

Software Requirements Specification

for

Study Coins

Prepared by Group 14

Version 1

Syracuse University CIS 453

October 2023

Table of contents

1 Introduction	2
1.1 Purpose	2
1.2 Scope.....	2
1.3 Definitions	3
1.4 References	X
1.5 Overview	3
2 Overall Description	3
2.1 Product Perspective	3
2.2 Product Functions	4
2.3 Use Case Descriptions	5
2.4 User Characteristics	X
2.5 Constraints	X
3 Specific Requirements	X
3.1 Overview	X
3.2 Interface Requirements	X
3.3 System Features	13
3.4 Performance Requirements	X
3.5 Design Constraints	X
3.6 Software System Attributes	X
3.7 Other Requirements	X
Table of Figures Figure 1 System Block Diagram.....	

1 Introduction

1.1 Purpose

This Software Requirements Specification (SRS) is intended to delineate software requirements for online web service Study Coins. This SRS is intended to provide guidance to the developers of the system to implement required functionality, as well as the test team to develop appropriate Verification and Validation (V&V) plans and procedures required to demonstrate to the customer that the system was built to this specification.

1.2 Scope

This document specifies the requirements for the following capabilities.

- Web page as a user interface
- Web scraping abilities
- Searching/Sorting abilities
- Purchase items from other web pages

1.3 Definitions

Table 1 Acronyms and definitions

API: Application programming interface

E-COM: E-Commerce

HTTP: Hypertext transfer protocol

UI: User interface

WS: Web scraping

1.4 References (Not due)

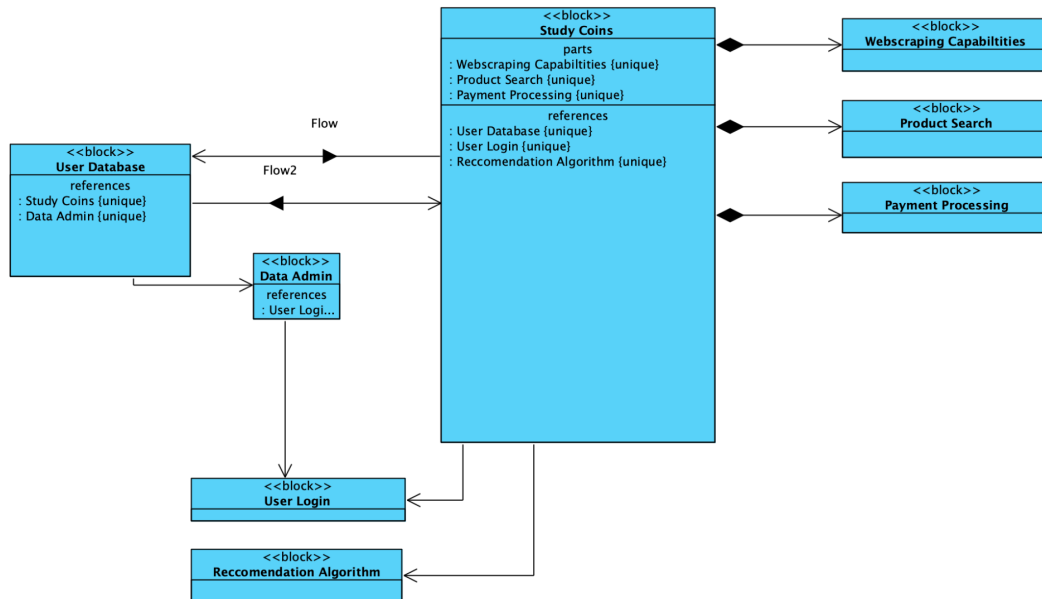
1.5 Overview

This document follows the recommended format specified in IEEE Std 830-1998 IEEE Recommended Practice for Software Specifications. For Section 3, the specific template A.5 for organizing information by feature is followed.

2 Overall Description

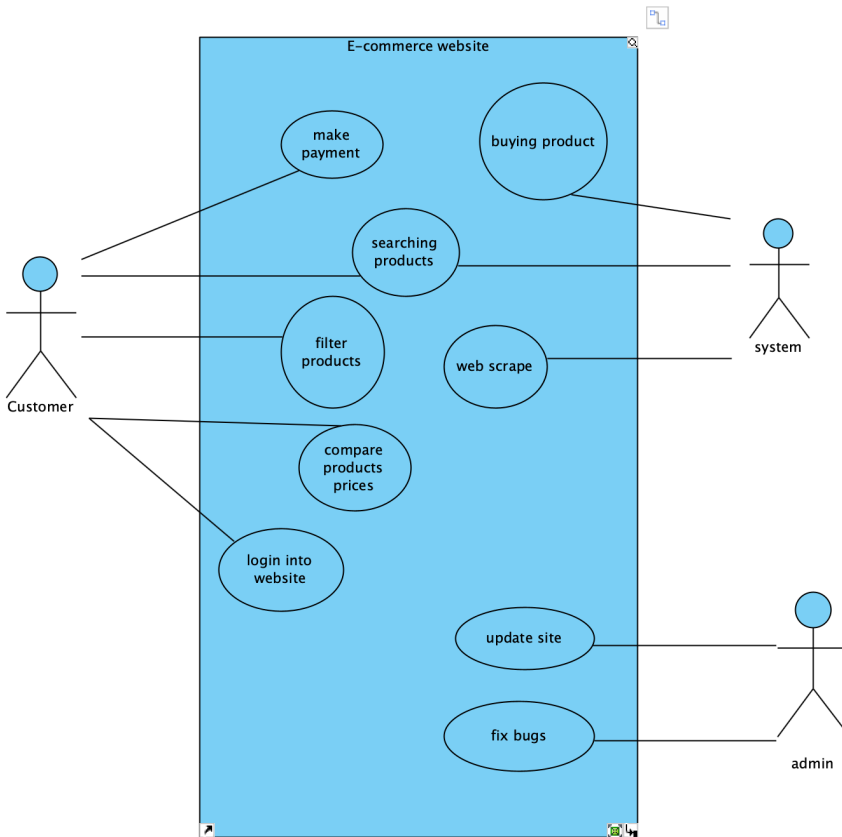
2.1 Product Perspective

The Study Coins web page is a public web page that allows users to search for an item they are interested in purchasing and Study Coins will provide the user with a list of items that match from other e-commerce sites. The System Block Diagram below shows the system overview, using a Unified Modeling Language (UML) Block Definition Diagram (BDD).



2.2 Product Functions

The following use case diagram depicts the users of the system, and the intended way in which they will interact with the system.



2.3 Use Case Descriptions

- Make Payment

	General Characteristics
Intent	Allow users to purchase items at the lowest price available.
Scope	The system aims to help primarily college students in finding products such as textbooks at the most affordable prices by scraping data from various online shopping websites. After finding the desired product, students can purchase directly through the platform.

Primary Actor	User
Secondary Actors	Online retailers and system administrators.
Preconditions	User has an internet connection. Users are signed up and logged into our platform.
Assumptions	Online retailers permit web scraping.
Trigger	User looking for something they want to buy.
Success Post Condition	The user finds the desired product at the best price. The user successfully completes the purchase via the platform.
Failed Post Condition	The system cannot find the desired product. The purchase transaction is unsuccessful.

- Sunny Day Scenario

Step	Action
Start	Users log into the platform.
1	User enters their desired product into the search bar.
2	System scrapes on the web for the product.
3	System shows the user a list of products, ordered from lowest to highest price.
4	Users place items into their cart and checkout.
5	System verifies the purchase and shows a summary to the user.

- Rainy Day Scenario

Step	Action
Start	User enters the platform.
1	User types desired product into search bar
2	System faces an error when scraping the web.
3	System alerts the user with an error message about unsuccessful search.

- Login

	General Characteristics
Intent	Allows the user to log in
Scope	The login functions allow the user to enter their credentials and access their personal shopping information and data.
Primary Actor	User
Secondary Actors	System Administrators
Preconditions	User has made an account with a valid email and password
Assumptions	User has internet connection
Trigger	User opts to create an account or login with an existing account
Success Post Condition	User logs into their account
Failed Post Condition	User enters credentials and the result is invalid. System returns error

- Sunny Day Scenario

Step	Action
Start	User create an account with their email and password
1	The user logs in with their credentials
2	The user access their shopping list and makes a purchase
4	The user logs out

- Rainy Day Scenario

Step	Action
Start	The user logs in with invalid credentials and the system returns an error.
1	System validation fails, and doesn't log in.
2	Prompts with a failure message on screen, "Incorrect email or password".

4	After 5 times of invalid credentials, user's account will be put on recovery mode.
----------	--

- Search for product

	General Characteristics
Intent	Allows the user to search for a list of items that match their search input
Scope	Web Page and system
Primary Actor	User
Secondary Actors	System
Preconditions	User wants to search for an item
Assumptions	User is connected to the internet and on Study Coins site
Trigger	User enters text into the search form and submits it
Success Post Condition	Web page displays search results
Failed Post Condition	Error displaying search results

- Sunny Day Scenario

Step	Action
Start	This scenario starts when user opens the Study Coins page
1	The user presses on the search form and types their query
2	The user submits the search
4	The system web scrapes for items matching the query
5	A list of items are displayed on the web page

- Rainy Day Scenario

Step	Action
-------------	---------------

Start	This scenario starts when there is an error with the search.
1	Error message displayed on web page.

- Web Scrape

	General Characteristics
Intent	Allows the system to scrape the web to display the cheapest items for the user
Scope	System
Primary Actor	System
Secondary Actors	User
Preconditions	System is operating with no errors and the user has an internet connection
Assumptions	User is connected to the internet and on Study Coins site
Trigger	User searches for an item
Success Post Condition	The system successfully scrapes the internet for the cheapest items that match the search query.
Failed Post Condition	Error with scraping or with connection to our server.

- Sunny Day Scenario

Step	Action
Start	This scenario starts when a user searches with a query
1	The search class calls the web scraping class with the query that was submitted
2	Web scrape common e-commerce sites (Amazon, Walmart, Target, etc.) using the query
4	Combine all the entries that were found and sort them to be displayed on the webpage
5	Send the list of entries to the search class

- Rainy Day Scenario

Step	Action
Start	This scenario starts with an error scraping the web
1	Error message is displayed

- Filter Products

	General Characteristics
Intent	Allow user to filter the search result
Scope	Website
Primary Actor	User
Secondary Actors	System
Preconditions	Search result is on the website
Assumptions	There are at least 3 search results and the user is connected to the internet
Trigger	User specifies how they want to filter the items
Success Post Condition	The system sorts the list of search results in the way that was specified
Failed Post Condition	The system has an error filtering the list, the pre-sorted list is displayed on the website

- Buying Products

	General Characteristics
Intent	Log into and purchase specified item from the e-commerce site that was chosen by the user
Scope	System
Primary Actor	System
Secondary Actors	User

Preconditions	User selects product and finishes make payment use case
Assumptions	User is attempting to purchase a product
Trigger	User finishes make payment use case
Success Post Condition	System logs into the e-commerce site that sells the desired product and purchases it for the user, sending it to the address the user used and using the card information that the user provided
Failed Post Condition	The system has an error logging in or purchasing items

- Compare Products

	General Characteristics
Intent	Allows user to compare two products
Scope	Website
Primary Actor	User
Secondary Actors	n/a
Preconditions	User is on a search result page
Assumptions	There are at least 2 search results
Trigger	User selects compare button and chooses what items he would like to compare
Success Post Condition	System puts a summary of important information from both products together and displays them side by side on the website
Failed Post Condition	The system has an error putting together the information or displaying it

- Update Site/Fix Bugs

	General Characteristics
Intent	Allows the admin to update the site or system in anyway

Scope	System
Primary Actor	Admin
Secondary Actors	System
Preconditions	Site is in offline mode
Assumptions	No one is trying to use the system and admin is logged in
Trigger	Admin presses the update system button
Success Post Condition	System is successful edited and all tests pass
Failed Post Condition	There is an error editing the system or there were tests that did not pass

2.4 User Characteristics (not due)

2.5 Constraints (not due)

3 Specific Requirements

3.1 Overview (not due)

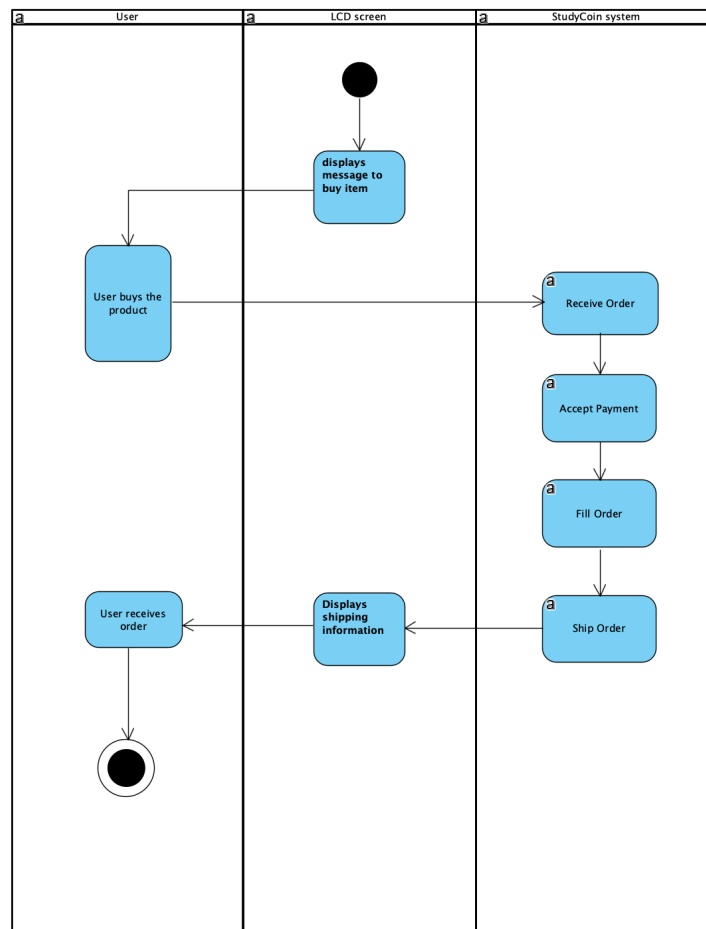
3.2 Interface Requirements (not due)

3.3 System Features

- Make payment
 - Introduction/Purpose of Feature
 - This feature allows the user to enter their payment details and shipping information in order for our system to purchase the desired item for them.

○ Stimulus/Response Sequence

act [Activity Diagram]



○ Associated Functional Requirements

- System shall allow user to input their payment and shipping details
- System shall store the information in a text file designed to store information for immediate use (to be deleted after the purchase)
- System shall report errors if there is an error

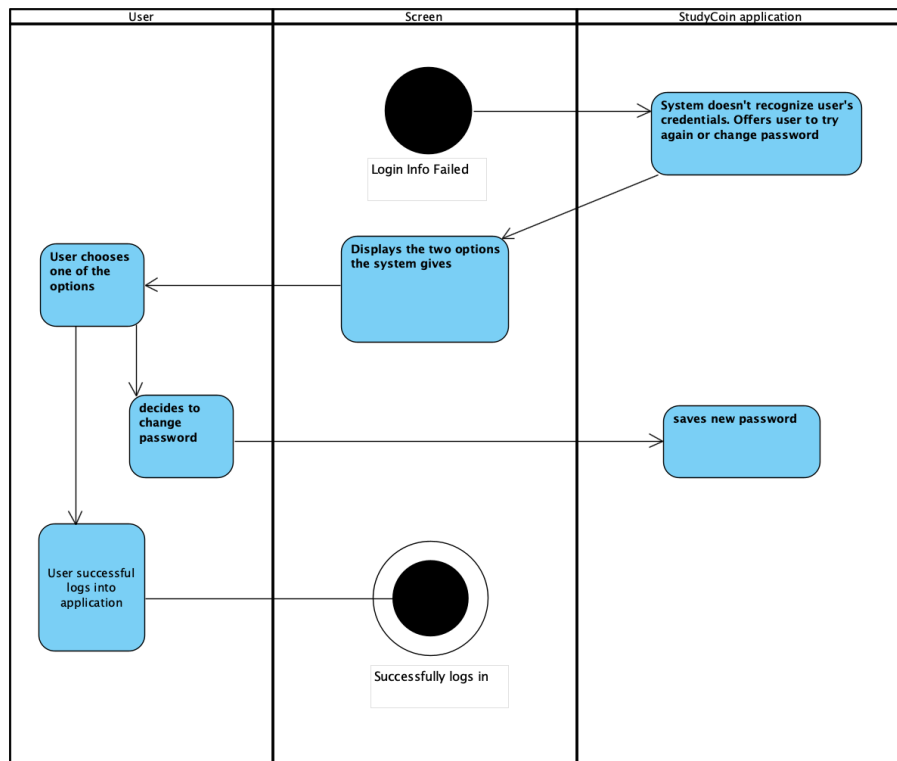
- Login

- Introduction/Purpose of Feature

- This feature allows the user to log into our website in order to track previous purchases and get emails from Study Coins

- Stimulus/Response Sequence

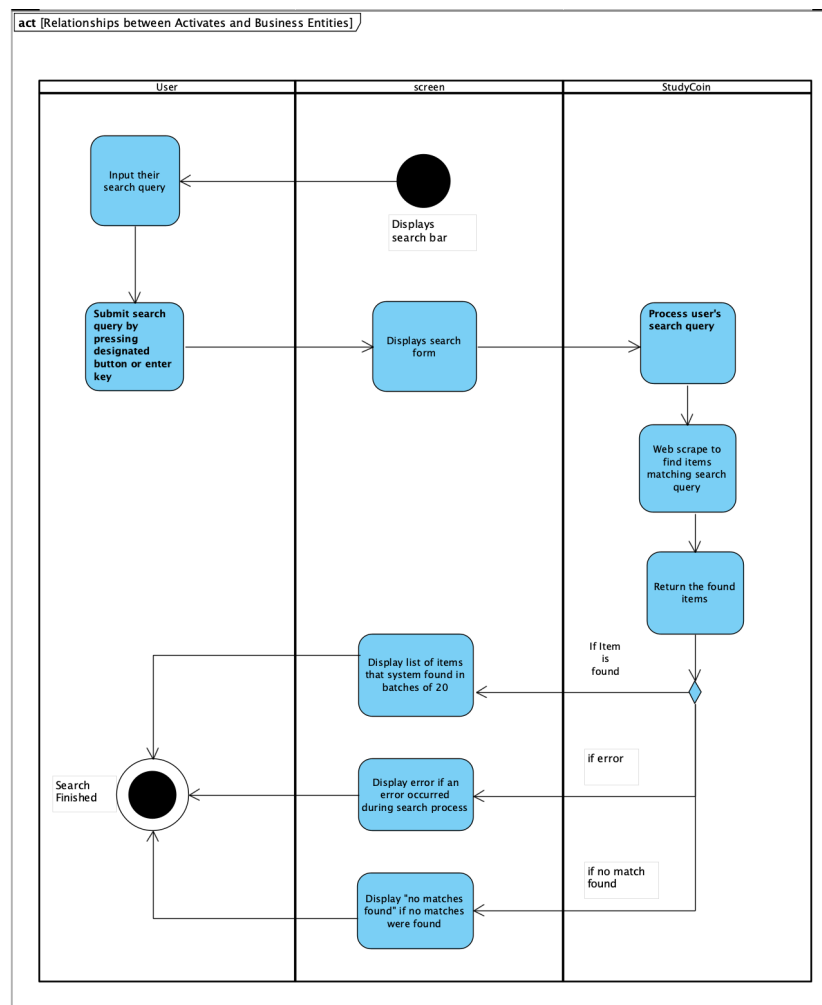
act [Group Activity Diagram]



- Associated Functional Requirements

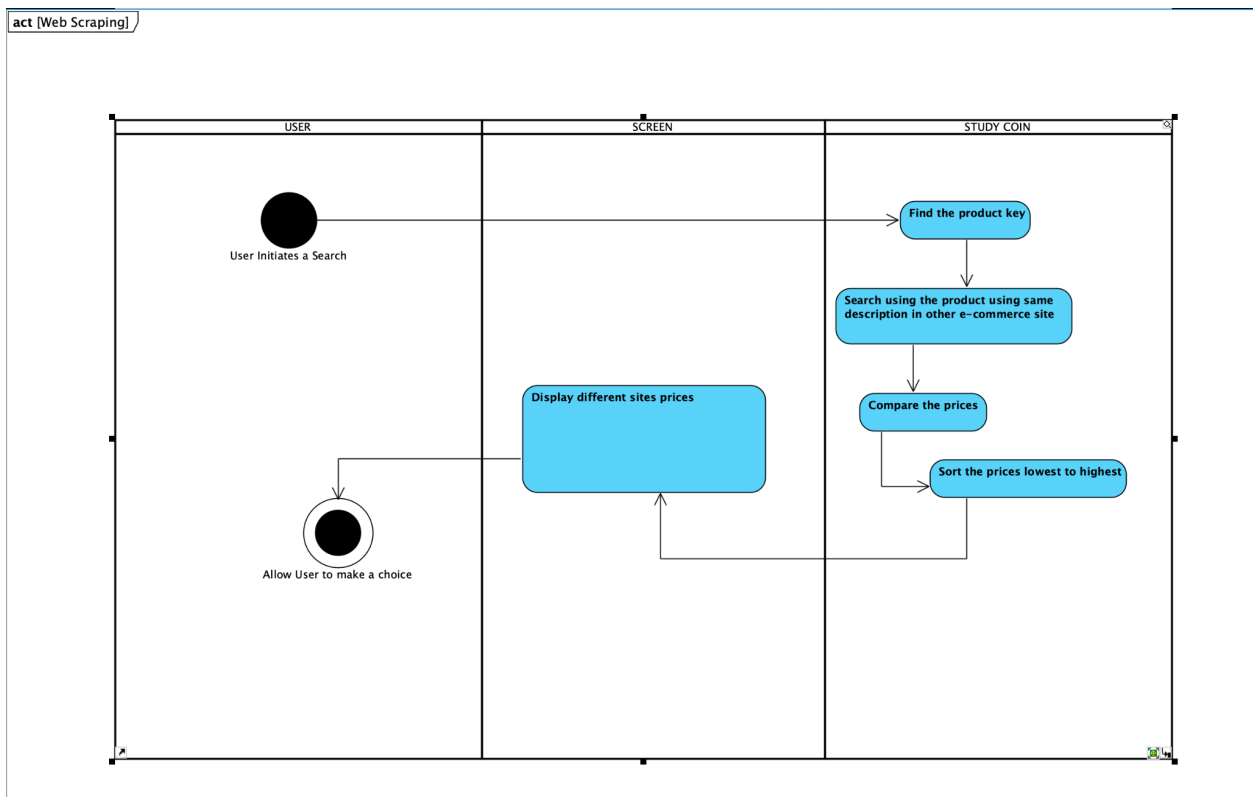
- System shall store users login information in a secure database
- System shall allow users to change their password or select “forgot password”
- System shall keep track of user emails for marketing purposes
- System shall report errors if there is an error

- Search for product
 - Introduction/Purpose of Feature
 - This feature allows the user to search for a desired product through the search form



- Stimulus/Response Sequence
- Associated Functional Requirements
 - System shall display search results in pages of 20
 - System shall provide a search form on the Study Coins web page for users to input their query.
 - System shall allow the user to submit their search query by pressing a designated button or hitting the enter key.

- System shall web scrape to find items that match the user's search query.
 - System shall display the list of items that match the search query on the same web page or a designated search results page.
 - If no matches are found, the system shall notify the user that no results were found for their query.
 - If there's an error during the search process, the system shall display an appropriate error message informing the user of the issue
- Web Scrape
 - Introduction/Purpose of Feature
 - This feature allows the system to web scrape for the search results that are desired from the user
 - Stimulus/Response Sequence



- Associated Functional Requirements
 - The system shall have a dedicated search class responsible for handling user search queries.
 - The search class shall call the web scraping class with the user's query as input.
 - The web scraping class shall be designed to fetch data from common e-commerce sites (Amazon, Walmart, Target, etc.).
 - The web scraping class shall parse the data fetched from these e-commerce sites to extract relevant product details such as name, price, and URL.
 - The system shall combine all the product entries fetched from different e-commerce sites.
 - The system shall sort the combined product entries primarily based on price, from lowest to highest.
 - Once sorted, the system shall send this list of product entries back to the search class for further processing or display.

3.4 Performance Requirements (not due)

3.5 Design Constraints (not due)

3.6 Software System Attributes (not due)

3.7 Other Requirements (not due)