

Work Integrated Learning 3 POE

BMZ IT SOLUTIONS

XISD6319

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Table of Contents

Project Plan	3
Introduction	3
Milestones and Deliverables	4
Work Breakdown Structure	5
Project Schedules	10
Gantt Chart	10
PERT Chart	11
Risk Management	12
Technical Feasibility Issues	13
Economic Feasibility Issues	14
Team Members	16
Project Charter	16
Requirements Analysis	17
Problem Domain (System Analysis)	17
Solution Domain (Functional requirements specs and UML Use Cases)	18
Logical System Model	19
Class Diagrams	20
System Design	21
Logical Architectural Design	21
High Level Architectural Design	21
Low Level Architectural Design	22
Interactions with the User	23
Registration info	23
Registration Info GUI	23
Login Info	23
Login Info GUI	23
Set An Appointment Info	24
Set An Appointment Info GUI	24
Contact Us Info	24
Contact Us Info GUI	24
Place Order Info	25
Place Order Info GUI	25

Add Products Info	25
Add Products Info GUI	25
Database Design.....	26
Database Tables	26
ERD Design	27

Project Plan

Introduction

The company (Discount Audio and Motor Spares) is a newly established business as it has only been in business for only 2 months. The business needs a mobile application and web application for its customers to use to shop for audio accessories and various motor spares. The mobile application and website will also attract new customers from anywhere in South Africa.

The goal or outcome of this project is to develop a mobile application and website that allows customers to create accounts, view various motor spares and audio accessories available to buy, book appointments for car audio, alarm systems and rims & tyres installations, view other services provided, purchase products, provide customer feedback (reviews) and search for a product the want. The data captured will be stored in an appropriate Database Management System (DBMS).

The budget estimated for this project is “R160 000”, this budget will cover the required costs for software, hardware and labour that will be used during the development of the project.

Some of the possible risks identified are the complete functionality and security of the databases used to store Discount Audio and Motor Spares’s data. Due to the large amount of customer data that needs to be stored, server maintenance costs can be higher than expected if the business chooses to officially launch the website and mobile application.

If the project is a success, Discount Audio and Motor Spares will receive an influx of new clientele from all over the country, see a boost in advertisement and an increase in their revenues.

Milestones and Deliverables

Milestones	Completion Date	Deliverables
Create a baseline project plan	August 12, 2022	Project charter signed and project plan document submitted
Determine functional and non-functional requirements	August 19, 2022	Requirements analysis document completed and submitted
Design Mobile app and website's architecture and database	September 20, 2022	ERDs and Database tables completed. Input interactions or graphical user interface designs done.
Develop database	September 23, 2022	Database tables and structure
Develop Code for website	October 21, 2022	Source code for website
Develop Code for mobile application	October 24, 2022	Source code for mobile application
Test Website	November 11, 2022	Bugs and defects for website identified and fixed
Test Mobile application	November 15, 2022	Bugs and defects for mobile application identified and fixed
Present and demonstrate Prototype	November 18, 2022	Fully functional prototypes
Present and demonstrate Final project	November 21, 2022	Presentation of website and mobile app
Both software reviewed	Final Week	Website and mobile application maintenance

Work Breakdown Structure

Task Name	Description of task	Team member responsible for the task	Duration of the task in days	Predecessor Task	Resources needed for task
1.Initiation	People are assigned to a team of 3 members to begin the review of project case study.	Group	10		PCs, internet access, Zoom, MS Word
1.1 Define project goal	Members of the team decide on a team leader and secretary by voting for a candidate	Group	1		Smart phone
1.2 Create the project case	Identify the current issue of Discount Audio and Motor Spares manual system and daily operations of the business.	Bongumusa	3	1.1	PCs, internet access, Zoom, MS Word
1.3 identify list of stakeholders	Decide what functions can be included in the system. Identify stakeholders within and outside of Discount Audio and Motor Spares.	Group	3	1.2	PCs, internet access, Zoom, MS Word

1.4 Develop high-level project objective and constraints	List all possible components needed for inputting, processing, and outputting data	Mthokozisi	4	1.3	PCs, internet access, Zoom, MS Word
2.Planning	Analyze and identify criteria project scope, outcome	Group	20	1	PCs, internet access, Zoom, MS Word
2.1 Develop and determine scope		Zwelibanzi	2		PCs, internet access, Zoom, MS Word
2.2 Gather the project quality requirements	Assign tasks and responsibilities to team members and allocate time for each task and sub task.	Group	3	2.1	PCs, internet access, MS Word
2.3 Baselined budget of the Project	Make a project schedule and GHAN chart with MS Project	Mthokozisi	1	2.2	PCs, internet access, MS Project
2.4 The projects schedule	Project has been planned	Zwelibanzi	3	2.3	PCs, internet access, MS Project
2.5 Identify risk of the project	View possible risks that may occur	Group	4	2.4	PCs, internet access, MS Project
2.6 Identify general execution	Identify the scope and objective of the project	Zwelibanzi	3	2.5	PCs, internet access, MS Project
2.7 Maintain integration	See how components of the systems will be integrated	Bongumusa	5	2.6	PCs, internet access, MS Project
3. EXECUTION	Coding for front-end, back end and firmware components	Group	35	2	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase

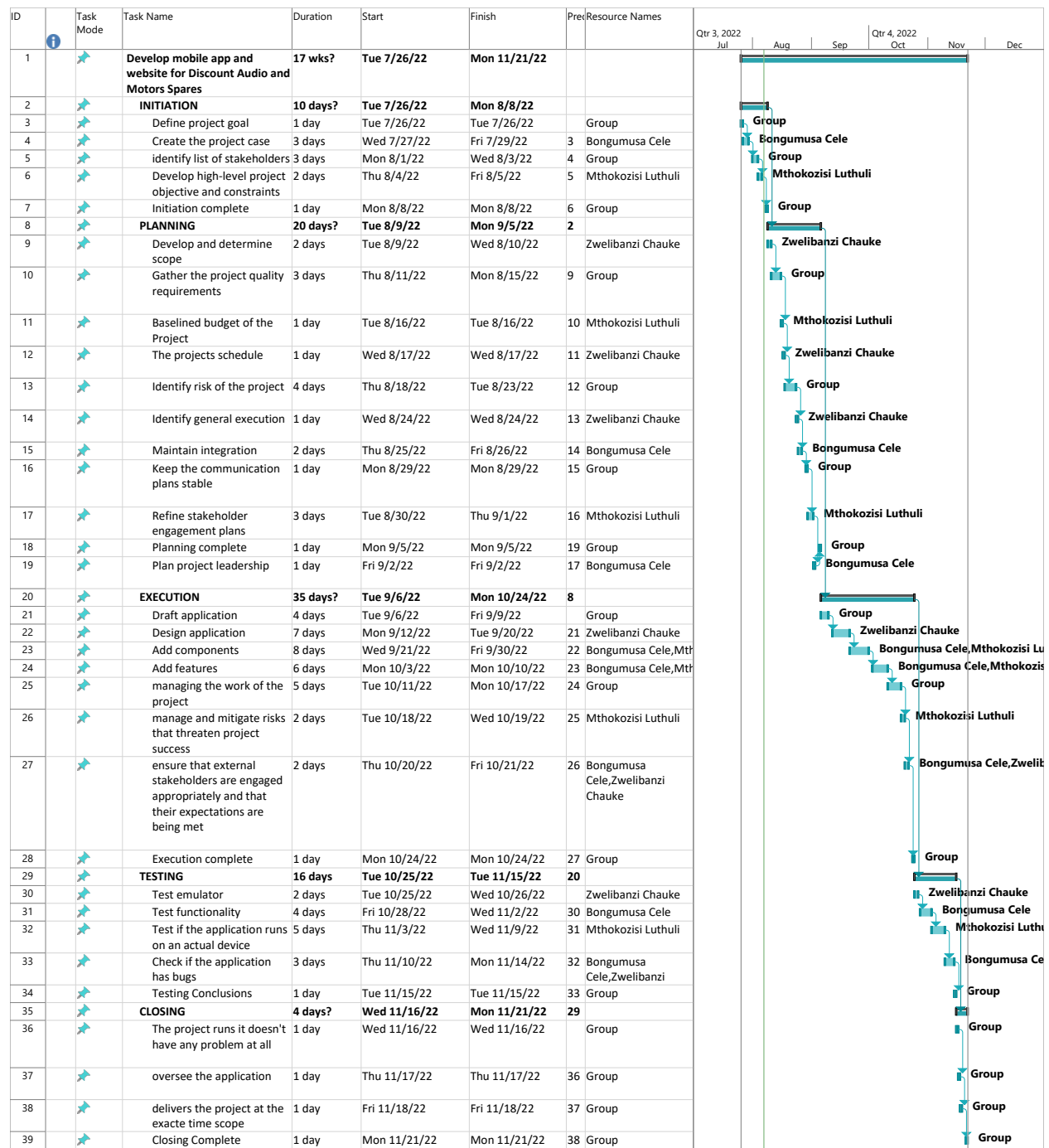
3.1. Draft application	Brief members on the approach to code the system components. Delegate portions of system to a pair of team members to code.	Group	4		PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
3.2. Design application	Write code for the application pages, menus, buttons etc.	Zwelibanzi	7	3.1	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
3.3 Add components	Write code for user-interactive dialogs such as prompting user for input and ensuring the correct data type is entered.	Bongumusa	8	3.2	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
3.4. Add features	Write code for system modules for calculating, sorting, and modifying data.	Bongumusa	6	3.3	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
3.5. managing the work of the project	Create database with tables to store the data that was entered from user-input. Write code to connect database to website and local host.	Group	5	3.4	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase

3.6. manage and mitigate risks that threaten project success	Continue working on the project	Mthokozisi	2	3.5	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
3.7. ensure that external stakeholders are engaged appropriately and that their expectations are being met	Engage with stakeholders and keep on updating them about system improvements or new developments.	Zwelibanzi	3	3.6	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
4. TESTING	Test the systems for bugs and defects	Group	16	3	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
4.1 Test emulator	Do unit testing	Zwelibanzi	2		PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
4.2 Test functionality	Do functional testing	Bongumusa	4	4.1	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
4.3 Test if the application runs on an actual device	Perform integrational testing	Mthokozisi	5	4.2	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
4.4 Check if the application has bugs	Run end-to-end tests	Bongumusa	4	4.3	PCs, internet access, Android Studio, Visual Studio, Wampserver, Firebase
5. Presentation	Organize a presentation of the systems	Group	4	4	PCs, internet access, MS PowerPoint

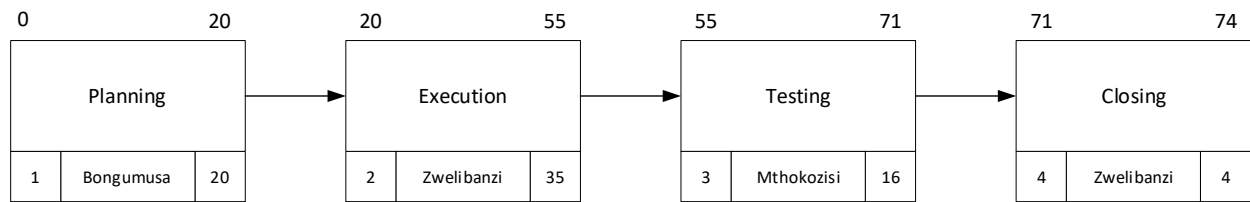
	while demonstrating how it works.				
5.1. implement the prototype	Prepare the systems to be released and used commercially by clients	Group	2		PCs, internet access, MS PowerPoint
5.2. Demonstrate working prototype	Present the system to Discount Audio and Motor Spares executives as a final product.	Group	2	5.1	PCs, internet access, MS PowerPoint

Project Schedules

Gantt Chart



PERT Chart



Risk Management

Risk Area	Occurrence H/L/M	Impact H/L/M	Risk Response
System could crash due to high traffic of customers.	Low	High	Increase database capacity.
Loss of customer data or information.	Medium	Medium	Backup customer data and information in cloud storage.
Project completion delayed.	Low	Medium	Organize days when the team works overtime to make up for the delayed days.
Software incompatibility.	Low	Medium	Identify other open-source software that can be used.
Personal Laptop or hardware damage.	High	Medium	Use the school's computers or Azure virtual machines provide by the school.
Project files loss.	Medium	High	Create backup for all project files and documents. Store the files and documents on external storage devices or on cloud storage.

Technical Feasibility Issues

Hardware Resources	Availability of the resource (yes/no)	Method of acquiring resource if not available
PCs (laptop, desktop)	Yes	Resource Available
Smart phone	Yes	Resource Available
Hard drive	Yes	Resource Available
Wi-Fi router (internet)	No	Use the campus's network like RC Braamfontein campus Wi-Fi.

Software Resources	Availability of the resource (yes/no)	Method of acquiring resource if not available
Microsoft Office (Word, Project, Power Point)	Yes	Resource Available
Web browser (Microsoft Edge, Chrome)	Yes	Resource Available
Android Studio	Yes	Resource Available
Visual Studio Code	Yes	Resource Available
Wampserver	No	Use the one provided by the school on a virtual machine or on campus.

Economic Feasibility Issues

Name of task	Team member responsible for task	Time allocated to complete task	Tariff per team member in Rand per hour	Cost per Task (time * tariff)
Determine scope and key role players	Zwelibanzi	42 hours	120	5040
Complete Work Breakdown Structure	Mthokozisi	42 hours	120	5040
Project Schedule	Bongumusa	42 hours	120	5040
Review requirements for analysis criteria	Mthokozisi	24 hours	120	2880
Determine functional requirements	Bongumusa	40 hours	120	4800
Develop Use-Case Diagrams	Zwelibanzi	38 hours	120	4560
Develop logical system model	Bongumusa	38 hours	120	4560
Design the application architecture	Zwelibanzi	74 hours	120	8880
Design GUI components	Mthokozisi	74 hours	120	8880
Develop code for input controls	Bongumusa	74 hours	120	8880
Develop code for program modules	Mthokozisi	74 hours	120	8880
Develop database using a DBMS	Mthokozisi	74 hours	120	8880
Populate the database using real data	Zwelibanzi	74 hours	120	8880

Verify and test the system	Bongumusa	74 hours	120	8880
Develop user support	Mthokozisi	74 hours	120	8880
implement the prototype	Zwelibanzi	224 hours	120	26880
Demonstrate working prototype	Zwelibanzi	224 hours	120	26880
Total budget for project				R156720

Team Members

Mthokozisi Luthuli - ST10127546 - (Group 1)



Mtho_Luthuli_CV.docx

Zwelibanzi Chauke - ST10127149 - (Group 2)



Zwelibanzi Shaun CV.pdf

Bongumusa Cele - ST10127074 (Group Leader) - (Group 1)



Bongumusa Cele's CV.pdf

Project Charter



Project Charter Signed BMZ IT SOLUTIONS.pdf

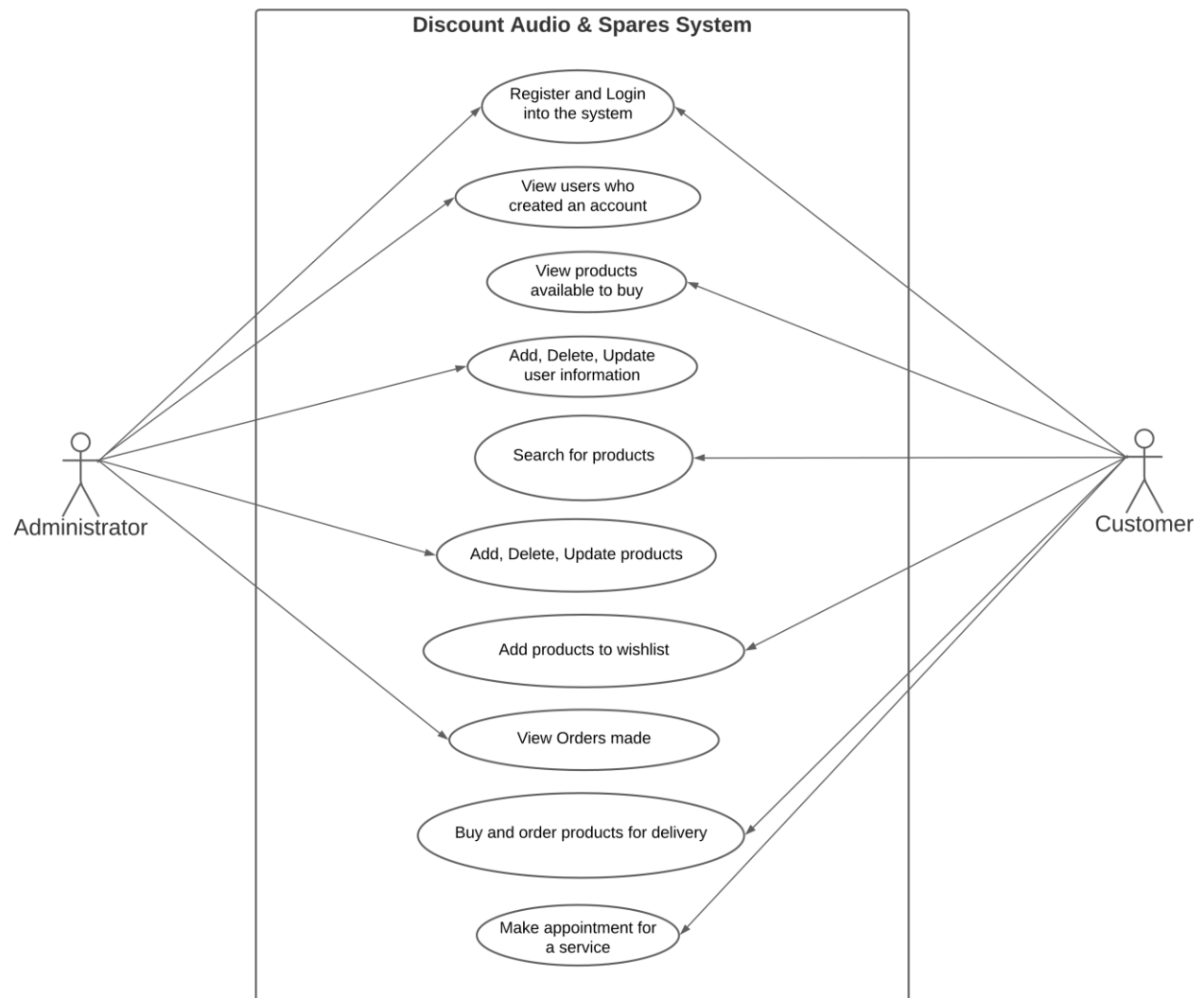
Requirements Analysis

Problem Domain (System Analysis)

Discount Audio and Motors Spares is a newly established business which offers and provides services related to vehicles. Since the business was just established two months ago, it does not have a huge clientele and so it needs to attract new customers to sell its vehicle audio products, accessories, alarm systems, motor spares and etc. at an affordable price. Another problem the business is facing is that the shop is currently located in Alberton and this becomes a problem due to the distance certain customers have to travel to get the shop location. The app and website will not only help customers shop for car parts and be able to book various vehicle services online but also attract a new clientele from all around the country.

The website and mobile application should allow clients or users to register for an account, once they have registered, they must login into the systems using their registered credentials. After logging in, they will be able to view products available for sale, add desired items to cart, search for products they are looking for specifically, complete their orders and lastly be able to book for appointments for different kinds of car services. There will also be an admin page where the system's administrator will be able to view orders, bookings, enquiries, add products to store and also update prices.

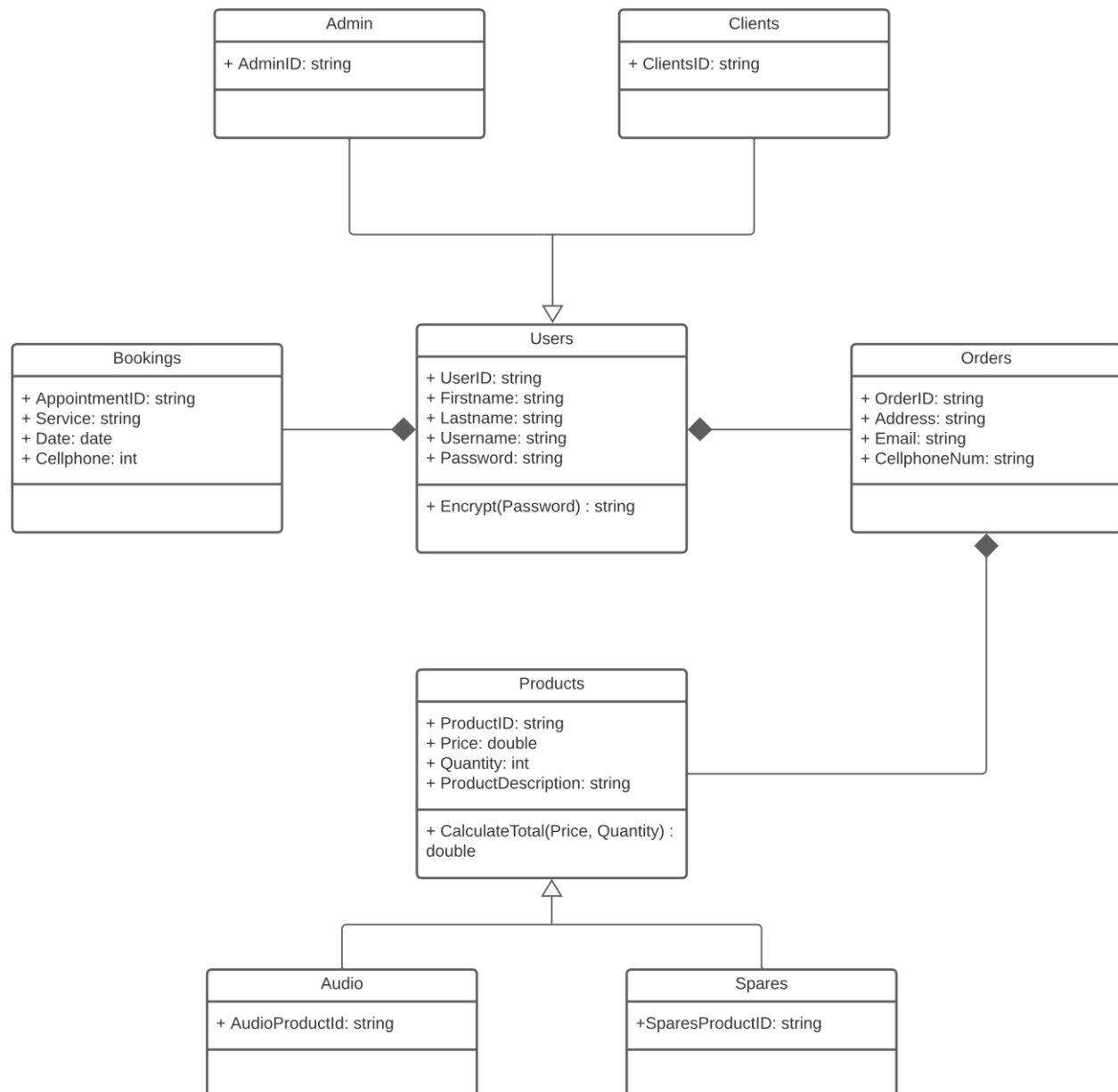
Solution Domain (Functional requirements specs and UML Use Cases)



Logical System Model

GUI		System Process (Method)	Entity Relationship (Table)
Input	Output		
Enter user credentials	No Output	Register new user	Users Table
Enter login details	No Output	Login user to the system	Users table
Enter bookings details	No Output	Record new appointment	Bookings table
No Input	Products up for sale	Display products available for sale	Products table
Enter product name	Product searched by the user	Search for desired product	Products table
No Input	Total Price	Calculate total amount of ordered products	Orders table
No Input	No Output	Count number of products bought	Orders table
No Input	Daily/weekly/monthly appointment report	Display appointment booking details to the user	Bookings table
No Input	User invoice statements	Display all order information for the user	Orders table
Enter product information	No Output	Add, Delete, Update products	Products table

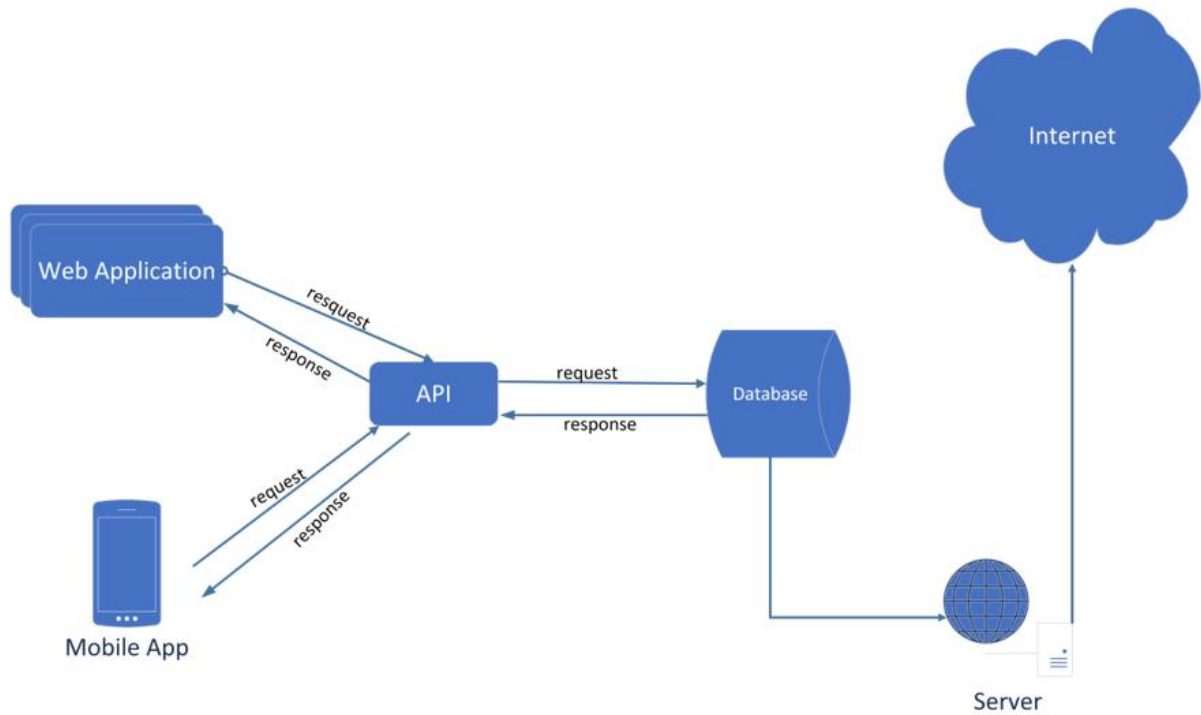
Class Diagrams



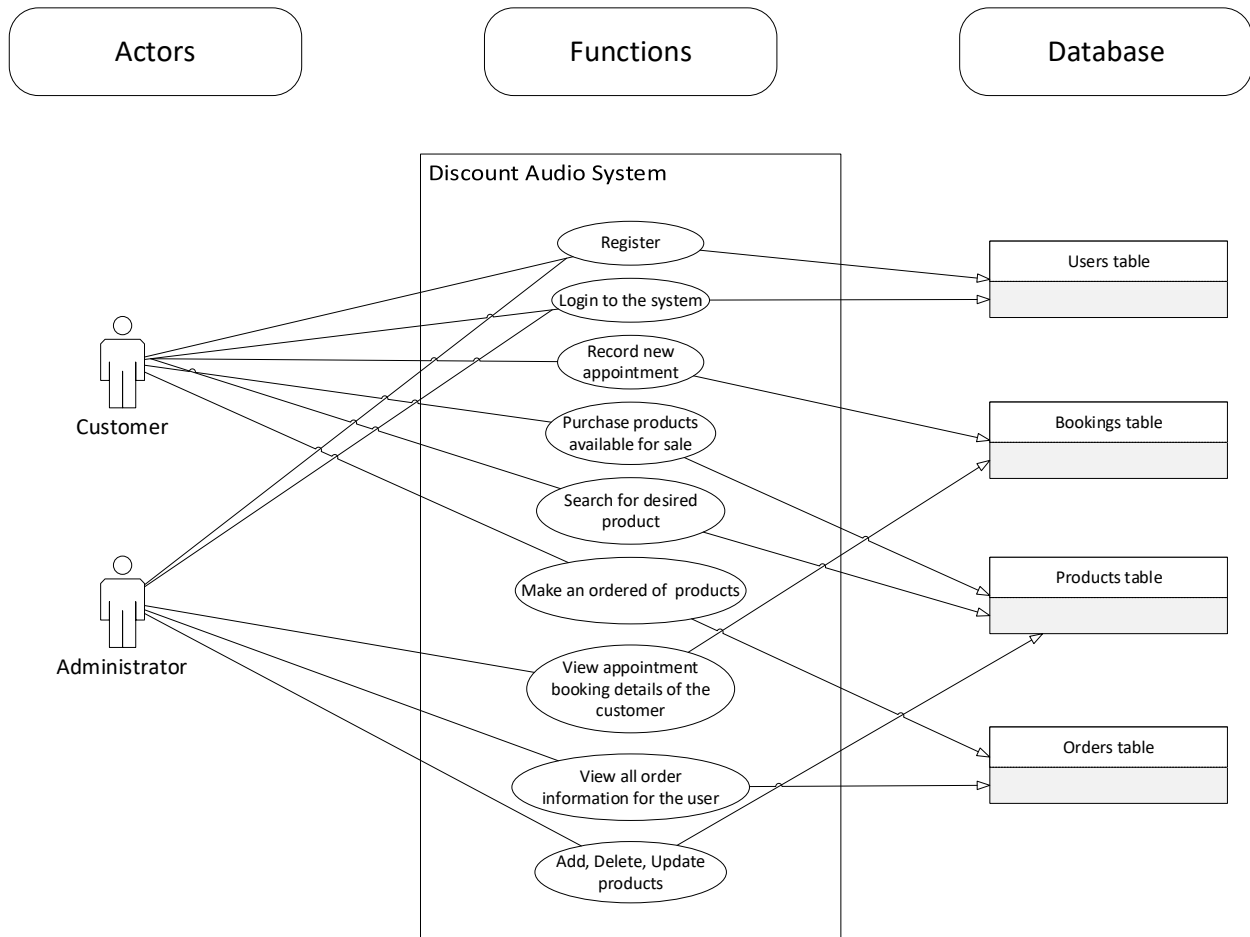
System Design

Logical Architectural Design

High Level Architectural Design



Low Level Architectural Design



Interactions with the User

Registration info

Inputs
First Name
Surname
Email
Password

Registration Info GUI

REGISTER NOW

[Register Now](#)

already have an account? [login now](#)

register as admin [register here](#)

Login Info

Inputs
Username (Email)
Password

Login Info GUI

LOGIN

[Login Now](#)

haven't registered yet? [register now](#)


login as admin [login here](#)


Set An Appointment Info


Inputs
First Name
Email
Date
Time
Service Type


Set An Appointment Info GUI


SET BOOKING

 name

 email

 mm/dd/yyyy

 hh:mm am


 type of service


Contact Us Info


Inputs
First Name
Email
Number
Enquiry


Contact Us Info GUI

GET IN TOUCH

 name

 email

 number

 enquiry

Contact Now

Place Order Info

Inputs
First Name
Number
Email
Payment Method
Address
Province
Postal Code

Place Order Info GUI

PLACE YOUR ORDER

Your Name :

Your Number :

Your Email :

Payment Method :

Address Line 01 :

Address Line 01 :

City :

Province :

Country :

Postal Code :

Add Products Info

Inputs
Product Name
Product Price
Image

Add Products Info GUI

ADD PRODUCT

No file chosen

Database Design

Database Tables

Users

Attributes
UserID [Primary Key]
FirstName
LastName
Email
Password

Products

Attributes
ProductID [Primary Key]
ProductName
Price
Category
Image

Orders

Attributes
OrderID [Primary Key]
UserID [Foreign Key]
ProductID [Foreign Key]
Quantity
TotalPrice
DeliveryAddress

Bookings

Attributes
BookingID [Primary Key]
Date
Time
Service
CellphoneNumber
Email

Messages

Attributes
MessageID [Primary Key]
UserID [Foreign Key]
Number
Email
Message

ERD Design

