

Tech Hub

Software Design Specification

Version 3.0

Name (s):

F. Sharara

K. Ashraf

N. Awad

A.Taha

Workstation:

Zewail City of
Science and
Technology

Date: (16/12/2023)

TABLE OF CONTENTS

1.0	<i>INTRODUCTION</i>	3
1.1	<i>Purpose</i>	3
1.2	<i>Scope</i>	3
1.3	<i>Overview</i>	3
2.0	<i>SYSTEM OVERVIEW</i>	3
3.0	<i>SYSTEM ARCHITECTURE</i>	3
3.1	<i>Architectural Design</i>	3
3.2	<i>Decomposition Description</i>	4
3.3	<i>Design Rationale</i>	4
4.0	<i>DATA MODEL</i>	4
4.1	<i>Data Description</i>	4
4.2	<i>Data Dictionary</i>	6
5.0	<i>COMPONENT DESIGN</i>	6
6.0	<i>HUMAN INTERFACE DESIGN</i>	6
6.1	<i>Overview of User Interface</i>	6
6.2	<i>Screen Images</i>	6
6.3	<i>Screen Objects and Actions</i>	6
7.0	<i>REQUIREMENTS MATRIX</i>	6
8.0	<i>APPENDICES</i>	7

19 Nov 2023	Version 1.0		Initial SDS
16 Dec 2023	Version 2.0	Nour	Change in the Human Interface Design section, new GUI has been implemented in the website according to the online templates available. Created a Sequence diagram and CRC cards for our classes.

1.0 INTRODUCTION

1.1 Purpose

This Software Design Specification (SDS) outlines the architecture and system design of Tech Hub, an Online Tech Store Management System. Tailored for the university project and targeting both teaching assistants (TAs) and doctors, this document provides an in-depth overview of the software's structural components, functionalities, and interactions.

1.2 Scope

The scope of the Tech Hub project encompasses the development of an Online Tech Store Management System. This software aims to streamline the operations of an online tech store, providing a user-friendly platform for customers to browse, select, and purchase tech products. The primary objectives include efficient product management, seamless order processing, secure payment handling, and integration with shipping services. The goals are to enhance the customer shopping experience, optimize store management, and establish a reliable online presence for tech enthusiasts. The project's benefits include improved customer satisfaction, effective inventory management, and a platform that aligns with modern e-commerce standards. Tech Hub aspires to become a robust solution for managing the diverse aspects of an online tech store.

1.3 Overview

This document, the Software Design Specifications (SDS) for Tech Hub, offers a comprehensive insight into the architecture and system design of the Online Tech Store Management System. Organized for clarity and reference.

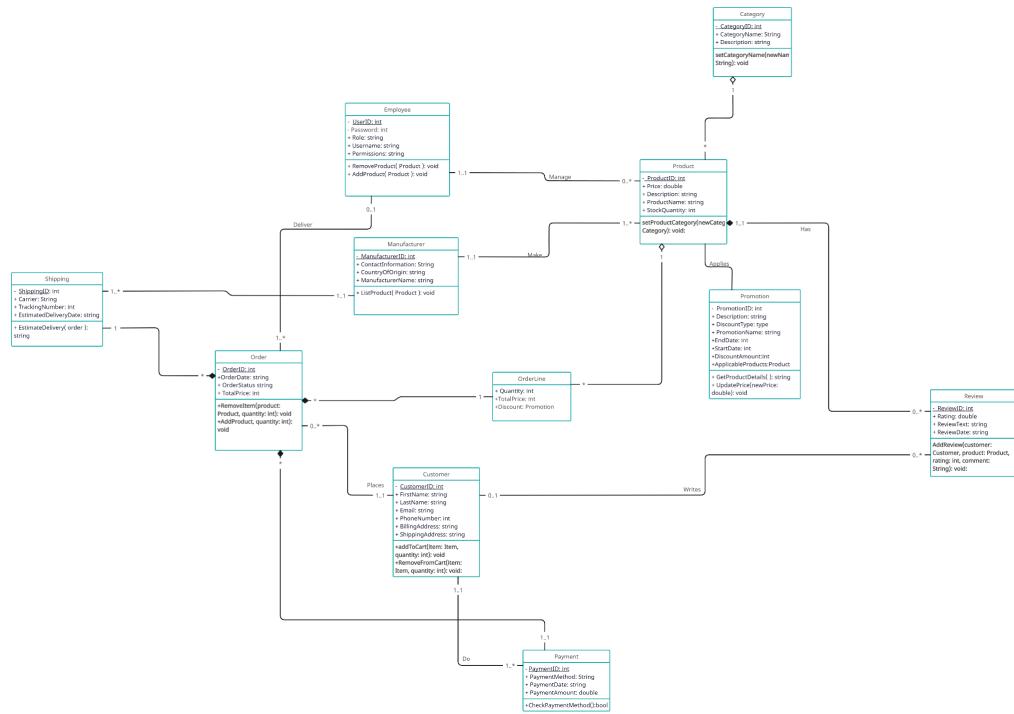
2.0 SYSTEM OVERVIEW

Tech Hub, an academic project for online tech store management, is a user-centric system designed to streamline operations. It offers features such as a product catalog, order processing, inventory management, and shipping integration. Using a modular and scalable architecture, the platform aims to provide a seamless experience for customers, administrators, and employees. Inspired by industry best practices, Tech Hub is developed to enhance the online shopping experience for tech enthusiasts while serving educational purposes.

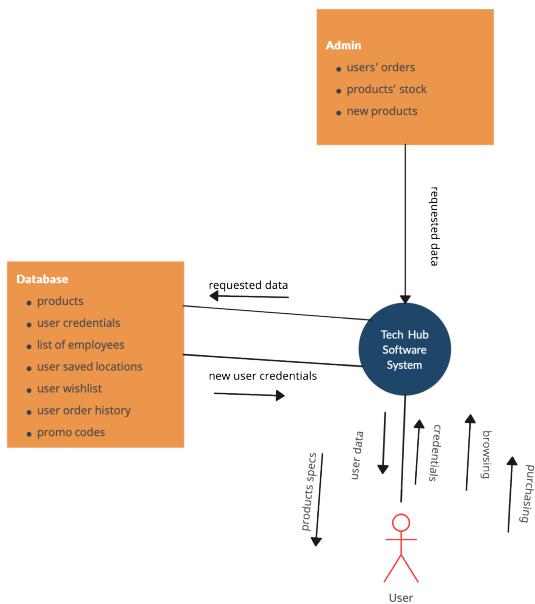
3.0 SYSTEM ARCHITECTURE

3.1 Architectural Design

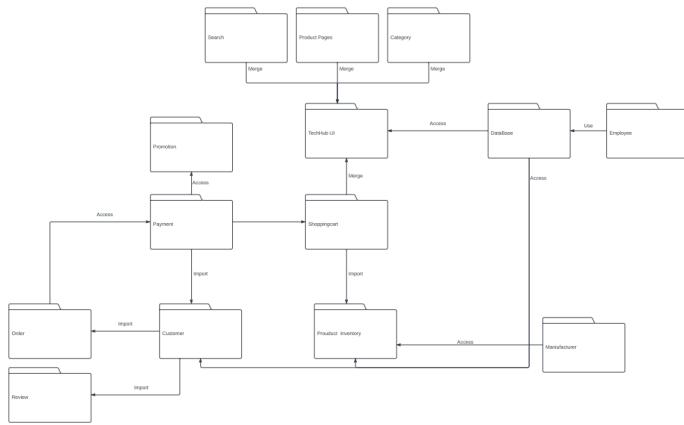
Class Diagram:



Context Diagram:

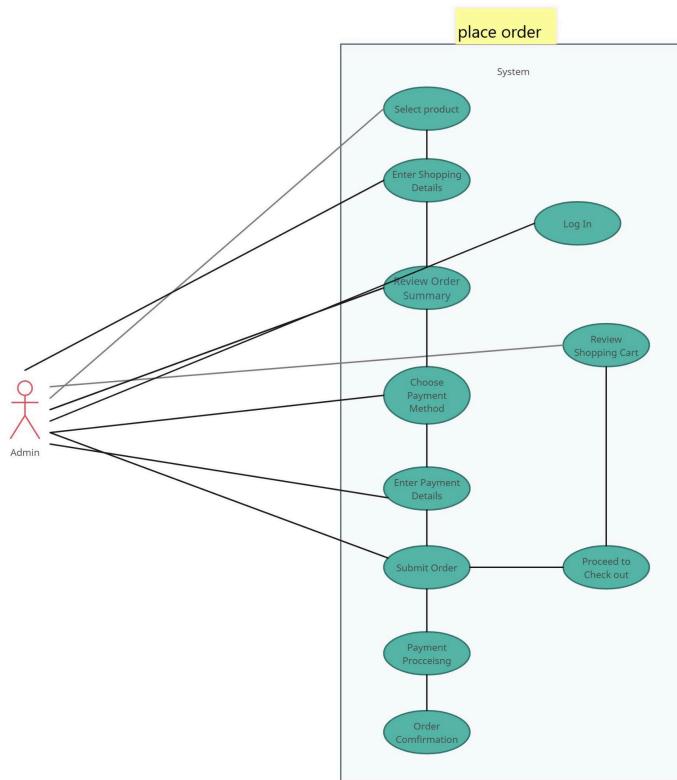


Concept Diagram:

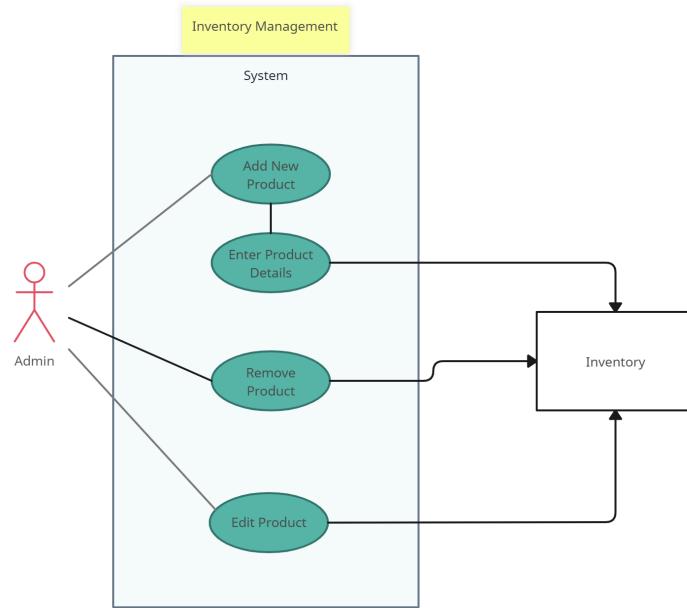


Use Case Diagram:

Place order:

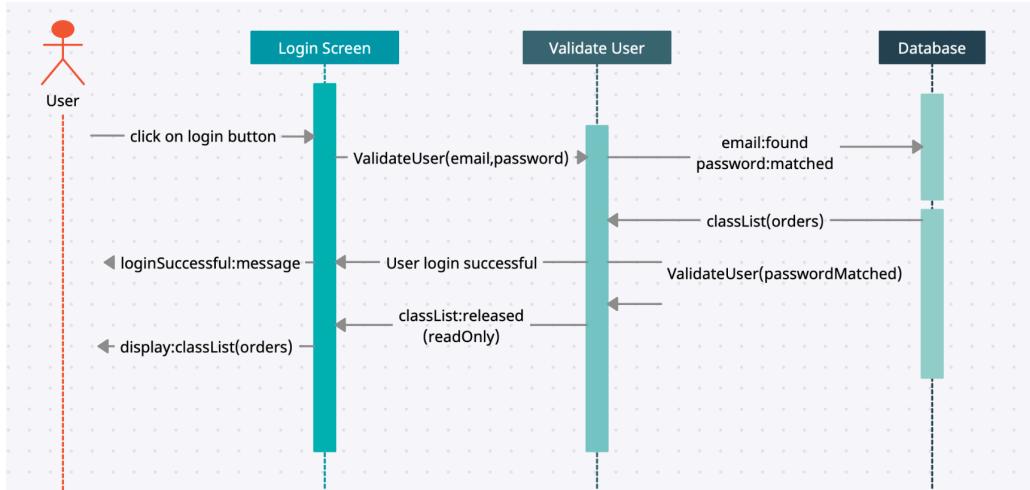


Manage Inventory:

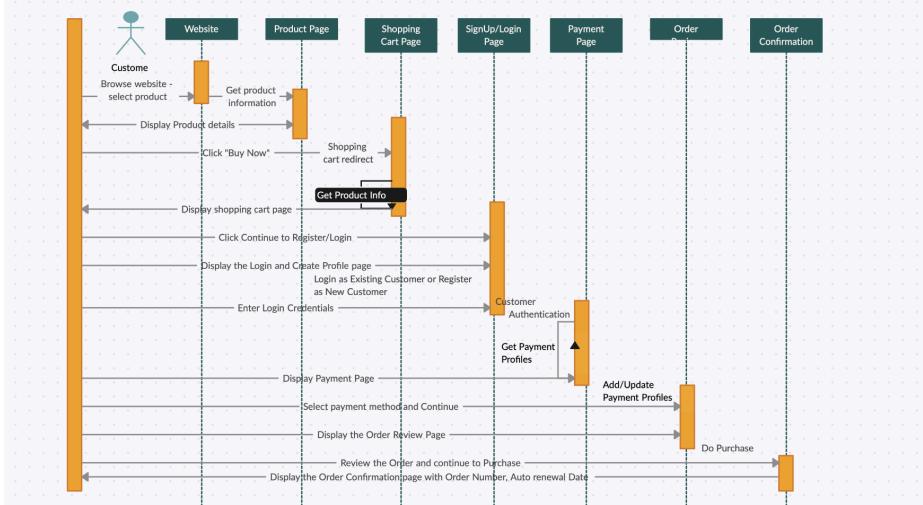


Sequence Diagram :

Login:



Purchase:



CRC Cards :

StarCalculator	
<ul style="list-style-type: none"> Calculate the count of reviews for each star rating. Provide methods to calculate the count for star ratings 1 through 5. 	<ul style="list-style-type: none"> Collaborates with the Review class to access the Rating property.
Review	
<ul style="list-style-type: none"> Store user's name (UserName), email (Email), comment (Comment), and rating (Rating). Keep track of the timestamp when the review was created (Now). 	<ul style="list-style-type: none"> No direct collaborators

3.2 Design Rationale

The choice of a microservices architecture for an online tech store was driven by its scalability, modularity, and flexibility. Microservices allow independent scaling, promote modularity for easier maintenance, support technological diversity, offer fault isolation, and enable rapid deployment of individual services. The decision was made after considering alternatives like monolithic, serverless, and service-oriented architectures. While microservices introduce challenges in terms of inter-service communication and consistency, their advantages align well with the dynamic and evolving nature of the online tech store, making them the preferred architectural choice.

4.0 DATA MODEL

4.1 Data Description

The Online Tech Store Management System transforms its information domain into structured data to efficiently manage various aspects of the online tech store.

The major data entities and their organization are outlined below:

1. User Data:
 - a. Storage: User information, including names, emails, passwords, and profile details, is stored securely in the user database.
 - b. Processing: The system processes user data during registration, authentication, and profile updates.
 - c. Organization: User data is organized based on unique identifiers, facilitating quick and secure access.
2. Product Data:
 - a. Storage: Product details such as names, descriptions, prices, manufacturers, and stock quantities are stored in the product catalog database.
 - b. Processing: The system processes product data during searches, catalog views, and order placements.
 - c. Organization: Product data is organized by categories and manufacturers, enabling efficient catalog management.
 - d.
3. Order Data:
 - a. Storage: Order details, including customer information, selected products, total price, and order status, are stored in the order database.
 - b. Processing: The system processes order data during order placement, payment processing, and order fulfillment.
 - c. Organization: Order data is organized chronologically, allowing for easy tracking and management.
4. Inventory Data:
 - a. Storage: Information about product stock quantities and stock alerts is stored in the inventory database.
 - b. Processing: The system processes inventory data during order processing and stock alerts.
 - c. Organization: Inventory data is organized by product, ensuring accurate tracking of stock levels.
5. Review and Rating Data:
 - a. Storage: Customer reviews and ratings for products are stored in the review database.
 - b. Processing: The system processes review and rating data during product catalog views and user feedback analysis.
 - c. Organization: Review and rating data is organized by product, enhancing the product catalog with user-generated content.
6. Payment and Shipping Data:
 - a. Storage: Secure payment information and shipping details are stored in the payment and shipping database.
 - b. Processing: The system processes payment and shipping data during order checkout and fulfillment.
 - c. Organization: Payment and shipping data are organized by order, ensuring accurate and secure transaction records.

Databases:

1. User Database
2. Product Catalog Database
3. Order Database
4. Inventory Database
5. Review Database
6. Payment and Shipping Database

This structured data approach ensures efficient data management, retrieval, and processing within the Online Tech Store Management System.

5.0 HUMAN INTERFACE DESIGN

5.1 Overview of User Interface

The user interface of the Online Tech Store Management System is designed to provide an intuitive and seamless experience for customers and administrators alike. From the customer's perspective, the system allows users to easily browse and select products, add them to the shopping cart, and proceed through a straightforward checkout process. Users can review order summaries, choose payment methods, and submit orders with confidence.

Feedback information is strategically incorporated to keep users informed about their interactions. For instance, during the shopping process, real-time notifications and updates about product availability, promotions, and order status are displayed. The system ensures clarity in presenting order confirmations and payment processing updates to enhance the user's confidence in their transactions.

Administrators, on the other hand, are provided with a comprehensive dashboard for efficient product management, order processing, and promotion administration. The interface enables administrators to easily track and manage inventory, review and process customer orders, and oversee promotions and discounts. Feedback mechanisms such as success messages and status indicators are implemented to keep administrators informed about the outcomes of their actions. The user interface aims to create a user-friendly environment that promotes ease of use and efficient navigation for both customers and administrators.

5.2 Screen Images

Sign up

Name

Email

Password

Repeat your password

[Register](#)



Already a Customer ?
[Sign In.](#)



Log In

Email

Password

[Log In](#)

[Create an account](#)

The screenshot displays two views of the Tech-Hub website's account management interface. The top view shows a list of personal details: Full Name (Kenneth Valdez), Email (example@gmail.com), Phone ((239) 816-9029), Mobile ((320) 380-4539), and Address (Bay Area, San Francisco, CA). Below this is an 'EDIT' button. The bottom view shows a form titled 'Personal Details' with fields for Full Name (with placeholder 'Enter full name'), Email (with placeholder 'Enter email ID'), Phone (with placeholder 'Enter phone number'), and Address (with Street and City fields, both with placeholder 'Enter Street'). At the bottom of the form are 'CANCEL' and 'UPDATE' buttons.

+0201005593348 TechHubSupport@mail.com

Tech-Hub.

Search

My Account
 Your Cart

[Home](#) [Hot Deals](#) [Laptops](#) [Smartphones](#) [Cameras](#) [Accessories](#)

Laptop Collection
[SHOP NOW](#)

Accessories Collection
[SHOP NOW](#)

Cameras Collection
[SHOP NOW](#)

NEW PRODUCTS

-30%
NEW

NEW

HOT DEAL THIS WEEK
NEW COLLECTION UP TO 50% OFF

[SHOP NOW](#)

TOP SELLING

-30%
NEW

NEW

-30%

[Laptops](#)
[Smartphones](#)
[Cameras](#)
[Accessories](#)

Tech Hub SDS

TOP SELLING


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~

TOP SELLING


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~

TOP SELLING


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~


CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~

CATEGORIES	INFORMATION	SERVICE
Hot deals Laptops Smartphones Cameras Accessories	Contact Us Orders and Returns	My Account View Cart Track My Order

Copyright ©2023 All rights reserved | This template is made with ❤ by [Colorlib](#)

↳ +020100559348 ↳ TechHubSupport@mail.com

Tech-Hub.

Search
My Account
Your Cart 3

Home / ALL CATEGORIES / ACCESSORIES / HEADPHONES (227,490 RESULTS)

CATEGORIES

- Laptops (120)
- Smartphones (740)
- Cameras (1450)
- Accessories (578)
- Laptops (120)
- Smartphones (740)

PRICE

1.00
999.00
+
-
+
-

BRAND


-30% NEW

CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~

★★★★★


NEW

CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~

★★★★★


-

CATEGORY
PRODUCT NAME GOES HERE
\$980.00 ~~\$990.00~~

★★★★★

- SAMSUNG (578)
- LG (125)
- SONY (756)
- SAMSUNG (578)
- LG (125)
- SONY (755)

TOP SELLING

CATEGORY	
	PRODUCT NAME GOES HERE \$980.00 \$990.00
	CATEGORY PRODUCT NAME GOES HERE \$980.00 \$990.00
	CATEGORY PRODUCT NAME GOES HERE \$980.00 \$990.00

Search
My Account
Your Cart (3)

PRODUCT NAME GOES HERE
1x \$980.00

PRODUCT NAME GOES HERE
3x \$980.00

3 Item(s) selected
SUBTOTAL: \$2940.00

[View Cart](#) [Checkout](#)

Skinny jeans

Accessories

Products		Subtotal	
	Calvin Klein Jeans Keds Size: 8.5 Color: Black \$125.00	Quantity <input type="button" value="1"/> <input type="button" value="0"/>	\$325.00
	The North Face Hoodie Size: XL Color: Gray \$154.00	Quantity <input type="button" value="1"/> <input type="button" value="0"/>	
	Medicine Chameleon Sunglasses Lenses: Chameleon Frame: Gray / Black \$47.00	Quantity <input type="button" value="1"/> <input type="button" value="0"/>	
	Adidas Performance Hat Material: Acrylic Color: Pink / Dark green \$18.00	Quantity <input type="button" value="1"/> <input type="button" value="0"/>	
Continue shopping		Additional comments	PROCEED TO CHECKOUT
		Apply promo code	<input type="button" value="APPLY PROMO CODE"/>
		Shipping estimates	

CATEGORIES

- Hot deals
- Laptops
- Smartphones
- Cameras

INFORMATION

- Contact Us
- Orders and Returns
- My Account
- View Cart
- Track My Order

SERVICE

- Home
- Hot Deals
- Laptops
- Smartphones
- Cameras
- Accessories

CHECKOUT [HOME](#) / [CHECKOUT](#)

BILLING ADDRESS

First Name

Last Name

Email

Address

City

Country

Mobile Number

Create Account?

SHIPPING ADDRESS

Ship to a different address?

Order Notes

YOUR ORDER

PRODUCT	TOTAL
1x Product Name Goes Here	\$980.00
2x Product Name Goes Here	\$980.00
Shipping	FREE
TOTAL	\$2940.00

Credit/Debit Card
 Cash On Delivery(COD)

PLACE ORDER

