Module Code & Module Title

CS6P05NI Final Year Project

Assessment Weightage & Type

25% FYP Interim Report

Semester

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Project Title: **Ranikot Hiking Resort application development**

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Table of Contents

Table of figures

Table of tables

1. Introduction

The following project is a short description of the final year project which I decided to work on. The project is based on development of hotel application for 'Ranikot Hiking Resort'. The application consists of features such as room bookings, food order, online payment etc. The application provides quick access in obtaining any information, such as photo gallery of hotel rooms, list of services, easy and convenient reservations etc.

1.1 Problem Scenario

There are a lot of challenges faced by hotel managers in daily basis like problems in customer handling, keeping records of rooms, booking, and clients, many operational issues etc. The hotel managers may face difficulties in context of room booking services, order management as well due to lack of facilities and manpower. The managers have to keep informing their customers each and every time about the booked rooms and tables in the hotel every time a customer approaches for service in the hotel.

1.2 Project as a solution

This project will help to solve those problems faced by the hotel managers and the staffs in the following ways:-

- Record the booked rooms and tables so that the customers can easily make their decisions for services of rooms and tables.

- Order food according to the table number provided by the customer so that the hotel staffs do not have to search for customers while serving.

- Booking of rooms from their house through the application which will be time saving and convenient.

- Order foods from the application so that the customers do not have to wait for the staffs' arrival.

- Online payment system for rooms and foods so that customers will not have to carry cash for burden.

1.3 Report structure

1.3.1 Background

The background of this project gives the brief description of the project which clarifies the requirements for this project along with the project description and its targeted customers as well.

1.3.2 Development

Development is the process of development of application in this project which contains the phases of methodologies for making of the project. It also helps to show the work breakdown structure in the form of Gantt chart.

1.3.3 Analysis of progress

This section is used to analyze the progress gained in the project. It also explains the current scenario along with the plans that are carried out for the completion of the project.

1.3.4 Future work

Future work is the final section of the project which explains the works that are needed to be carried out in the near future to complete the project and the plans that are to be carried.

2. Aim and Objectives

2.1 Aim

The main aim of this project is to develop an application for hotel for convenience of the hotel managers as well as the customers so that when the customers visit the hotel, they do not have to rely on the hotel managers to answer the queries the customers have.

2.2 Objectives

- To develop an application for easy access to the customers to know the services provided by the hotel.
- To make easy ordering of the desired food by the customers with the table number which they have booked.
- Bookings of the room left along with the showing of booked rooms so that the customers do not get confused.
- Online payment system for the customers who are not carrying cash while visiting the hotel.
- Rating the hotel according to the services provided by the hotel as a customers' wish.

3. Background/Literature review

3.1 Client's Description

3.1.1 Client's Name
   Ranikot Hiking Resort

3.1.2 Decription
Ranikot Hiking Resort is the hotel located in Ranikot, Suryabinayak, Bhaktapur. It is an organization which consists of room facility for night stay for the customers visiting the hotel. It also provides facilities like dinner, campfire etc. to the customers for entertainment purpose of the customers.

Ranikot Hiking Resort has agreed to be the client for this project as the project is useful for the hotel in different ways. They are willing to cooperate with necessary suggestions for the application as well as providing the requirements for completion of the project.

3.2 Similar projects

a. Project 1 (Hotel Shambala)

1. Front page

This is the home page of hotel shambala which contains all the sections including the booking of the hotel rooms along with the short description of the hotel in the about us section.
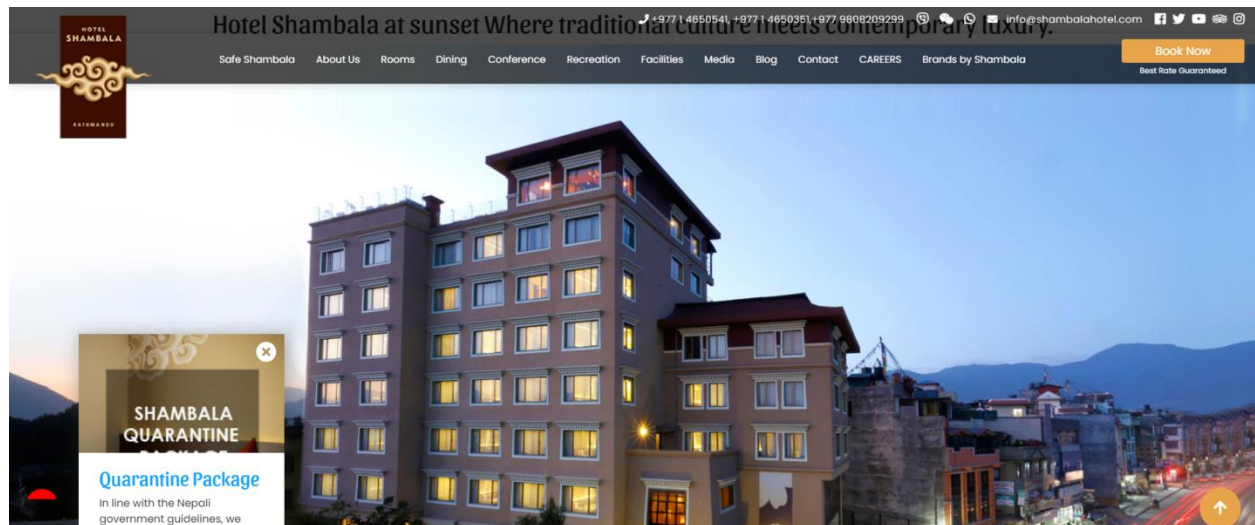
Figure 1: Homepage of Hotel Shambala

2. Room bookings

This page of the hotel sambala application shows the rooms available and the rooms ready for bookings. From this section, the customers can book the rooms of their choice.
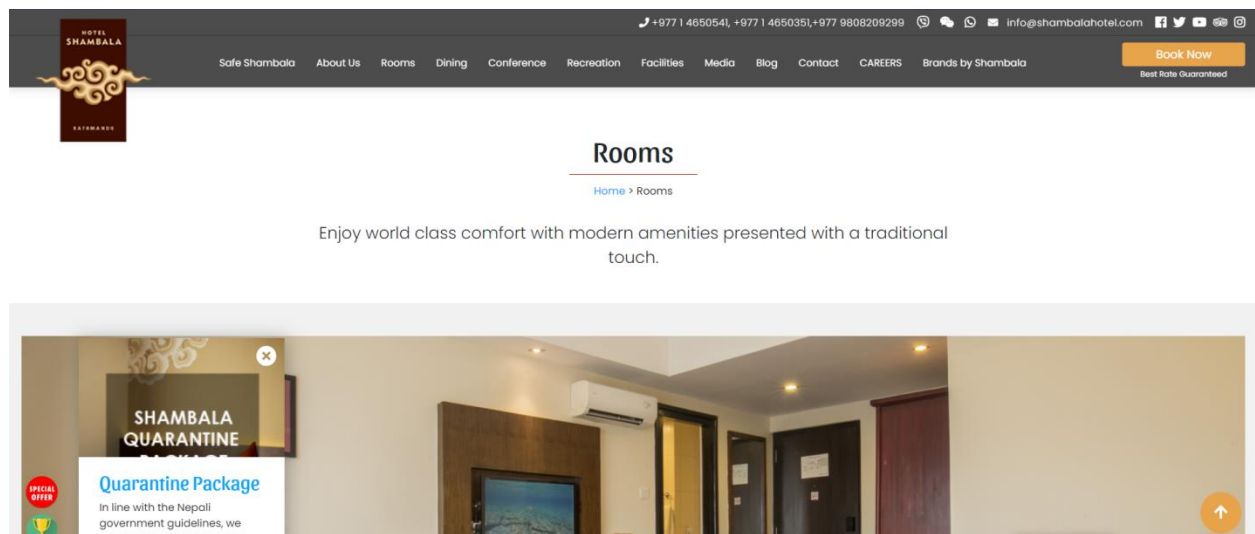
Figure 2: Room bookings for Hotel Shambala

b. Project 2 (Hotel Shanker)

1. Front page

This page is the home page for the application of hotel shanker which shows the basic structure of the hotel along with all the required sections for the hotel application.
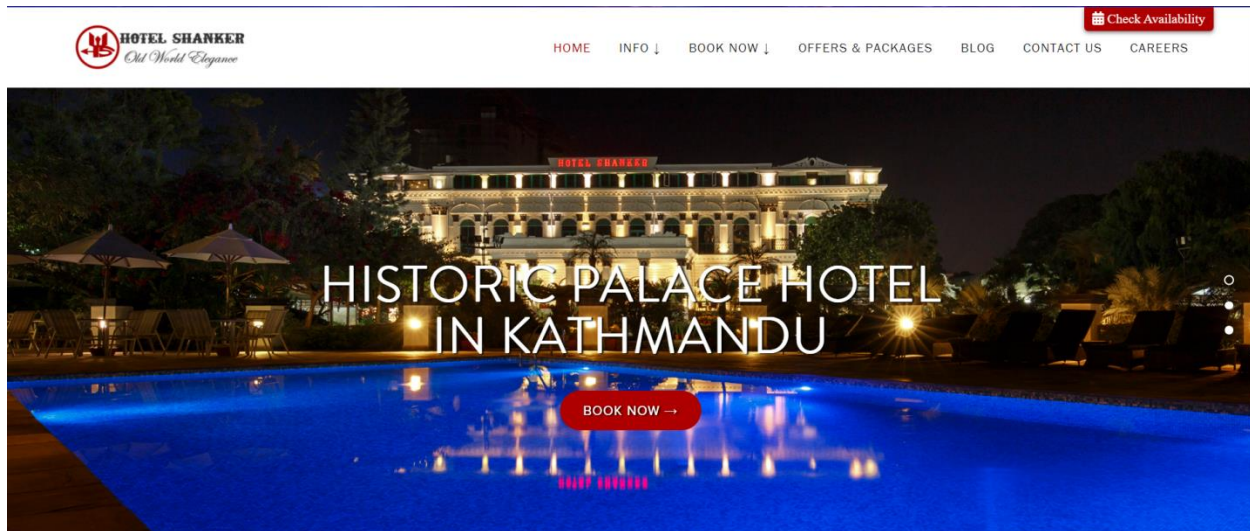
Figure 3: Homepage for Hotel Shanker

2. Availability check

This page of the application is used for checking the availability of the rooms in the hotel from the check in and check out date along with room numbers and people count.
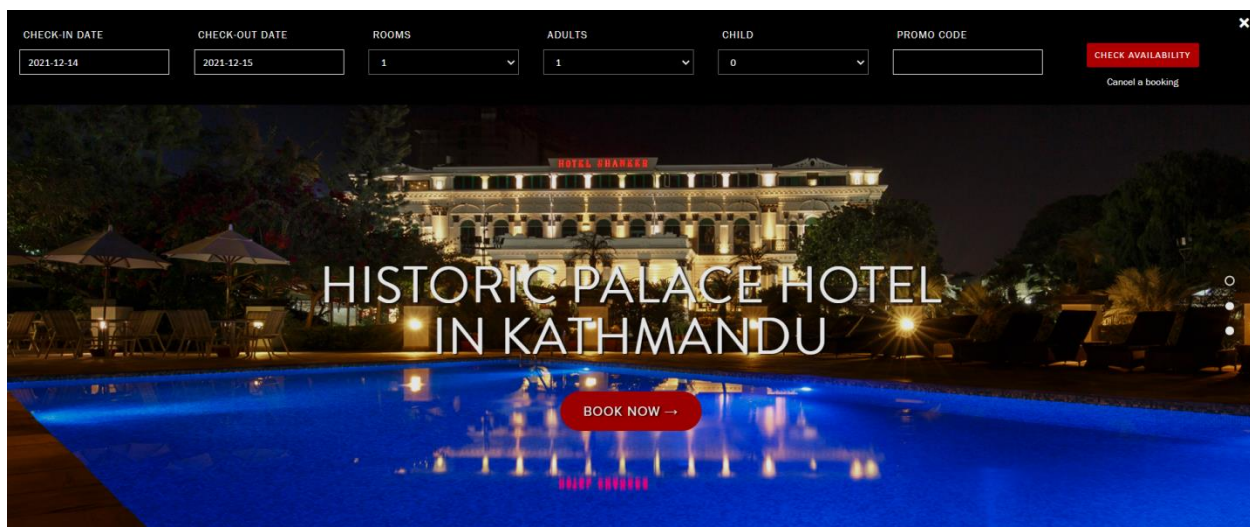
Figure 4: Availability check for Hotel Shanker

3. Room bookings

This section of the hotel shanker application is convenient for the bookings of the room along with the prices of the room so that the customers can easily access the features.
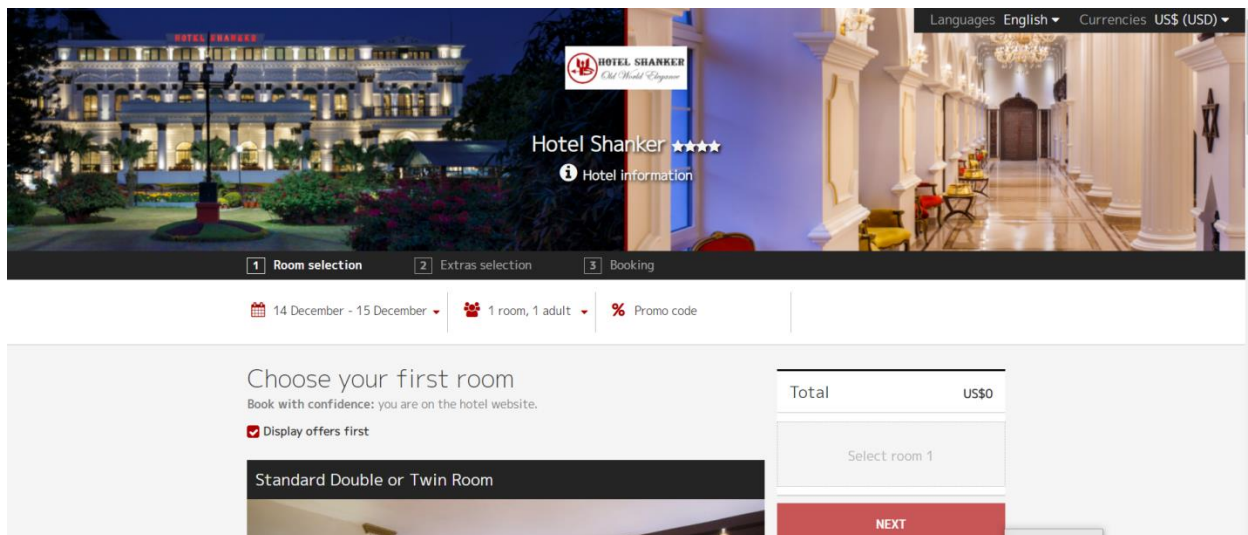
Figure 5: Room bookings for Hotel Shanker

3.3 Conclusion from similar projects
The application developed for these hotels are similar to the application I'm going to develop. The application that is going to be developed in this project consists of similar features such as availability check, bookings of the room, short description of the hotels and many more.

4. Methodology

For the development of the hotel application, I am going to use the programming language Flutter. Flutter is a cross-platform software development framework first introduced by Google in 2015 and released in May of 2017. (Velykyy, 2020) Flutter is a very new but promising technology that has grabbed the attention of huge corporations who have already published apps. (freeCodeCamp, 2018) Flutter has significantly expanded in recent years, expanding its capabilities to include not only iOS and Android mobile development, but also web and desktop applications. (Velykyy, 2020) It's appealing due to its ease of use when compared to designing online applications, as well as its speed when compared to native applications. (freeCodeCamp, 2018)

4.1 Considered methodology

4.1.1 Waterfall methodology

The Waterfall technique, also known as the Waterfall model, is a sequential development process that falls like a waterfall through all phases of a project (for example, analysis, design, programming, and testing), with each phase fully completed before the next begins. (Adobe Experience Cloud, 2020)

The Waterfall process is supposed to follow the proverb "measure twice, cut once." The Waterfall method's success is determined by the amount and quality of work done on the front end, which includes documenting everything in advance, including the user interface, user stories, and all feature variations and outcomes. Because the majority of the research is done ahead of time, estimations of the time required for each requirement are more accurate, and the release date can be more predictable. If parameters change along the way, it's more difficult to shift direction with a Waterfall project than it is with Agile technique. (Adobe Experience Cloud, 2020)

The waterfall method has at least five to seven phases that follow a tight linear order, with no phase starting until the preceding one is finished. The waterfall steps have a variety of names, but its originator, Winston W. Royce, originally defined them as follows: (PROJECTMANAGER, 2019)

Requirements: A significant feature of the waterfall technique is that all customer requirements are acquired at the start of the project, enabling for the planning of subsequent phases without additional customer interaction until the product is finished. At this stage of the waterfall management process, it is assumed that all needs can be gathered. (PROJECTMANAGER, 2019)

Design: The waterfall process's design phase can be divided into two parts: logical design and physical design. Possible solutions are explored and speculated during the logical design subphase. The physical design process transforms theoretical concepts and schemas into concrete specifications. (PROJECTMANAGER, 2019)

Implementation: Programmers assimilate the requirements and specifications from the previous phases and develop actual code during the implementation phase. (PROJECTMANAGER, 2019)

Verification: During this phase, the customer inspects the product to ensure that it complies with the requirements set forth at the start of the waterfall project. This is accomplished by delivering the finished product to the customer. (PROJECTMANAGER, 2019)

Maintenance: During the maintenance phase, the client uses the product on a regular basis, detecting defects, insufficient features, and other mistakes that happened during production. These fixes are applied as needed by the production team until the customer is happy. (PROJECTMANAGER, 2019)

So, this is the short description of the waterfall methodology which canbe used for application development of this project.

4.1.2 Evolutionary Prototype methodology

In this project of application development, the methodology used is Evolutionary Prototype methodology. Evolutionary prototyping is a process of software development in which a prototype is built initially by the developer or development team. Following the customer's initial response, several prototypes are created, each with new features or enhancements, until the final product is revealed. (Runehov & Oviedo, 2013) This prototyping method contrasts from quick or throwaway prototyping in that the developer starts with the most well-understood needs, whereas rapid prototyping starts with the least well-understood requirements. In addition, the first prototype does not have to be created immediately. (Runehov & Oviedo, 2013)
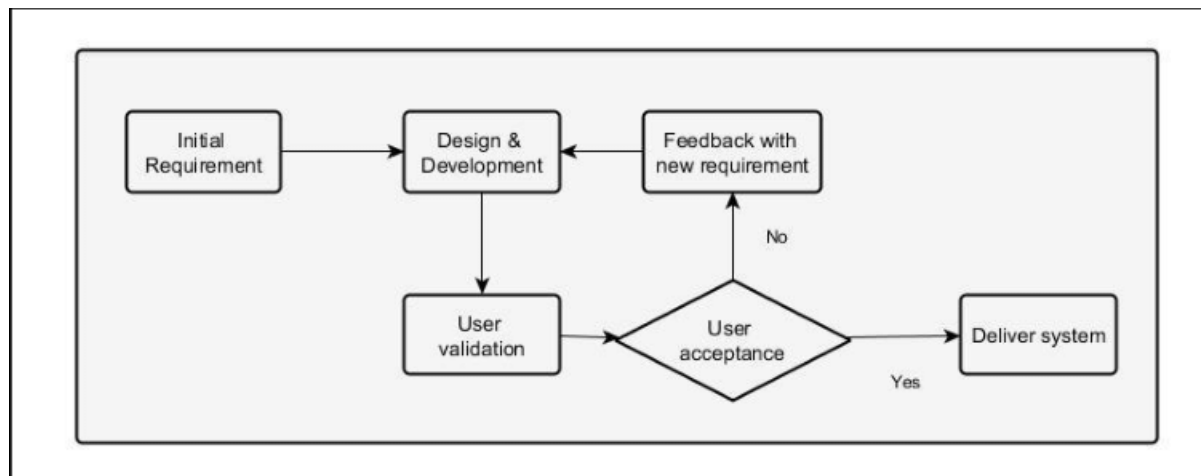
Figure 6: Prototype methodology (Shaharin, 2021)

Different features can be added as well as removed from the application for much better making of the project. Along with the new ideas and information, the system can be changed accordingly making it more flexible. The prototype can be changed multiple times according to the need in the project.

Figure 7: Evolutionary prototyping method

4.2 Used methodology

The methodology used for the completion of this project for the application development is evolutionary prototyping method which is described in the above section of the methodology which can be used for the project.

5. Work breakdown structure
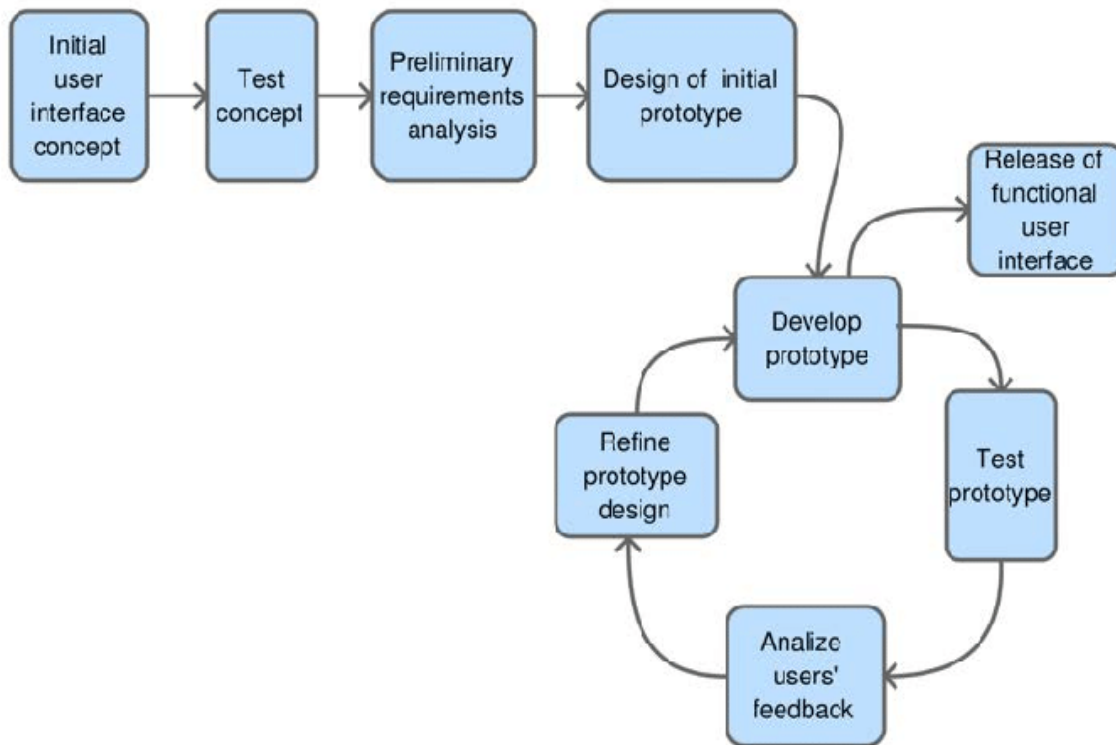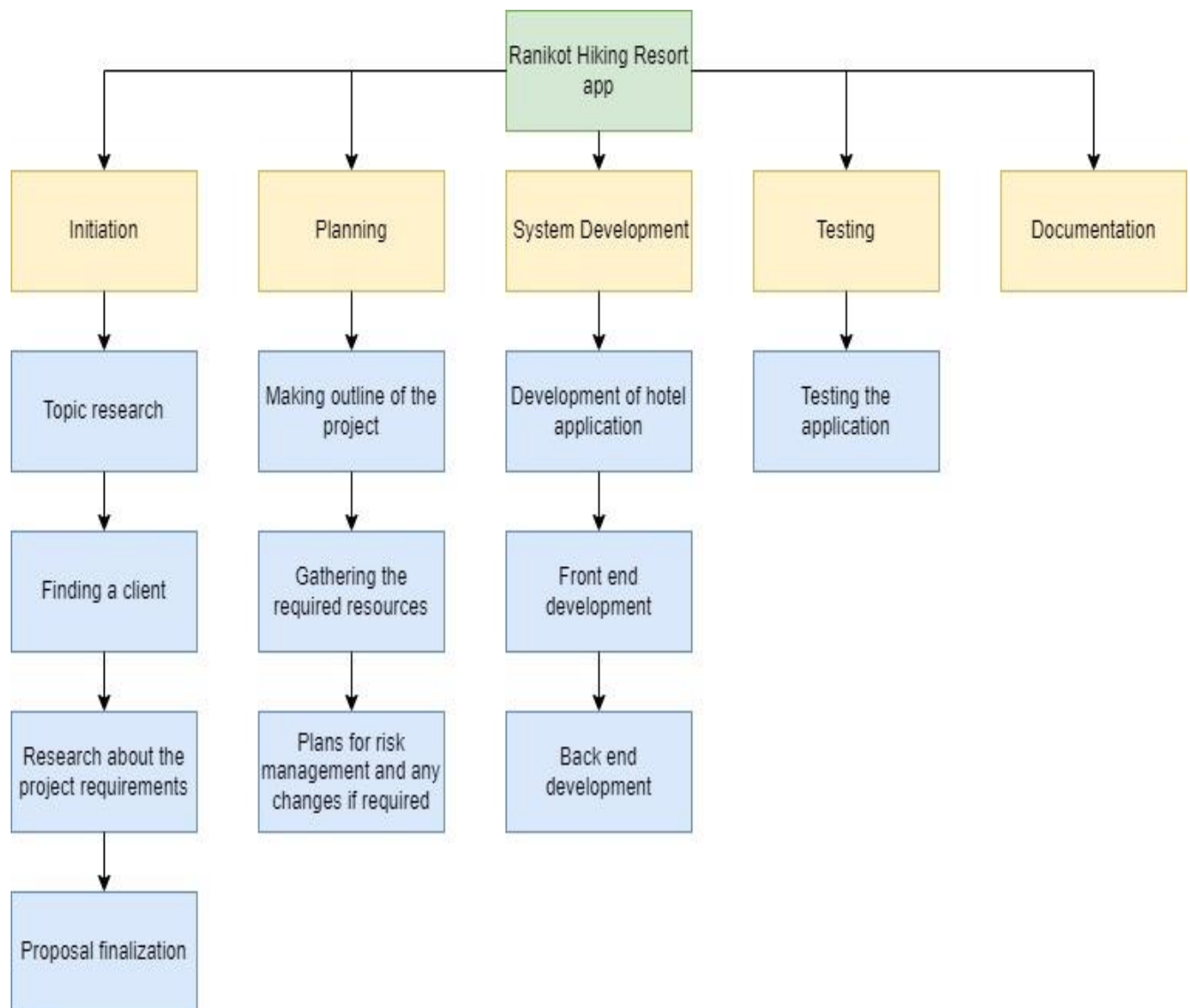

Figure 8:- Work breakdown structure

6. Gantt chart

S.N.	Title of Milestone	Start date	End date	Time duration
1.	Finalizing the topic	14/11/2021	21/11/2021	7 days
2.	Proposal submission	23/11/2021	25/11/2021	2 days
3.	Interim report submission	25/11/2021	15/12/2021	20 days
4.	Finalization of the application	15/12/2021	25/12/2021	10 days
5.	Completion of the application	25/12/2021	30/01/2022	35 days
6.	Changes as per feedback of the supervisor	31/01/2022	15/02/2022	15 days
7.	Testing the application	15/02/2022	25/02/2022	10 days
8.	Deployment of application	25/02/2022	25/03/2022	30 days
9.	Report writing	25/03/2022	10/04/2022	15 days
10.	Submission of the report	10/04/2022	13/04/2022	3 days

Table 1:- Table of Gantt chart

7. Analysis of progress

7.1 Progress table

S.N.	Task	Status	Progress (%)
1.	Selection of topic	Completed	100%
2.	Research on similar projects	Completed	100%
3.	Technical research	Completed	100%
4.	Finalize proposal	Completed	100%
5.	Selection of Client	Completed	100%
6.	Gather required software	Completed	100%
7.	Finalize interim report	Completed	100%
8.	Development of application	Incomplete	0%
9.	Frontend development	Incomplete	0%
10.	Backend development	Incomplete	0%
11.	Client meetup	Incomplete	0%
12.	Testing the application	Incomplete	0%
13.	Final Client meetup	Incomplete	0%
14.	Finalizing the FYP report	Incomplete	0%

Table 2: Progress table of the report

7.2 Progress Review

All the softwares required for the completion of the project has been collected and tested for the future use. The interim report and proposal for the final year project has been submitted along with most of the requirements. Thus, I hope to carry out the progress as per the methodology of the project.
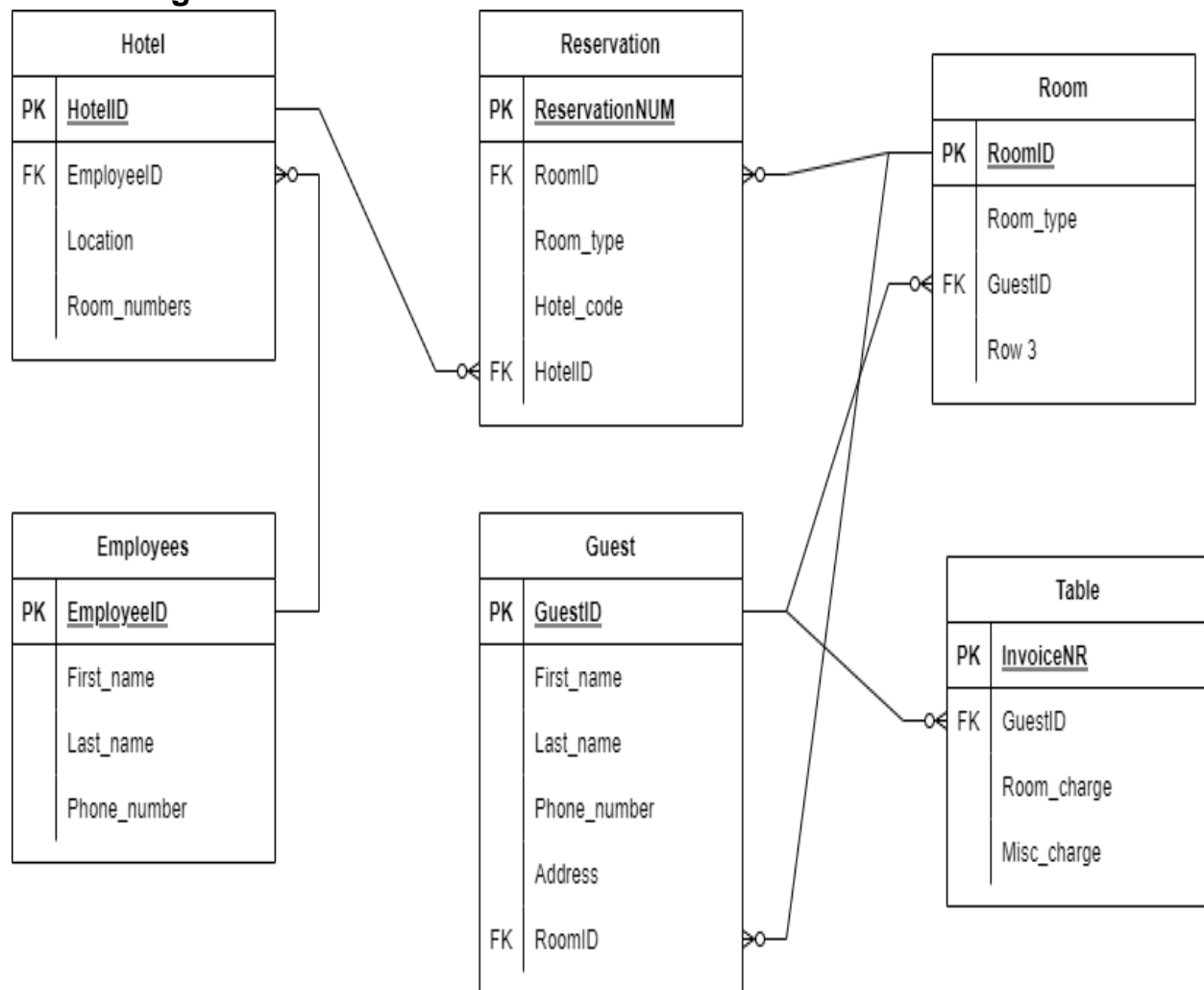
7.3 ER diagram

Figure 9: Entity relationship diagram of the report

8. Future work

The future works that are ought to be carried for this final year project of application development are described as follow:-

- Use of flutter for the frontend development of the application.
- Using dart programming language in flutter.
- Python programming language used in django.
- Use of MySQL for oauth django for backend development of the application.
- Adding features in the application such as food ordering, room bookings, making online payment, rating the hotel etc.

So, these are the future works that are needed to be carried out for the completion of this project.

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10. Appendix

10.1 Resource requirements

10.1.1 Software requirements

1. Flutter

   Flutter is a mobile app SDK which is used to build high-performance and high-fidelity apps for both android as well as IOS using a single codebase.

2. Dart programming language

   Dart is a client-optimized language for fast apps on any platform. (Dart, 2021)

3. Django

   Django is a high-level Python web framework for building secure and maintainable websites quickly. (MDN Web Docs, 2020)

4. MySQL for oauth django for backend

   MySQL is an open-source relational database management software which works on many platform and provides multi-user access to support many storage engines which is backed by Oracle.

10.1.2 Hardware requirements

1. Android phone

2. PC with windows 10

10.2 Milestone review

➢ **Milestone 1:** Finalizing the topic

    o Status: Completed

➢ **Milestone 2:** Finalizing the client

    o Status: Completed

➢ **Milestone 3:** Submitting the proposal

    o Status: Completed

➢ **Milestone 4:** Submission of interim report

    o Status: Completed

➢ **Milestone 5:** Collecting the required resources

    o Status: Completed

➢ **Milestone 6:** System development

    o Status: Incomplete

➢ **Milestone 7:** Finalize development

    o Status: Incomplete

➢ **Milestone 8:** Testing the application

    o Status: Incomplete

➢ **Milestone 9:** Report writing

    o Status: Incomplete

➢ **Milestone 10:** Project submission

    o Status: Incomplete