

# Software Requirements Specification (SRS)

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For “Coin Market System”.

Version 1.1

Prepared by Bui The Ky Cuong

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# Definition and Acronyms

Acronym	Definition
BR	Business Rule
ERD	Entiy Relationship Diagram
GUI	Graphical User Interface
UC	Use case
API	Application Program Interface
Patron	User who registered to the Coin Market System

## I. Introduction

### 1 Purpose

This document outlines the software requirements for the “Crypto Market System”. It will cover the system’s capabilities for tracking and displaying market data such as prices, market capitalization, and trading volumes, as well as handling user-defined alerts and indicators. The system integrates data from Binance, CoinMarketCap (CMC), and CoinGecko (CG), and provides APIs for internal and external usage.

### 2 Document Conventions

- APIs referred to will be in REST format unless stated otherwise.
- Time intervals are presented in seconds (s), minutes (min), and hours (h).
- User classes are segmented into permission levels (VIP-0, VIP-1, VIP-2, VIP-3).

### 3 Project Scope

The system serves to track real-time cryptocurrency market data (e.g., Spot and Future prices), offering advanced monitoring, alerts, and statistical analysis features. Users can subscribe to price alerts and integrate additional technical indicators via customizable plugins. The scope includes:

- Market data retrieval from multiple APIs.
- Price alerts with custom trigger and snooze conditions.
- Role-based access to API data.

### 4 References

- Binance API Documentation: <https://developers.binance.com/docs>
- CoinMarketCap API Documentation: <https://coinmarketcap.com/api>
- CoinGecko API Documentation: <https://www.coingecko.com/en/api>

### 5 Product Perspective

The product is a self-contained system integrating data from Binance, CMC, and CG to track and provide detailed cryptocurrency market data. It includes both frontend and backend components, supported by a real-time API and admin management system.

## 6 Product Features

- Real-time Market Data: Spot price, Future price, funding rate, and countdown updated every 1 second from Binance.
- Price Alerts: Customizable alerts based on specific triggers for price, funding rate changes, and indicator thresholds.
- User Roles: Role-based access control via API tokens (VIP-0, VIP-1, VIP-2, VIP-3).

## 7 User Classes and Characteristics

- VIP-0 Users: Access basic price data only (Spot, Future).
- VIP-1 Users: Access advanced data like Kline prices.
- VIP-2 Users: Set and manage price alerts.
- VIP-3 Users: Use advanced statistical indicators.

## 8 Operating Environment

Backend: Hosted on Go-based services.

API: Public-facing APIs for client consumption.

Telegram Bot: Integrated for user queries.

Admin Web Portal: Interface for managing users, permissions, and configurations.

# II. Overall Description

## User Requirements Overview

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### 1 Guest

User (have no account in Coin Market System) who use web application, can use these following functions:

- Sign Up (Register)

### 2 Registered User (Patron)

This system is a level-based, so for each VIP level of investor (registered user), they can use different functions:

Features	VIP-0	VIP-1	VIP-2	VIP-3
Logout				
Login				
Look up for Spot price				

Features	VIP-0	VIP-1	VIP-2	VIP-3
Look up for Future price				
Look up for Kline Price				
Look up for Funding Rate				
Look up for Funding Rate Countdown				
Look up for Funding Rate Interval				
Configure Alert for Spot and Future				
Configure Alert for Funding Rate				
Configure Alert for Funding Rate Interval				
Set up new or delisted Symbol alerts				
Set up alerts based on price differences between Spot and Futures				
Set up alerts based on technical indicators				

Note:



Capable Of.



Incapable Of.

### 3 Admin

Admin (login required) are capable of using these following functions:

- Manage Users' Account.
- Authenticate User using API-TOKEN.
- Update permission for user.
- Delete (Ban) a user or move to blacklist.
- View statistics on VIP-purchase activities.

# Business Rules

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Code	Business Definition
BR-01	User's login session lasts for 6 hours by default.
BR-02	Name length limit must be in range 1 – 50 characters.
BR-03	Name only contains alphabetical characters.
BR-04	Phone number only contains numeric characters.
BR-05	Phone number length limit must be 10 characters.
BR-06	Phone number and email must be unique.
BR-07	User can only update their own profile, includes their avatar, full name, phone number, email, birthday, and gender.
BR-08	User's avatar file must be image file format.
BR-09	User can only view their own notification.
BR-10	Users must enter a password that is at least 8 characters long.
BR-11	If a user enters the wrong password 5 times in a row, the account will be temporarily locked for 30 minutes.
BR-12	Users can reset their password via email.
BR-13	Each user can create up to 10 alerts for the same coin.
BR-14	A price alert can only be triggered when the coin price reaches or crosses a set threshold ( $\geq$ or $\leq$ ).
BR-15	Alerts can be sent via email or Telegram if the user has configured the integration.
BR-16	The system only triggers the alert once per price condition.
BR-17	The alert will be automatically disabled if the user clears the alert or the coin price changes beyond the past threshold.
BR-18	Users can only change their password if they know the current password.
BR-19	Administrators can lock or delete user accounts that violate policies.
BR-20	If User wants to purchase VIP level, they must verify their phone number by OTP, then make payment through Momo.

## 4 User Requirements

### System Actors

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#	Actor	Description
1	Guest	Users do not have logged in the Coin Price System web application.
2	Patron	User who have logged in to use the features in the Coin Price System web application.
3	Admin	User who have logged in to manage the Coin Price System web application.
4	System Handler	Coin Price System for real-time handling.

# Use Case Diagram

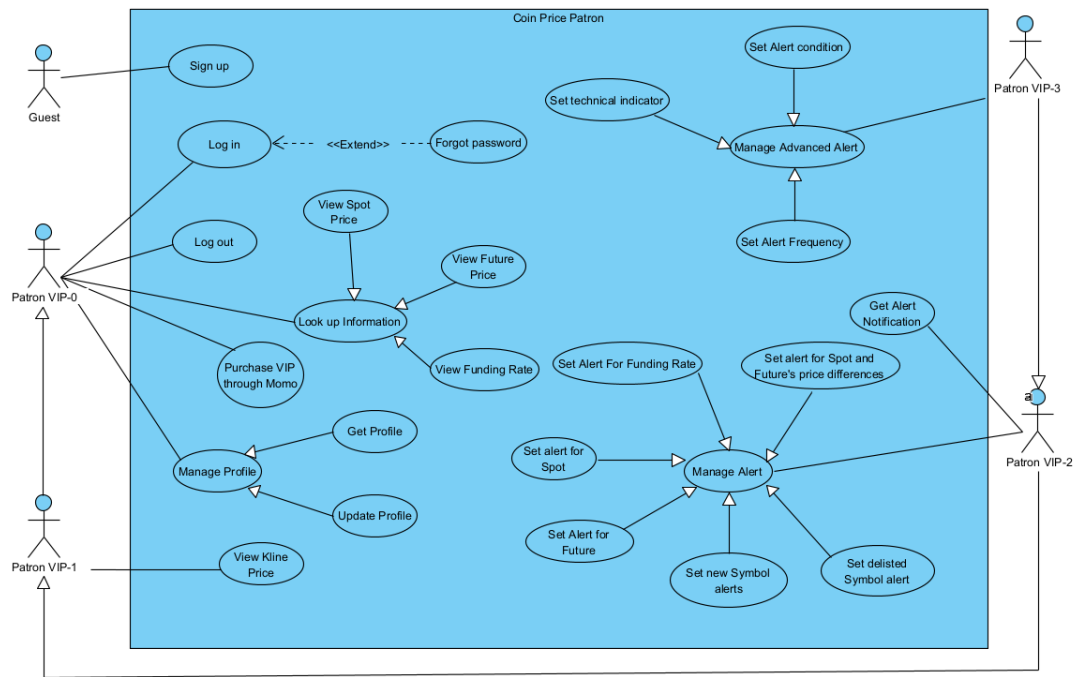


Figure 1: Patron Usecase Diagram

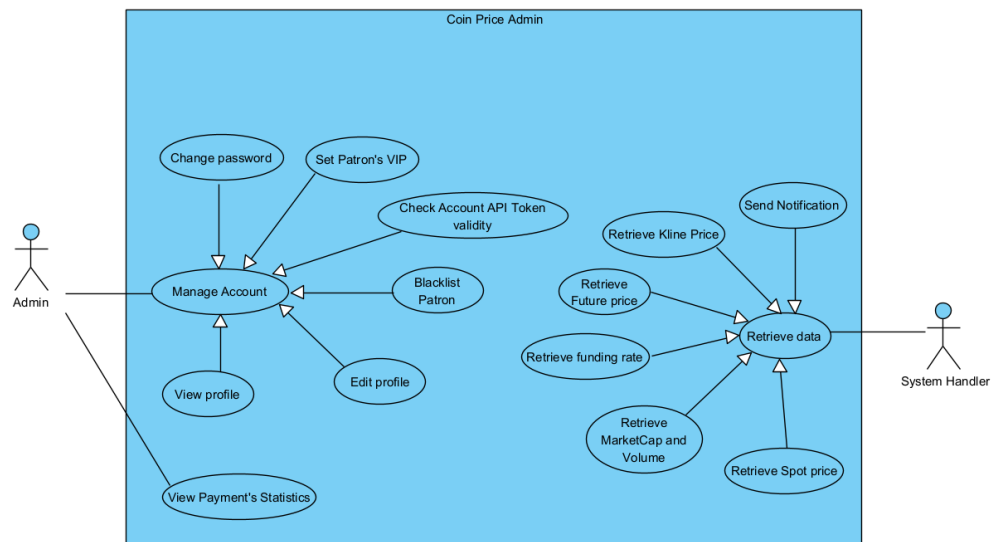


Figure 2: Admin & System Handler Usecase Diagram

## 5 Use Cases List

## 5.1 Patron

## 5.2 Admin and System Handler

[illegible]



## 6 Use Case Specification (x40)

Use Case Specification			
<b>Use Case No.:</b>			
<b>Use Case Name:</b>			
<b>Created By:</b>			
<b>Date:</b>			
<b>Actors:</b>			
<b>Summary:</b>			
<b>Trigger:</b>			
<b>Preconditions:</b>			
<b>Post-conditions:</b>			
<b>Main Success Scenario/Main Flow/Normal Flow/Main Path:</b>			
<b>Step.</b>	<b>Actor Action</b>	<b>System Response</b>	
1			
2			
3	...	...	
<b>Alternative Flows:</b>			
<b>No.</b>	<b>Actor Action</b>	<b>System Response</b>	
1			
2	...	...	
<b>Exceptions:</b>			
<b>No.</b>	<b>Actor Action</b>	<b>System Response</b>	
1			
2	...	...	
<b>Business Rules:</b>			

...

## III. Functional Requirements

### System Functional Overview

## **1 Screen Flow**

1.1 Coin Market System - Patron Web Application

1.2 Coin Market System - Admin Web Application

## **2 Screen Description**

2.1 Patron Web Application

2.2 Admin Web Application

## **3 Non-Screen Functions**

3.1 Entity Relationship Diagram

3.1.x: #of Entity and description

# **IV. Nonfunctional Requirements**

## **1 Performance Requirements**

- Real-time data updates should occur with an interval of approximately 1 second for Spot and Future prices.
- MarketCap and Trading Volume data updates occur every 15 minutes.

## **2 Security Requirements**

- API tokens are required for all system access. Tokens are role-based with distinct privileges.
- Admin access is protected via two-factor authentication (2FA).
- All input data are validated before saving to database.
- Each role only access to a group of functions.

## **3 Communication Interfaces**

- Authentcatio Service: The System can be integrated with Firebase Authentication framework.
- The system can call API through data transferred by HTTP.

## **4 Usability**

- All text, label and message should be uniformly written in Vietnamese.
- The web application should be friendly and easy for users to use without training.

- The web application for admin should require no more than 2 days of training of use.

#### **IV. Software Design Description (Updating)**