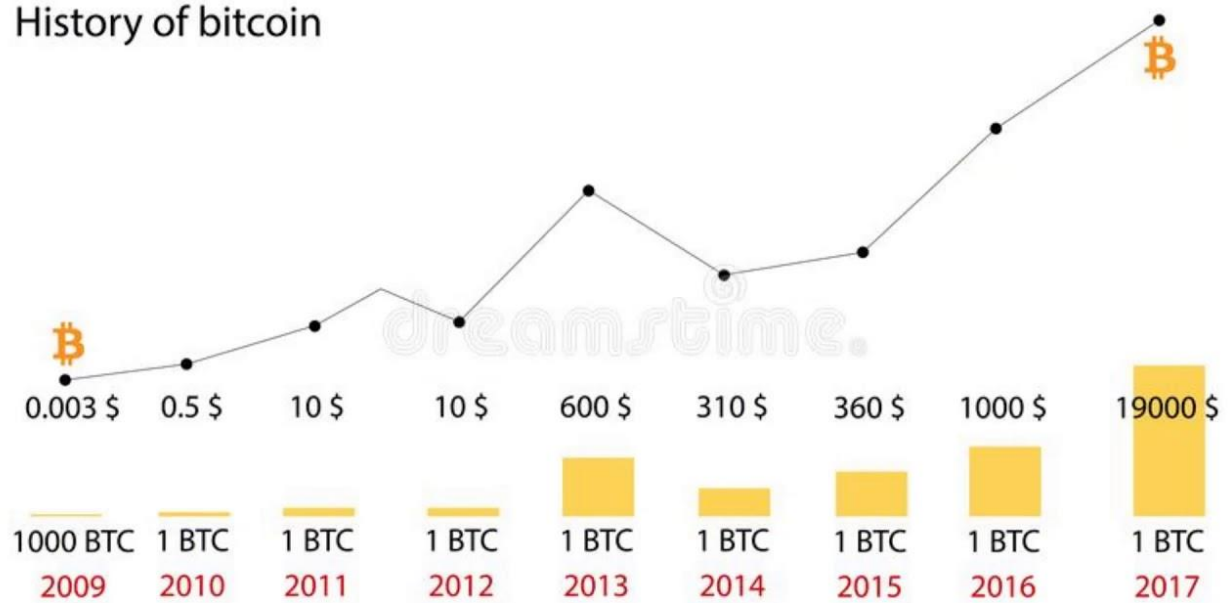


Figure 1 History of Bitcoin

2. What is a Cryptocurrency Portfolio?

An individual, can have multiple coins and they may exist in different platforms. Some coins may available to buy/sell in Binance while some others in crypto.com. All of your holdings make your Cryptocurrency Portfolio and since there's many different exchanges and wallets,

sometimes it's get harder to keeping track of your assets in one place. In this situations, Portfolio applications come to the stage. They includes your asset data (all of them) in one platform so you don't need to keep track them one by one in every exchange or wallet. You just simply enter your coin type and your holdings and the application shows all of your holdings in one place. Along with useful insights and calculations.

Existing Cryptocurrency Portfolio Solutions

Today there are some of applications for tracking cryptocurrency portfolios in one platform. Some popular ones are below;

- CoinMarketCap
- CoinGecko
- TradingView

What Do We Aim With Our Project

Existing applications mentioned above usually become hard to use and we aim to give a more user-friendly approach this by eliminating unnecessary steps and maket this an easy yet effective tool for users.



Figure 2

2. SOFTWARE REQUIREMENTS SPECIFICATION

2.1.INTRODUCTION

2.1.1 Purpose

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2.1.2 Scope

The purpose of this application is to make it easier to follow the coins that change quickly. Our application is easy to use and will allow you to monitor the entire coin market in real time. Thus, instead of having to follow it manually, you can reach what you want by using this application. For example, users can follow the coins they want by opening a membership.

3. Overall Description

3.1 Glossary

Term	Definition
Bitcoin	The first global, decentralized currency.
Bits	A sub-unit of one bitcoin. There are 1,000,000 bits in one bitcoin.
Blockchain	The authoritative record of every Bitcoin transaction that has ever occurred.
BTC	An abbreviation for the bitcoin currency.
Cold Wallet	A Bitcoin wallet that is in cold storage (not connected to the internet).
Cryptocurrency	A type of currency that uses cryptography instead of a central bank to provide security and verify transactions. Bitcoin is the first cryptocurrency.
Sitemap	A sitemap is an outline of all the pages on a website. There are three different types of sitemaps: those used by web designers when planning a website, hierarchical listings intended for the human user, and structured listings intended for search engines.
Web app	It's important to distinguish between mobile apps and web apps, as they are built differently. Native mobile apps are built for a specific platform, such as iOS for iPhone, and are installed and run on the device itself. Web apps, on the other hand, are accessed via the internet browser and will adapt to whichever device you're viewing them. They're not native to a specific system, nor do they need to be downloaded or installed.

3.2 User Characteristics

3.2.1 User

- User must be login.
- The user must have a phone with IOS and Android operating system.
- The user can see the coin changes in a certain time period.
- The user can enter portfolio in his/her membership and follow his/her portfolio.
- User should be able to understand the English language.

3.2.2 Admin

- Admin can add/delete users.
- Admin can add/delete coins.

4. Specific Requirements

4.1 External Interface Requirement

4.1.1 User Interfaces

The user interface will work on mobile and PC.

4.1.2 Hardware Interfaces

It has not been decided yet that it will work on specific hardware.

4.1.3 Software Interfaces

It has not been decided yet that it will work on specific software.

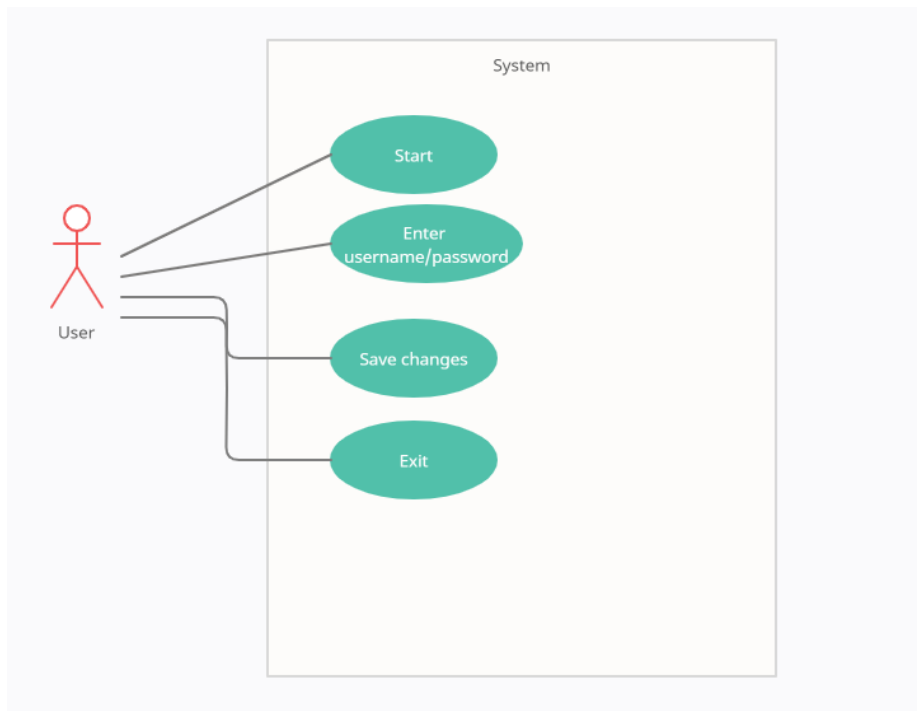
4.2 Functional Requirements

4.2.1. Profile Management Use Case

Use Case

- Start
- Enter username / password
- Save changes
- Exit

Diagram



5. SOFTWARE DESIGN DOCUMENT

5.1.INTRODUCTION

5.1.1 Purpose

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5.2. Software Architecture

5.2.1. Architecture Design Approach



Figure 3

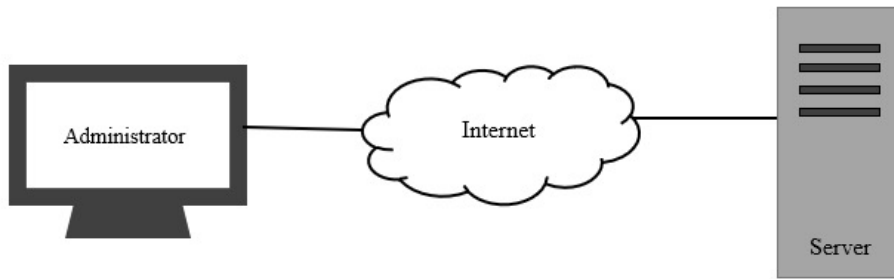


Figure 4

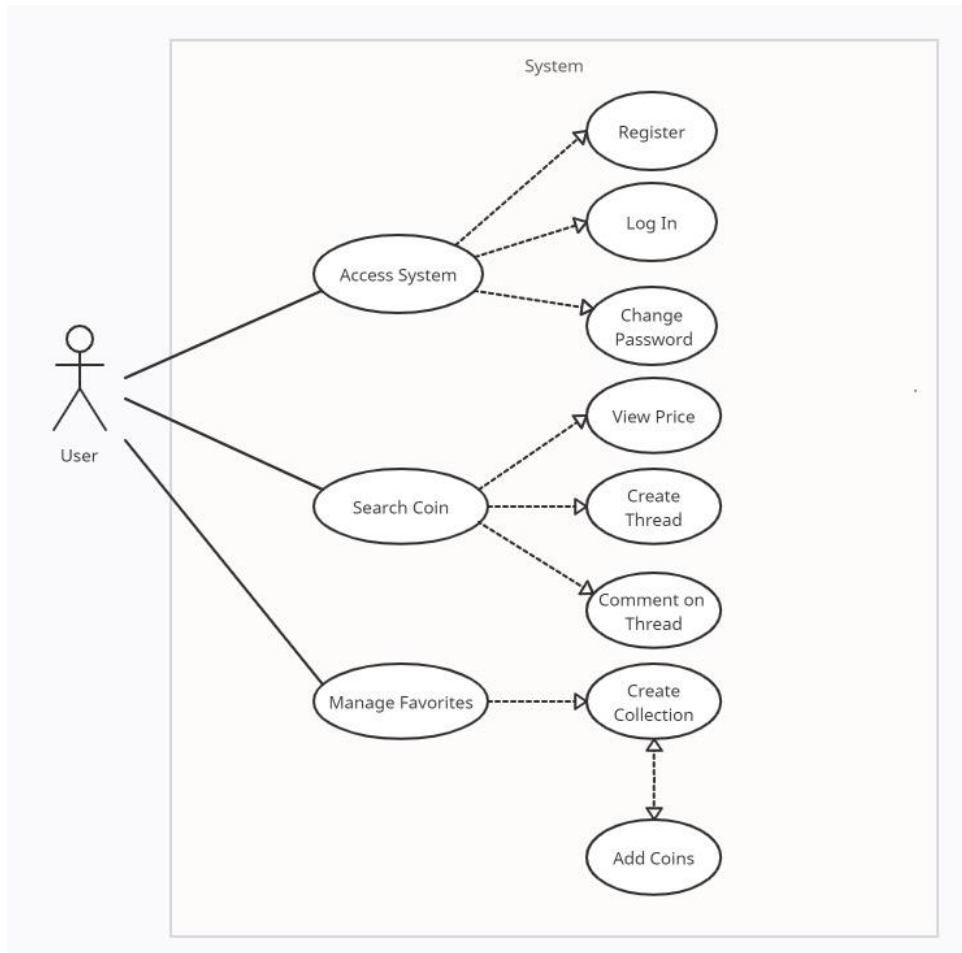


Figure 5

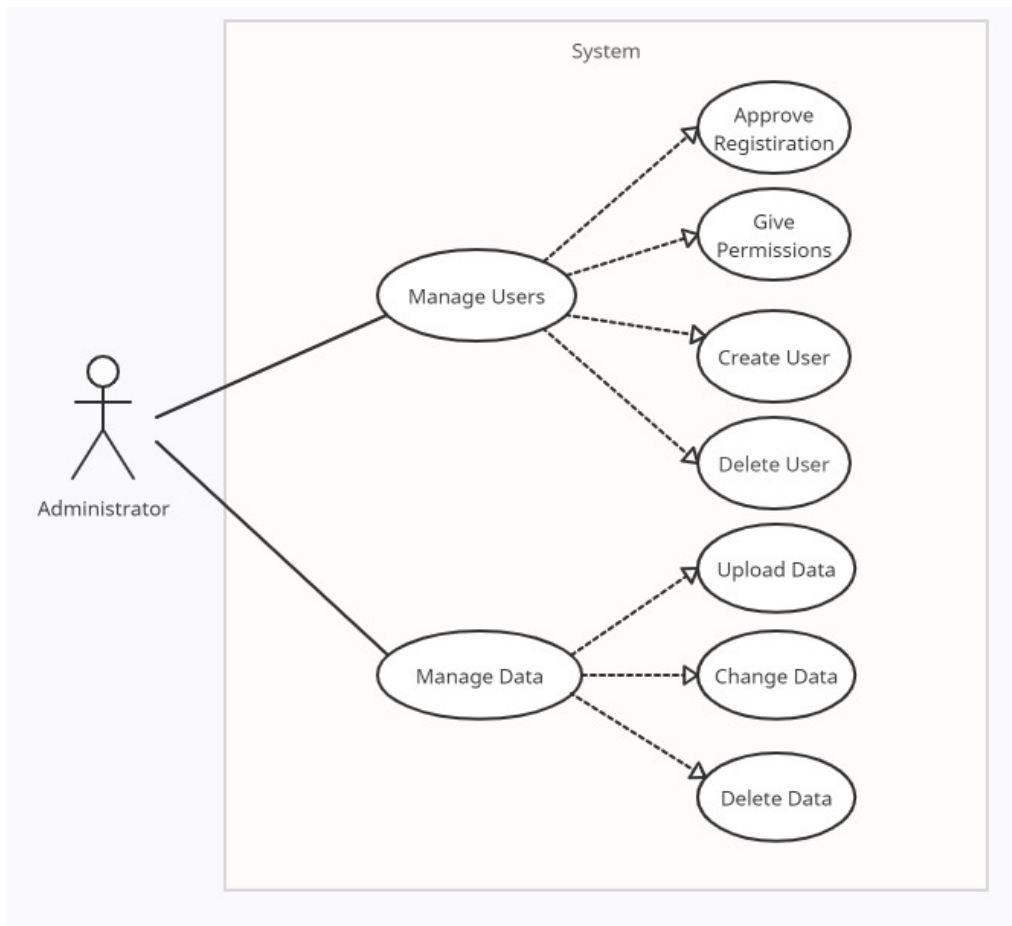


Figure 6

5.3. User Interface Design

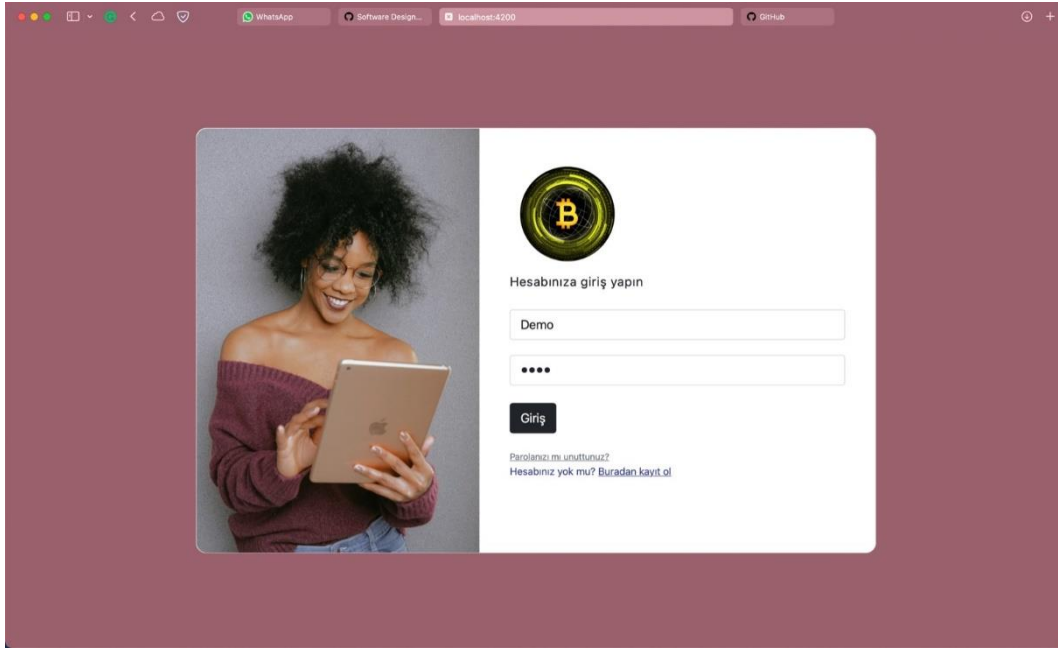


Figure 7: Login Page

#	İsim	Fiyat
	BTC	\$43,914.42
	BTC/TRY	₺595,716.81
	AAVE	\$219.18
	AAVE/TRY	₺2,974.16
	ADA	\$1.30
	ADA/TRY	₺17.67
	ANKR	\$0.10
	ANKR/TRY	₺1.31
	ATOM	\$40.88
	ATOM/TRY	₺554.84
	AVAX	\$95.01
	AVAX/TRY	₺1,289.42
	AXS	\$77.37
	AXS/TRY	₺1,050.68
	BAT	\$1.11
	BAT/TRY	₺15.06
	CHZ	\$0.28
	CHZ/TRY	₺3.78
	COMP	\$198.09

Figure 8: Coin Prices List Page

6. Test Plan & Results

6.1.Introduction

In this document, we will define our actions and use cases with test plans.

6.1.1 Overview

System features and use cases of the Cryptocurrency Portfolio Tracker are planned to be tested.

6.1.2 Scope

This document includes existing interfaces and all functions.

6.1.3 Terminology

Term	Definition
GUI	Graphical User Interface
UI	User Interface

6.2. Features To Be Tested

This section gives a brief description and lists of all the major features to be tested of Cryptocurrency Portfolio Tracker.

6.2.1 Graphical User Interface (GUI)

Most of the features of our project related to the GUI. The GUI includes a Portfolio page, coin list page. The user can enter the system and access the prices of the 100 coins with the largest volume and some data related to the coins.

6.3. ITEM PASS/FAIL CRITERIA

This section describes the general rule to use to decide then a test case passes and when it fails.

6.3.1 Exit Criteria

The product will be considered successful when we accomplish the functionalities that we pre-determined.

6.4. References

6.5. Test Design Specifications

6.5.1 Graphical User Interface (GUI)

6.5.1.1 Subfeatures to be tested

6.5.1.1 Dashboard Button (GUI.DAS.BTN)

If a user logs in to the system and wants to instantly follow the portfolio he/she has created, he/she will be able to see it by pressing this button.

6.5.1.2 Top 100 Button (GUI.100.BTN)

In this tab, the user will be able to see various data of the top 100 cryptocurrencies with the most popular and the highest voluminous ones. In this page the user can see various data of a cryptocurrency. These data are: 24-hour exchange, 7-day exchange, instant price, market cap, volume(24h) and amount of coins in circulation.

6.5.1.3 Search Button (GUI.SRC.BTN)

The user can search any coin from the list by using the search button.

6.5.2 Test Cases

TC ID	Requirements	Priority	Scenario
GUI.DAS.BTN	3.1	H	Select 'Dashboard' button and will open dashboard page

TC ID	Requirements	Priority	Scenario
GUI.100.BTN	3.1	H	Select 'Coin Market TOP 100' button and will open TOP 100 coin page

TC ID	Requirements	Priority	Scenario
GUI.SRC.BTN	3.1	H	Select 'Search' button and you can search coins

6.6 Detailed Test Cases

6.6.1 GUI.DAS.BTN

TC ID	GUI.DAS.BTN
Purpose	Open Dashboard page

Requirements	3.1
Priority	High
Estimated Time Needed	10 seconds
Dependency	Server must be running
Setup	-
Procedure	Click the Dashboard button the will open the Dashboard
Clean Up	Successful registration / Exit

6.6.2 GUI.100.BTN

TC ID	GUI.100.BTN
Purpose	Open Coin Market Top 100 page
Requirements	3.1
Priority	High
Estimated Time Needed	15 seconds
Dependency	Server must be running
Setup	-
Procedure	Click the TOP 100 button the will open the Coin Market TOP 100 page
Clean Up	Successful registration / Exit

6.6.3 GUI.SRC.BTN

TC ID	GUI.SRC.BTN
Purpose	Open Search Tab
Requirements	3.1
Priority	High
Dependency	Server must be running
Setup	-
Procedure	Click the TOP 100 button the will open the Coin Market TOP 100 page
Clean Up	Successful registration / Exit

6.7 Results

- Angular was used in project development.
- Coin Market Cap API used in project.
- The number of pages has been reduced so user can easily do whatever he want.

7. Conclusion & Discussion

Cryptocurrency or in general the blockchain technology is a very promising and a ground breaking field. It will help financial institutions limits lessened and more secure. Our goal is to provide a user friendly portfolio tracker. Considering many people buy and hold their assets in multiple places, not in one platform, a tool something like this is much needed.

There are already numerous solutions for this purpose but they fail to deliver a user experience that easy yet effective. This is where our goal comes to place. Easy yet effective cryptocurrency portfolio tracker for anyone.

References

- [1] <https://help.coinbase.com/en/coinbase/getting-started/crypto-education/bitcoin-glossary>
- [2] <https://www.kubera.com/blog/how-to-track-your-cryptocurrency-portfolio>
- [3] <https://help.coinbase.com/en/coinbase/getting-started/crypto-education/bitcoin-glossary>
- [4] <https://careerfoundry.com/en/blog/web-development/50-web-development-buzzwords-that-all-new-programmers-should-learn/>
- [5] <https://creately.com/>

PROJECT WORK PLAN

1st Semester Work Plan

- 26 October 2021 - Project Proposal Form
- 26 October 2021 - Team Setup
- 26 October 2021 - Project Selection Form
- 5 November 2021 - GitHub Repository
- 12 November 2021 - Project Work Plan
- 12 November 2021 - Literature Review
- 10 December 2021 - Software Requirements Specification

- 17 December 2021 - Project Webpage
- 31 December 2021 - Software Design Description
- 7 January 2021 - Project Report / Project Tracking Form
- 24-25 January 2021 – Presentation

2nd Semester Work Plan

- 25 March 2022 - Updated Project Work Plan / LR / SRS / SDD
- 1 April 2022 - Test Plan Document
- 18-22 April 2022 - Midterm-Interactive-Demo
- 13 May 2022 - Final Product 1st Release
- 20 May 2022 - User Manual
- 27 May 2022 - Project Report / Test Results / Project Tracking Form
- 3 June 2022 - Project Poster
- 3 June 2022 - Updated Project Webpage
- 10 June 2022 - Demo Video
- 13 June 2022 - Presentation