

ONLINE BOOK STORE MANAGEMENT SYSTEM

MINI PROJECT REPORT

Submitted in partial fulfillment of the requirements

for the award of the degree of

BACHELOR OF COMPUTER APPLICATIONS

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CERTIFICATE

This is to certify that the mini project work titled “Online book store management system” submitted to Mahatma Gandhi University in partial fulfillment of the requirements for the award of the Degree of Bachelor Of Computer Applications is a record of the original mini project work done by Jereesh James and Alvin Lal under my supervision and guidance and that this mini project work has not formed the basis for the award of any Degree/ Diploma/ Fellowship or similar title to any candidate of this or any other University.

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DECLARATION

We **Jereesh James** and **Alvin Lal** hereby declare that the mini project report entitled "**ONLINE BOOK STORE MANAGEMENT SYSTEM**" submitted in partial fulfillment of the requirements for the award of the Degree of Bachelor of Computer Applications is a record of mini project work done by me under the supervision & guidance of **Ms. Deepthi S Nair** and the dissertation has not formed the basis for the award of any Degree/Diploma/ Associate ship / Fellowship or similar title to any candidate of this or any other University.

Jereesh James

Alvin Lal

Place: Kakkanad

Date:...../...../.....

ACKNOWLEDGEMENT

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Jereesh James

Alvin Lal

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1.1 ABOUT THE PROJECT

This project aims to create a fully functional online book store that sells many varieties of books to its customers. In this era of technology and connectivity, making a book store and its services online will greatly increase its efficiency. The system provides a very comprehensive UI and set of features that will greatly help in adding books and managing the books. The main aim of the project is to provide a hassle-free book store management system.

The online book store provides customers to choose, view and buy books. It allows customers to browse through various types of books like fictional books, romantic novels, educational guides and other books available at the store and purchase them. After adding the books to the cart, they can place the order after finishing the payment using a card.

This project also aims to provide other services like sales analytics and a feedback system. Sales Analytics can be used greatly for evaluating book sales and make necessary changes to sales strategy if needed. Feedback system provides a way to get an idea about what is the public's opinion about a particular book.

2.1 SYSTEM STUDY

System study refers to the process of examining a situation with the intent of improving it through better process and methods. System study is, therefore the process of gathering and interpreting facts, diagnosing problem and using the information to recommend changes in the system, in other words it means a detailed explanation of description. Before computerizing a system under consideration, it must be analyzed. We need to study how it functions currently, what are problems and what are the requirements that the proposed software should meet.

The main components of making software are:

- System and software requirements analysis
- Design and implementation of software
- Ensuring, verifying and maintaining software integrity

The online book store management system manages the complete administrative operations of a book store. We can store every detail of the activities that occur in the system. It also provides a user-friendly interface which can be operated by anyone with little knowledge about the computer system. It stores the information needed by the shop in a database which can be accessed by the administrator, staff and customer. It should maintain a well-organized database for storing the information regarding the shop. This helps to eliminate the storage of invalid data.

2.1.1 Existing System

The Existing system is based on manual work and all the process are done manually, so they maintain registers and files for recording the details of the system. They maintain several registers for recording the entry of daily transactions such as billing of the products to the clients, etc. They keep the bill book or cash book to maintain the record for each sale of the product or transaction in the shop. Similarly, they maintain a book for their vendors so they can pay the money to them after some time. Thus, maintaining vendor information and sales information is done manually. In current system billing is manual and time consuming and use manual searching of item on shelf because of manual based system. Also, there is a difficulty on store to check the stock and retrieve the necessary data from the manually based data system. So generally, the current system does not arrange the items in systematic way, security for the data is low and does not indicate how much stock is left.

Disadvantages of existing system

- Difficulty in maintenance of records.
- Time consuming.
- Editing of data becomes a tedious job.
- No security of data.
- Mistakes Occurring in long calculations.
- Proper generation of reports are not possible.
- Lack of efficiency.
- Difficult to do stock maintenance.

2.1.2 Proposed System

The proposed system is interactive, highly user friendly and designed exclusively for the book store system. The system covers almost all the functional areas of the store. The online book store management system is a database system used to store the information regarding customer details, staff details, product details, purchase and order details etc.

All the operations and activities related to the Online book store management system can be carried out efficiently. The system manages a well-organized database for storing the resources. This helps us to eliminate the entering of invalid data. Most problems of manual systems can be solved by this system.

The computerization of the system allows the easy maintenance of the details. Large amount of data can be stored easily. In addition, updating and other changes can be done easily. The information can be retrieved with high speed and accuracy. The use of GUI oriented software makes the system user friendly.

Advantages of proposed system

- High processing speed.
- Easy to retrieve old records by using search feature.
- We can analyse customer details, employee details, service details and booking details.
- The online book store system shall provide the capability to back up the database.
- Minimal errors.
- Greater portability.

2.1.3. Feasibility Study

Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, time and effort spent on it. Feasibility study lets the developer foresee the future of the project and its usefulness. Finding out whether a new system is required or not. The study is carried out to the best system that meet performance requirement. This entails identification, description and evaluation of candidate system and selection of the best system for the best system for the job. It simply identifies whether the proposed system is feasible to the organization or not.

There are three aspects in the feasibility study portion of the preliminary investigation

- Technical feasibility
- Economic feasibility
- Operational feasibility

2.1.3.1. Technical Feasibility

The system must be evaluated from technical viewpoint first. The assessment of this feasibility must be based on outline design of the system requirement in the terms of input, output, programs and procedure having identified an outline system, the investigation must go on to suggest the type of equipment, required method of developing the system, method of running the system once it has been designed. The project should be developed such that the necessary functions and performance are achieved within the constraints. The project is developed with latest technology. There are only minimal constraints involved in this project.

2.1.3.2. Economic Feasibility

Here an evaluation of development cost weighted against the ultimate income or benefit derived from the developed system. The cost for the development of the project has been evaluated and we want to check that the cost does not exceed beneficial cost of the system. The economic and financial analysis is used for evaluating the effectiveness of the candidate system. This project also undergone economic feasibility study and found that it is feasible. So, the cost for development does not exceed its beneficial cost. This brought to as the conclusion that the system is economically feasible in the context.

2.1.3.3. Operational Feasibility

In operational feasibility the entire application is checked whether the system will be used if it is developed and implemented. Also, it is checked whether there will be resistance from user that may undermine the possible application benefits. There is no barrier for implementing the system. The system also helps to access the information immediately as need arises. Thus, the system is found to be operational feasible.

2.2 USER CHARACTERISTICS

The Online book store management system provides the user to perform their task in an easy and much less complex way to avoid redundancy. This system ensures that the users assessing the system can ensure maximum efficiency and they can depend on the system for desired results.

There are three user characteristics in this system:

- Administrator
- Staff
- Customer

2.2.1. Administrator

Administrator or Admin is the super user and main controller of this system. Administrator controls all the activities of the book store Management System. Admin can add and view the staff. He/ She can add the Product Category, Subcategory and Item. He/ She can add, edit, view and delete the vendor and can also add and view the purchase details. Admin can view the orders and can also generate several reports.

2.2.2 Staff

Staffs are responsible for maintaining the shop. Staff can edit their own details. Staff can add, edit and view vendors.

2.2.3 Customer

Customer can perform various activities like registering into the account, editing his/her details, viewing the products, searching the product and can order and make payment through online.

2.3 SYSTEM SPECIFICATION

2.3.1 Hardware specifications

The selection of hardware is very important in the existence and proper working of any software. When selecting the hardware, the size and capacity requirements are also important. Below is some of the hardware that is required by the system.

Processor	Intel Core i3-3220 (3.3 GHz) or above
RAM	4 GB or above
Storage	512 GB or above
Other	Keyboard and Mouse

2.3.2 Software specifications

Operating system	Windows 7/8/8.1/10
Front end	PHP
Back end	SQL

2.3.2 About software tools and platforms

PHP: Hypertext Preprocessor is a general-purpose programming language originally designed for web development. it was originally created by Rasmus Lerdorf in 1994. The PHP reference implementation is now produced by the PHP group .PHP code may be executed with a command line interface (CLI), embedded into HTML code or it can be used in combination with various web template systems, web content management systems and web frameworks

Features

- Allows you to build templates to ease site maintenance
- Enables connections with database such as MySQL
- Build discussion forums or Web-based email programs

SQL: Server management studio is a software application first launched with Microsoft SQL server 2005 that is used for configuring, managing and administering all components with Microsoft SQL server. The tool includes both script editors and graphical tools which work with object and features of the server.

Key Capabilities of SQL

- High Availability
- Performance and Scalability
- Security
- Manageability
- Developer Productivity
- Business Intelligence

3.1 MODULES AND DESCRIPTION

The Online book store management system helps the Customers to buy different books through online and Administrator to manage the entire system easily. There are several Modules in this system. They are:

1. Staff Management
2. Customer registration
3. Book Management
 - 3.1 Category management
 - 3.2 Sub Category management
 - 3.3 Publisher management
 - 3.4 Author management
 - 3.5 Item management
4. Vendor Management
5. Purchase Management
6. Cart Management
7. Order Management
8. Payment Management
9. Review Management

1. Staff Management

The aim of this module is to manage all the staffs of the shop. This is done by admin. Admin can add and view the details of Staff. Staff id, Staff name, Staff address, Staff Phone number etc. are stored using this module. Staffs can log into their account using the password provided by the admin and can manage vendors, purchase, and assigned orders.

2. Customer Registration

This module deals with registering a customer to the system. Customer can register by giving details like email and password. Customer can view and update their account details like name, address, phone number after registering.

3. Book Management

The module mainly focuses on the book management that is categorizing the books into different categories and subcategories where they belong. The admin and staff can add, update and search the products. This module contains Category Management, Subcategory Management, Publisher Management, Author Management and Item Management.

3.1 Category Management

This module deals with adding, updating and viewing of different categories of books.

3.2 Sub Category Management

This module deals with adding, updating and viewing of different sub categories of book. This is done by the staff.

3.3 Publisher Management

This module deals with adding and viewing of different publishers of book, this is done by the staff.

3.4 Author Management

This module deals with adding, updating and viewing of different authors of book, this is done by the staff.

3.5 Item Management

This module deals with managing the details of actual books being sold in the shop like their images, price etc. This is also done by the staff.

4. Vendor Management

This module deals with adding, editing, viewing details of a vendor like name, address, phone number etc. This is done by the staff.

5. Purchase Management

This module deals with purchasing of products from different vendors by the staff. Staff can add and view purchase.

6. Cart Management

This module deals with managing carts of customers. Customers can add, edit and view cart.

7. Order Management

This module deals with how an order is processed by the staff after a customer buys a product and also how customer manages his/her orders. Customer can add and view orders.

8. Payment Management

This module deals with how payment for a product is done by the customer after placing an order, through cards. Customers can add and view payments.

9. Review Management

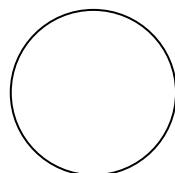
This module deals with managing the different reviews and ratings of products that is given by the customer. Customers can add, edit, and view reviews. Staff can delete spam reviews.

3.2 DATA FLOW DIAGRAM

A data flow diagram is graphical tool used to describe and analyze movement of data through a system. These are central tool and the basis from which the other components are developed. The transformation of data from input to output, through processed, may be described logically and independently of physical components associated with the system. These are known as the logical data flow movement of data between people, departments and workstations. A full description of a system actually consists of a set of data flow diagrams.

A DFD is also known as a “bubble chart” has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. So, it is the starting point of the design to the lowest level of detail. A DFD consists of a series of bubbles joined by data flows in the system.

In the DFD, there are four symbols:



Process that transforms data flow



Source or Destination of data



Data store

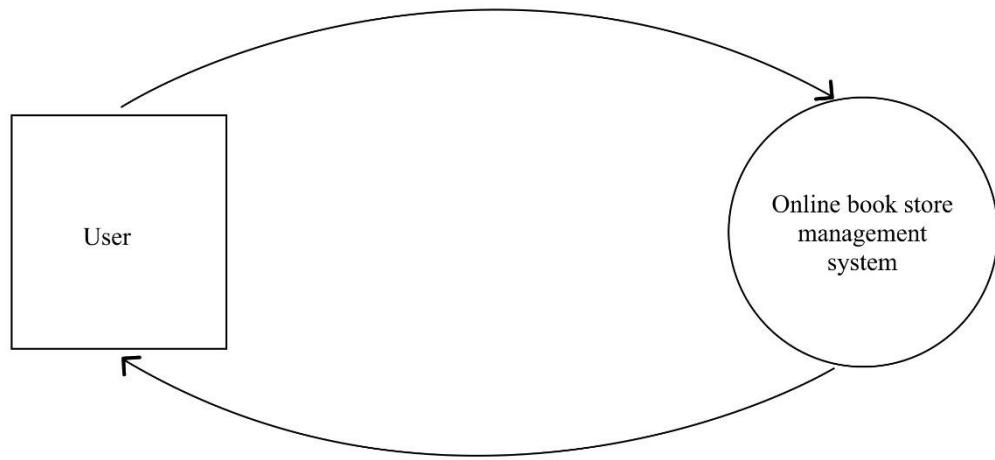


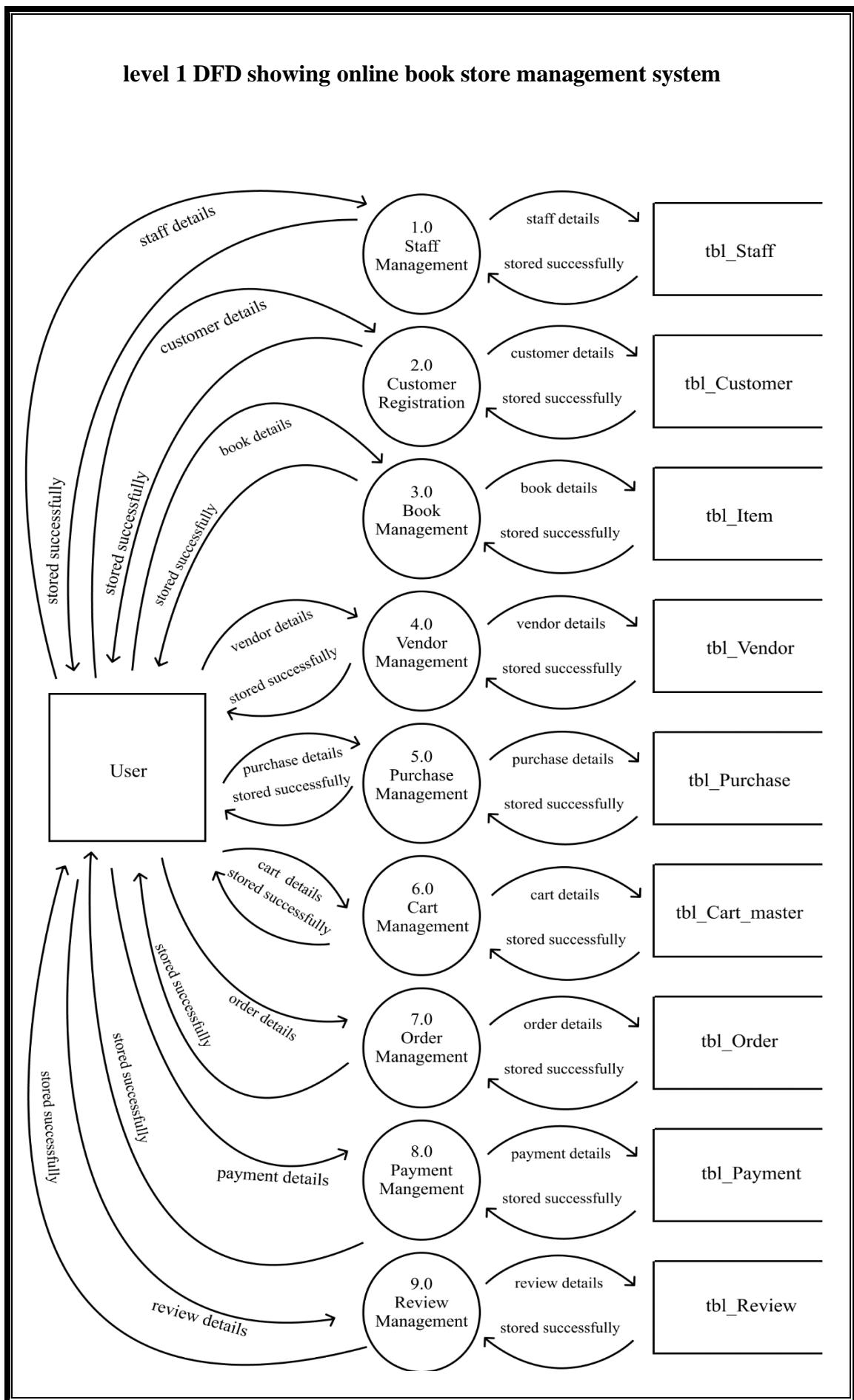
Data flow

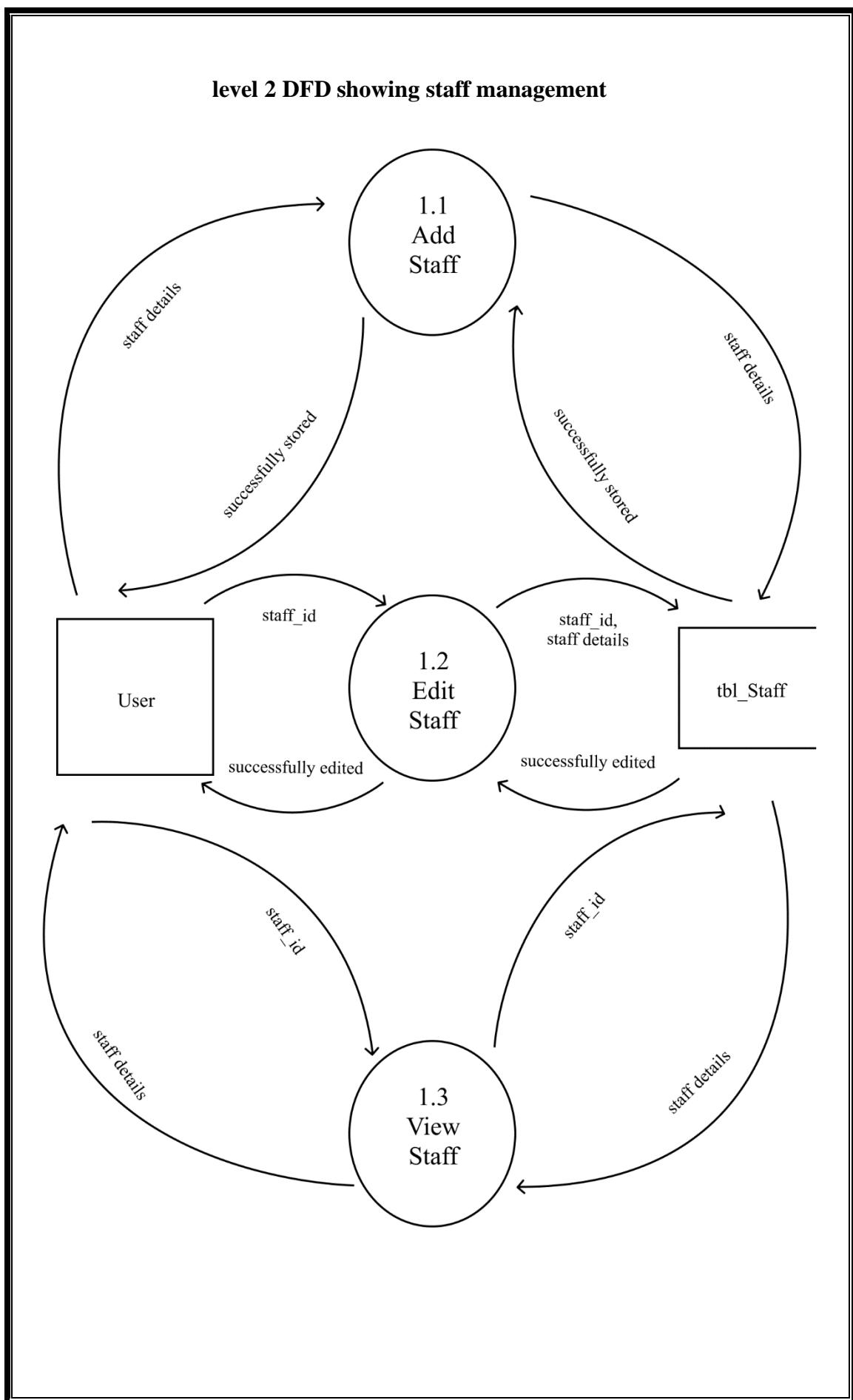
Rules for drawing data flow diagrams

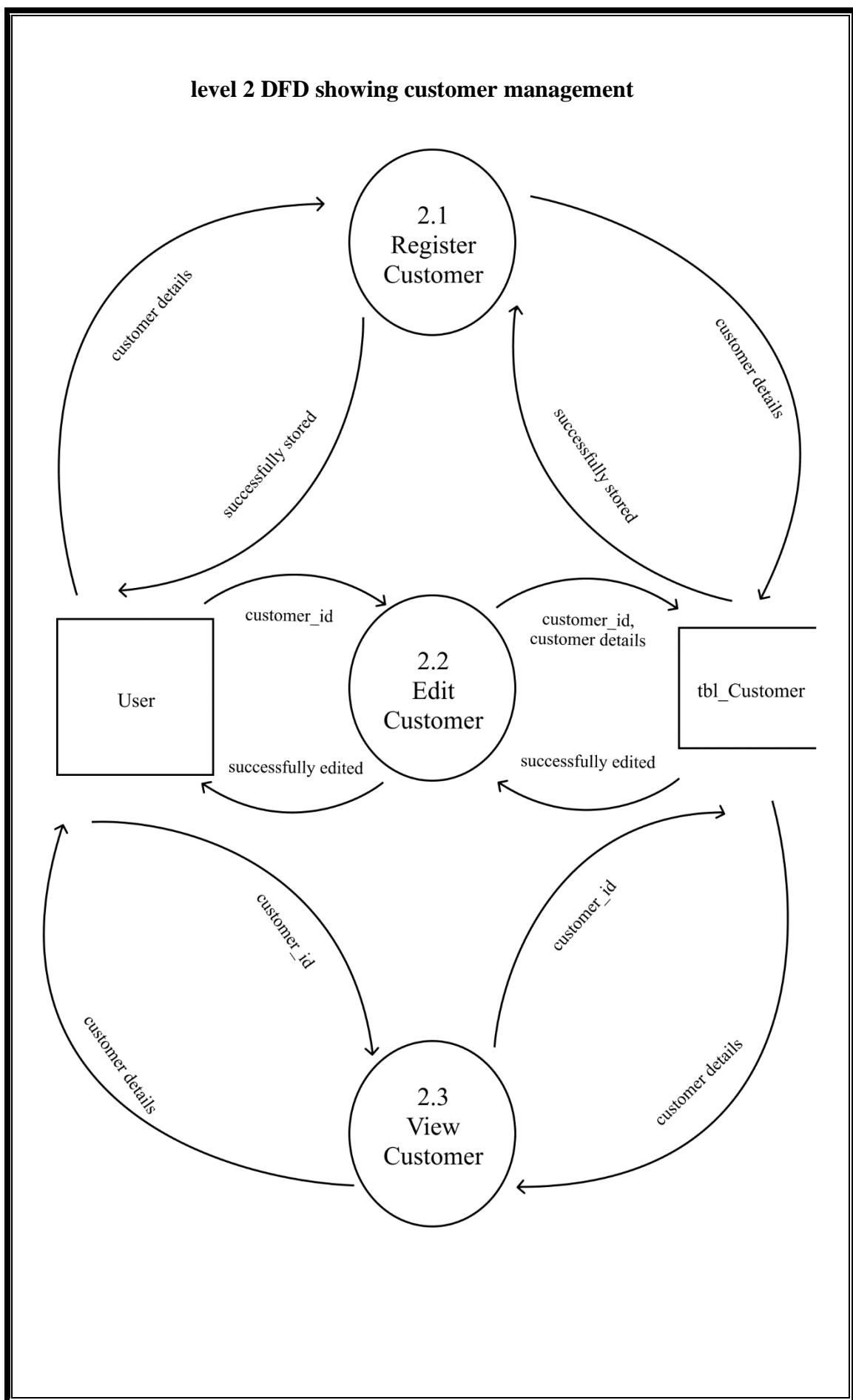
- Rule 1: Establish the context of the data flow diagram by identifying all of the net input and output data flows.
- Rule 2: Select a starting point for drawing the DFD.
- Rule 3: Give meaningful labels to all data flow lines.
- Rule 4: Label all processes with action verbs that relate input and output data flows.
- Rule 5: Omit insignificant functions routinely handled in the programming process.
- Rule 6: Do not include control or flow of control information.
- Rule 7: Do not try to put too much information in one DFD.
- Rule 8: Be prepared to start over.

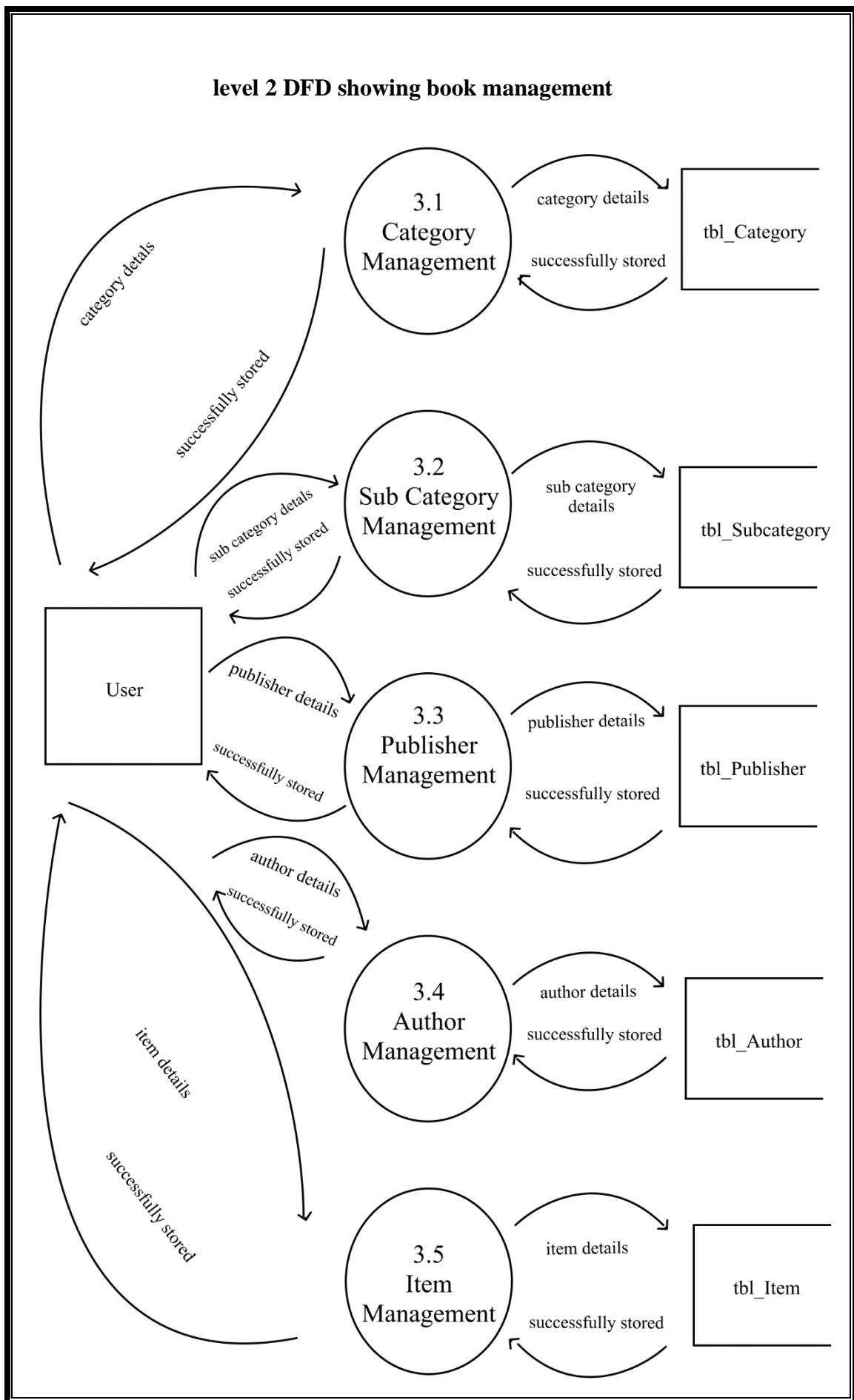
Level 0 DFD showing online store management system

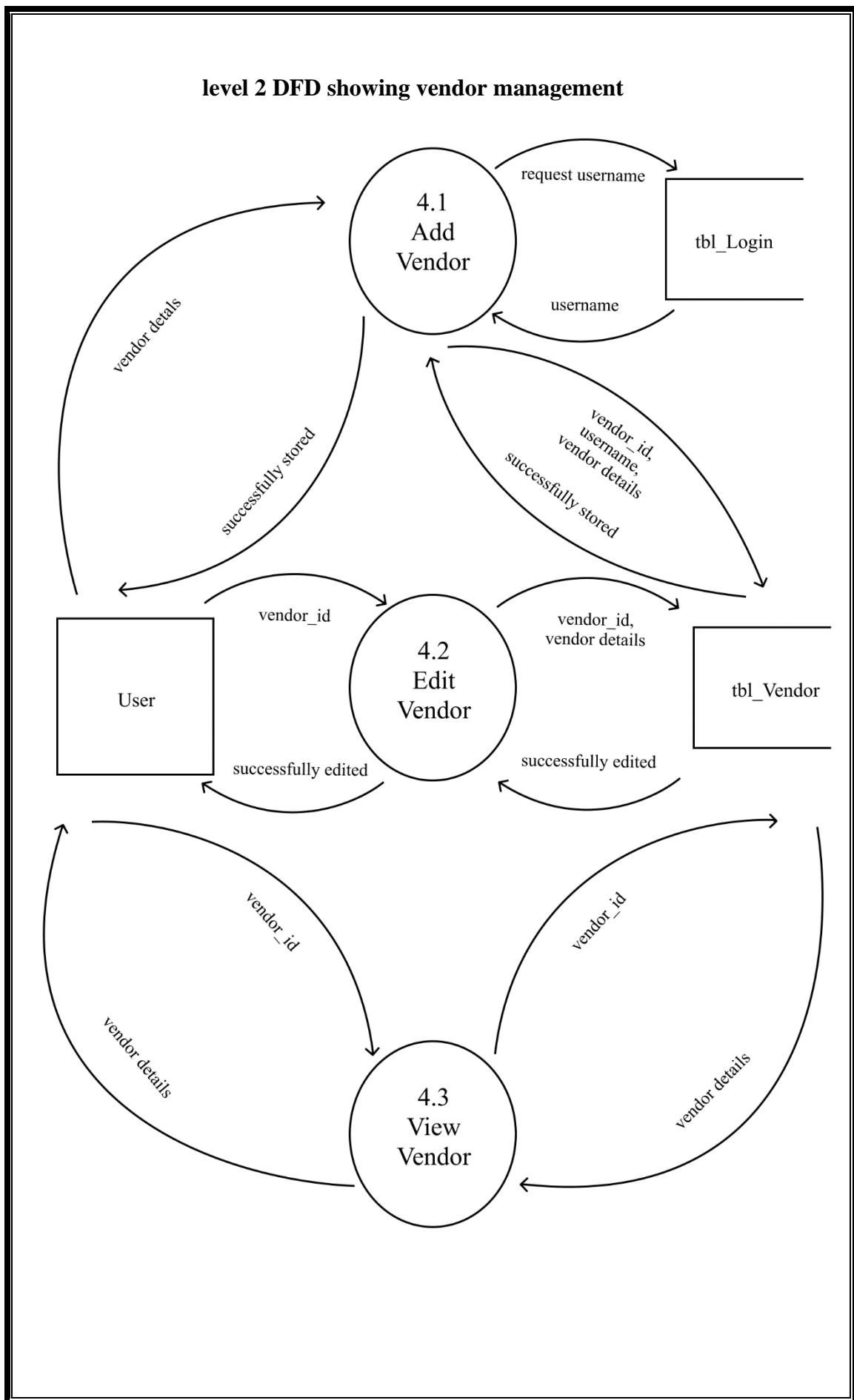


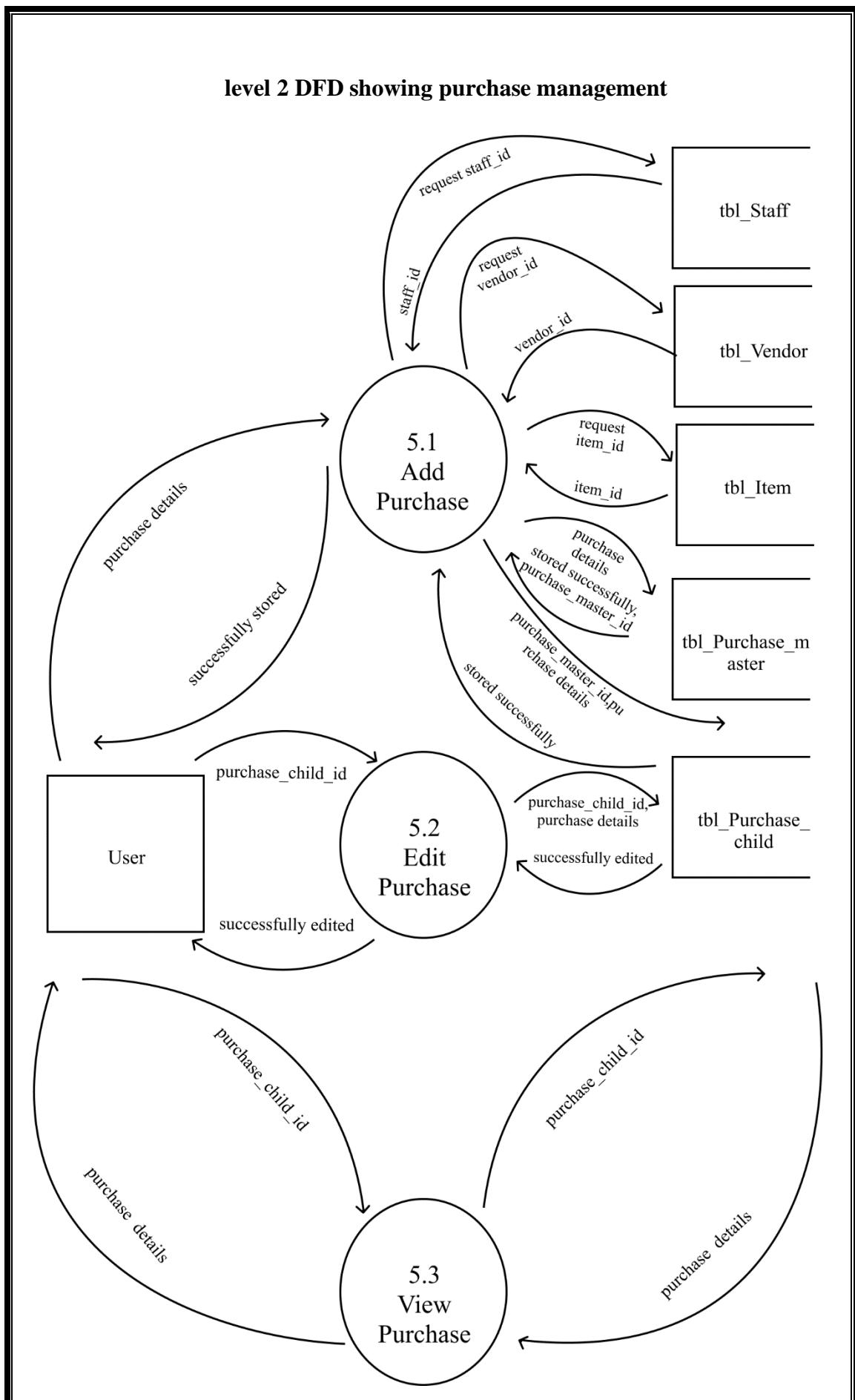


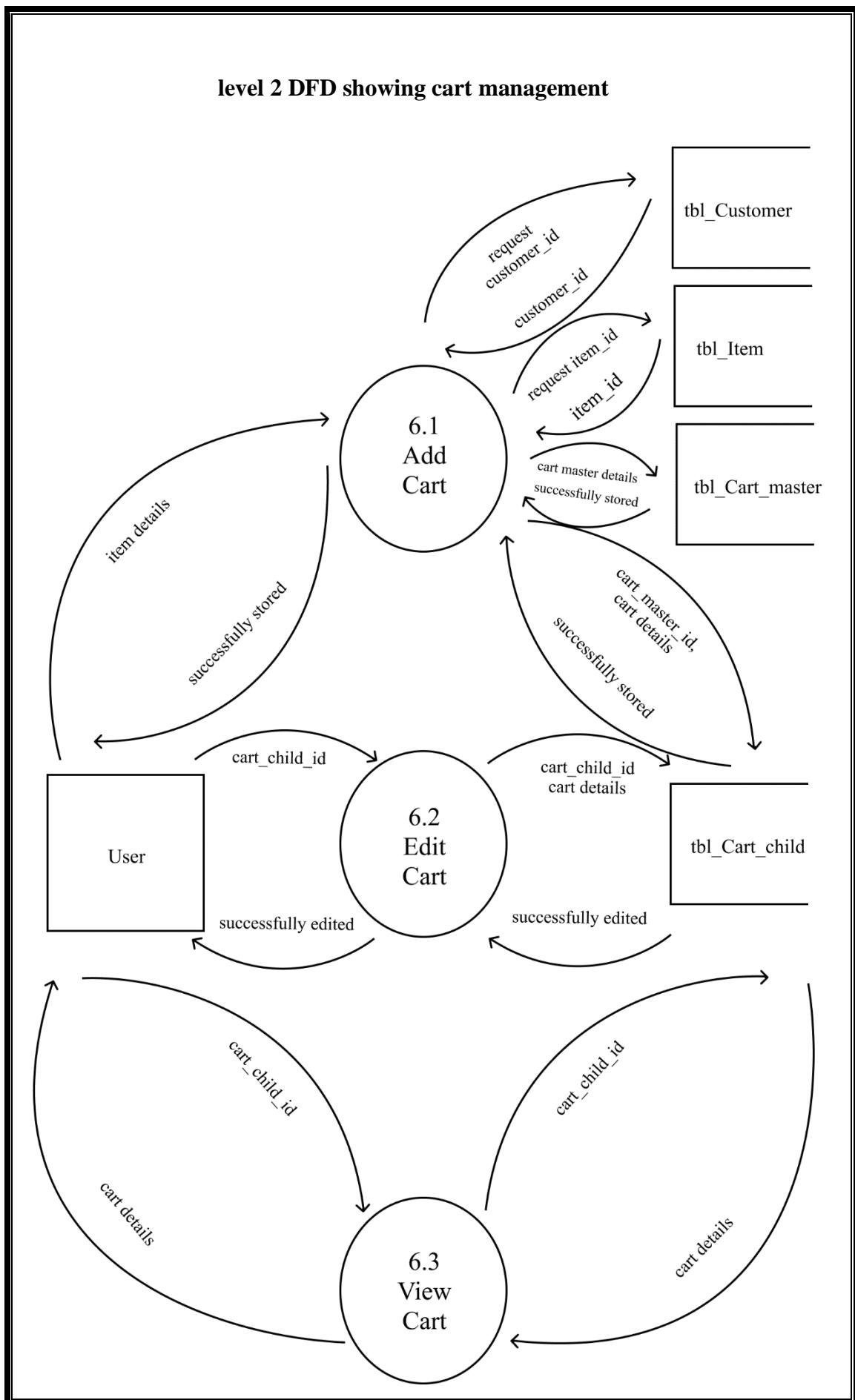


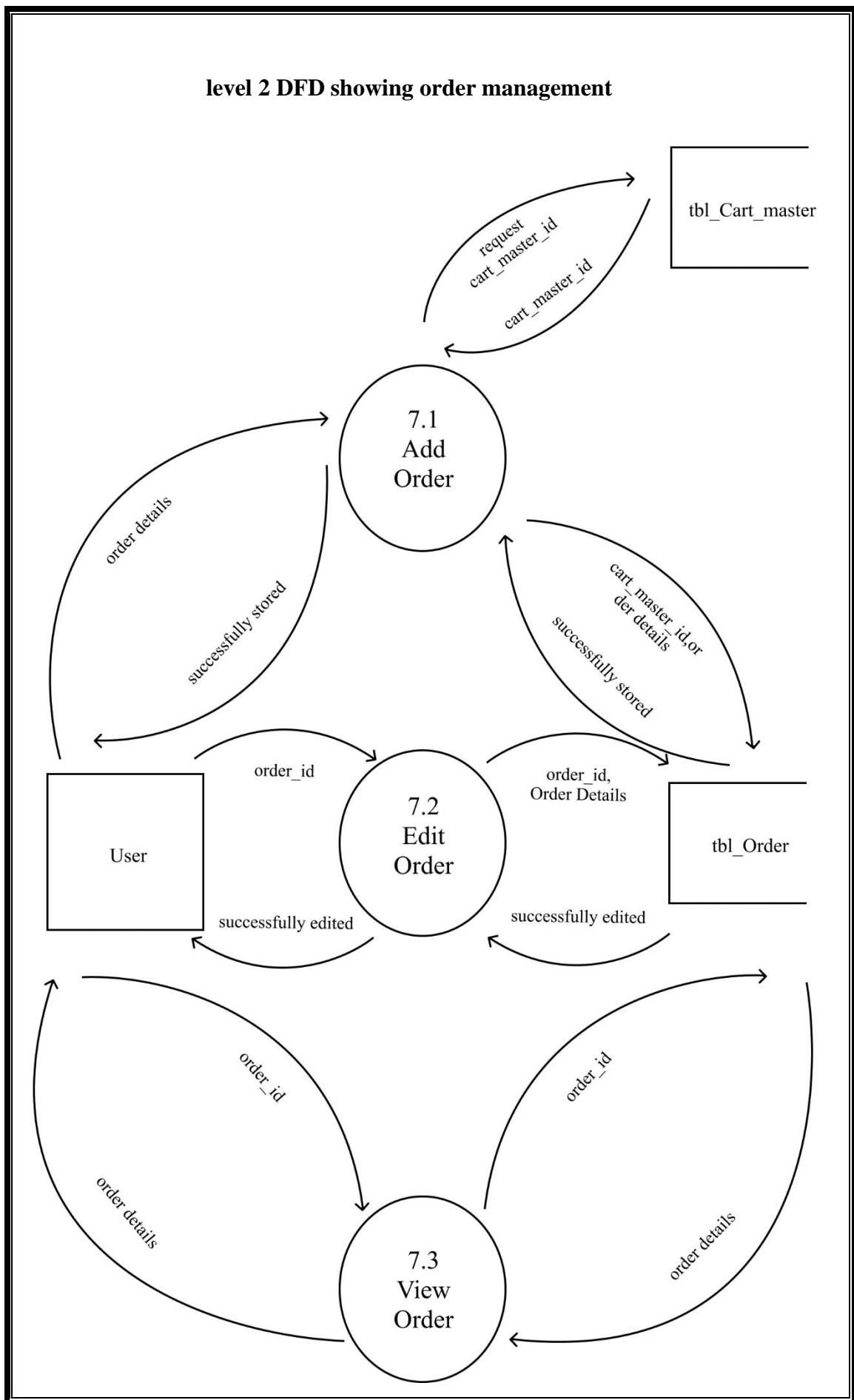




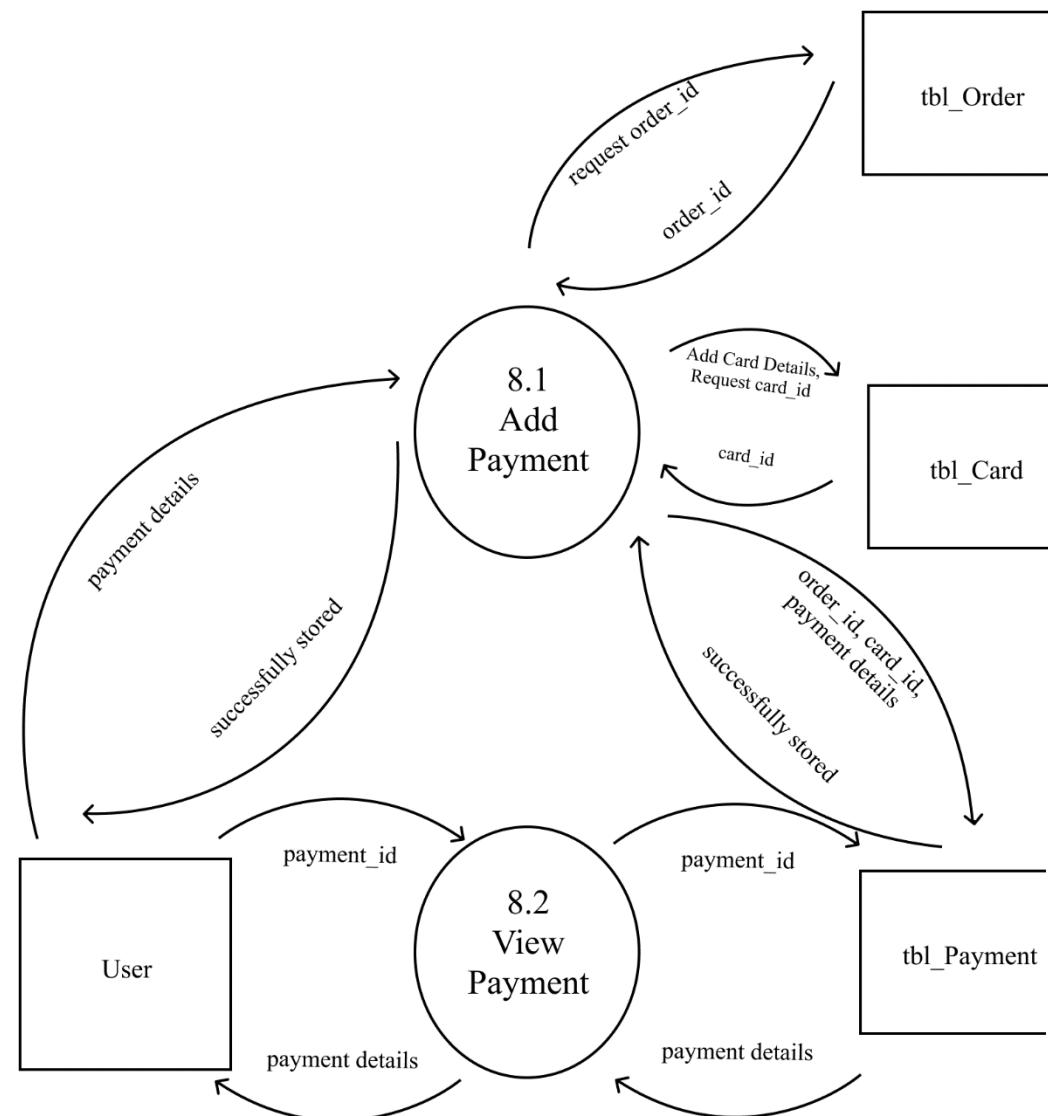


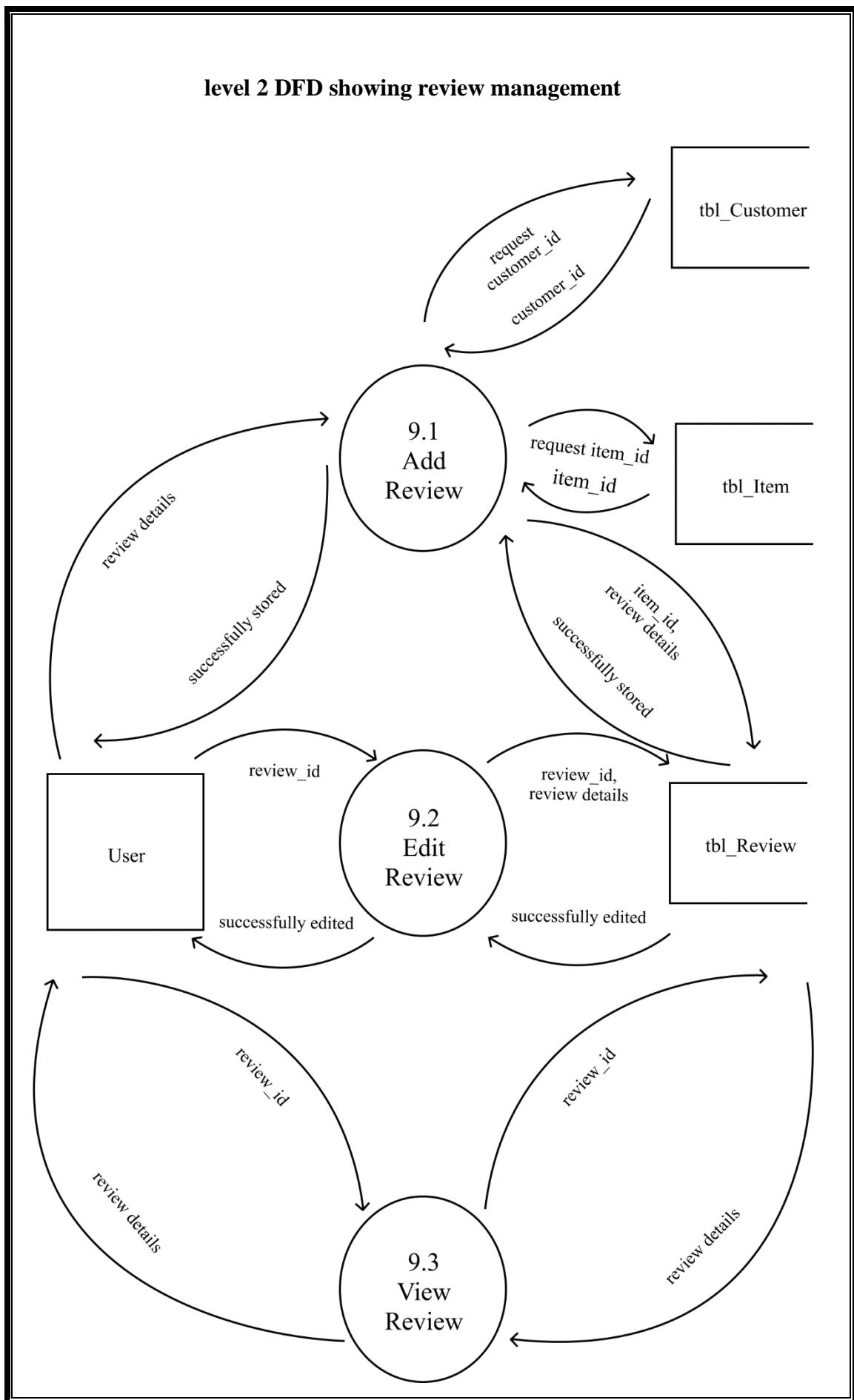


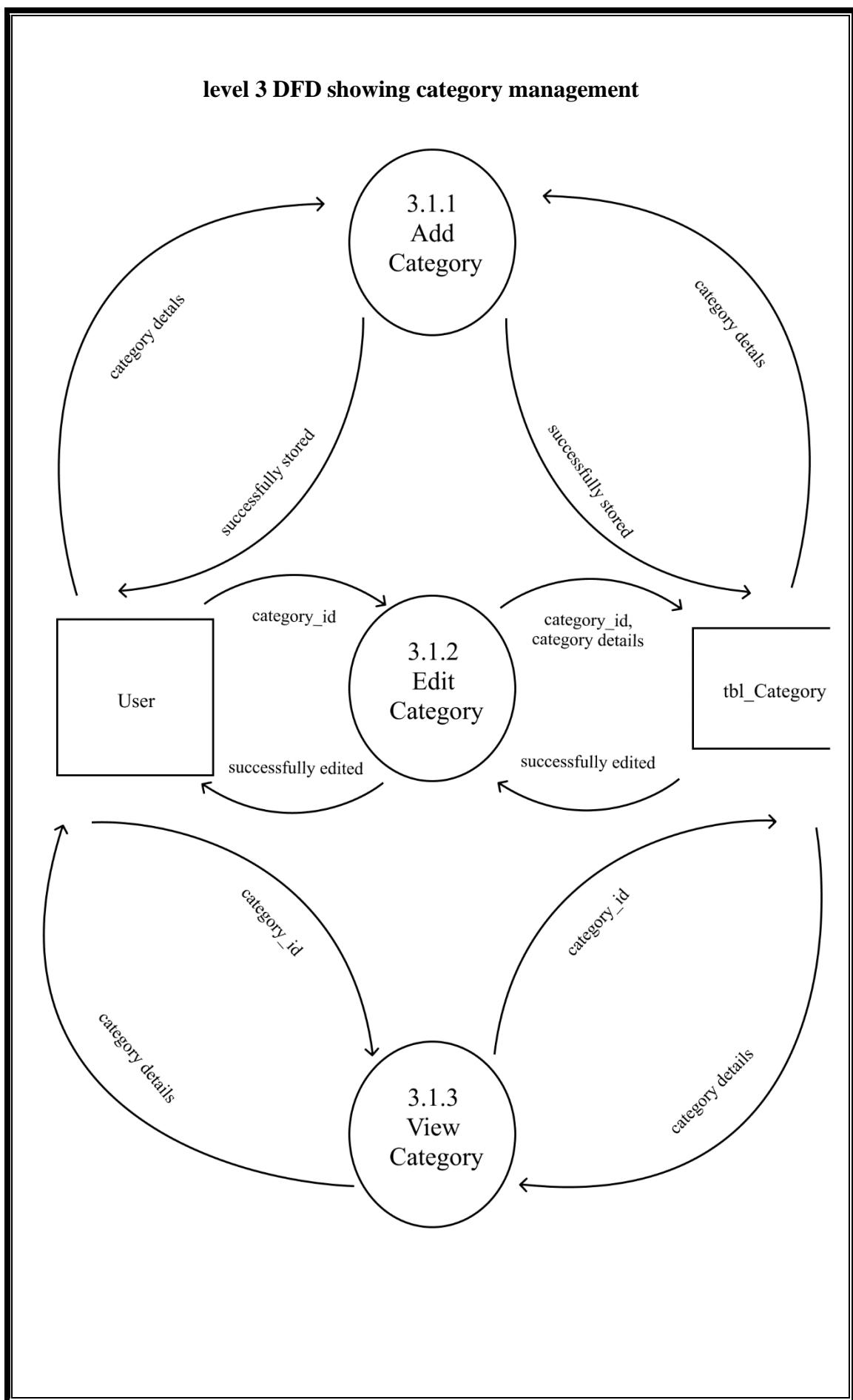


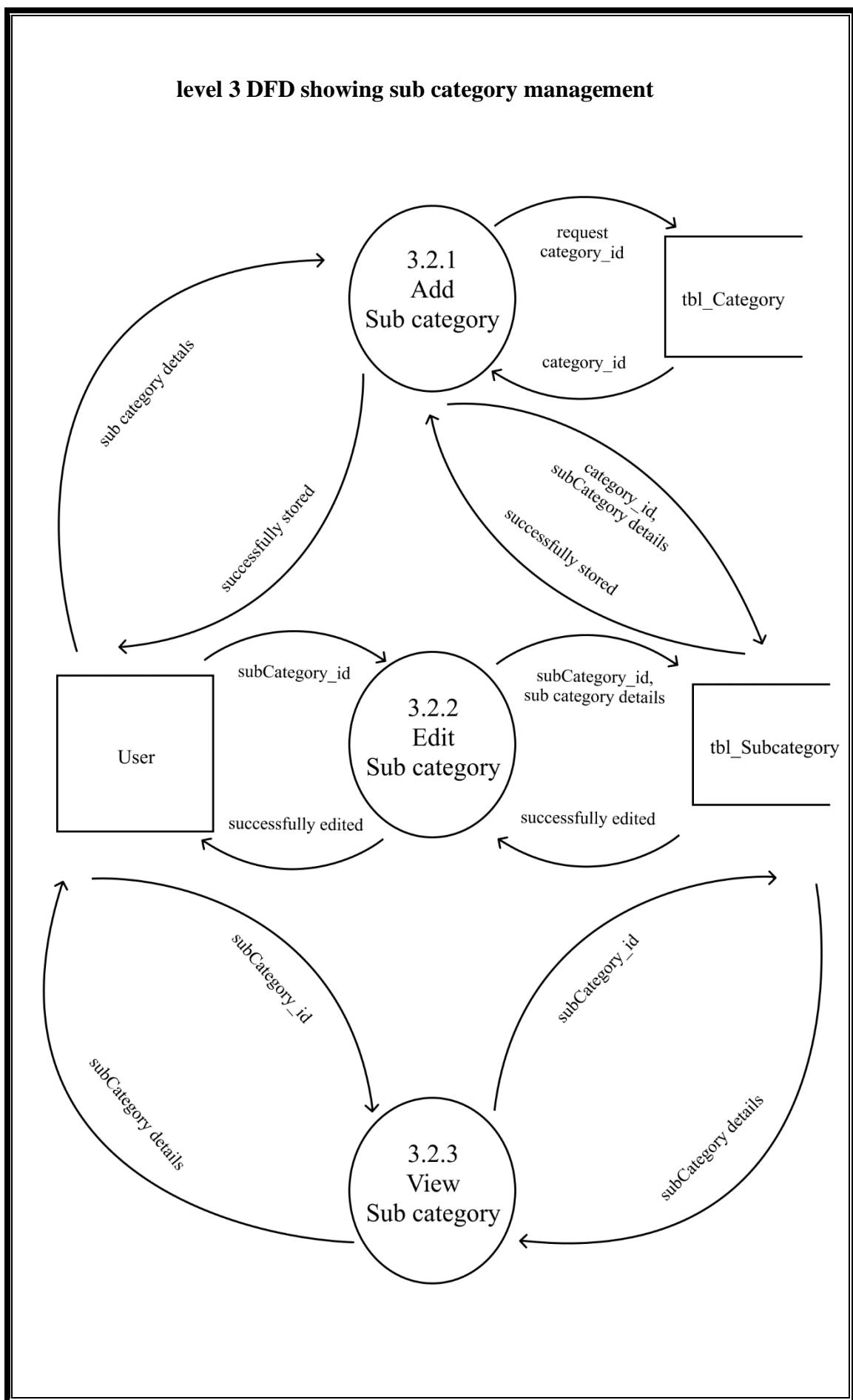


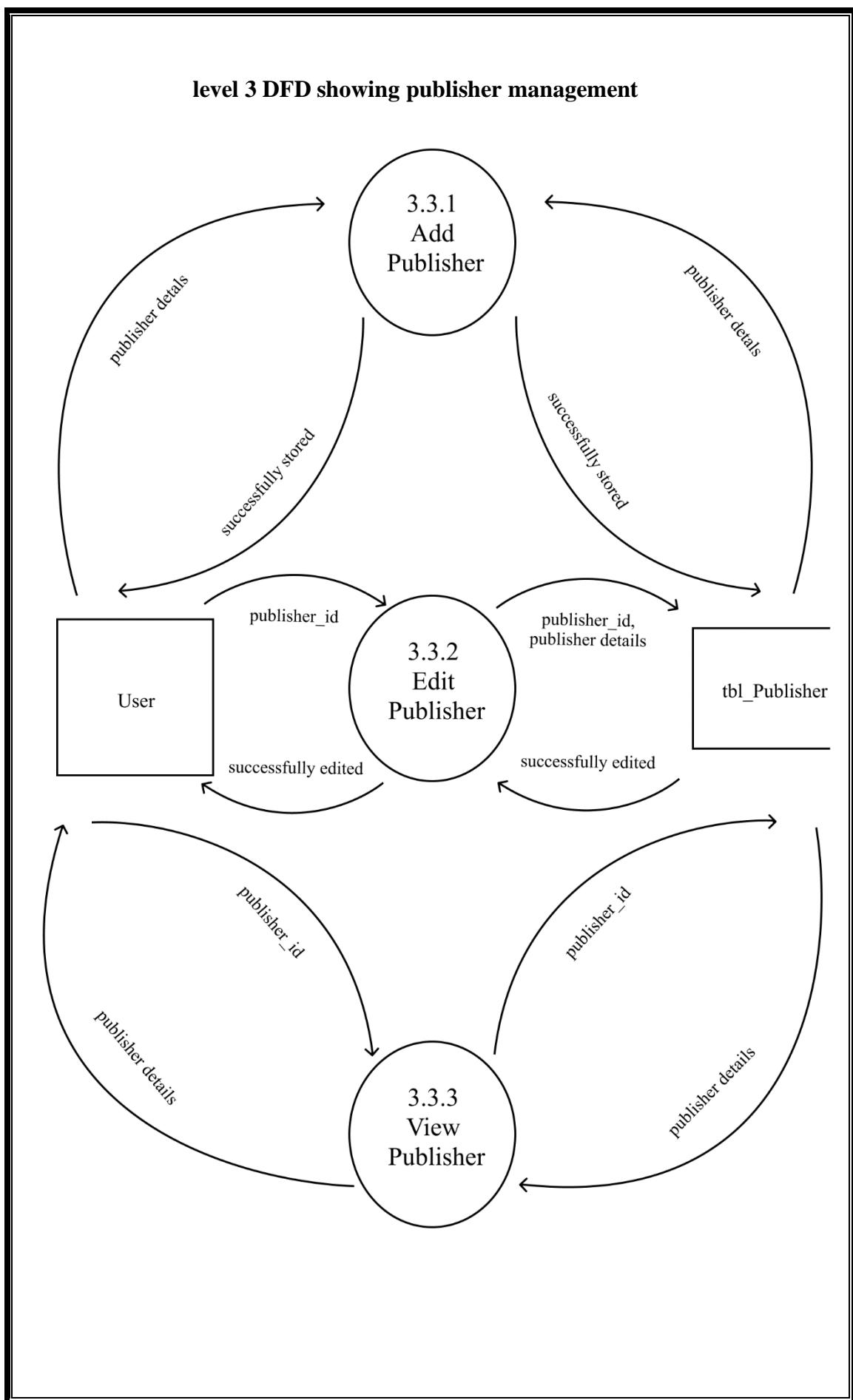
level 2 DFD showing payment management

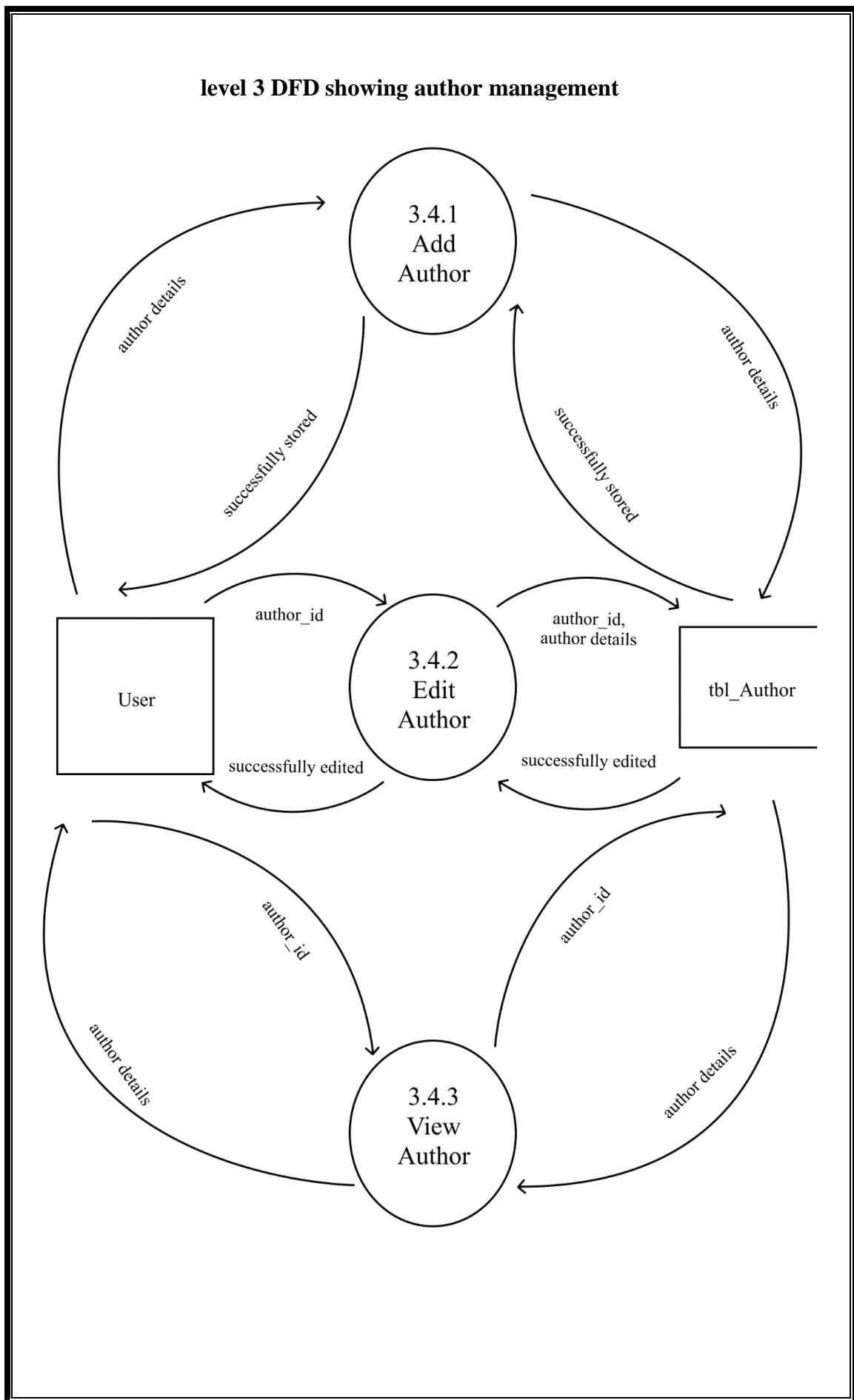


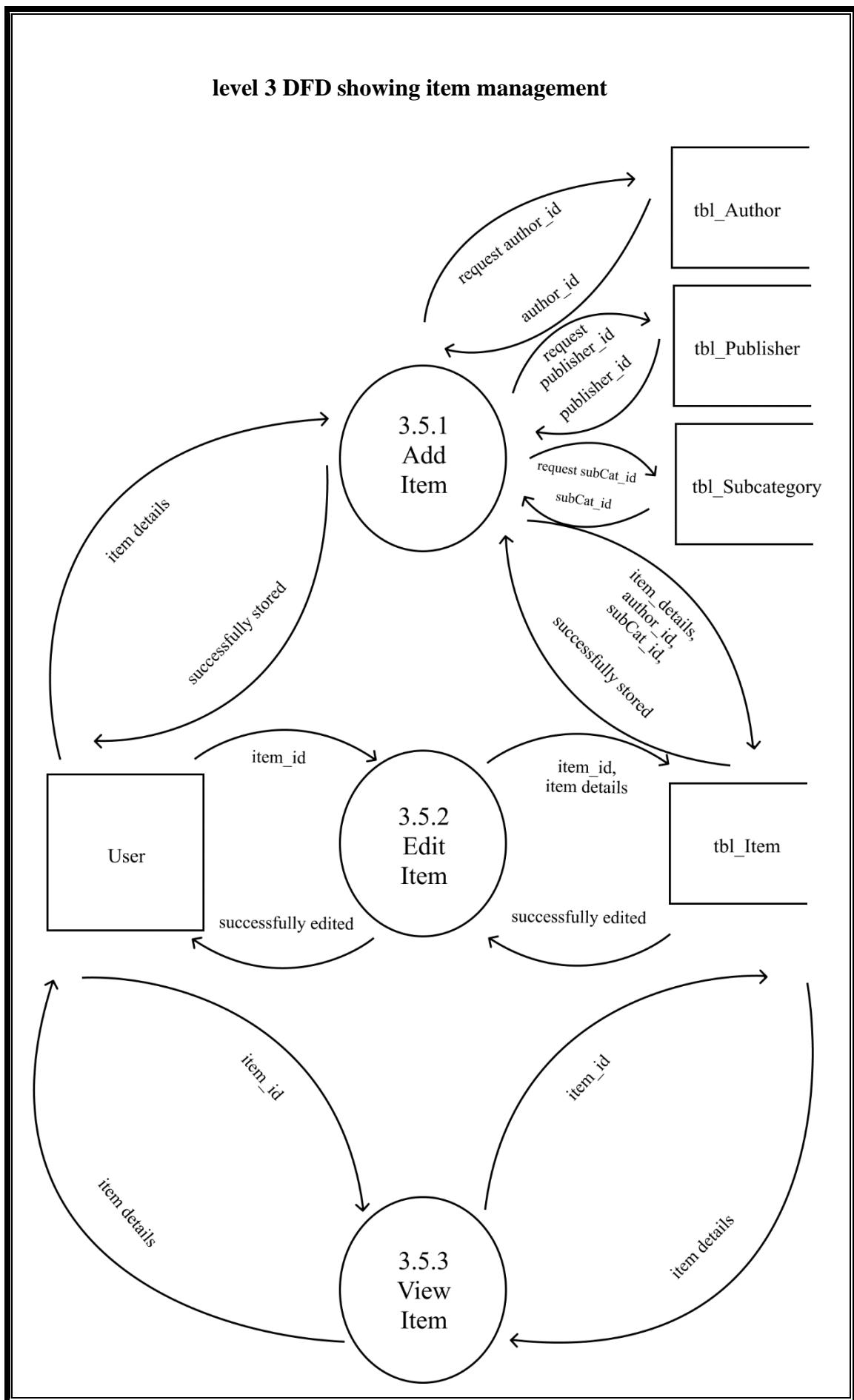












3.3 ENTITY RELATIONSHIP DIAGRAM

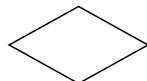
The ER model is a conceptual data model that views the real world as a construct of entities and associations or relationships between entities. A basic component of the model is the Entity-Relationship diagram, which is used to visually represent data objects. The ER modeling technique is frequently used for the conceptual design of database applications and many database applications and many database design tools employ its concepts.



Entity Type



Weak Entity Type



Relationship Type



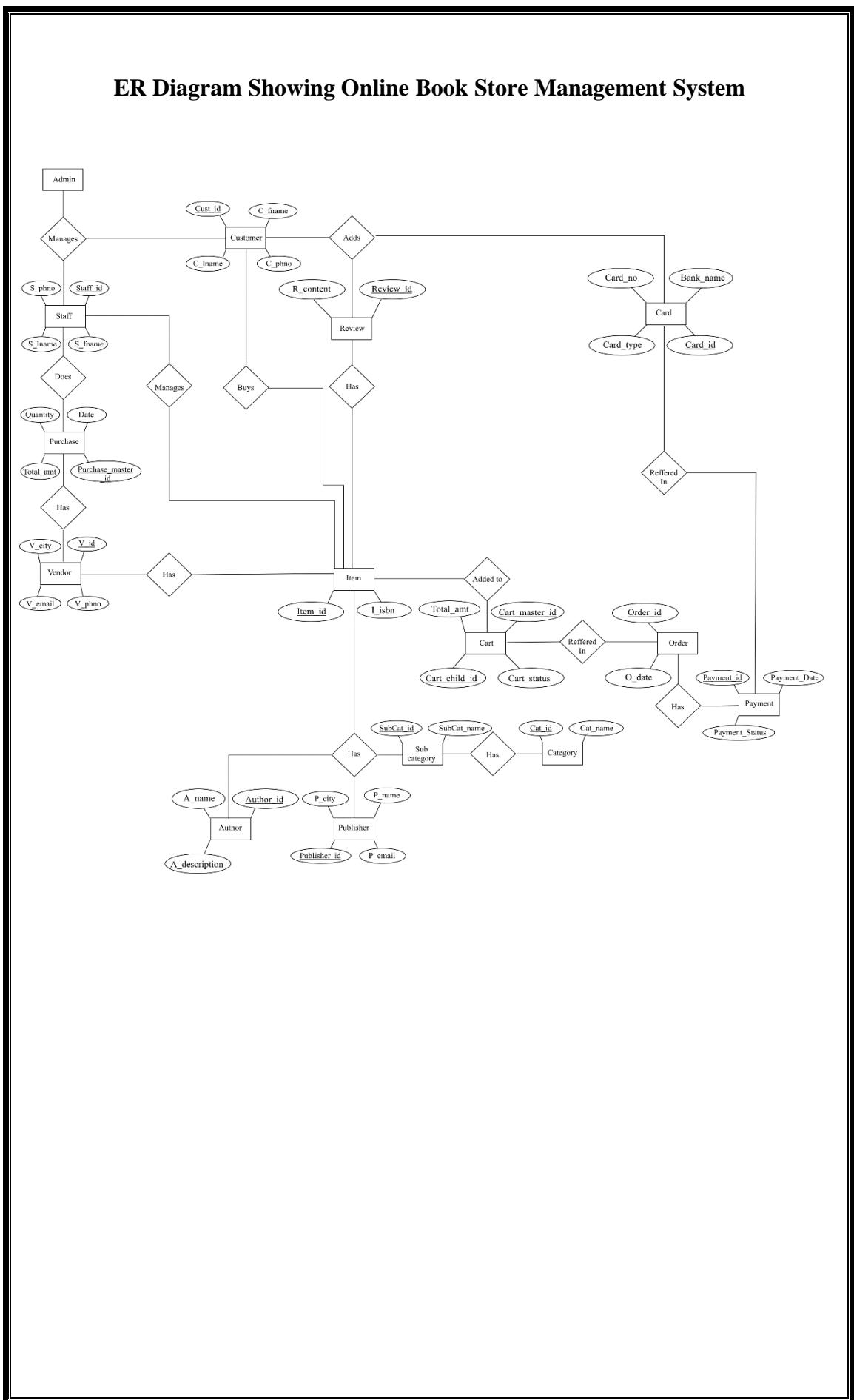
Attribute



Key attribute



Multivalued Attribute



4.1 INPUT DESIGN

Input design is the process of converting a user-oriented description of the inputs to a computer-based system into a programmer-oriented specification. The quality of system input determines the quality of system output. Input specification describes the manner in which data enter the system for processing. Input design features can ensure the reliability of the system and produce result from accurate data or they can result in the production of errors. The input design also determines whether the user can interact efficiently with the system.

Input design requires consideration of the needs of the data entry operator. Three data entry considerations are:

- The field length must be documented
- The sequence of fields must match the sequence of the fields on the source document.
- The data format must be identified to the data entry operator.

In our system almost all inputs are being taken from the databases. To provide adequate inputs we have to select necessary values from the databases and arrange it to the appropriate controls.

Inaccurate input data are the most common cause of errors in data processing. Errors entered by data entry can be controlled by input design. Input design is the process of converting user-oriented inputs to a computer-based format. There are three major approaches for entering data into the computer. They are menus, formatted forms and prompts. A menu is a selection list that simplifies computer data access or entry. Instead of remembering what to enter, the user choices from the list of option. A formatted form is a preprinted form or a template that request the user to enter data in appropriate location. It is a fill-in-the-blank type form. The form is flashed on the screen as a unit. In prompt the system displays one enquiry at a time, asking the user for a response.

Home Page

Description: This is the home page for all unauthenticated users

The screenshot shows the homepage of the Bookmart website. At the top, there's a navigation bar with the Bookmart logo, a search bar, and buttons for 'LOGIN' and 'SIGNUP'. Below the header, a large banner features the text 'Best Books, Best Prices.' and an illustration of a person sitting cross-legged on books. A sub-section titled 'Latest Arrivals' displays a grid of twelve book covers with their titles and authors. The footer contains links for social media, payment methods, and legal information.

Book Title	Author	Price
The Alchemist	Paulo Coelho	₹196.00
Diary of a Wimpy Kid : Rodrick Rules	Jeff Kinney	₹296.00
Paathumayude Aadu	Valkom Muhammad Basheer	₹135.00
Five Feet Apart	Rachael Lippincott	₹308.00
Five Point Someone	Chetan Bhagat	₹163.00
And then there were none	Agatha Christie	₹198.00
WINGS OF FIRE	A.P. Abdul Kalam	₹247.00
Steve Jobs	Walter Isaacson	₹387.00
The Davinci Code	Dan Brown	₹280.00
HARRY POTTER AND THE CHAMBER OF SECRETS	J.K. Rowling	₹284.00
HARRY POTTER AND THE HALF-BLOOD PRINCE	J.K. Rowling	₹414.00
HARRY POTTER AND THE DEATHLY HALLOWS	J.K. Rowling	₹586.00
HARRY POTTER AND THE PRISONER OF AZKABAN	J.K. Rowling	₹327.00

Login Form

Description: This is the Login page for all the users

The screenshot shows the Bookmart website's login interface. At the top, there is a navigation bar with the Bookmart logo, a 'BUY' dropdown menu, a search bar containing the placeholder 'Search by title, author or isbn', and two buttons: 'LOGIN' (dark blue) and 'SIGNUP' (orange). Below the navigation is a large, central 'Login' form. This form has three input fields: 'Email' (with a mail icon), 'password' (with a lock icon), and 'confirm password' (with a lock icon). Below these fields is a large orange 'LOGIN' button.

Signup Form

Description: This is the Signup page for customers

The screenshot shows the Bookmart website's signup interface. It features a similar layout to the login page, with the Bookmart logo, 'BUY' dropdown, search bar, and 'LOGIN'/'SIGNUP' buttons at the top. The central 'Sign Up' form contains three input fields: 'Email' (mail icon), 'password' (lock icon), and 'confirm password' (lock icon). A large orange 'SIGNUP' button is positioned at the bottom of the form.

Edit Customer Details Form

Description: This Form is used to edit customer details by the customer.

The screenshot shows the Bookmart website's customer profile editing interface. At the top, there's a navigation bar with the Bookmart logo, a search bar, and account-related links. Below the header, a modal window titled "Your Details" displays various customer information fields. The fields include First name (alvin), Last name (lal), House name (kutekudiyil), City (puthecruse), District (ernakulam), Pincode (682319), and Phone (9207248664). An orange "UPDATE" button is centered at the bottom of the modal.

Customer Cards Form

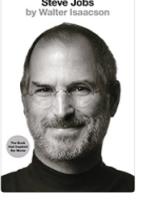
Description: This Form is used to edit card details by the customer.

The screenshot shows the Bookmart website's card management interface. At the top, there's a navigation bar with the Bookmart logo, a search bar, and account-related links. Below the header, a modal window titled "Add Card" allows users to input card details: Card Number (1234567812345678), Name on Card (alvin), CVV (123), and Expiry date (03/2025). An orange "ADD" button is at the bottom. Below this, a section titled "Your Cards" displays two existing cards. Each card row includes fields for Card Number (1234567891234567 and 1234567891234567), Name on Card (alan and alin), and CVV (123 and 123). For each card, there are orange "EDIT" buttons and red "DELETE" buttons.

Payment Form

Description: This Form is used to select payment card before ordering.

Confirmation

	Paathumayude Aadu	
	Quantity	1
	Price	₹135.00
	Total	₹135.00
	Steve jobs	
	Quantity	1
	Price	₹387.00
	Total	₹387.00

Address
Name : alvin lal
housename : kutekudiyil
city : puthecruze
district : ernakulam
pincode : 682319
phone : 9207248664

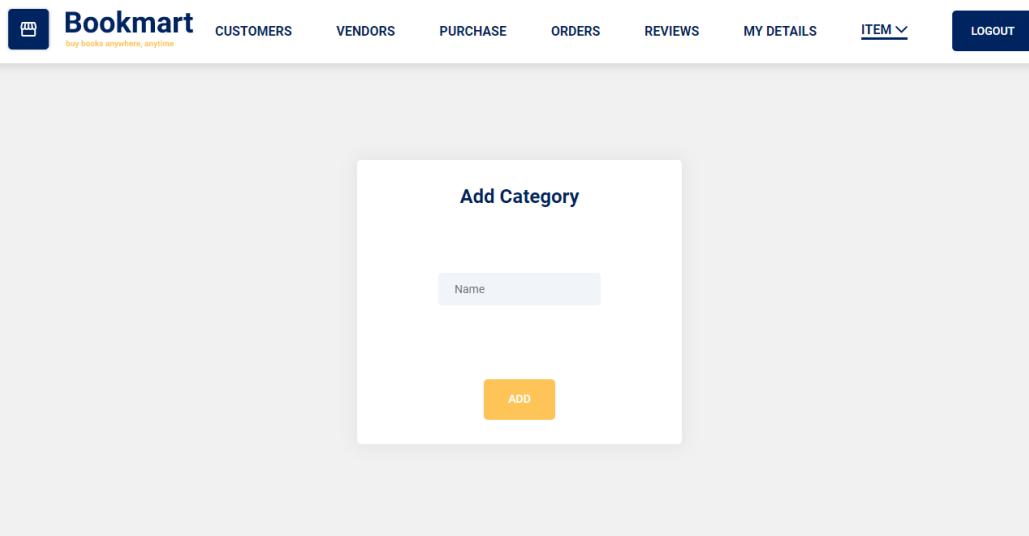
Payment Details
 Card ending in 5678
 Card ending in 4567

Order summary
Total Quantity 2
Total Amount ₹522.00

Buttons
EDIT ADD CARD CHECKOUT

Category Add Form

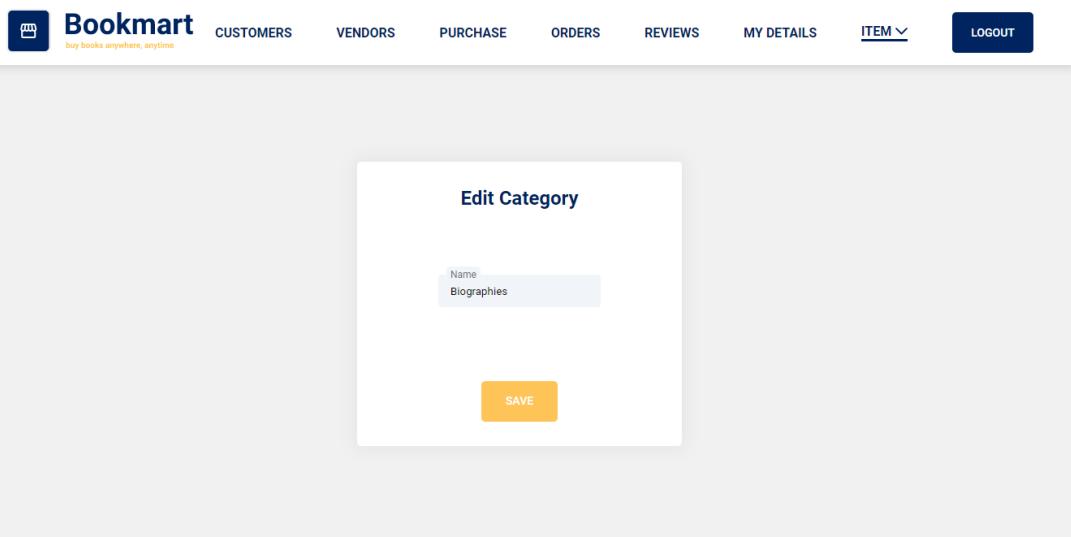
Description: This form is used to add new category



The screenshot shows the Bookmart website interface with a navigation bar at the top. The navigation items include CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, ITEM (with a dropdown arrow), and LOGOUT. Below the navigation bar, a central modal window titled "Add Category" is displayed. Inside the modal, there is a single input field labeled "Name" with the placeholder "Biographies". At the bottom of the modal is a yellow "ADD" button.

Category Edit Form

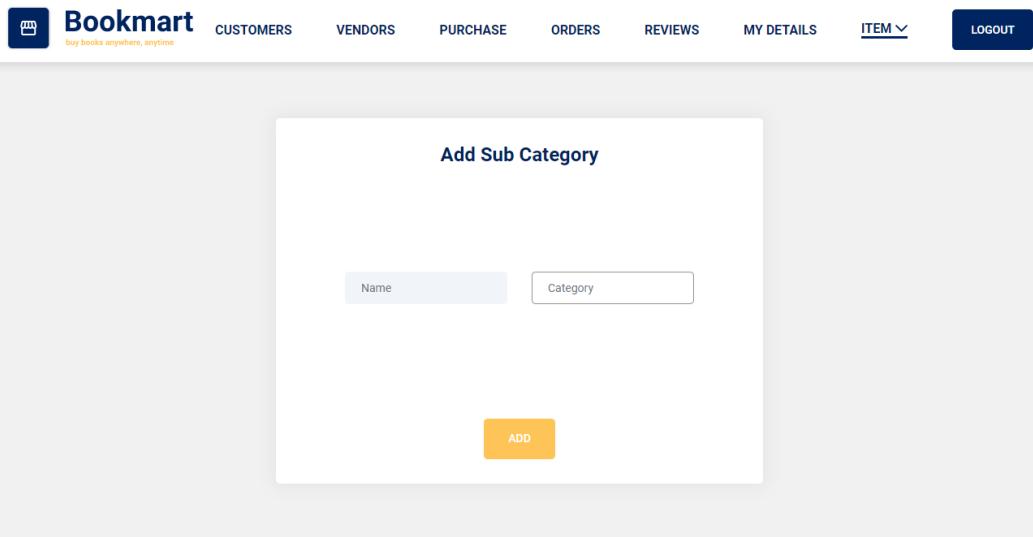
Description: This form is used to edit a category



The screenshot shows the Bookmart website interface with a navigation bar at the top. The navigation items include CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, ITEM (with a dropdown arrow), and LOGOUT. Below the navigation bar, a central modal window titled "Edit Category" is displayed. Inside the modal, there is an input field labeled "Name" containing the value "Biographies". Below the input field is another input field labeled "Biographies". At the bottom of the modal is a yellow "SAVE" button.

SubCategory Add Form

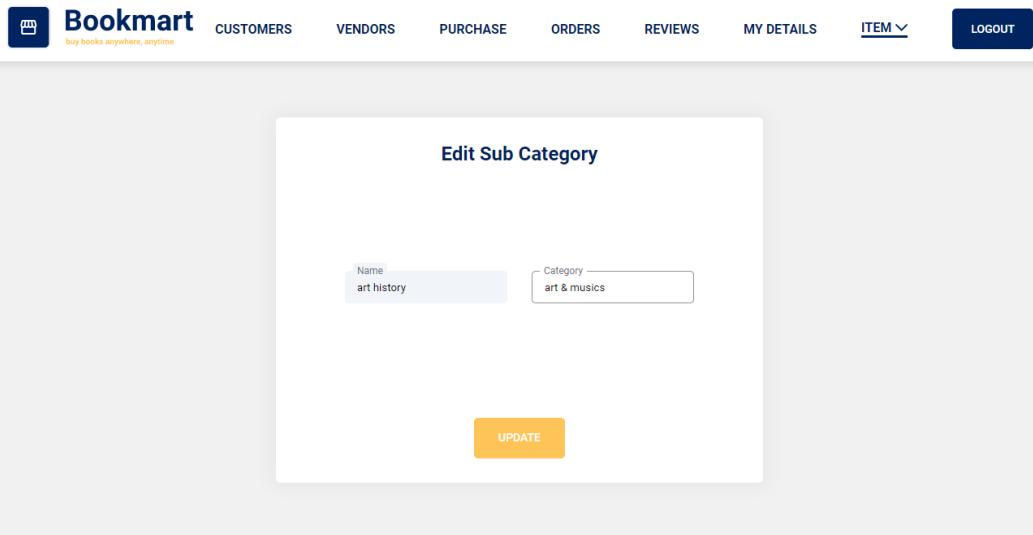
Description: This form is used to add new sub category



The screenshot shows a subcategory addition form titled "Add Sub Category". It features two input fields: "Name" (containing "art history") and "Category" (containing "art & musics"). A central "ADD" button is present.

SubCategory Edit Form

Description: This form is used to edit a sub category



The screenshot shows a subcategory editing form titled "Edit Sub Category". It displays the current values: "Name" (art history) and "Category" (art & musics). An "UPDATE" button is located at the bottom.

Publisher Add Form

Description: This form is used to add new publisher.

The screenshot shows the Bookmart website's header with links for CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, ITEM, and LOGOUT. A central modal window titled "Add Publisher" contains input fields for Name (Bloomsbury Publishing), City (kochi), District (ernakulam), Pincode (682310), Email (bloomsbury@gmail.com), and Phone Number (5656565656). An orange "ADD" button is at the bottom right of the modal.

Publisher Edit Form

Description: This form is used to edit a publisher.

The screenshot shows the Bookmart website's header with links for CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, ITEM, and LOGOUT. A central modal window titled "Edit Publisher" displays the current details for Bloomsbury Publishing: Name (Bloomsbury Publishing), City (kochi), District (ernakulam), Pincode (682310), Email (bloomsbury@gmail.com), and Phone Number (5656565656). An orange "SAVE" button is at the bottom right of the modal.

Author Add Form

Description: This form is used to add an Author.

The screenshot shows the Bookmart website interface. At the top, there is a navigation bar with links for CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, ITEM (with a dropdown arrow), and LOGOUT. Below the navigation bar, a central modal window titled "Add Author" is displayed. Inside the modal, there is a single input field labeled "Name" containing the placeholder text "JK Rowling". At the bottom of the modal is a yellow "ADD" button. The background of the page is light gray.

Author Edit Form

Description: This form is used to edit an Author

The screenshot shows the Bookmart website interface. At the top, there is a navigation bar with links for CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, ITEM (with a dropdown arrow), and LOGOUT. Below the navigation bar, a central modal window titled "Edit Author" is displayed. Inside the modal, there is a single input field labeled "Name" containing the placeholder text "JK Rowling". At the bottom of the modal is a yellow "SAVE" button. The background of the page is light gray.

Item Add Form

Description: This form is used to add a new item.

Bookmart buy books anywhere, anytime

STAFFS CUSTOMERS VENDORS PURCHASE ORDERS REVIEWS MY DETAILS REPORT ITEM LOGOUT

Add Item

<div style="width: 150px;

Staff Add Form

Description: This Form is used to add a new staff.

The screenshot shows the 'Add Staff' form. It includes input fields for personal information like first name, last name, house name, city, district, pincode, phone number, email, and date of joining. There is also a placeholder for a photo. An orange 'ADD' button is centered at the bottom of the form.

Staff Edit Form

Description: This Form is used to edit a staff.

The screenshot shows the 'Edit Staff' form. It displays the current values for each field: first name (test), last name (staff), house name (testhouse), city (testcity), district (testdistrict), pincode (622310), phone number (9207248664), and date of joining (11-10-2021). An orange 'SAVE' button is located at the bottom of the form.

Customer Edit Form

Description: This Form is used to edit a customer.

The screenshot shows the 'Edit Customer' form within the Bookmart application. The form contains fields for First name (alan), Last name (lal), House name (housename), City (city), District (district), Pincode (682310), and Phone Number (9207248664). A 'SAVE' button is located at the bottom right of the form.

Vendor Add Form

Description: This Form is used to add a new vendor.

The screenshot shows the 'Add Vendor' form within the Bookmart application. The form contains fields for Name, City, District, Pincode, Email, and Phone Number. A 'ADD' button is located at the bottom right of the form.

Vendor Edit Form

Description: This Form is used to edit a vendor.

The screenshot shows a 'Edit Vendor' dialog box. It contains six input fields arranged in two columns. The left column has 'Name' (janes) and 'District' (kochi). The right column has 'City' (ernakulam) and 'Pincode' (565656). Below these are 'Email' (janes@gmail.com) and 'Phone Number' (5854565252). At the bottom is a yellow 'SAVE' button.

Purchase Add Form

Description: This Page is used to add a new purchase.

The screenshot shows an 'Add Purchase' dialog box. It includes fields for 'Vendor' and 'Purchase Date'. Below these are five input boxes: 'Item', 'Purchase Price', 'Quantity', 'Profit Percentage', and 'Selling Price'. A green '+' icon is positioned next to the 'Selling Price' box. At the bottom is a yellow 'ADD' button.

Edit Staff Details Form

Description: This Form is used to edit staff details by the staff.

The screenshot shows a web application interface for 'Bookmart'. At the top, there is a navigation bar with links for 'CUSTOMERS', 'VENDORS', 'PURCHASE', 'ORDERS', 'REVIEWS', 'MY DETAILS' (which is underlined, indicating it's the active page), 'REPORT', 'ITEM', and 'LOGOUT'. Below the navigation bar, a modal window titled 'MY DETAILS' is displayed. Inside the modal, there are several input fields: 'First name' (alvinl), 'Last name' (hello), 'House name' (housename), 'City' (city), 'District' (districtve), 'Pincode' (682310), 'Phone Number' (9207248664), and 'New Password'. There is also a 'Confirm Password' field which is currently empty. At the bottom right of the modal is a yellow 'SAVE' button.

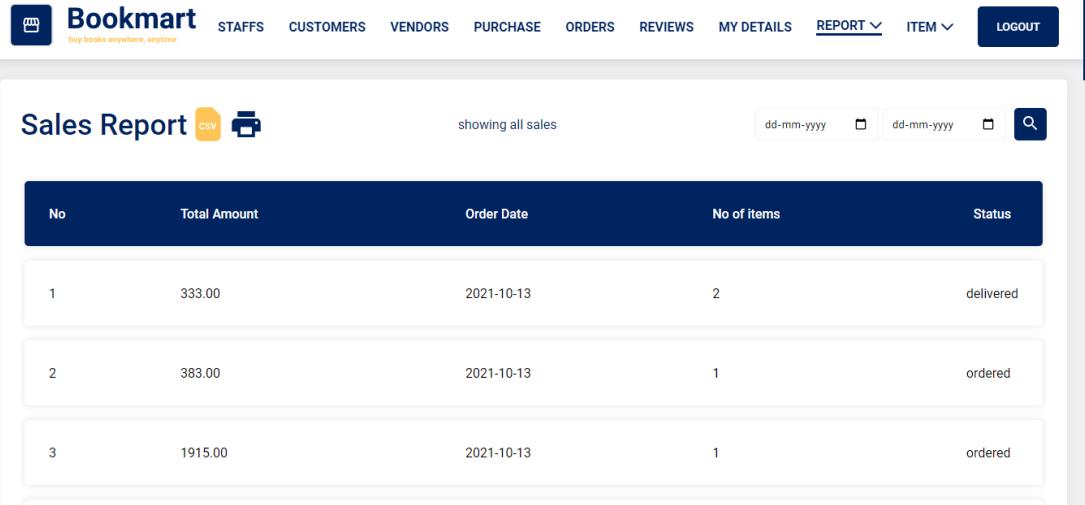
Edit Admin Details Form

Description: This Form is used to edit admin details.

The screenshot shows a web application interface for 'Bookmart'. At the top, there is a navigation bar with links for 'STAFFS', 'CUSTOMERS', 'VENDORS', 'PURCHASE', 'ORDERS', 'REVIEWS', 'MY DETAILS' (underlined), 'REPORT', 'ITEM', and 'LOGOUT'. Below the navigation bar, a modal window titled 'MY DETAILS' is displayed. Inside the modal, there are two input fields: 'Name' (alvin lal) and 'New Password'. There is also a 'Confirm Password' field which is currently empty. At the bottom right of the modal is a yellow 'SAVE' button.

Sales Report Form

Description: This Form is used to generate sales report

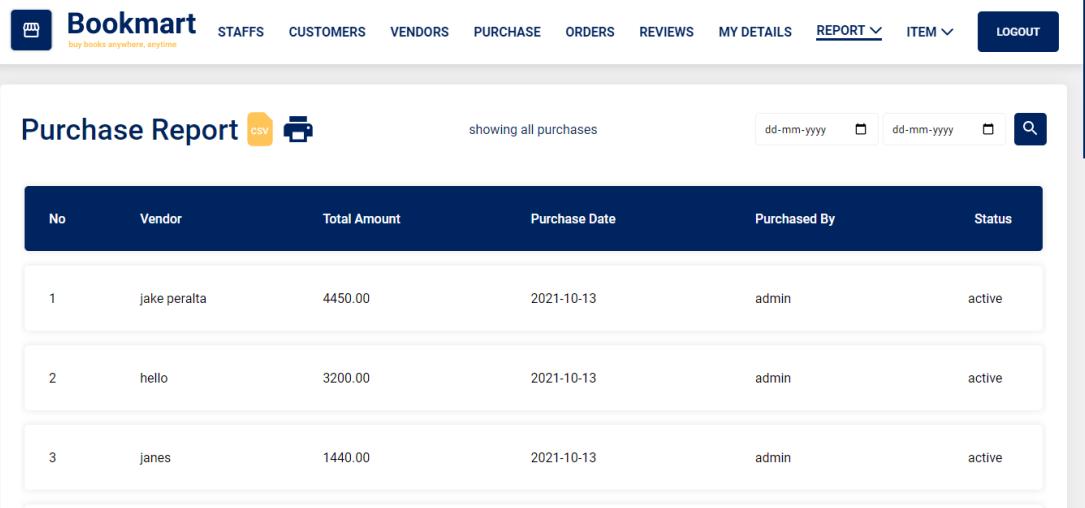


The screenshot shows a table titled "Sales Report" with three rows of data. The columns are labeled "No", "Total Amount", "Order Date", "No of items", and "Status".

No	Total Amount	Order Date	No of items	Status
1	333.00	2021-10-13	2	delivered
2	383.00	2021-10-13	1	ordered
3	1915.00	2021-10-13	1	ordered

Purchase Report Form

Description: This Form is used to generate purchase report



The screenshot shows a table titled "Purchase Report" with three rows of data. The columns are labeled "No", "Vendor", "Total Amount", "Purchase Date", "Purchased By", and "Status".

No	Vendor	Total Amount	Purchase Date	Purchased By	Status
1	jake peralta	4450.00	2021-10-13	admin	active
2	hello	3200.00	2021-10-13	admin	active
3	janes	1440.00	2021-10-13	admin	active

Staff Report Form

Description: This Form is used to generate staff report

The screenshot shows a 'Staff Report' page from the Bookmart website. At the top, there's a navigation bar with links for STAFFS, CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, REPORT (with a dropdown arrow), ITEM (with a dropdown arrow), and LOGOUT. Below the navigation is a search bar with date pickers for 'dd-mm-yyyy' and a search icon. The main content area is titled 'Staff Report' with CSV and Print icons. It displays a table with the following data:

No	Firstname	Lastname	House name	City	District	Pincode	Phone	Date of joining	Email	Status
1	thklnsdfg	kdghknk	ahgkhkgf	aglfghl	afdglijl	682310	9207248664	2021-09-22	ahjgsdkgd@gsdkhg.com	active
2	adradfg	kgadgb	jskanfgjlk	dfhkfh	adgln	682311	7894561232	2021-10-07	ahdsfgs@hsdff.com	active
3	alvin	lal	hous	city	district	682310	9207248664	2021-10-08	sf@gmail.com	active

Customer Report Form

Description: This Form is used to generate customer report

The screenshot shows a 'Customer Report' page from the Bookmart website. The layout is similar to the Staff Report page, with a navigation bar, search bar, and a table below. The table displays the following data:

No	Firstname	Lastname	House name	City	District	Pincode	Phone	Email	Joining date	Status
1	alvin	lal	kutekudiyil	puthecruze	ernakulam	682319	9207248664	customer@gmail.com	2021-11-18	active
2	harry	potter	hogwarts	city	district	666666	9207248664	customer99@gmail.com	2021-11-20	active
3	adfs	lkjl	ghkh	khnjkh	oikhjl	856523	9207248664	customer77@gmail.com	2021-11-25	active

4.2 OUTPUT DESIGN

One of the important features of an information system for users is the output it produces. Output is the information delivered to users through the information system. Without quality output, the entire system appears to be unnecessary that users will avoid using it. Users generally merit the system solely by its output. In order to create the most useful output possible. One works closely with the user through an interactive process, until the result is considered to be satisfactory.

Output design has been an ongoing activity almost from the beginning of the project. In the study phase, outputs were identified and described general in the project directive. A tentative output medium was then selected and sketches made for each output. In the feasibility analysis, a “best” new system was selected; its description identified the input and output media. In the design phase the system has included an evaluation and selection of specific equipment for the system.

Outputs from computer systems are required primarily to communicate the results of processing to the user. They are also used to provide a permanent copy of these results for later consultation.

View Category Page

Description: This page shows all the category of items in the bookstore

No	Name	Status	Actions
1	art & musics	active ▾	Edit
2	Biographies	active ▾	Edit
3	Comics	active ▾	Edit
4	Education	active ▾	Edit

View SubCategory Page

Description: This page shows all the Subcategories in the bookstore

No	Name	Category	Status	Actions
1	art history	art & musics	active ▾	Edit
2	Calligraphy	art & musics	active ▾	Edit
3	Drawing	art & musics	active ▾	Edit
4	Fashion	art & musics	active ▾	Edit

View Publisher Page

Description: This page shows all the Publishers in the bookstore.

No	Name	City	District	Pincode	Phone	Email	Status	Actions
1	Bloomsbury Publishing	kochi	ernakulam	682310	5656565656	bloomsbury@gmail.com	active ▾	
2	HarperCollins Publishers	tripunithura	ernakulam	682345	9207248664	harper@gmail.com	active ▾	
3	Whitehall	trivandrum	trivandrum	585456	8956237845	whitehall@gmail.com	active ▾	
4	Random House	muvattupuzha	ernakulam	898989	8527419635	randomhouse@omail.com	active ▾	

View Author Page

Description: This page shows all the authors in the page.

No	Name	Status	Actions
1	JK Rowling	active ▾	
2	Agatha Christie	active ▾	
3	Jane Austen	active ▾	
4	Paul kalanithi	active ▾	

View Item Page

Description: This page shows all the items.

The screenshot shows the Bookmart Item Management interface. At the top, there's a navigation bar with links for CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, MY DETAILS, ITEM (which is underlined), and LOGOUT. Below the navigation is a search bar with dropdowns for Title, Operator (=), and Value, followed by a search icon. The main area is titled "Items" with a green plus sign button and a CSV export option. A table lists three Harry Potter books with columns for Cover, No, Title, Author, Publisher, Category, Sub category, Price, Stock, No of pages, Language, and ISBN. The first book is "Harry potter and the prisoner of azkaban" by JK Rowling, published by Bloomsbury Publishing, categorized as Novels & Fictional, priced at 327.00, with 12 stock and 480 pages, in English, ISBN 9780552158210. The second book is "Harry Potter And The Deathly Hallows" by JK Rowling, published by Bloomsbury Publishing, categorized as Novels & Fictional, priced at 586.00, with 15 stock and 640 pages, in English, ISBN 9780552158279. The third book is "Harry Potter and the Half Blood Prince" by JK Rowling, published by Bloomsbury Publishing, categorized as Novels & Fictional, priced at 414.00, with 12 stock and 560 pages, in English, ISBN 9780552158286.

Cover	No	Title	Author	Publisher	Category	Sub category	Price	Stock	No of pages	Language	ISBN
	1	Harry potter and the prisoner of azkaban	JK Rowling	Bloomsbury Publishing	Novels	Fictional	327.00	12	480	English	9780552158210
	2	Harry Potter And The Deathly Hallows	JK Rowling	Bloomsbury Publishing	Novels	Fictional	586.00	15	640	English	9780552158279
	3	Harry Potter and the Half Blood Prince	JK Rowling	Bloomsbury Publishing	Novels	Fictional	414.00	12	560	English	9780552158286

View Staffs Page

Description: This Page is used to show all the staffs.

The screenshot shows the Bookmart Staff Management interface. At the top, there's a navigation bar with links for STAFFS (which is underlined), CUSTOMERS, VENDORS, PURCHASE, ORDERS, REVIEWS, REPORT, MY DETAILS, ITEM (underlined), and LOGOUT. Below the navigation is a search bar with dropdowns for Firstname, Operator (=), and Value, followed by a search icon. The main area is titled "Staffs" with a green plus sign button and a CSV export option. A table lists four staff members with columns for No, Firstname, Lastname, House name, City, District, Pincode, Phone, Date of joining, Email, Status, and Actions. The first staff member is alvinl, hello, housename, city, district, 682310, 9207248664, 2021-09-06, staff@gmail.com, active. The second staff member is test, staff, testhouse, testcity, testdistrict, 622310, 9207248664, 2021-10-11, staff3@bookmart.com, active. The third staff member is asfd, asdf, safda, asdf, asdgadhafsd, 682310, 9207248664, 2021-10-11, asfdas@asdf.com, active. The fourth staff member is asdha, sdfhdof, asdfhod, ashadsa, asdffha, 682310, 9207248664, 2021-10-12, asdhreh@dah.com, active.

No	Firstname	Lastname	House name	City	District	Pincode	Phone	Date of joining	Email	Status	Actions
1	alvinl	hello	housename	city	district	682310	9207248664	2021-09-06	staff@gmail.com	active	
2	test	staff	testhouse	testcity	testdistrict	622310	9207248664	2021-10-11	staff3@bookmart.com	active	
3	asfd	asdf	safda	asdf	asdgdhafsd	682310	9207248664	2021-10-11	asfdas@asdf.com	active	
4	asdha	sdfhdof	asdfhod	ashadsa	asdffha	682310	9207248664	2021-10-12	asdhhreh@dah.com	active	

View Customers Page

Description: This Page is used to show all the customers.

No	Firstname	Lastname	House name	City	District	Pincode	Phone	Email	Status	Actions
1	alvin	lal	kutekudiyil	puthecruse	ernakulam	682319	9207248664	customer@gmail.com	active ✓	
2	alan	lal	housename	city	district	682310	9207248664	customer2@gmail.com	active ✓	
3	alex	lal	house	city	dis	865623	9207248664	customer3@gmail.com	active ✓	

View Vendors Page

Description: This Page is used to show all the vendors.

No	Name	City	District	Pincode	Phone	Email	Added By	Status	Actions
1	john do	asdf	asdfajl	682311	9207248664	joe@gmail.com	admin	active ✓	
2	janes	ernakulam	kochi	565656	5854565252	janes@gmail.com	admin	active ✓	
3	jake peralta	newyork	brooklyn	565656	5656565656	jacobine@gmail.com	admin	active ✓	
4	hallo	world	hnow	565656	5656565656	grounudhina@gmail.com	admin	active ✓	

View Purchase Page

Description: This Page is used to show all the purchases.

No	Vendor	Total Amount	Purchase Date	Purchased By	Status	Actions
1	jake peralta	4450.00	2021-10-13	admin	active ✓	
2	janes	6400.00	2021-10-14	admin	active ✓	
3	hello	15742.00	2021-10-14	admin	active ✓	
4	test	3475.00	2021-10-16	admin	active ✓	

Purchase View Page

Description: This Page is used to view a particular purchase.

Item	Purchase Price	Quantity
Harry potter and the prisoner	150.00	10
Harry Potter And The Deathly	160.00	5
Harry Potter and the Half Blo	200.00	7
Harry Potter and the Chambe	250.00	3

View Cart Page

Description: This Page shows the cart.

Cart Summary		
No of books	3	
Total	₹685.00	
BUY NOW		

View Reviews Page

Description: This Page shows all the reviews.

No	Firstname	Lastname	Date	Review	Status
1	alvin	lal	2021-11-29	nice book	active ▾
2	alvin	lal	2021-11-27	Nice 😊	active ▾
3	alan	lal	2021-11-27	nice book	active ▾

View Orders Page

Description: This Page shows all the orders.

No	Total Amount	Order Date	No of items	Status	Actions
1	990.00	2021-12-05	1	ordered	
2	396.00	2021-12-01	1	ordered	
3	3300.00	2021-12-01	3	ordered	

View Customer Orders Page

Description: This Page is used by the customers for viewing orders made by them

No	Total Amount	Order Date	No of items	Status	Actions
1	2388.00	2021-11-30	1	ordered	
2	1463.00	2021-11-29	4	ordered	
3	308.00	2021-11-29	1	delivered	

View Sales Reports Page

Description: This Page shows the sales reports

No	Total Amount	Order Date	No of items	Status
1	383.00	2021-10-13	1	ordered
2	1915.00	2021-10-13	1	ordered
3	2345.00	2021-10-13	5	delivered

View Purchase Reports Page

Description: This Page shows the purchase reports

No	Vendor	Total Amount	Purchase Date	Purchased By	Status
1	jake peralta	4450.00	2021-10-13	admin	active
2	hello	3200.00	2021-10-13	admin	active
3	janes	1440.00	2021-10-13	admin	active

View Staff Reports Page

Description: This Page shows the staff reports

The screenshot shows a report titled "Report Type : Staff report" generated by "admin@bookmart.com" on "Sun Dec 05 2021 23:37:04 GMT+0530 (India Standard Time)". The table has columns: No, Firstname, Lastname, House name, City, District, Pincode, Phone, Date of joining, Email, and Status. There are three entries:

No	Firstname	Lastname	House name	City	District	Pincode	Phone	Date of joining	Email	Status
1	thkinsdfg	kdghknk	ahgkhkgf	aglfghl	afdglijl	682310	9207248664	2021-09-22	ahjgsdkgd@gSDKhg.com	active
2	adradfg	kgadgb	jskanfgjlk	dfhlkfh	adgin	682311	7894561232	2021-10-07	ahdsfgs@hsdff.com	active
3	alvin	lal	hous	city	district	682310	9207248664	2021-10-08	sf@gmail.com	active

View Customer Reports Page

Description: This Page shows the customer reports

The screenshot shows a report titled "Report Type : Customer report" generated by "admin@bookmart.com" on "Sun Dec 05 2021 23:33:44 GMT+0530 (India Standard Time)". The table has columns: No, Firstname, Lastname, House name, City, District, Pincode, Phone, Email, Joining date, and Status. There are three entries:

No	Firstname	Lastname	House name	City	District	Pincode	Phone	Email	Joining date	Status
1	alvin	lal	kutekudiyil	puthecruze	ernakulam	682319	9207248664	customer@gmail.com	2021-11-18	active
2	harry	potter	hogwarts	city	district	666666	9207248664	customer99@gmail.com	2021-11-20	active
3	adfs	lkjl	ghkh	khnjkh	olkhjj	856523	9207248664	customer77@gmail.com	2021-11-25	active

4.3 DATABASE DESIGN

4.3.1 Normalization

Designing a database is a complex task and the normalization theory is a useful aid in this design process. The process of normalization is concerned with transformation of conceptual schema into computer representation form.

A bad database design may lead to certain undesirable situations such as:

- Repetition of information
- Inability to represent certain information
- Loss of information

To minimize these anomalies, normalization may be used. If the database is in a normalized form, the data can be restructured and can maintain it easily. This is important that the databases using that we are using may free from data redundancy and inconsistency. For this need we maintain the tables in a normalized manner.

First Normal Form

A relation is in first Normal Form (1NF), if and only if all its attributes are based on single domain. The objective of normalizing a table is in to remove its repeating groups and ensure that all entries of the resulting table have at most single value.

Second Normal Form

A table is said to be in second Normal Form (2NF), when it is in 1 NF and every attribute in the record is functionally dependent upon the whole key, and not just a part of the key.

Third Normal Form

A table is in third Normal Form (3NF), when it is in 2NF and every non-key attribute is functionally dependent on just the primary key.

Table Name: tbl_Login

Description: stores the login details of users in the system.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Username	Varchar (255)	Primary Key	User email
User_type	Varchar (8)	Not null	User type
User_status	Varchar (7)	Not null	User status
Password	Varchar (72)	Not null	Password
Added_date	Date	Not null	Added date

Table Name: tbl_Staff

Description: stores the details of staff.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Staff_id	Int	Primary Key	Unique id of staff
Username	Varchar (255)	Foreign key	Staff email
S_phno	Numeric (10)	Not null	Staff phone number
S_fname	Varchar (30)	Not null	Staff first name
S_lname	Varchar (30)	Not null	Staff last name
S_housename	Varchar (30)	Not null	Staff house name
S_city	Varchar (30)	Not null	Staff city
S_district	Varchar (30)	Not null	Staff district
S_pin	Numeric (6)	Not null	Staff Pin code

Table Name: tbl_Customer**Description:** stores the details of customer.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Cust_id	Int	Primary Key	Unique id of customer
Username	Varchar (255)	Foreign key	Customer email
C_phno	Numeric (10)	Unique	Customer phone number
C_fname	Varchar (30)	Not null	Customer first name
C_lname	Varchar (30)	Not null	Customer last name
C_housename	Varchar (30)	Not null	Customer house name
C_city	Varchar (30)	Not null	Customer city
C_district	Varchar (30)	Not null	Customer district
C_pin	Numeric (6)	Not null	Customer Pin code

Table Name: tbl_Admin**Description:** stores the login details of admin in the system.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Username	Varchar (255)	Primary Key	Admin email
Name	Varchar (50)	Not null	Admin name

Table Name: tbl_Category

Description: stores the details of category.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Cat_id	Int	Primary Key	Category ID
Cat_name	Varchar (30)	Not null	Category Name
Cat_status	Varchar (7)	Not null	Category status

Table Name: tbl_SubCategory

Description: stores the details of sub category.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
SubCat_id	Int	Primary Key	Sub-Category ID
Cat_id	Int	Foreign key	Category ID
SubCat_name	Varchar (30)	Not null	Sub-Category Name
SubCat_status	Varchar (7)	Not null	Sub-category status

Table Name: tbl_Publisher

Description: stores the details of publisher.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Publisher_id	Int	Primary Key	Publisher ID
P_phno	Numeric (10)	Unique	Publisher phone number
P_email	Varchar (50)	Unique	Publisher email
P_name	Varchar (30)	Not null	Publisher name
P_city	Varchar (30)	Not null	Publisher city
P_district	Varchar (30)	Not null	Publisher district
P_pin	Numeric (10)	Not null	Publisher Pin code
P_status	Varchar (7)	Not null	Publisher status

Table Name: tbl_Author

Description: stores the details of author.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Author_id	Int	Primary Key	Author ID
A_name	Varchar (60)	Not null	Author name
A_status	Varchar (7)	Not null	Author status

Table Name: tbl_Item

Description: stores the details of item.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Item_id	Int	Primary Key	Item ID
Author_id	Varchar (10)	Foreign key	Author ID
Publisher_id	Varchar (10)	Foreign key	Publisher ID
SubCat_id	Varchar (10)	Foreign key	Sub Category ID
I_cover_image	Varchar (16)	Unique	Filename of the cover image
I_isbn	Numeric (13)	Unique	International standard book number of the book
I_title	Varchar (100)	Not null	Title of book
I_description	text	Not null	Item description
I_price	Decimal (8,2)	Not null	Item price
I_stock	Int	Not null	Number of items in stock
I_no_of_pages	Int	Not null	Number of pages in the book
I_language	Varchar (10)	Not null	Language of the book
I_date_added	Date	Not null	Date when the book was added.
I_status	Varchar (7)	Not null	Status of the book

Table Name: tbl_Vendor**Description:** stores the details of vendor.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
V_id	Int	Primary key	Unique id of vendor
V_added_by	Varchar (255)	Foreign key	Username of staff or admin
V_phno	Varchar (10)	Not null	Vendor phone number
V_email	Varchar (50)	Not null	Vendor email
V_name	Varchar (60)	Not null	Vendor name
V_city	Varchar (30)	Not null	Vendor city
V_district	Varchar (30)	Not null	Vendor district
V_pin	Numeric (6)	Not null	Vendor pincode
V_status	Varchar (7)	Not null	Status of the vendor (active or deleted)

Table Name: tbl_Purchase_master

Description: stores the details of purchase master.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Purchase_master_id	Int	Primary Key	Purchase Master ID
Purchased_by	Varchar (255)	Foreign key	Username of staff or admin
Total_amt	Decimal (8,2)	Not null	Total amount of all items purchased
Purchase_date	Date	Not null	Date of purchase
Vendor_id	Int	Foreign key	Vendor ID
Status	Varchar (7)	Not null	Status of the purchase (active or deleted)

Table Name: tbl_Purchase_child

Description: stores the details of purchase child.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Purchase_child_id	Int	Primary Key	Purchase Child ID
Purchase_master_id	Int	Foreign key	Purchase Master ID
Item_id	Varchar (10)	Foreign key	item ID
Purchase_price	Decimal (8,2)	Not null	Purchase price of the item
Quantity	Int	Not null	Number of items purchased

Total_price	Decimal (8,2)	Not null	purchase_price X quantity
-------------	---------------	----------	------------------------------

Table Name: tbl_Cart_master

Description: stores the details of cart master.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Cart_master_id	Int	Primary Key	Cart Master ID
Username	Varchar (10)	Foreign key	Customer username
Cart_status	Varchar(7)	Not null	Status of cart
Total_amt	Decimal (8,2)	Not null	Total amount of all items in cart

Table Name: tbl_Cart_child

Description: stores the details of cart child.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Cart_child_id	Int	Primary Key	Cart Child ID
Cart_master_id	Int	Foreign key	Cart Master ID
Item_id	Int	Foreign key	item ID
Quantity	Int	Not null	Quantity of item
Total_price	Decimal (8,2)	Not null	Item price X quantity
Added_date	Date	Not null	Date of adding item

Table Name: tbl_Order

Description: stores the details of order.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Order_id	Int	Primary Key	Order ID
Cart_master_id	Int	Foreign key	Cart Master ID
O_date	Date	Not null	Date of ordering
O_status	Varchar(7)	Not null	Status of order

Table Name: tbl_Card

Description: stores the details of card.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Card_id	Int	Primary Key	Card ID
Username	Varchar (10)	Foreign key	Username of the customer
Card_no	Numeric (16)	Unique	Card number
Card_cvv	Varchar (3)	Not null	Card cvv
Card_name	Varchar (60)	Not null	Name on card
Expiry_date	Date	Not null	Expiry date
Card_status	Varchar (7)	Not null	Status of card

Table Name: tbl_Payment

Description: stores the details of payments.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Payment_id	Int	Primary Key	Payment ID
Card_id	Int	Foreign key	Card ID
Order_id	Varchar (10)	Foreign key	Order ID

Table Name: tbl_Review

Description: stores the details of reviews.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Review_id	Int	Primary Key	Review ID
Item_id	Int	Foreign key	Item ID
Username	Varchar (10)	Foreign key	Customer ID
R_content	text	Not null	Review content
R_date	Date	Not null	Review date
R_status	Varchar(7)	Not null	Review status

5.1 INTRODUCTION

Testing is the process of examining the software to compare the actual behavior with that of the expected behavior. The major goal of software testing is to demonstrate that faults are not present. In order to achieve this goal, the tester executes the program with the intent of finding errors. Though testing cannot show absence of errors but by not showing their presence it is considered that these are not present.

System testing is the first Stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operations commences. Testing is vital to the success of the system. System testing makes a logical assumption that if all the parts of the system are correct and the goal will be successfully achieved. A series of testing are performed for the proposed system before the proposed system is ready for user acceptance testing.

Levels of Testing

1. Unit testing
2. Integration testing
3. Validation testing
4. Output testing

Unit testing

In this each module is tested individually before integrating it to the final system. Unit test focuses verification in the smallest unit of software design in each module. This is also known as module testing as here each module is tested to check whether it is producing the desired output and to see if any error occurs.

Integration testing

Integration testing (sometimes called integration and testing, abbreviated I&T) is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before validation testing.

Integration testing takes as its input modules that have been unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing. The purpose of integration testing is to verify functional, performance, and reliability requirements placed on major design items.

Output testing

No system could be useful if it does not produce the required output in the specific format. Output testing is performed to ensure the correctness of the output and its format. The output generated or displayed by the system is tested asking the users about the format required by them.

Validation testing

In software project management, software testing, and software engineering, validation is the process of checking that a software system meets specifications and that it fulfills its intended purpose. The errors which are uncovered during integration testing are connected during this phase.

5.2 TEST CASES

A test plan documents the strategy that will be used to verify and ensure that a product or system meets its design specification and other requirements. A test plan is usually prepared by or with significant input from Test Engineers.

Unit Testing

Form	Procedure	Expected Result	Actual Result	Status
Entry Form	Choose whether to Login or Register, About us			Pass
Login Form	Enter valid username and password	Should validate user and provide link to user accounts	Got entry to accounts	Pass
Staff Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful registration	Message indicating successful registration is shown	Pass
Vendor Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful entered	Message indicating successful registration is shown	Pass
Customer Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful registration	Message indicating successful registration is shown	Pass
Category Form	Enter all mandatory fields	Should validate all entered fields and flash a message	Message indicating successful	Pass

		indicating successful entered	registration is shown	
Sub-Category Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful entered	Message indicating successful registration is shown	Pass
Publisher Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful entered	Message indicating successful registration is shown	Pass
Author Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful entered	Message indicating successful registration is shown	Pass
Item Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful entered.	Message indicating successful registration is shown	Pass
Review Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successful entered		Pass
Purchase Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successfully entered	Message indicating successful registration is shown	Pass
Order Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successfully entered	Message indicating successful registration is shown	Pass

Payment Form	Enter all mandatory fields	Should validate all entered fields and flash a message indicating successfully entered	Message indicating successful registration is shown	Pass
reports	Click the link to show corresponding reports	Should generate reports	Correct report is displayed	Pass

Integration testing

Form	Expected Result	Actual Result	Status
Login and user account forms	Get entry to appropriate user page	Appropriate user page is displayed	pass
Customer form	Must add customer details successfully	Insertion is successfully	pass
Order form	Must add order details successfully	Insertion is successfully	pass
Category form	Must add category details successfully	Insertion is successfully	pass
Sub Category form	Must add sub category details successfully	Insertion is successfully	pass
Item form	Must update the specified entry in the database	Insertion is successfully	pass
Vendor form	Must add the specified entry in the database	specified entry updated	Pass
Card form	Must update the specified entry in the database	specified entry updated	Pass
Payment form	Must update the specified entry in the database	specified entry updated	Pass
Report	Must display reports	Reports displayed	Pass

Validation Testing

Form	Expected Result	Actual Result	Status
Create user	Check all mandatory fields and validate all entered data fields	If any error found display message and the same screen is displayed else record saved and confirmed	Pass
Edit User	Edit the row corresponding to the value entered	If the value entered is invalid error message is thrown otherwise message indicating successful deletion	Pass

6.1 INTRODUCTION

Implementation is the stage in the project where theoretical design is turned into a working system and is giving confidence on the new system for the users which will work efficiently and effectively. It involves careful planning, investigation of the current system and its constraints on implementations, design of methods to achieve the changeover, an evaluation, of change over methods. Apart from planning major tasks of preparing the implementation are education and training of users. The major complex system being implemented the more evolved will be the system analysis and the design effort required just for implementation. An implementation coordination committee based on policies of individual organisation has been appointed. The implementation process begins with preparing plan for implementation of the system. According to this plan the activities are to be carried out discussions made regarding the equipment and resources and the additional equipment has to be acquired to implement the new system.

Implementation is the final and important phase. The most critical stage in achieving a successful new system and in giving the users confidence that the new system and in giving the users confidence that the new system will work and be effective. The system can be implemented only after thorough testing is done and if found to working according to the specification.

6.2 INSTALLATION PROCEDURE

Installation of software refers to the final installation of the package in the real environment, to the satisfaction of the intended users and the successful operation of the system. In many organizations, those who commission the software development project will not be the one to operate them. In the initial stage, the person who is not sure that the software will make the jobs easier will doubt about the software.

Implementation is the stage of the project where the theoretical design is turned into a working system. At this stage, the main work load, the greatest upheaval and the major impact on the existing system shifts to the user department. If the implementation is not carefully planned and controlled, it can cause confusion.

Implementation includes all those activities that take place to convert from the old system to new one. Proper implementation is essential to provide a reliable system to meet the organizational requirements. Successful implementation may guarantee improvement in the organization using the new system, but improper installation will prevent it. The process of putting the developed system in to actual use is called system implementation.

6.3 IMPLEMENTATION PLAN

The Implementation Plan describes how the information system will be deployed, installed and transitioned into an operational system. The plan contains an overview of the system, a brief description of the major tasks involved in the implementation, the overall resources needed to support the implementation effort, and any site-specific implementation requirements. The plan is developed during the Design Phase and is updated during the Development Phase the final version is provided in the Integration and Test Phase and is used for guidance during the Implementation Phase.

7.1 FUTURE ENHANCEMENT

We have tried our best to present the information effectively, yet there can be further enhancement in the application. We have taken care of all the critical aspects, which were needed to be taken care of. Because of fast changes in the world of programming this system will gradually get outdated and less effective. For the time being it's possible to overcome problems by amendments and minor modifications to acknowledge the need of fundamental design.

Though the new system provides base for improving the efficiency of operations, there are a lot of future enhancements that can be added to this project. Keeping this in view, a provision has been made in the system to facilities easy modification updating in the future. Any modification will not affect the normal working of the system.

The development system is very interactive, coded in such a way to ensure maximum user friendliness and also allows flexibility for future.

It can be extended in such a way that:

- Improve the security.
- Improve the performance.

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https://www.w3schools.com/php/php_form_validation.asp
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<https://www.youtube.com/playlist?list=PL4cUxeGkcC9gksOX3Kd9KPo-O68ncT05o>
- <https://www.php.net> – <https://www.php.net/docs.php>

APPENDICES

APPENDIX A

Sample Source Code/Pseudo Code

Login code and Registration code

Login.php

```
<?php
    include_once '../middlewares/isLoggedIn.php';

    if (isset($_POST['submit'])) {
        include_once "../classes/User.php";
        include_once "../classes/Session.php";
        $email = $_POST['email'];
        $password = $_POST['password'];

        $user = new User($email, $password);
        $errors = $user->validateLoginInput();

        if (!array_filter($errors)) {
            Session::setSession("username", $email);
            Session::setSession("userType", $user->getUserType());
            $user->addSessionToDb();
            if ($user->getUserType() == "customer") {
                Session::setSession('cartid', $user->getCartId());
                header("location:/");
                exit;
            }
        }
    }
}
```

```

} else if ($user->getUserType() == "staff") {
    header("location:/orders");

exit;
} else {
    header("location:/admin");
exit;
}
}

?>
<?php include "../layouts/header.php";?>
<form class="auth-form login" action=<?=$_SERVER['PHP_SELF']?>" method="post">
    <h1>Login</h1>
    <div class="empty-space"></div>
    <div class="auth-form-textfield">
        
        <input type="email" placeholder="Email" name="email" value=<?=htmlspecialchars($_POST['email'] ?? "")?>" />
    </div>
    <div class="error-div-email">
        <?= $errors['email'] ?? ""?>
    </div>
    <div class="auth-form-textfield">
        
        <input type="password" placeholder="password" name="password" value=<?=htmlspecialchars($_POST['password'] ?? "")?>" />
    </div>
    <div class="error-div-password">
        <?php if (isset($errors['password'])) && $errors['password']): ?>

```

```
<p><?=$errors['password']?></p>
<?php elseif (isset($errors['invalidCredentials'])): ?>
<p><?=$errors['invalidCredentials']?></p>
<?php endif?>
</div>

<button type="submit" class="auth-button"
name="submit">LOGIN</button>
</form>
</body>
</html>
```

Signup.php

```
<?php

if (isset($_POST['submit'])) {
    include "../classes/Customer.php";
    $email = $_POST['email'];
    $password = $_POST['password'];
    $confirmPassword = $_POST['confirmpassword'];

    $customer = new Customer(['email' => $email, 'password' =>
$password, 'confirmpassword' => $confirmPassword]);

    $errors = $customer->validateSignUpInput();

    if (!array_filter($errors)) {
        if ($customer->signup()) {
            $customer->createCart();
        }
    }
}
```

```

    $success = true;
    header("refresh:2;url='/auth/login.php");
}

?

?>
<?php include "../layouts/header.php";?>
<form class="auth-form" action="<?=$_SERVER['PHP_SELF']?>" method="post">

<h1>Sign Up</h1>
<div class="success">

<?php if (isset($success)): ?>
    <p class="green-text">Signup was successfull</p>
    <?php endif?>
</div>
<div class="auth-form-textfield">
    
    <input type="email" placeholder="Email" name="email" value="<?=htmlspecialchars($_POST['email']) ?? "?>" required />
</div>
<div class="error-div-email">
    <?=$errors['email'] ?? "?>
</div>
<div class="auth-form-textfield">
    
    <input type="password" placeholder="password" name="password" value="<?=htmlspecialchars($_POST['password']) ?? "?>" required />
</div>

```

```
<div class="error-div-password">
    <ul>
        <?php if (isset($errors) && $errors['password'] != ""): foreach
($errors['password'] as $error): ?>
            <?php echo "<li>$error</li>" ?>
        <?php endforeach?>
        <?php endif?>
    </ul>
</div>
<div class="auth-form-textfield">
    

    <input type="password" placeholder="confirm password"
name="confirmpassword"
value=<?=htmlspecialchars($_POST['confirmpassword']) ?? ""?>" />

</div>
<div class="error-div-confirm-password">
    <?=$errors['confirmPassword'] ?? "?>
</div>
<button type="submit" class="auth-button"
name="submit">SIGNUP</button>
</form>
</body>
</html>
```

APPENDIX B

Acronyms

ER- Entity relation

PHP –PHP Hypertext Preprocessor

SQL-Structured Query Language

DFD-Data Flow Diagram

INF-First Normal Form

2NF-Second Normal Form

3NF-Third Normal Form