Ministry of Higher Education Thebes Academy Thebes Higher Institute for Computer and Management Sciences



[THE WORLD OF BOOKS]

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Abstract

The Application Provides Many Services For All Segements Of Society, Such as Choosing Appropirate Books For Each Individual, Also In The Educational Field For Each Student Invarious Magazines , Fields and Disicplines, The Application Also Include A Skill Component Where The Program User Can Create His Own Book By Write And Store a Document In Application, The Application Include Online Selling Of Books Or Selling Via Delivery Of Books Via Gps And Also Include Free Books By Downloading It Directly Or Read It From Application Which It Do Not Waste Time Of User.

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List of Abbreviations

Term	Abbreviation
System Development Life Cycle	SDLC
Data Flow Diagram	DFD
Entity Relationship Diagram	ERD
Context Flow Diagram	CFD
Use Cases Diagram	UCD

Chapter One | General Introduction

1.1 Overview

In This Chapter we explain a general introduction about the graduation project(THE WORLD OF BOOKS), problem definition, proposed solution, aims and objectives and challenges.

1.2 Problem Definition

Some bookstores need a great effort to collect many books from where the customer can benefit from them, but not all appropriate books are available for each person in the required manner, which led to the inability of bookstores to provide the appropriate books and also a waste of time for the seller and the customer.

The magnitude of the problem is clarified by presenting the following questions:-

- Can bookstores provide all books to customers?
- Does the customer find it difficult to access the books he needs from the bookstores?
- Can Customer create his/her books in bookstores?

1.3 Proposed Solution

Create an Android application that provides the necessary books about the maintenance center that customers need in all magazines, and the user can also write his own book through the application (THE WORLD OF BOOKS).

As for the system administrator part, he can:

- 1. Managing and modifying users' private data.
- 2. Managing and modifying data for books.
- 3. User management.
- 4. Management and evaluation of books uploaded by users.

As for the system User part, he can:

- 1.Get the books he wants.
- 2.Buy the books he wants.
- 3.He/She can write a book and upload it to the users through the application.

1.4 Aims and Objectives

- 1. Contribute to the development and ease of information in the field of bookselling.
- 2. Saving effort and time for the seller (the admin) through the ease of collecting books in all specialties and putting them in the application as the books fit all categories of users.
- 3. Saving effort and time for the customer (the user) in choosing the appropriate books for him through the application, and he can also write his own book.

New in the project idea:

1. The system will be a wonderful and easy-to-use interface.

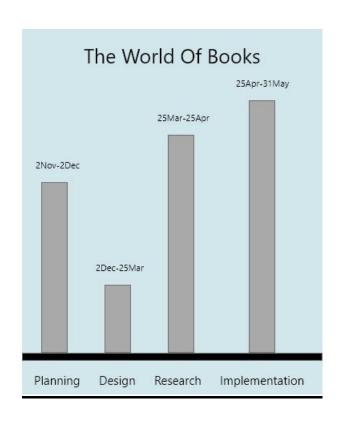
- 2.The system will contain a user guide drawn and displayed in Graphic format Designed by the work team and put into the system in the form of a visual form.
- 3. The program will take a backup copy periodically, as well as a screen for taking a backup copy by the admin.
- 4. The system will work on all Android systems.

1.5 Challenges

• Difficulty in professionalizing the system's programming language, such as:Flutter and Dart, as this needs time to complete from learning and access to professionalism.

1.6 Timeline





Task	Persons	DeadLine
Project Idea and Time Planning	Team	10/10 to 10/25
Collect Informations	Team	10/25 to 11/5
Create Use cases diagram	Team	11/6 to 11/10
Create Context diagram and DFD diagram	Team	11/11 to 11/20
Create ERD Entity relation diagram	Team	11/21 to 12/3
Create Class diagram	Team	12/20 to 12/26

1.7 Documentation Overview

THIS PROJECT INTRODUCES SEVEN MAIN CHAPTERS AS FOLLOWS:

• CHAPTER ONE

In chapter One, an overview of The Project (THE WORLD OF BOOKS) and the building of the proposed system and the developments in this field were presented. It also includes the idea of the project, its objectives, the difficulties that the research team will face during the different stages, and ways to overcome them. This chapter also explains the implementation timeline.

• CHAPTER TWO

In chapter Two includes the scientific background of the project, a thorough study of projects and ideas similar to the proposed project, with an explanation of the advantages and disadvantages of each method, and how the proposed project will solve the problems that appeared in the previous projects.

• CHAPTER THREE

This chapter includes the details and steps of the analysis and design processes that start with the stage of collecting the required data on the proposed project until the completion of the project design and its final preparation for the implementation phase. This chapter also explains the different methodologies for the design process, how the appropriate design methodology was chosen for the proposed project, and the system diagrams.

- -Use cases diagram
- -Context diagram
- -DFD diagram
- -ERD diagram
- -Class diagram

Chapter Two | The Scientific Background And Technology For The Project

2.1 Overview

In chapter Two includes the scientific background of the project, a thorough study of projects and ideas similar to the proposed project, with an explanation of the advantages and disadvantages of each method, and how the proposed project will solve the problems that appeared in the previous projects.

2.2 Theory and Practice

Android has become the most popular system used on mobile phones and tablets. And the Android system is an open source system created by Google, and it is a system available to all developers to develop their applications. And the Android system is a system based on the Linux operating system for mobile phones and tablets, and Android application programming: it is the process of creating new applications for the Android system. Android applications are usually programmed in the Java and Flutter environment, but other development environments are still available. And Android devices offer full integration with all Google services and specially designed apps from Google for the Android system so that there is a synchronization between the numbers of people on your phone with the contact addresses stored in Gmail.

Website (also written as web site) is a collection of web pages and related content that is identified by a common domain name and published on at least one web server. Notable examples are wikipedia.org, google.com, and amazon.com.

All publicly accessible websites collectively constitute the World Wide Web. There are also private websites that can only be accessed on a private network, such as a company's internal website for its employees.

Websites are typically dedicated to a particular topic or purpose, such as news, education, commerce, entertainment, or social networking. Hyperlinking between web pages guides the navigation of the site, which often starts with a home page.

Users can access websites on a range of devices, including desktops, laptops, tablets, and smartphones. The software application used on these devices is called a web browser.

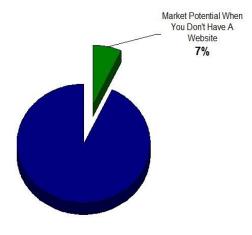
web application (or web app) is application software that runs on a web server, unlike computer-based software programs that are run locally on the operating system (OS) of the device. Web applications are accessed by the user through a web browser with an active network connection. These applications are programmed using a client–server modeled structure—the user ("client") is provided services through an off-site server that is hosted by a third-party. Examples of commonly-used web applications include: web-mail, online retail sales, online banking, and online auctions.

The importance of programming the application with the Android system and Website

- The Android applications most used in the world for smartphones, as the share of sales of Android phones in the last quarter of last year was about 82%.
- Ease of use by users, its good use, and the presence of phones that support the Android system in abundance.

Android application programming is one of the most important technologies that appeared in the late last century.

• Importance of Website With 93% of business decisions starting with a search engine search that means if you don't have a website, you are only selling to 7% of your market. That is right, you are reducing the potential size of your business by 93%. I would suggest that the same statistic for consumer purchases is lower but still very high, especially for larger ticket items. The larger the item, the more research and shopping people will do. My guess is probably 40-50% of consumer purchases start with an online search.

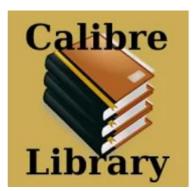


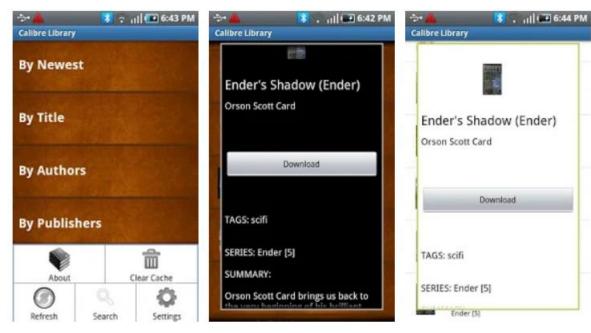
• there is a large portion of the market that won't even consider you as an option when they are looking to buy, if you don't have one. I know personally if I am dealing with a supplier I am looking to purchase from and they don't even have a website I pretty much write them off as an option and my view of that company is diminished. It gives me the impression that it is a company that is very poorly managed.

2.3 Related Work

The team searched for studies similar to the application of the world of books thorugh mobile and found android application, this is the reason why the research team chose to make the application Android system, including: -







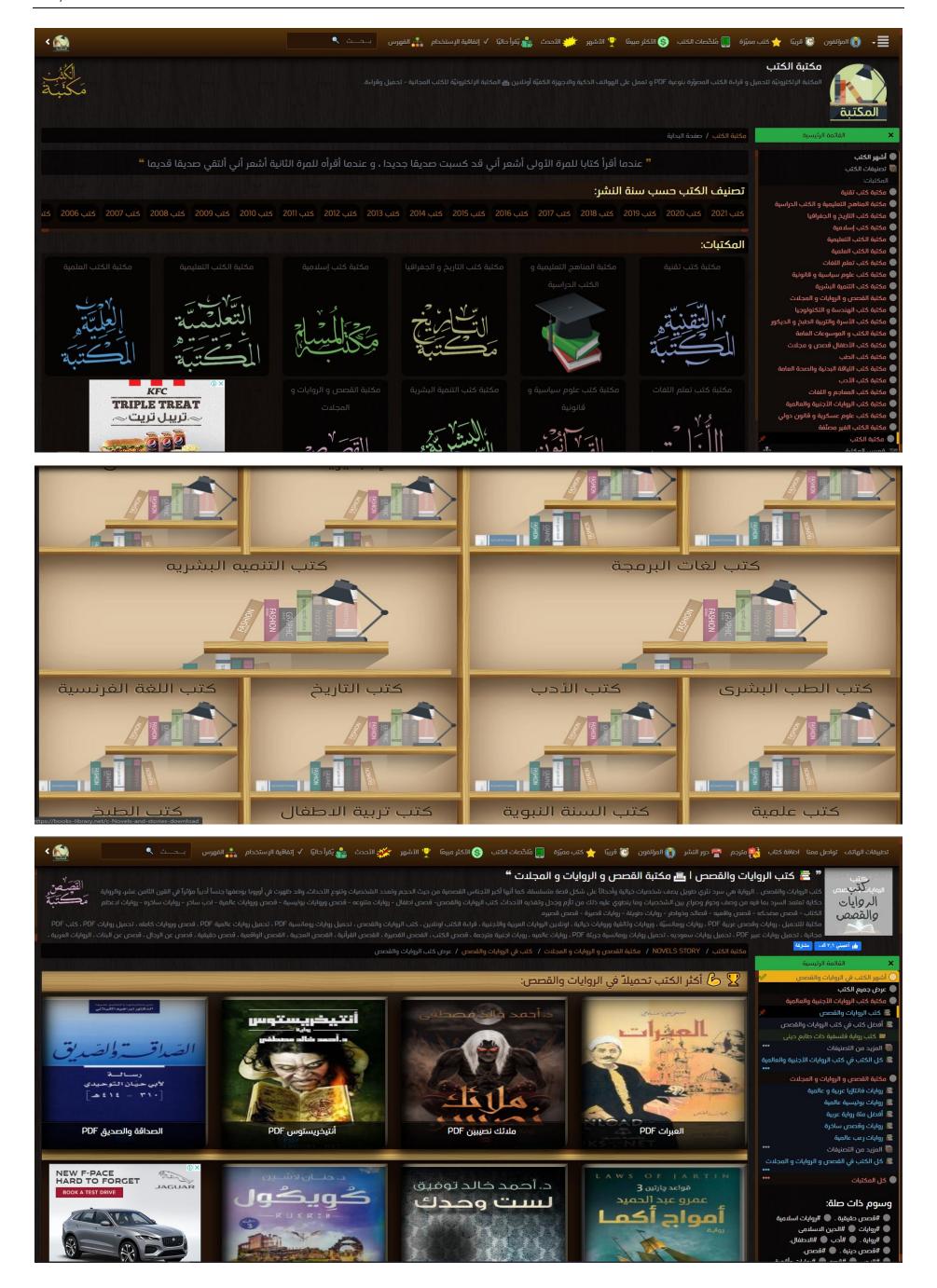
Advantages:-

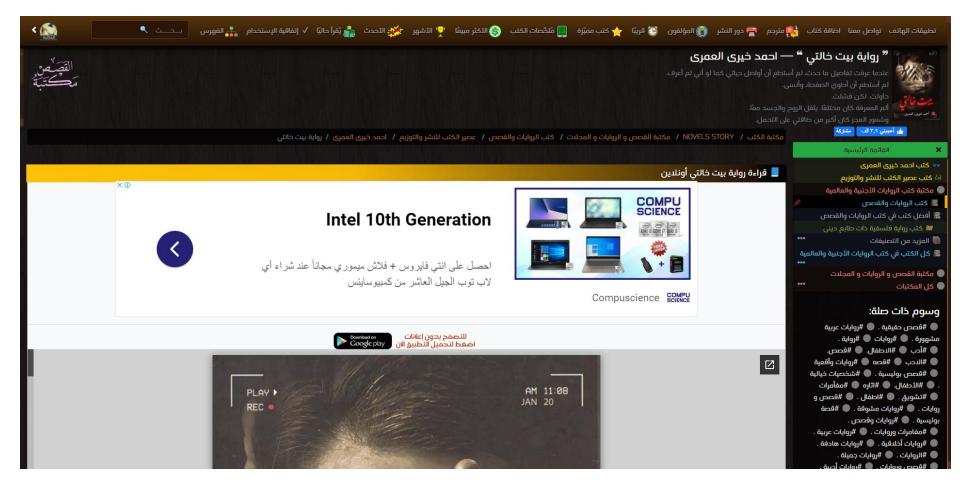
Complete management of the books process and provide them on the application and everything related to the user.

Disadvantages:-

Its graphic interface is not impressive, modern and it is difficult to use it on the mobile, and users do not have any role in the application such as creating books and uploading them to a site and application, hence the idea of creating an application with an Android system that manages the book process and also a site application that enables users to create and upload books to the application.

Book-library website





Advantages:-

Has many books from middle-east.

Has many genres.

Disadvantages:-

Has complex design and diffcult to use. solution In our website we make the design is more simple and easy to use.

Website colors not comfortable for users. In our website we put colors more comfortable for user 'eyes.

Has many advertisements it realy annoying the users. In our website we don't put any advertisments, the website we don't make it for money. When the user pick up a book to read, the frames that suppose to fit the book when you read, it's not fitting books pages and that's annoying. In Our website we make full page for reading any book and the frames is fitting any book directly because we build the website to be responsive.

Software and tools planned to be used:

Star uml: To draw analysis and design diagrams such as Use casses, Context, DFD, ERD, Class and DataBase.

Flutter: is an open-source UI software development kit created by Google. It is used to develop applications for Android, iOS, Linux, Mac, Windows, Google Fuchsia, and the web from a single codebase. The Team used it to create a modern interface to The Application (The World Of Books).

Dart : is a client-optimized programming language for apps on multiple platforms. It is developed by Google and is used to build mobile, desktop, server, and web applications. Dart is an object-oriented, class-based, garbage-collected language with C-style syntax. Dart can compile to either native code or JavaScript. It supports interfaces, mixins, abstract classes, reified generics, and type inference. The Team used Dart for Build Application (THE WORLD OF BOOKS) and Connected Application (THE WORLD OF BOOKS) to Cloud Database and its called FireBase.

Android Studio: Is a platform for writing applications that makes it easy for developers to write the source code for Android applications, it also allows the developer to preview the appearance of his application on various screen sizes in real time during development, and it facilitates the development of multilingual applications.

The avd manager is a command line tool that allows you to create and manage Android Virtual Devices (AVDs) from the command line. An AVD lets you define the characteristics of an Android handset, Wear OS watch, or Android TV device that you want to simulate in the Android Emulator.

Firebase is a platform developed by Google for creating mobile and web applications. It was originally an independent company founded in 2011. In 2014, Google acquired the platform and it is now their flagship offering for app development. **Visual Studio Code** is a freeware source-code editor made by Microsoft for Windows, Linux and macOS. Features include

support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality.

Chapter Three | System Analysis and Design

3.1 Overview

This chapter includes the details and steps of the analysis and design processes that start with the stage of collecting the required data on the proposed project until the completion of the project design and its final preparation for the implementation phase. This chapter also explains the different methodologies for the design process, how the appropriate design methodology was chosen for the proposed project, and the system diagrams.

3.2 Gathering Requirements

Gathering The Informations:

The information gathering step is the first step in the analysis phase. The information was collected by the project team and the following was relied upon: -

1.The Interview and The Questionnaire:

The project team interviewed some users and found out what their requirements and aspirations are to create a suitable application for everyone. The project team also conducted opinion polls to obtain the opinions and visions of all users using the system and a questionnaire was presented with the following questions:

- -What are the most important points and elements that we can add in the Android system that will make it easier for you to spend time and effort?
- -What are the difficulties you face in the traditional system?

2. The Observation:

By observing existing and similar systems, avoiding their shortcomings and taking advantage of their advantages.

3.3 User Requirements

User requirements, often referred to as user needs, describe what the user does with the system, such as what activities that users must be able to perform.

The Application (The World Of Books) contains 3 levels:

User:

Sign Up, Sign In, Read Free Books, Buy Books, Send FeedBack, Create Book and Upload It.

Admin:

Sign In, Users Management, Publish Free Books In App, Publish Paid Books In App,

Receive FeedBacks From Users and Receive Upload Books From Users.

Nonfunctional system requirement of The Application (The World Of Books):

Usability Requirement, Availability Requirement, Efficiency Requirement, Accuracy Performance Requirement and Reliability Requirement.

3.4 System Requirements

The software requirements are description of features and functionalities of the target system. Requirements convey the expectations of users from the software product. The requirements can be obvious or hidden, known or unknown, expected or unexpected from client's point of view.

System Requirements Types:-

Functional system requirement of The Application (The World Of Books):

Registeration:

The user must sign up / sign in first.

Sign Up:

Input: Information of user.

Output: Registration status confirmation and a user number and password will be created and sent to the user by email.

Processing: All information will be verified and a user number and password will be produced if any error is found then an error message will be displayed.

Sign In:

Input: Enter the assigned user number and password.

Output: The User can use the software features.

User Search For Books.

User Read Books.

User Purchare Books.

User Create Books.

User Send FeedBack if he/she found errors in books or in app totally.

Admin is responsible for users management for example add or modify and remove users.

Admin Manage Publishing of books in application for example add free books and add paid books.

Admin modify books by change it or remove it if he/she receive a feedback from users.

Admin make a chance for user to create a book and if admin accept this book ,the book will be published in application.

Nonfunctional system requirement of The Application (The World Of Books):

Usability Requirement: The system shall allow users to use android application to access the system from the phone. The system using an android application as an interface. Since all users are familiar with mobile app usage generally, no special training is required. The system is user friendly so the system is easy to use.

Availability Requirement: The System is available 100% for user and it is used 24 hours a day and 365 days a year. The System working 24 hours a day and 7 days a week. The System is available 100% for user and it is used 24 hours a day and 365 days a year. The System working 24 hours a day and 7 days a week.

Efficiency Requirement: Mean Time to Repair (MTTR)-The system will be recovered back up within an hour or less, even if the system fails.

Accuracy: The system should provide accurate information in real time taking into account different competitive issues. The system shall provide 100% access reliability.

Performance Requirement: The information is updated depending on whether other changes in the application have occurred or not. The system shall respond in no less than two seconds from the date of submission of the request to the user. When doing large processing jobs the system must take longer. Responses for displaying details on the screen shall take no longer than 5 seconds to appear.

Reliability Requirement: The system has to be 100% reliable because importance of data and damages that can be caused by incorrect or incomplete data. The system working 24 hours a day and 7 days a week.

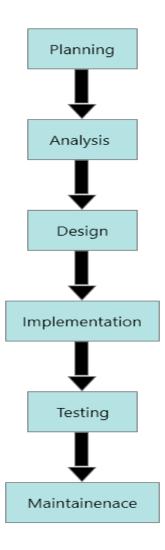
3.1 Implementation Methodologies

System Development life Cycle

The set of steps that software engineers and systems analysts take to create information systems. There are many models and methods used, including the method that we will use in this project, Which is WaterFall Model.

WaterFall Model: The stages are in order: Planning, Analysis, Design, Implementation, Testing and Maintenance.

WaterFall Model



Planning:

We are trying to answer my question, can we build the system? And do users need it?

They are prepared:

• The technical (technical) feasibility study raises the question Can we build the system?

To measure the capabilities of the work team, and measure the users' accustomed and adaptation to technology and their need for the system.

- An economic and operational feasibility study.
- Set a time plan for the project and assign tasks to the work team.

Analysis:

The analysis phase answers the question What are the Requirements of Users

What will the system do, where and when? This stage consists of three steps: -

1- Information gathering

The information gathering step is the first step in the analysis phase, and it is done by one of the three methods

- 1. The interview: by interviewing the users, officials and those concerned with the system and obtaining answers and information from them
- 2. Questionnaire: conducting opinion polls to obtain opinions and opinions of those involved in using the system
- 3. Observation: By observing the existing and similar systems, avoiding their shortcomings and making use of their advantages
- 2- Requirements analysis

Using the Use case diagram

Create Class Diagram, Context Diagram and DFD Diagram

Create Entity Relationship Diagram

Design:

The design stage decides how the system will work in detail?

Steps in the design stage are: -

Architecture Design

System graphical interface for application (UI Application)

System graphical interface diagram (UI Diagram)

Implementation:

It is at this stage that the system is already built. The three application steps: - System Construction, In terms of building the database with one of the available database systems such as My SQL And FireBase. And the exterior design of the app using Flutter, and create the code using Dart to connect the application to the database.

Testing:

Test the overall system output, performance and speed.

And recording errors from application in the error log then Debug it.

Maintainenace:

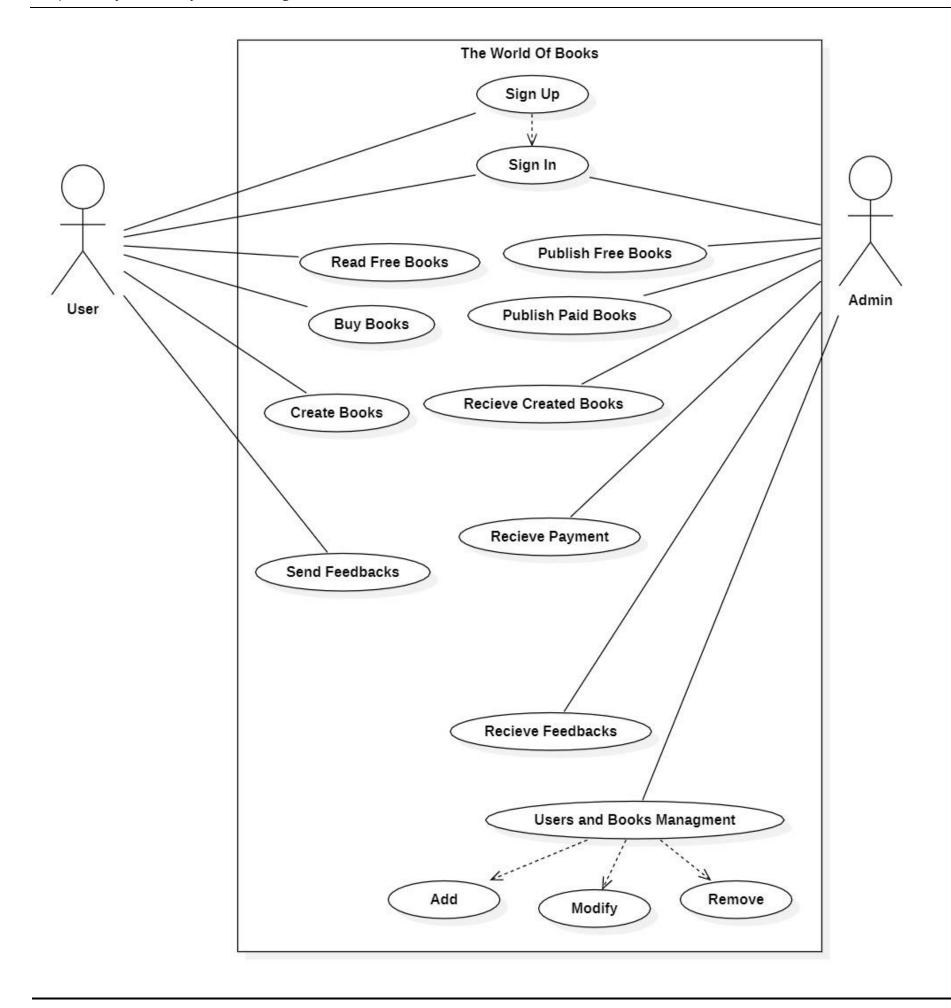
After installing the system in a real work environment, its compatibility with other programs and devices is explored, and a follow-up plan is drawn up with the customer to report errors and how to maintain the system. Detected errors are referred to programmers to correct them or add new features. Then the system is tested again and adjustments are made in the working environment.

3.2 System Models

Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

Use Case Diagram In The World Of Books Project:



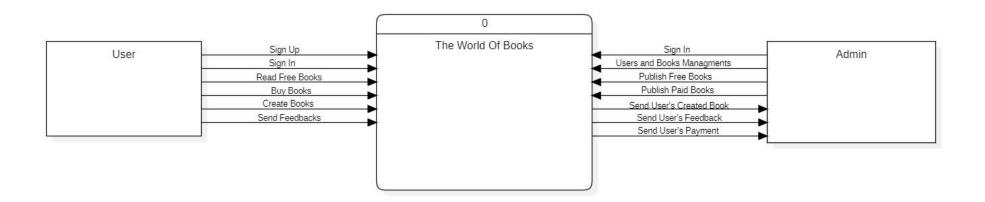
User: he can make sign up if he does not have register in website and app but if he has registeration, he could go signing, he could read free books but paid books should pay for it, he give feedbacks on books, website, app freely, users can upload books that he created by himself.

Admin: he manage users' accounts, he uploading free books and paid books, he receive payments from users, he receive feedbacks from users and if there is users requests, he see what he can do about it, he maintain app or web and updating it, he can modify or remove or add books. He make disount for writers.

Data Flow Diagram – Level 0 (Context Diagram)

Data Flow Diagram - Level 0 is also called a Context Diagram. It's a basic overview of the whole system or process being analyzed or modeled. It's designed to be an at-a-glance view, showing the system as a single high-level process, with its relationship to external entities.

Data Flow Diagram - Level 0 (Context Diagram) In The World Of Books Project:



Users: can do sign in , sign up , read free books , buy paid books , upload books created by the user but can not putting it in store without permission of admin , send feedbacks.

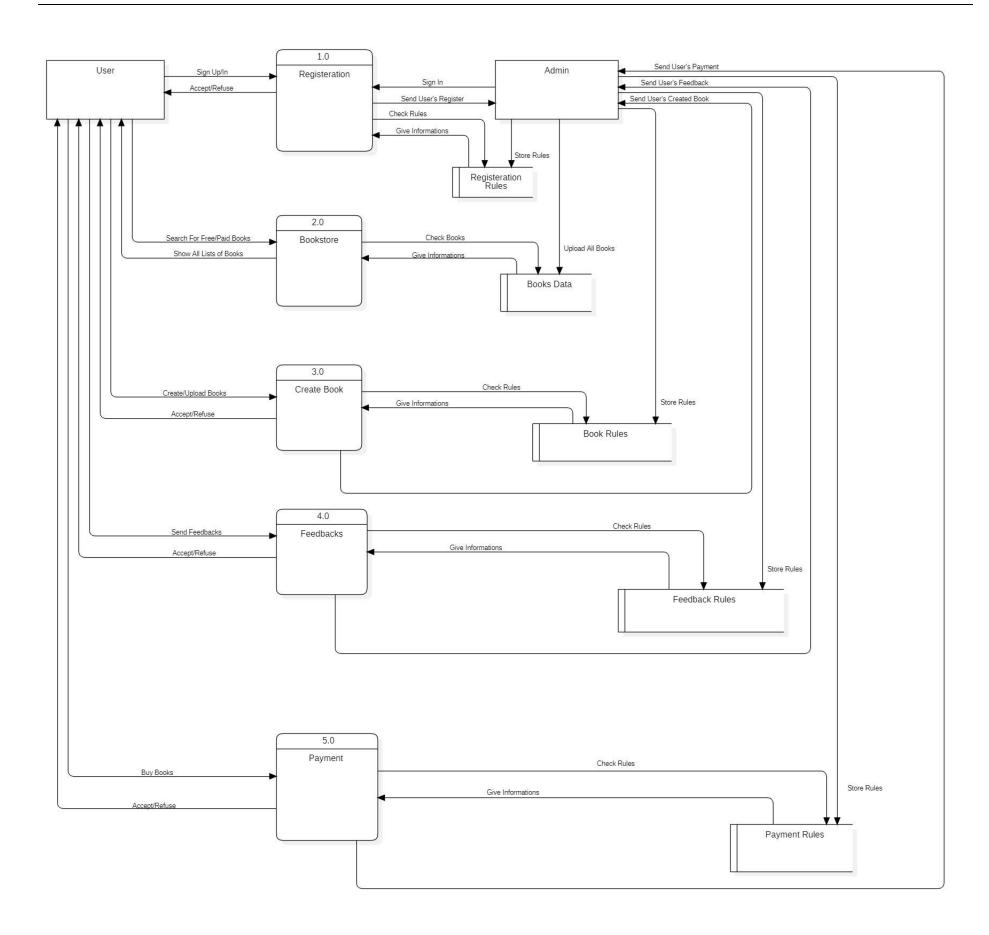
Admin: he manage users' accounts, he uploading free books and paid books, he receive payments from users, he receive feedbacks from users and if there is users requests, he see what he can do about it, he maintain app or web and updating it, he can modify or remove or add books. He make disount for writers.

Data Flow Diagram (DFD) – Level 1

Data Flow Diagram – Level 0 (Context Diagram) show a single process node and its connections to external entities.

Data Flow Diagram (DFD) – Level 1 are still a general overview, but they go into more detail than a context diagram. In a data flow diagram (DFD) – Level 1, the single process node from the context diagram is broken down into subprocesses.

Data Flow Diagram (DFD) - Level 1In The World Of Books Project:



Registration process: user make sign in then the system will check his email if was available the system will make the user in or user sign up then the system save the email and the system accept registration or refuse by admin.

Bookstore process: user search for book to read if the book is free system give order to make the user to read it if the book is paid the system wont open the books to user until he pay for it.

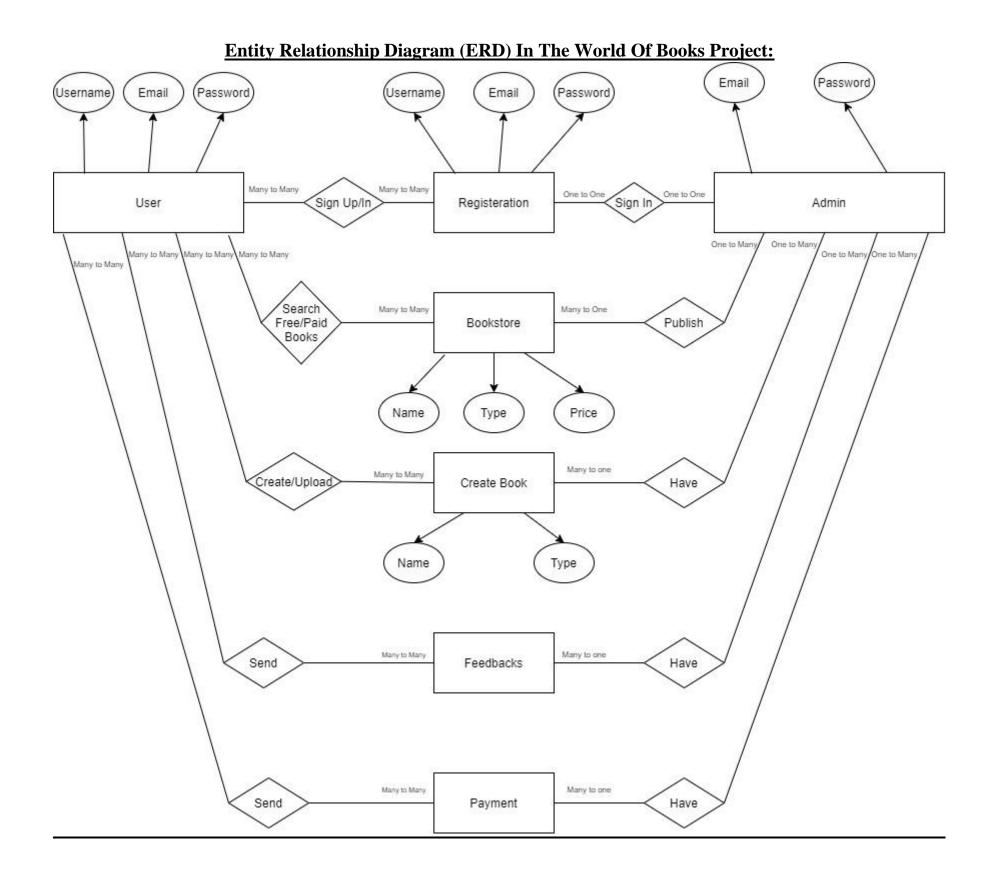
Create book process: system make the right for every user to upload a book that he write by himself and admin see it if the rules apply on it and every thing is correct ,admin upload it in store, but if there is something in that book was Opposes the laws, the admin will not upload thew book in store.

Feedback process: user make a feedback about the store or specific book and send it to system and system send it to the admin, the admin see users feedbacks and see if there is an issues or problem he can fix it and send respond to users about there feedback.

Payment process: user choose books from book store then buy it and then the payment process check the rules of payment then send respond to user by accept or failed, if the process success payment process send a user's payment to the admin.

Entity Relationship Diagram (ERD)

An entity—relationship model describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types and specifies relationships that can exist between entities.



User: has attributtes (password, phone number, email, username).

Admin :has attributtes (username, password).

Created books: has attributtes (name, type).

Books of store: has attributtes (name, type, price).

Feedbacks: has (title, type, description).

Relation between user and store is many to one because many users sign in or sign up in store.

Relation between user and created books is many to many because every user can upload many books.

Relation between user and books of store is many to many because every user can read or buy many books.

Relation between user and feedbacks is many to many because every user can send many feedbacks.

Relation between admin and store is one to one because only one admin sign-in in store.

Relation between admin and created books is one to many because only admin can manage created books.

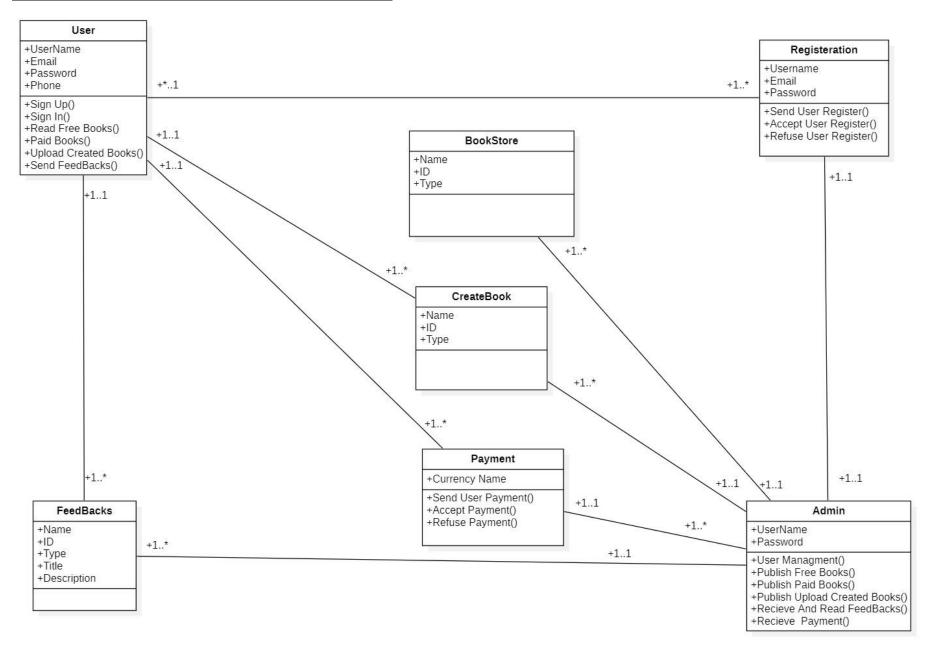
Relation between admin and books of store is one to many because only one admin manage all the books in the store.

Relation between user and feedbacks is one to many because only one admin manage all feedbacks.

Class Diagram

In software engineering, a class diagram in the Unified Modeling Language is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations, and the relationships among objects.

Class Diagram In The World Of Books Project:



Users: have username, email, password, phone to get access to app but can go as guest ,can do sign in ,sign up , read free books , buy paid books, upload created books, send feedbacks.

Admin: have username, password, and can manage users' accounts, upload free books, upload paid books, upload created books, receive feedbacks, make discount on paid books, receive users withdraw, maintain, update contents,

Feedbacks: every one has name, id, type, title, description.

Created book: every one has name, id, type.

Payment: Currency Name.

Relations:-

- * every user can have only one email on book store.
- * every user can have many feedbacks.
- * every user can buys books.
- * admin can receive payment.
- * every user can upload many created books but cant put on store without permission of admin.