

Online Hotel Management System

*A Final Lab Report Submitted in Partial Fulfillment of the Requirements for the
Degree of*
Bachelor of Science in Computer Science and Engineering

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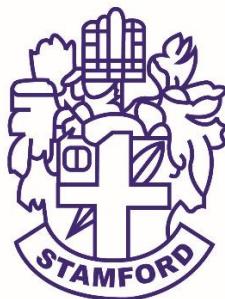
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1 Introduction

The project Online Hotel Management System is a web based application that allows the Hotel Manager & Owner to handle all hotel activities online easily and safely. Using Interactive GUI anyone can easily learn to use the complete system. Using this Hotel Manager don't have to sit and manage the entire activities on paper. And at the same time Owner of the Hotel will feel comfortable to keep a check on Hotel easily from anywhere around the world. This System will give them power and flexibility to manage the entire system from a single online portal. Hotel management System provides room booking, staff management and bill generation features.

The system will be so simple and attractive which will make the customer comfortable to use and choose their ideal room. The system allows the Owner to check the Progress of the hotel from interactive Graphs and he will be notified of each new change made in System.

The system allows the manager to keep track on available rooms in the system and even maintain staff details like their hours worked and salary.

Customers can view and book an available room online and the system will automatically generate the bill according to the number of days the type of room is booked [1].

- ▶ **The purpose of Hotel Management** is to provide quality and standard services to the customers that stay in a Hotel.
- ▶ This project intends to introduce more user friendliness in the various activities such as record updating, maintenance, and searching.
- ▶ The searching of record has been made quite simple as all the details of the customer can be obtained by simply keying in the identification of that customer.
- ▶ A hotel management system is a software application that is implemented by hotels to allow guests to create secure online reservations. This allows guests to reserve rooms in a way that is convenient for them via social media [2].

2 Observation

Many new things that are unknown before can be found out just by being watchful and observing the day to day activity carried out in the premises. This method is very powerful and depends upon the observer and his/her ability to sink the information in and get to a conclusion about certain things [3].

The observation technique is an effective means of deciphering how a user does their job by conducting an assessment of their work environment. It increases the analyst's familiarity with the culture and working style of a group of people. This technique can also be used to verify requirements and deliver instant requirements worthy of consideration [4].

In marketing and the social sciences, observational research (or field research) is a social research technique that involves the direct observation of phenomena in their natural setting. This differentiates it from experimental research in which a quasi-artificial environment is created to control for spurious factors, and where at least one of the variables is manipulated as part of the experiment [5].

2.1 Observation technique is best applied where

Every observation must be guided by clearly stated objectives. The analyst should know what data is to be collected, how observation will be done, when and where to observe, how the data will be collected and what the data will be used for after analysis [6].

Observation technique is best applied where:

1. A current process is to be monitored.
2. The objective is to improve a process.
3. Stakeholders find it hard to explain what they do or what their requirements are.
4. Processes are highly repeatable e.g. manufacturing.
5. The validity of data collected through other means is in question [6].

2.2 Advantages of observation

The data gathered during observation sessions are quite reliable; it is often used to confirm the data extracted using other techniques. Observation can be used to extract information on the physical environment where the task is performed. For example, the analyst can get information on level of noise, physical layout, traffic and so on. Observation is less demanding in nature, which makes it less bias in working abilities. By observation, one can identify a problem by making an in depth analysis of the problems [7].

There are certain advantages to using the observation technique:

- ▶ Very direct method for collecting data or information.
- ▶ Observation techniques are cost effective and produce valid results.
- ▶ Good for explaining meaning and content.
- ▶ Improves precision of the research results.
- ▶ Can be strong on validity and in-depth understanding [8].

2.3 Observe at four software

Hotel Plaza Inn

5 reviews | #59 of 97 B&Bs / Inns in Dhaka City
159/4, D.I.T Extension Road | Fakirapool, Dhaka City 1000, Bangladesh

Save Share

Lowest prices for your stay

Check In Fri, 02/22/19 Check Out Sat, 02/23/19

Guests 1 room, 2 adults, 1 child

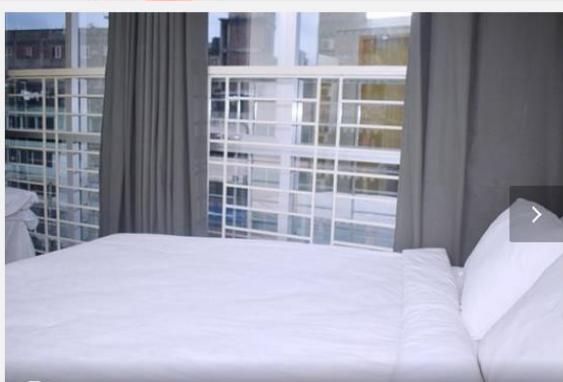
Lock in the lowest price from these sites

Booking.com BDT 2,623 BDT 2,404

[View Deal](#)

Hotels.com ↗ BDT 2,623 Expedia ↗ BDT 2,623

Prices are the average nightly price provided by our partners.



[View all photos \(9\)](#)



Traveler (9)



Room & Suite (2)

Ratings and reviews

2.0  1 review

#59 of 97 B&Bs / Inns in Dhaka City

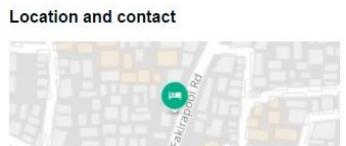
Excellent	0%
Very good	0%
Average	0%
Poor	100%
Terrible	0%

Overview

- Free Wifi
- Family Rooms
- Air Conditioning
- Concierge
- Non-Smoking Hotel
- Dry Cleaning
- Room Service
- Housekeeping

★☆☆☆☆ 3 Star accommodation

Location and contact



159/4, D.I.T Extension Road | Fakirapool, Dhaka City 1000, Bangladesh

Figure 2.1: Hotel Plaza Inn

Link-https://www.tripadvisor.com/Hotel_Review-g293936-d12815719-Reviews-Hotel_Plaza_Inn-Dhaka_City_Dhaka_Division.html

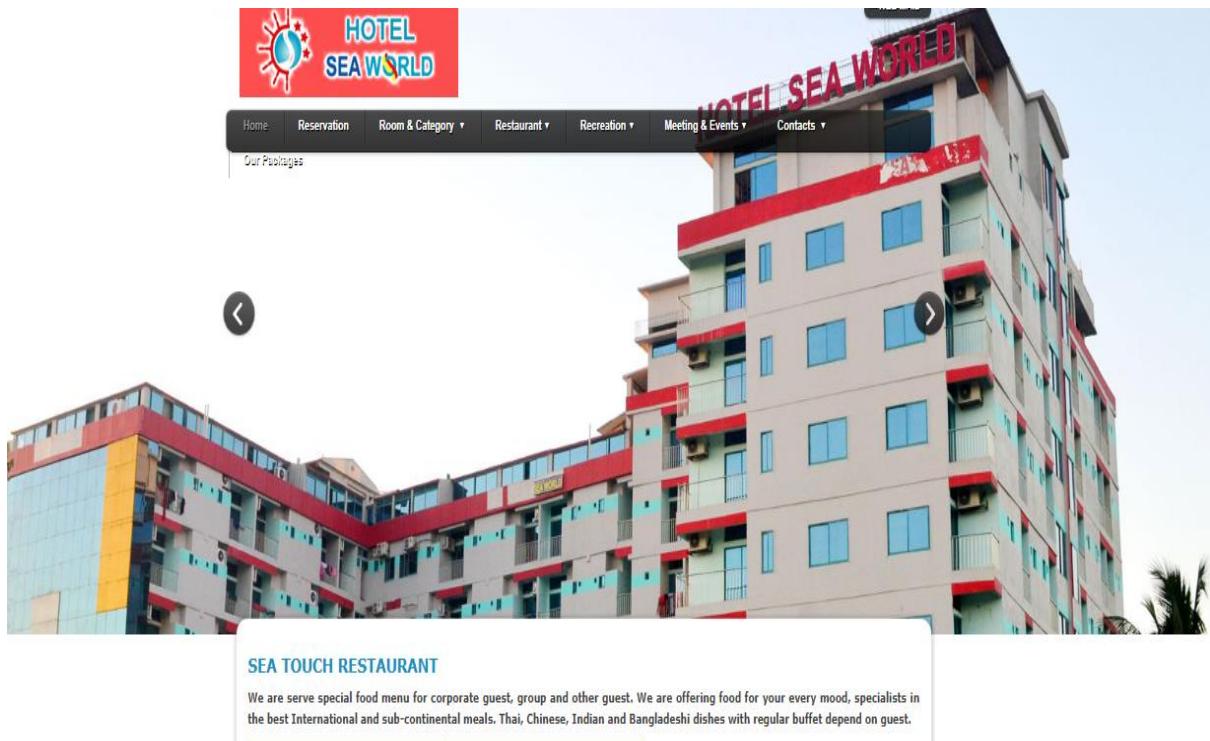


Figure 2.2: Hotel Sea World

Link-<http://hotelseaworld.com/final/index.php/reservation>

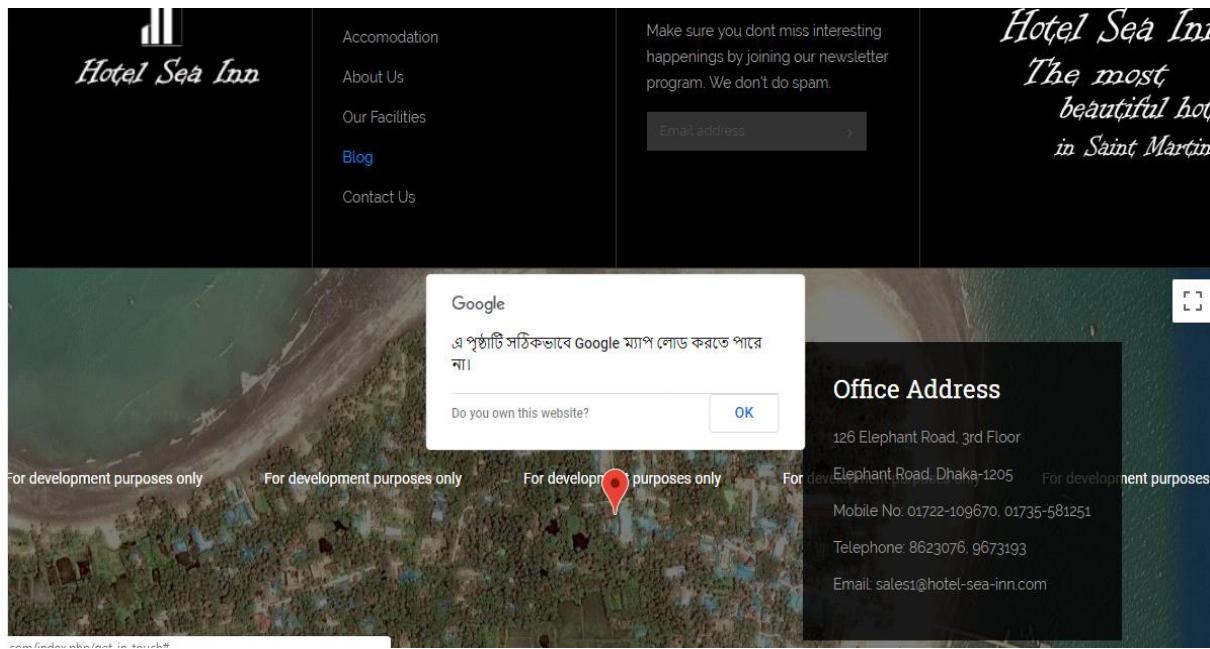


Figure 2.3: Hotel Sea Inn

Link: <http://hotel-sea-inn.com/>

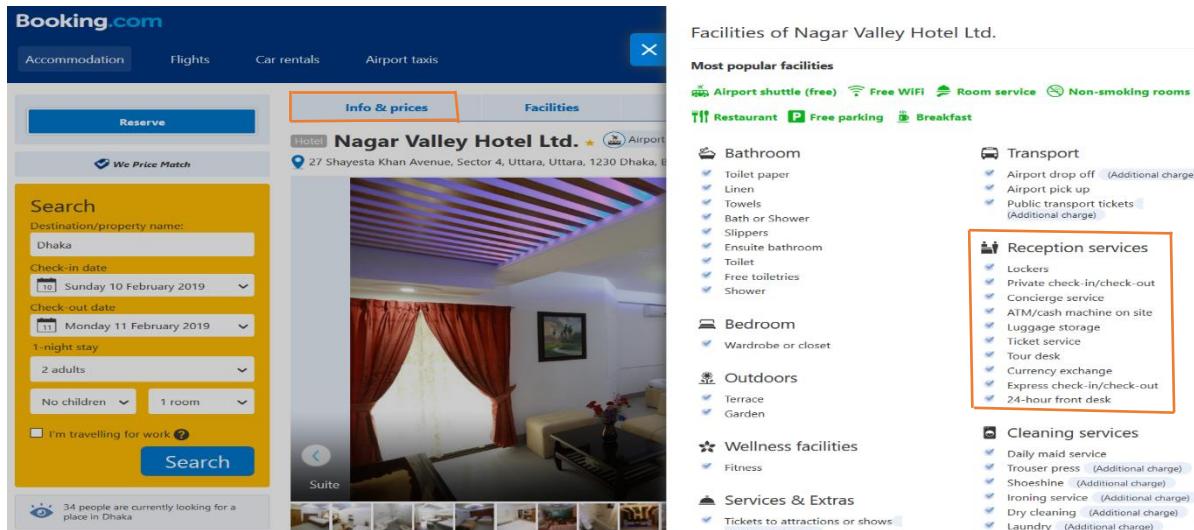


Figure 2.4: Hotel Nagar Valley

Link: <http://nagarvalleyhotel.com/>

2.3.1 Problem of the first software

❖ Problem of this website:

- 1 Information is not enough about the hotel like parking is available or not.
- 2 Design of the website is so poor.
- 3 There is no option about room type like single room or double room.
- 4 Maintenance of the website is very poor.
- 5 There is no information about food.

❖ Solution of the first software:

- 1 On our website we will try to mention whether there is a parking facility or not.
- 2 Design of the proposed website must be better than the existing website.
- 3 To specify that hotel provide the room type like single room or double room.
- 4 Should be regular maintain of the website.
- 5 In a hotel website there is must be option for food menu so that user see the food facility of the hotel.

2.3.2 Problem of the second software

❖ Problem of this website:

1. The Design of this website is too old. There have no social share and follow buttons. Don't use right image that works for audience.

2. This website don't contain a visual calendar for guests to see availability and book directly for a desired period.
3. There have no image gallery and the information of this website is not enough.
4. There have no online payment system.

❖ Solution of the second software

1. In our website we try to make it attractive to user for booking. Gone are the days of phone and email to make a booking. Guests want to book with minimal clicks. Booking system therefore allow for bookings to be made directly and for guests to receive confirmation immediately.
2. In our website we add a visual calendar so that user can guests can know about which room is available or not in which date in which price.
3. We add right image in right place and keep an image gallery so that guests have clear idea about rooms and food facilities.
4. In our website we add an online payment system.

2.3.3 Problem of the third software

❖ Problem of this website:

1. There is No site map on the website.
2. Web site page is so heavier (5.2MB).
3. There is no booking system available through online.
4. Location of the hotel is not provide clearly.
5. There is no particular check in or check out time in web site.

❖ Solution of the third software

1. We provide a google map in our website so that people can reach without any trouble.
2. Website should be in small size so that there is no loading in the website.
3. In online hotel management system there is must be an online booking system and in our project we provide to our customer for online booking.
4. In our project we provide check-in and check-out process to our customer so that they can pay there payment in online.

2.3.4 Problem of the fourth software

❖ Problem of this website:

1. Slow Process of reservation.
2. In many cases provide a wrong information.
3. There are weaknesses in security.
4. The correct information is not updated at the right time.
5. Third-Party Scams.

❖ Solution of the fourth software:

1. All Reservation details are in the system database and can quickly retrieve any record. To provide a website that can allow a user to search and reserve a hotel room or cancel his/her reservation over the internet at any time. Our booking engine offers your guests a quick and smooth reservation experience requiring minimum efforts while using their pc, smart phone or tablets [9].
2. Many times we have to look at the advantages of the hotel website, after which they cannot get the benefits after booking the hotel, they will have to do all the problem solutions.
3. Security problem is the big issue on any kind of software or website. Many times a lot of information or document are stolen from the website from security problem.

► Security tips to protect our website from hackers:

- i. Keep software up to date.
- ii. Watch out for SQL injection.
- iii. Beware of error messages.
- iv. Check your passwords.
- v. Everyone knows they should use complex passwords, but that doesn't mean they always do. It is crucial to use strong passwords to your server and website admin area, but equally also important to insist on good password practices for your users to protect the security of their accounts.
- vi. Avoid file uploads.
- vii. Allowing users to upload files to your website can be a big website security risk, even if it's simply to change their avatar. The risk is that any file uploaded, however innocent it may look, could contain a script that when executed on your server, completely opens up your website.
- viii. Use HTTPS.
- ix. HTTPS is a protocol used to provide security over the Internet. HTTPS guarantees that users are talking to the server they expect, and that nobody else can intercept or change the content they're seeing in transit.
- x. Get website security tools:
Once you think you have done all you can then it's time to test your website security. The most effective way of doing this is via the use of some website security tools,

Often referred to as penetration testing or pen testing for short [10].

4. At the right time, the correct information needs to be updated so that users do not get any wrong information and they need the right time to get information.
5. If you've had the unfortunate experience of greeting a guest who thought they had a reservation but had inadvertently been victim to a scam on an illegitimate booking site, you know how unsettling this can be [11].

2.4 Objective

The main objective of a website, as a sales tool, is to increase the number of reservation. The website design has an important role in transforming visits into bookings. In the website design/redesign process the marketing department must be involved in order to find new ways to attract customers. The online reservation section must be placed in a visible area of the website and must be easily reachable by the website's visitors [12].

In our website we will try to solution some problem that we discuss in our presentation.

The objectives of our project are:

1. To specify that hotel provide the room type like single room or double room.
2. Should be regular maintain of the website.
3. in a hotel website there is must be option for food menu so that user see the food facility of the.
4. To provide a website that can allow a user to search and reserve a hotel room or cancel his/her reservation over the internet at any time.
5. We provide in our website to specify that there is a parking facility or not.
6. We will provide a check in and check out process on time so that guest check their information.
7. We provide term of online payment method in our website.
8. Design of the website must better than other website.

3 Find Inspiration, Brainstorming and Information Architecture

3.1 Find Inspiration

Something that makes someone want to do something or that gives someone an idea about what to do or create: a force or influence that inspires someone. A person, place, experience, etc., that makes someone want to do or create something. It's a good idea. Do we know there's some inspiration behind everything we do? For instance, many factors can inspire employees to work hard. We may want to earn more, make good impression on boss or get promoted. Such factors can motivate us to work with full dedication. So, yes it's really important to get inspired to give our best to something. But, why do we need to do this at individual level? What's the benefit of finding inspiration at work for yourself? Does this make difference in an organization's performance? And, most importantly does it make any difference in our performance? We've got answers to all such questions. So, let's find out what's the big deal –

- A divine influence or action on a person believed to qualify him or her to receive and communicate sacred revelation.
- The action or power of moving the intellect or emotions.
- The act of influencing or suggesting opinions.
- The act of drawing in, specifically the drawing of air into the lungs.
- The quality or state of being inspired [13].

3.1.1 Advantages of find inspiration

- Motivates you to work harder to achieve goals:

If you've found inspiration to do something you'll give your cent percent to it. This is probably the biggest benefit of inspiring employees. An organization's success depends on the mutual efforts its employees make. When every employee works hard to give his/her best it becomes easy to achieve goals [14].

- Helps keep stress at bay:

If you find a task boring you'll end up getting frustrated of it. On the other hand, you feel happy to do what inspires you. And, as a result you're less likely to feel stressed out at work. Overstress not only affects your mental peace, but also has negative impact on your productivity. Therefore, it's crucial to ensure that employees find their work interesting and feel encouraged to do it [14].

- Inspiration is contagious:

The key is to keep company only with people who uplift you, whose presence calls forth your best.—Epictetus. An inspirational person spreads inspiration everywhere. When you have inspirational people in your organization it affects other employees in a positive way. They'll feel motivated and try to give their best. It'll also encourage healthy competition at work [14].

- Inspiration fosters creativity:

If an employee does a task with all his/her heart he/she will find many ways to complete it efficiently and successfully. Therefore, it's important to make a task challenging and interesting, so that it encourages brainstorming. Remember, innovation is a must for an organization to meet the challenges of the competitive world[14].

So, these were some of the positive effects of finding inspiration at work. Now, the question is how to inspire your employees? Take a look on how employees can find inspiration at work –

➤ Read inspirational stuff:

You should read motivational thoughts and books to get inspired. Words have powerful impact on you. It's also a good idea to follow blogs that inspire you. Start following inspirational people on Twitter. Surround yourself with motivational and positive stuff and see the difference [14].

➤ Chase smaller goals:

You'll not find a task boring or difficult if you divide it in smaller parts. Make these smaller parts your daily goals. And, start working to complete them one by one. This way you'll be able to achieve big targets with complete ease.

➤ Reward yourself for achieving targets, even smaller:

Don't forget to reward yourself for achieving small targets. It's human nature to expect more. Therefore, rewards encourage us to work harder. For instance, if you're done with a smaller task treat yourself with a chocolate at lunch. And, you can always think of bigger rewards for bigger achievements [14].

➤ Receive feedback

Inspiration also comes from positive feedback! Ask your colleagues, manager and seniors for their feedback on your work. Ask them about the things they think you're good at and where do they expect improvement. When you do your best and receive positive feedback for your good work it inspires you to perform even better .

So, keep yourself motivated to make the best of your talent. It's a must for an organization as well as for you! Do everything possible to create an atmosphere in which you feel happy to work [14].

3.1.2 Find inspiration of our software

We find inspiration for our software Online Hotel Management system by visiting some website:

➤ **Innovation:**

Innovation is the key to business excite. We are known as a creative problem-solver able to think outside the box. We are able to apply this inspiration force to everything we do to your business problem.

➤ **Integrity:**

We take pride in our work and it shows. Right within ourselves, in the way we conduct business, interact with customers, work with our partners, and develop software, we carry a strong work ethic and a conviction that things have to be done the right way.

➤ **Quality:**

Quality is at the center of everything we do. We set the highest quality standards for ourselves, and continuously measure how we stack up against these goals. In order to align our processes with our values, we create the business processes required to ensure quality is built into the core of our services.

➤ **Agility:**

With our love of change, we are continuously adjusting to the new challenges we face every day. May it be re-structuring to better meet our customer needs, embracing new technologies, or re-engineering our business processes, we are convinced that there is always a better way, and we are constantly looking for it. We do not fear change; we embrace it.

➤ **Team players:**

We have a strong company spirit, and although not afraid of having fun, we take our work very seriously. We care for and greatly respect every individual on the team, whether on an internal project or as part of a larger customer project. When difficulties mount and our backs are against the proverbial wall, we have the courage to do things right and to do the right thing – even if this means long days, lost weekends, or a complete re-design [4].

3.2 Brainstorming

Brainstorming is a creativity technique in which ideas are generated in order to solve a problem. The main result of a brainstorm session is a solution to a problem. The solution can be an idea which is a complete solution to the problem. It can be a list of ideas, leading to an approach to a subsequent solution of the problem. Or it can be a list of ideas resulting into a plan to find the final answer. Brainstorming was originated by Alex Osborn. A good brainstorming diagram is an excellent tool to help your team arrive at the best ideas and plans. Brainstorming diagrams help you develop any system of related ideas or information by showing interrelationships among topics in a hierarchy. They improve clear associative thinking and communication, which encourages creativity and problem solving[15].

- **Brainstorming** is "a conference technique by which a group attempts to find a solution for a specific problem by amassing all the ideas spontaneously by its members".
- It is a process designed to obtain the maximum number of ideas relating to a specific area of interest.
- A technique that maximizes the ability to generate new ideas.
- It is a time dedicated to generating a large number of ideas regardless of their initial worth.
- Brainstorming is a part of **problem solving** which involves the creation of new ideas by suspending judgment.
- It is the free association of different ideas to form new ideas and concepts.

► Who will use the brainstorming

1. New product development - obtaining ideas for new products and making improvements to existing products.
2. Business planning - develop and improve product ideas.
3. Team building - generates sharing and discussion of ideas while stimulating participants to think.
4. Advertising - developing ideas for advertising campaigns

5. Problem solving - issues, root causes, alternative solutions, impact analysis, evaluation.
6. Process management - finding ways of improving business and production processes.
7. Project Management - identifying client objectives, risks, deliverables, work packages, resources, roles and responsibilities, tasks and issues [15].

► Brainstorming for Problem Solving

1. Improve initiative: During a brainstorm session, participants are encouraged to constantly throwing their ideas, to take initiative all the time. This initiative can last even after the session.
2. Improve creative thinking: Participants are encouraged to look from a creative perspective to the problem and the power of association is used to create ideas.
3. Improve morale: The participants work together as a team to find a solution to a problem and every participant is encouraged to take initiative.
4. These two factors can improve the morale of the team and its members.
5. Have more FUN: Most of the participants like the interactive and creative atmosphere in which problems are solved and creativity is enhanced [15].

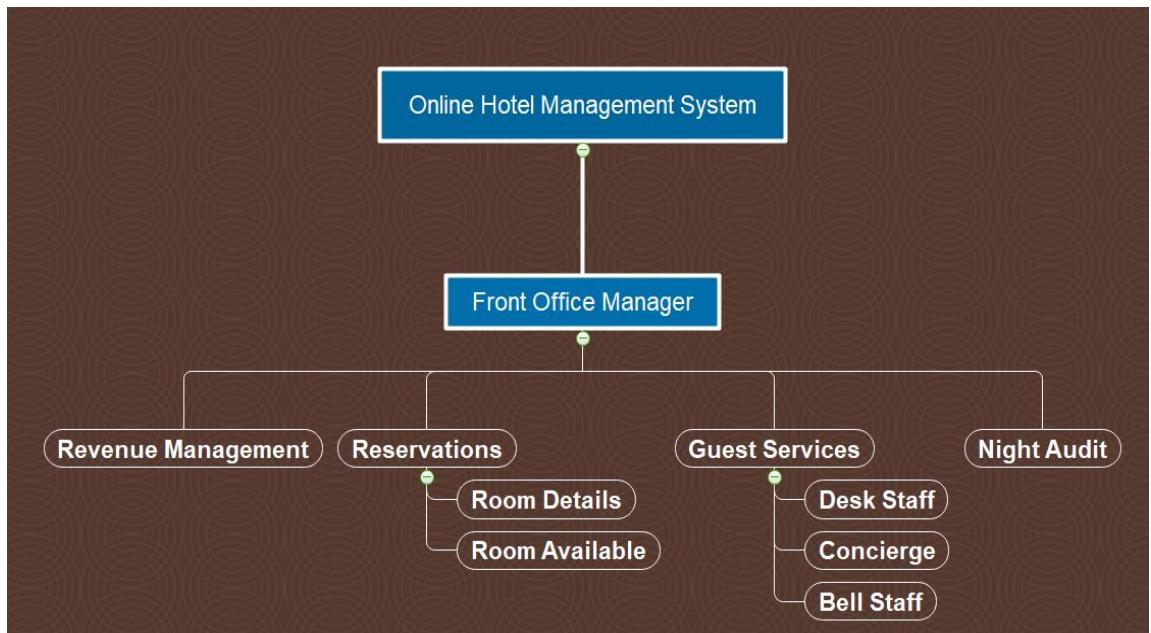


Figure 3.1: Brainstorming for online hotel management system

3.2.1 Advantages of brainstorming needs/goals

- Creative Thinking is Encouraged

When you throw a group of people together with a problem and say, “Let’s throw some ideas out there,” it gets the creative juices flowing. Ideas give birth to more ideas and you will bounce

ideas off one another. The creativity will bubble over. It's much easier to come up with solutions when your thoughts are given free rein. Beware, though, of letting the situation become too free rein because you can end up too far off course [16].

- All Ideas are Accepted

Ideas offered up in a brainstorming session are never wrong; they are just ideas. Because of this, you can afford to put forth your ideas to the group without the fear of failure or ridicule. This can sometimes result in solutions coming from far out of left field because you think "outside the box" [16].

- Everyone is Part of the Team

Group brainstorming can enable all members of the group to feel like part of the team. It encourages widespread participation and involvement; it can make you feel as though your ideas and input are respected and valued. Finding the solution to a problem is a major sense of accomplishment -- especially when it's a group achievement [16].

- It's Exciting and Easy

The concept of brainstorming itself is not a hard thing to comprehend. You simply start with a problem or situation, or even a single word, and then you simply map out any ideas that leap to mind as a solution. You do not need to be a genius or have a degree to become involved in a brainstorming session. The very nature of the group structure can often make brainstorming a fun and exciting process. The often speedy collation of ideas seem to race toward your common goal -- the solution. It can make for an intense and exciting environment [16].

- Discovering new perspectives

Brainstorming gives vision and perspective where these elements may not have existed before. It encourages free speech and creativity, helping to reveal new ideas and solutions[17].

- Defining problems

Spontaneous thinking in a low-pressure environment can often help to define a problem to the point where new alternative solutions start to appear.

- Equal participation

Brainstorming helps to avoid conflict and to give everybody a chance to air their views without immediate evaluation or judgment. In a brainstorming session, everybody should have an equal opportunity to participate in the discussion [17].

3.2.2 Brainstorming for Online Hotel Management system

- Quick and simple reservation process
- Include Social Media Links
- Include videos and image gallery.

- Efficient search box
- User-Friendly Interface
- Mobile-Friendly
- Discounts and offering
- Dynamic
- Email automation

3.3 Information Architecture

Information Architecture is basically:

1. The structural design of shared information environments.
2. The art and science of organizing and labeling web sites, intranets, online communities and software to support usability and findability.
3. An emerging community of practice focused on bringing principles of design and architecture to the digital landscape.

It's about organizing the content and flow of a website based on research and planning. The end goal of information architects is to come up with a structure/design that balances the users' desires with the business's needs.

Users have four fundamental questions when they arrive at a website:

- Am I in the right place?
- Do they have what I am looking for?
- Do they have anything better (if this isn't what I want)?
- What do I do now?

One of your key tasks is to make sure you do a good job at answering these questions – on every page of your site.

This means that you have to

- Assure visitors they're in the right place (always make it clear where they are).
- Make it easy for visitors to find what they're looking for (clear navigation, search etc.).
- Make sure visitors know what their options are (links like "See also", "Related products").
- Let them take various kinds of action (clear CTAs) [18].

► Five steps to putting information architecture together:

Step-1: Gather data about the users.

It's critical that we get inside the user's head. Before you embark on working on the information architecture, you need to know answers to these questions: What problem are we solving? Who needs it? What's this site for? The earlier the purpose and goals are clearly defined (and written down!), the more easily problems are identified and solved, the easier it is to stay focused, and the better the end result [18].

Step-2: Create customer personas and write user stories.

Your website should be designed for somebody, not everybody. Personas are fact-based (derived from user research) fictional representations of your users. They represent the goals, motivations, characteristics, and behaviors of the most important groups of your users. Next step is connecting use cases with personas. Use cases provide a simple means to decide and describe the purpose of a project. Use cases have 2 components: actors and goals [18].

Step-3: Metadata, scenarios, pages.

Once you have an understanding of the users – their intent, the why behind it and how they'd like to achieve their goal – you can begin to figure out how to present your content in a way that will make sense to your users.

There are several good methods to do this, but here's one that I like to use:

❖ Figure out the metadata

Metadata is information about information. It's what helps users find the content they're looking for. Let's say you want to buy a coffee grinder, and go to a website that you know that sells those. If you browse around and can't find it, it's a sign of bad metadata. If you get your metadata right, you've already cleared the first hurdle of effective site design [19].

❖ Create user scenarios

To design the most pleasing experience for your users, start thinking about scenarios featuring user personas. A scenario is a story about someone (your user persona) using your website to carry out a specific task or goal: like booking a flight, buying yoga pants or applying to speak at an event. Scenarios work together with personas by serving as the stories behind why the particular persona would come to your website [19].

❖ Map user tasks to individual web pages

Before you even start thinking about actual design, you need to have the content in place.

“Content precedes design. Design in the absence of content is not design, its decoration.

Each page must do two things:

1. help the user accomplish one specific task,
2. Make the next step easy to access.

There are three types of pages on your site:

- Navigation pages. These help users determine where to find what they want, and give them access to it. Their goal is to send users somewhere else. Typically that's a home page or search results page.
- Consumption pages. These are the “somewhere else” you usually go to articles, videos, pricing information and so on.
- Interaction pages. These pages let users enter and manipulate data. Think search page or a sign-up form.

❖ Offer the right help at the right moment in the most unobtrusive way possible.

Some web pages are easy to use, some might require some learning. Plan for help texts and microcopy to make sure users can complete tasks without confusion.

Step-4: Create user flows

Now that you've figured out the kinds of pages you need on your site, map out the optimal user flows.

When designing flows, it's also important to know the four modes of searching information.

According to her, the four types are:

- Known-item search: Often, when people know exactly what they are looking for and what it's called, they'll mostly use search. But some prefer navigation, so it has to work with a search to get people where they know they want to go.
- Exploratory seeking: This happens when users may have a need but aren't certain what will fulfill it. They might be looking for a re-marketing solution or a new laptop.
- Don't know what I need to know: Sometimes people don't know what they need to know. Somebody looking to buy gemstone jewelry will realize that she has to figure out precious metals, treatments, gemstone clarity, hardness, and many other things. They're looking for one thing, but discover they really need to know about something else.
- Re-finding: People may want to go back to things they discovered in the past. If they saw something they liked on your site during their previous visit, make it easy to find it again (change the color of visited links, use permanent shopping carts etc.).

Step-5: Create sitemaps, wireframes – and gather feedback [19].

You're only 1 person, and you need fresh sets of eyes and brains to challenge your thinking. Maybe you missed something, maybe you misunderstood the importance of something. This is why you need to go through it all with your teammates (or other peers).

3.3.1 Advantages of Inspiration Architecture

- Organizing content in a findable and easily discoverable way.
- Allowing users to complete tasks and goals in a more efficient and effective way.
- Reducing cognitive load.
- Reducing distractions and number of options so users can have a much more efficient and focused experience.
- The easiest way to measure the effectiveness of IA is by monitoring user experience.
- As a critical component of any online store, Information Architecture affects a wide range of different aspects [19].

3.3.2 Inspiration Architecture for our software

- Benefits of Information Architecture to the Website we Operate

The structure or way there is an organization in ways that are used to represent and tag what you see as important implications. See traffic that needs to get analyses as there is data that might have a connection on the online site. Simple personal data and user information make you get an information analysis that is the need.

Looking at maps that truly define site structure makes a reliable declaration and is the way to look at the site in different situations. Seeing two parts that are products and services makes

your site look in place with issues put into use. You can also rename a section so that it is helpful for the user in more circumstances.

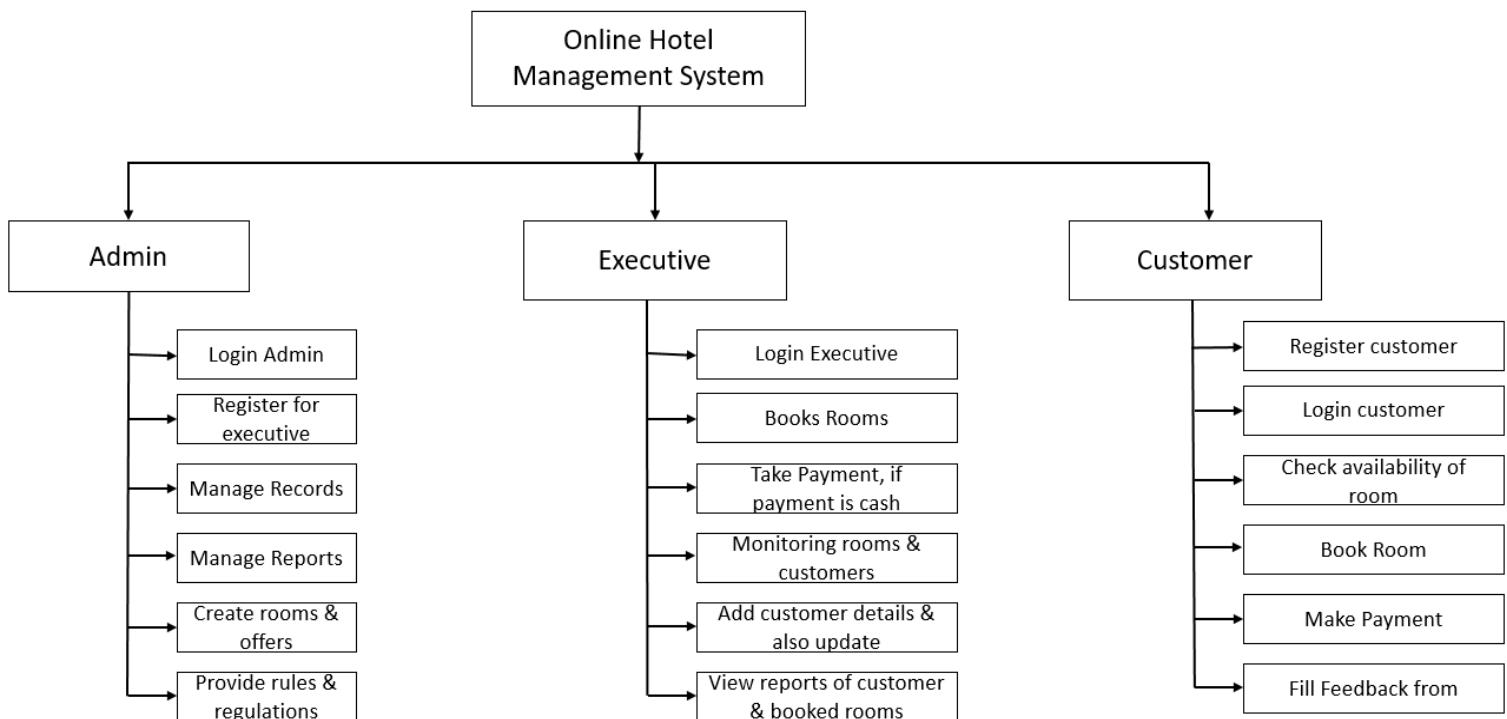
It takes a little time if you make a logical outcome of the page layout you will want to use. The latest information can be adopted when you see a review through a list of aspects you always want to contend through. The intention of information architecture is to balance what is done by the user at different situations [20].

- Implementation of Information Architecture and Its Pros

To make perfection and understanding requirements there are to the website are more compulsive agreements and can always be implicated. A first sight what you do is get a mapping out of the client website with a means to always access and perfect easily. Since the process is time-consuming and slow there are relevant decisive resolutions you use online.

Though a process of information collection is long and tedious there can be recollection in more situations that you need to accrue as. Information on the structure of the information architecture is still a need in most situations when you want consideration. An SEO search engine gets helpful recollection in situations where there is mapping done in most situations [20].

Flow Chart for our website Online Hotel Management System



4 Storyboarding, Wireframing, Paper Prototyping and UXD

4.1 Storyboarding

Storyboards use images and written instructions to plan your online story, course, sequence of events or whatever project you're working on. Essentially a storyboard looks like a comic strip of your plan and can be incredibly simple to put together. It's easy and fun to make a step by step layout of your story.

A storyboard is a visual outline for your video. It's made up of a series of thumbnail images that convey what happens in your video, from beginning to end. It also includes notes about what's happening in each frame. A finished storyboard looks like a comic strip.

Storyboards can be simple or complex. They're usually hand-drawn, although some people prefer to use storyboard software to create their images. A storyboard is similar to a script, but the two aren't quite the same – storyboards are visual, while scripts are text-based.

A storyboard is a graphic organizer that plans a narrative. Storyboards are a powerful way to visually present information; the linear direction of the cells is perfect for storytelling, explaining a process, and showing the passage of time. At their core, storyboards are a set of sequential drawings to tell a story. By breaking a story into linear, bite-sized chunks, it allows the author to focus on each cell separately, without distraction [21].

4.1.1 Advantages of Storyboarding

The most obvious benefit of using storyboards is visualization. Storyboards allow you to see how your app will work and mock up its design and flow without writing hundreds of lines of code. There are three situations in which storyboards are especially useful. The first is when you're a beginner developer. The idea of drag-and-drop elements to create an app and visualize how it will work is quite appealing to beginner developers. Trying to create a UI with custom code can be daunting, and we're sure that storyboards have inspired many iOS developers in their early days. However, experienced developers also use storyboards, combining them with other strategies [21].

Another use case is when you need to implement a static part in your application. In this case, storyboards can help you with a static flow because they basically are a WYSIWYG tool.

Storyboards are also the perfect solution if you want to see a general app flow without actually building an app. They're good for prototyping and demonstrating an app before development begins.

Also, storyboards are well supported. There's evidence that Apple believe storyboards to be a great solution for developers. For example, you need to use them for UIs in Watch OS.

- It helps you organize your thoughts.
- It helps you plan your video more effectively.
- It helps you communicate your ideas to other people.
- It simplifies everything that comes later.
- It helps to keep your group organized.
- It helps you in the editing process to pre-plan your narrative.
- It gives you an idea of what you want to do – it's a planning document, not the law so you can easily change the ideas you had [22].

4.1.2 Storyboarding of our software

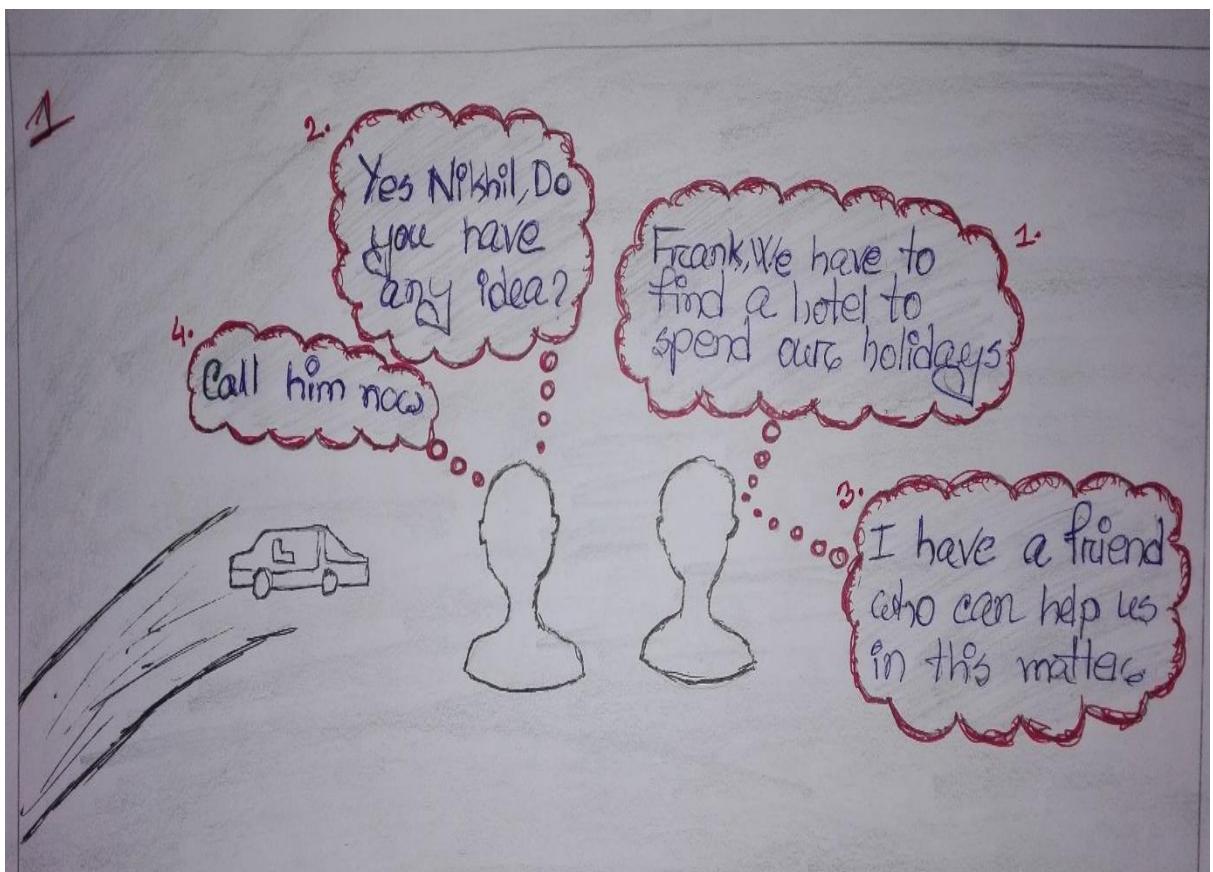


Figure 4.1.2.1: 1st Storyboarding

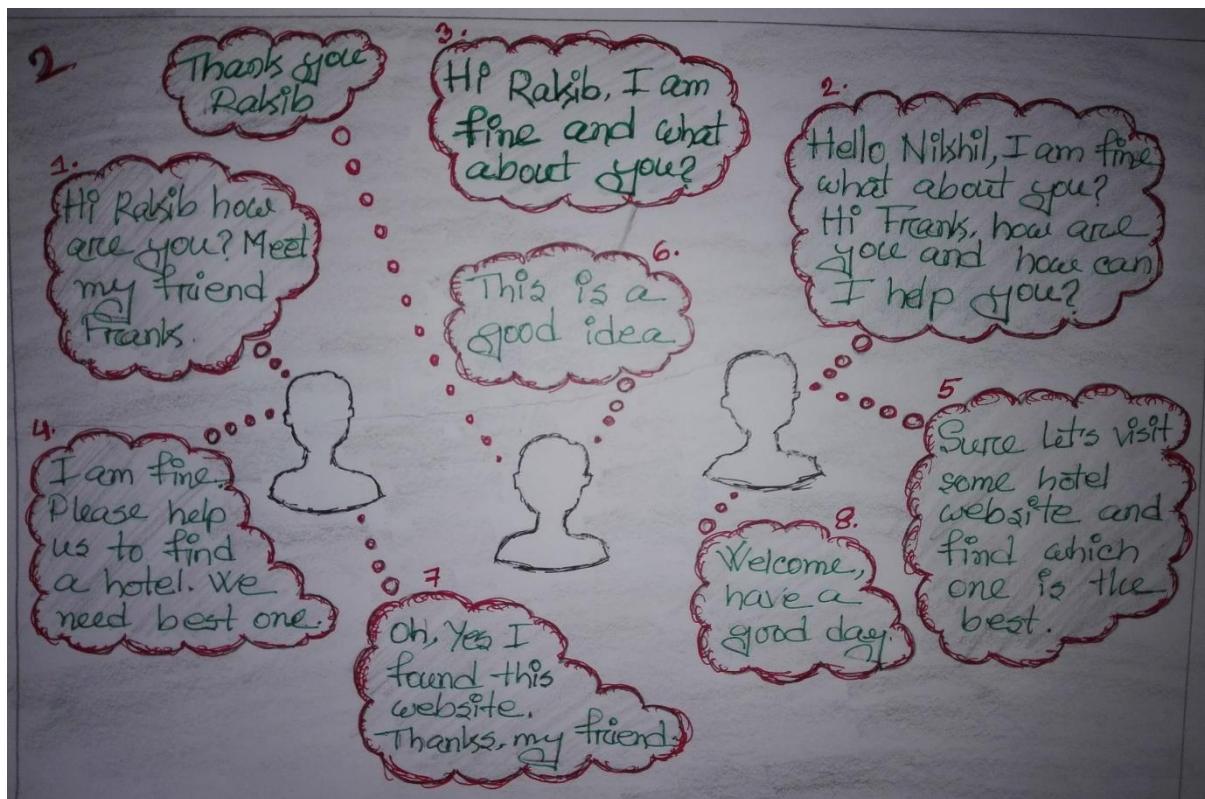


Figure 4.1.2.2: 2nd Storyboarding

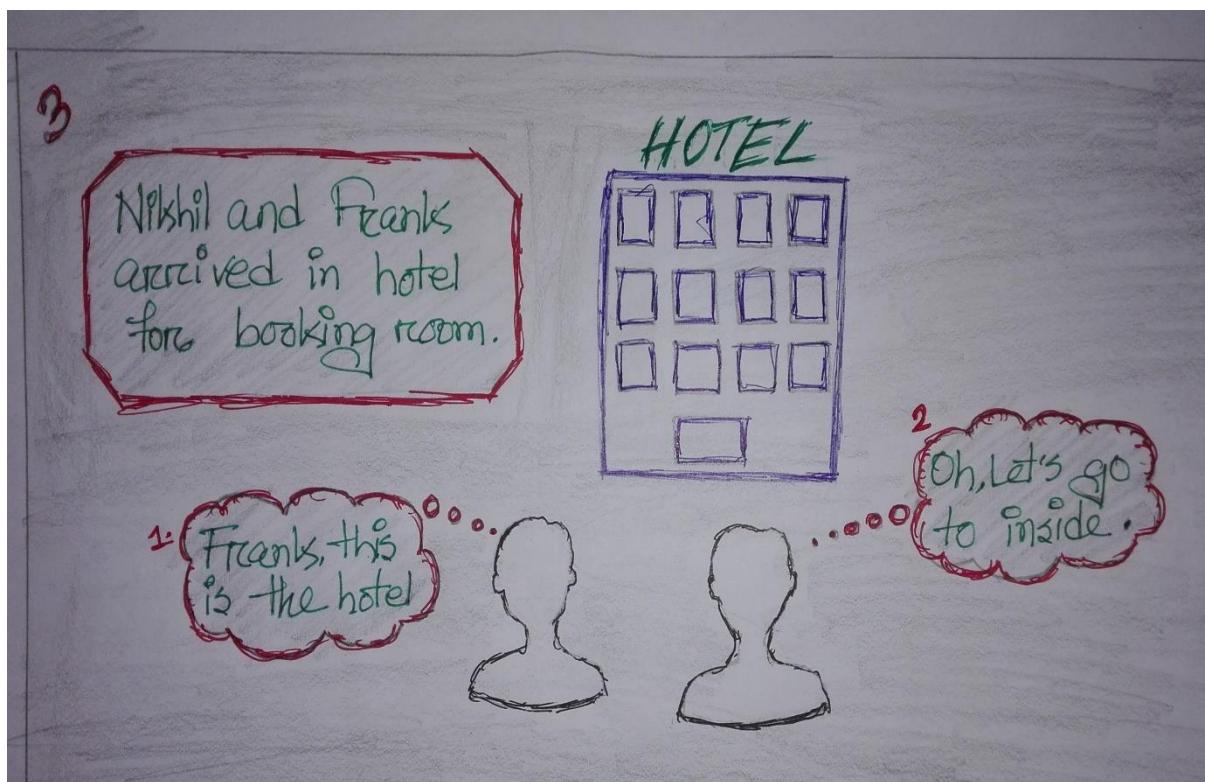


Figure 4.1.2.3: 3rd Storyboarding

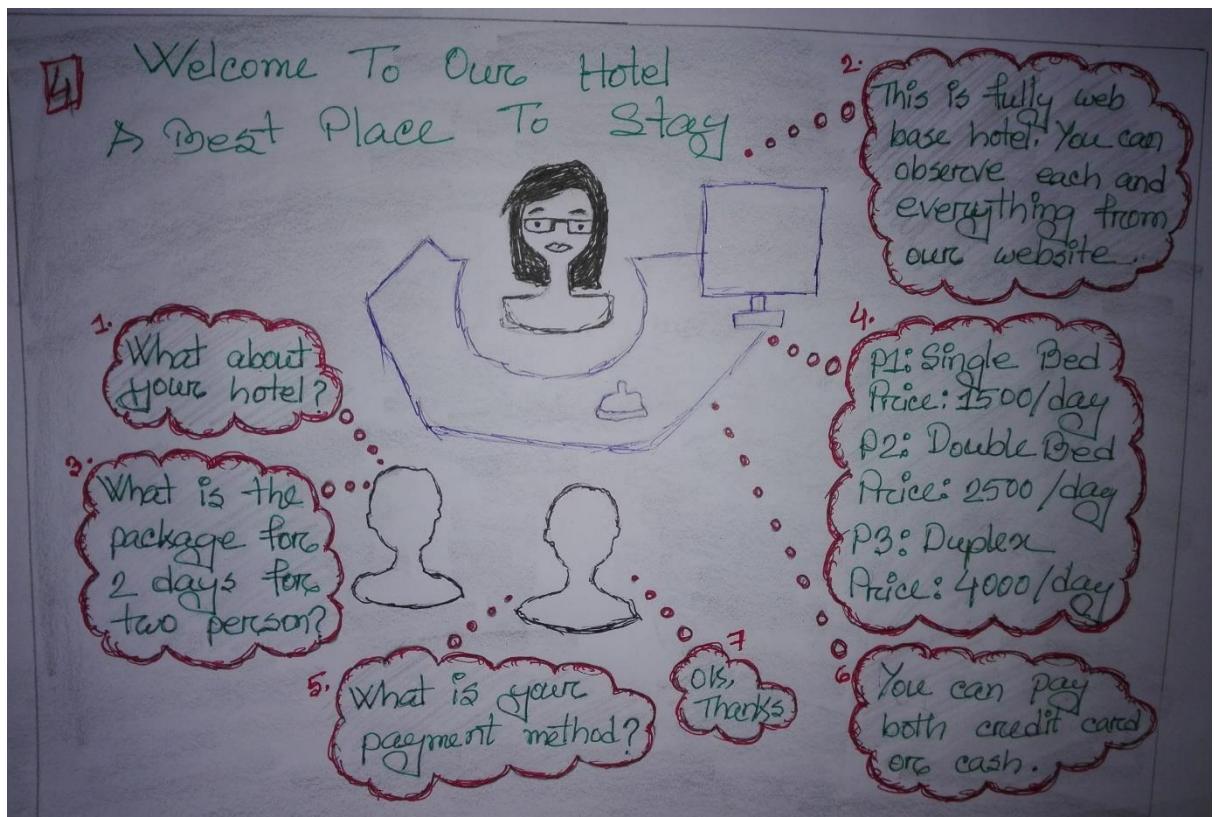


Figure 4.1.2.4: 4th Storyboarding

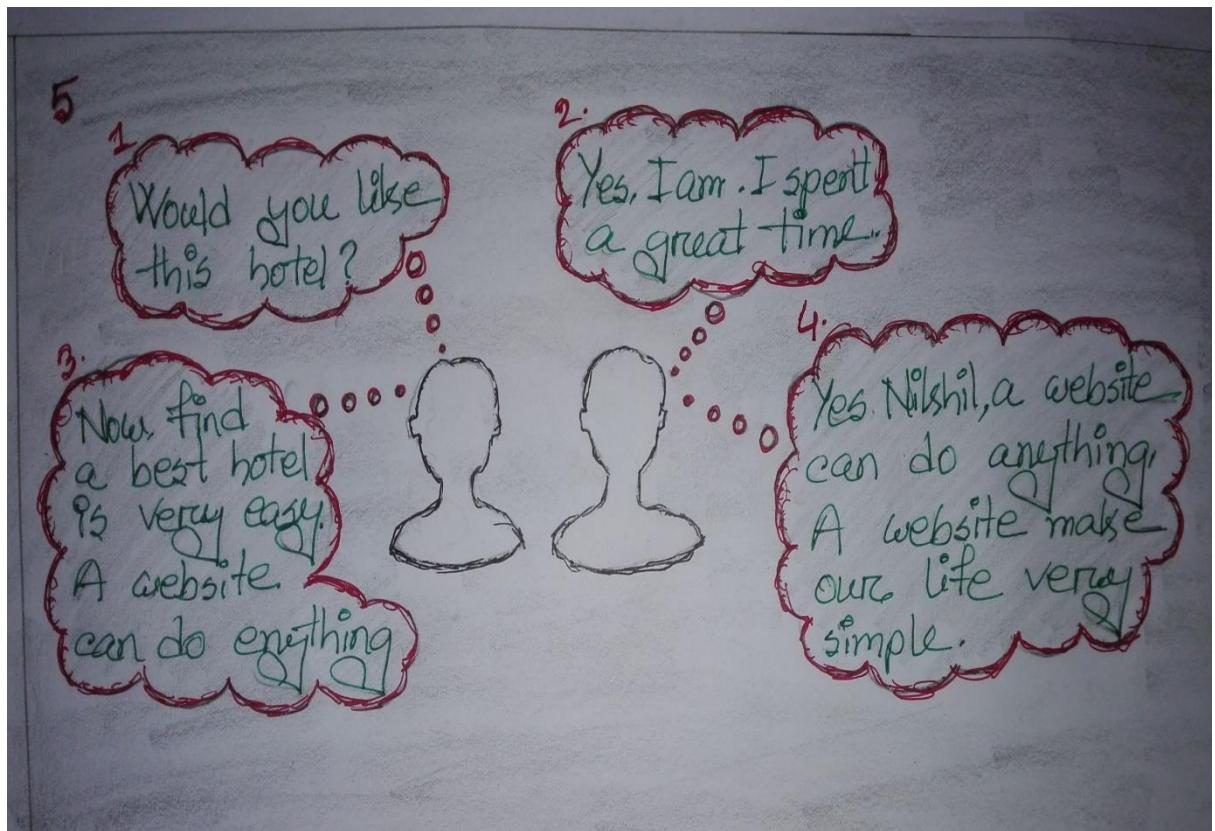


Figure 4.1.2.5: 5th Storyboarding

4.2 Wireframing

Wireframing is a way to design a website service at the structural level. A wireframe is commonly used to lay out content and functionality on a page which takes into account user needs and user journeys. Wireframes are used early in the development process to establish the basic structure of a page before visual design and content is added.

- Wireframing isn't our website's layout design, but rather a visual representation of the basic architecture and functionality of our website – it's more like its skeleton.
- It should be devoid of all branding; logos, colors, fonts and decorative elements shouldn't be prioritized at this point, but saved for later down the design route.
- Instead, the focal point should be on the site's structure, UX, and flow.
- To create wireframe, you can use programs like Balsamiq or you can stick to trusty ol' pen and paper.
- What's important is you get your ideas across to the client clearly [23].

4.2.1 Advantages of wireframing

One of the great advantages of wireframing is that it provides an early visual that can be used to review with the client. Users can also review it as an early feedback mechanism for prototype usability tests. Not only are wireframes easier to amend than concept designs, once approved by the client and the users they provide confidence to the designer.

From a practical perspective, the wireframes ensure the page content and functionality are positioned correctly based on user and business needs. And as the project moves forward they can be used as a good dialogue between members of the project team to agree on the project vision and scope [23].

- It can get clients on board with the design process:

Getting clients involved at the get-go can help in a big way. When they sign it off, your designer isn't left in the dark about their desired functionality and features. This also means your client isn't left in the dark about why you've suggested this wireframe for them. Everything that comes after will fall into place, which helps you avoid explaining the functional choices you've made later down the line [23].

- Make changes more efficiently:

Nailing the skeleton of the website is pivotal in efficient design. If you jump straight into design without thinking about the information hierarchy and user experience, you can end up making loads of changes later down the line. Wireframes help you see if you're making the right decisions from a UX and information-hierarchical point of view, so you can build around it [23].

- Saves time and money:

Doing a quick wireframe is an extra step in the process, but it can save you loads of time and money later down the line. It provides greater knowledge of the project which will be fine-tuned to basic requirements, minimizing the risk of redesigns. Nailing the functional part of the website means your designer will know how things will work before jumping in. It'll allow

them to design around these necessary interactive features so things aren't changing when you realize something won't work well from a UX point of view [23].

- Allows you to plan for website responsiveness:

Wireframing helps you prioritize site elements while putting you in a good mindset for thinking about what content is most relevant to the visitors and how that content will work on different screens. It'll help you see how things will flow across different devices [24].

- Great for a client who only focuses on how pretty things are as it's based around functionality only:

If your client is getting bogged down with design elements ahead of the curve, you can help them take a step back and think about the user-centric UX consequences of any ambitious design desires they have. They'll be able to see and consider how the site will behave for their visitors over how it'll look [24].

- Can make content development easier for copywriters:

Writers will be able to gauge how long their content should be for each page, so it's tailored to the website's design. It also lets you organize content in the most readable, effective way .

- Visualize the structure clearly:

A wireframe is the first real process for a project. It turns the abstract ideas into something tangible without distraction. Wireframes enable one party can send its opinions to another party clearly, ensuring all parties are on the same page [24].

- Clarify the features of interface:

In many instances, clients may not understand jargons like "dynamic slideshow," "news feeds," "Google map integration," "product filtering," "breadcrumb" and hundreds of other types of features. A wireframe provides a clear communication to a client how these features will function, where they will appear on the specific page and how useful they might actually be [24].

- Push usability to the forefront:

This is the one of the most important benefits wireframes. Usability is the basic requirement of design. Creating wireframes pushes usability to the forefront in showcasing page layouts at their core. It takes out the images and color and focus on the bones so that it forces everyone to look objectively at a website's ease of use, conversion paths, naming of links, navigation placement and feature placement. And this is beneficial for all parties [24].

- Help to refine navigation:

For example, a website wireframes allow people to give the new site a test run: to see how easy or difficult it is to locate the target pages; to determine whether dropdown menus clarify or confuse the user; to find out whether breadcrumbs are helpful or distracting; to understand whether the overall navigational scheme is intuitive, incomprehensible or somewhere in between [24].

➤ Make the design process iterative:

Instead of trying to combine the functionality/layout and creative/branding aspects of the website in one step, wireframes ensure that these elements are taken in one at a time. This allows clients (and other team members) to provide feedback earlier in the process. Skipping wireframes delays this feedback and increases the costs of making changes because full design mock-ups must be reworked, not just simplified wireframes [24].

➤ Make Content Development More Effective:

No matter you aim for SEO purpose or human readers, your content should be readable and attractive. For example, large blocks of undifferentiated text are hard to read. Both search engine and human eyes prefer elegant contents than clunky ones. Wireframe offers an overview of the contents. It helps you arrange fonts, numbered lists, bullets and heads neatly and aesthetically. While wireframing, you can figure out the optimal font size, head position and content quantity by trying different options. Finally, you can seek for the best formatting scheme that will maximize readability and persuasiveness [24].

- Wireframes bring clarity to your projects, allowing you to work through all the interactions and layout needs.
- Wireframes gets your client thinking about what their needs really are and helps them define their project goals and what their primary focus should be.
- Having your wireframes handy can make it easier for you to communicate your ideas to your team and how your design would work with responsiveness in mind.
- Wireframes can also help deliver the core message of your website more effectively and gather feedback at an early stage.
- Wireframes gives the developer a clear picture of the elements that they will need to code. How should the layout adjust for smaller-sized devices? What is the hierarchy of the content? How does the navigation respond to smaller *screens*?
- Wireframes helps designers layout many sections of the website, resulting in a more fluid creative process [24].

4.2.2 Wireframing of our software

Content 1

Let's visit a hotel website

Content 2

Let's check about their accomodation

Figure 4.2.2.1: Wireframing for hotel home page

Figure 4.2.2.2: Wireframing for hotel accomodation page

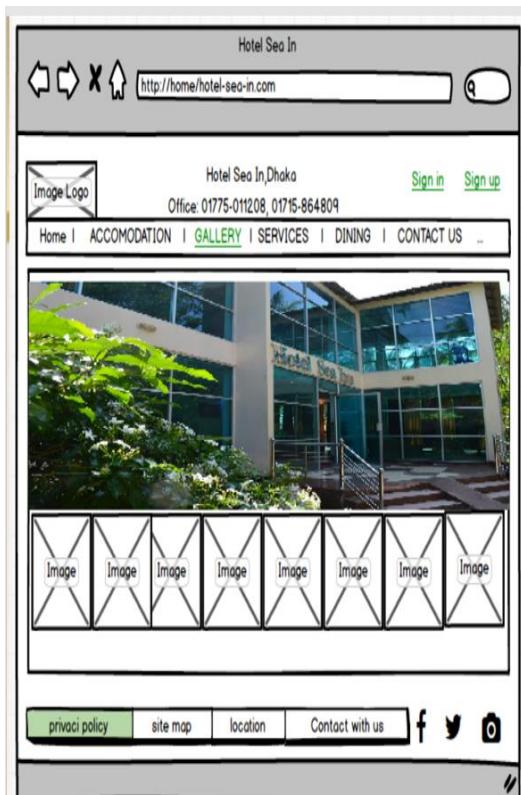


Figure 4.2.2.3: Wireframing for hotel gallery

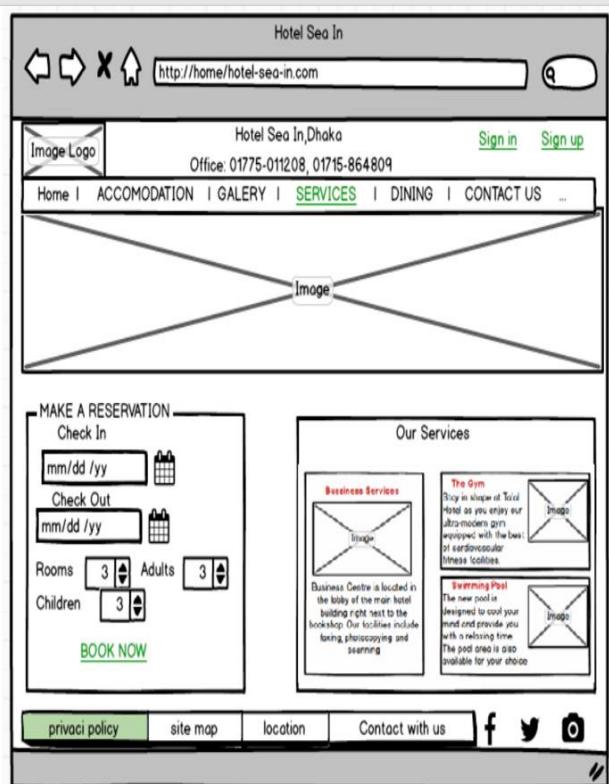


Figure 4.2.2.4: Wireframing for hotel services

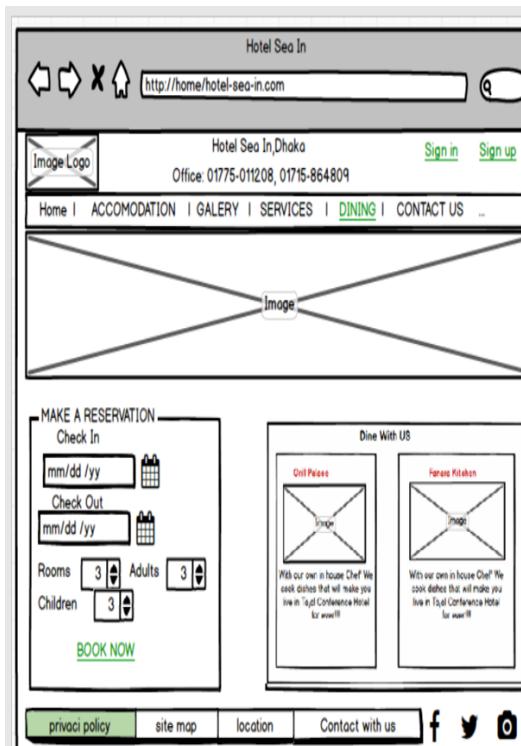


Figure 4.2.2.5: Wireframing for hotel dining

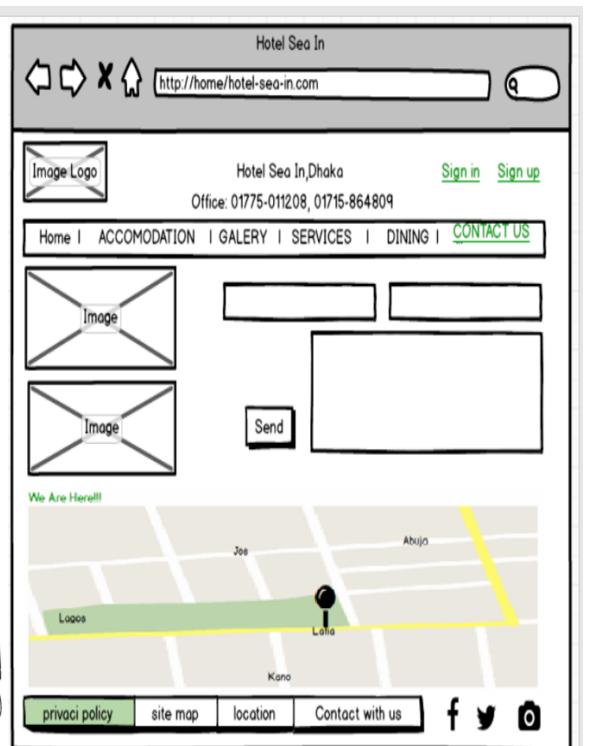
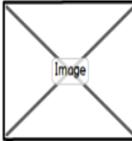
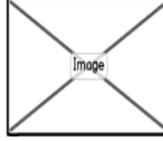
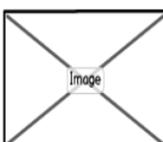
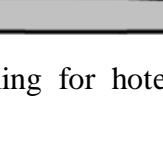
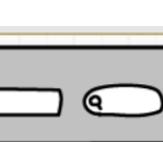


Figure 4.2.2.6: Wireframing for hotel contact page

Hotel Sea In
 <http://home/hotel-sea-in.com>

Hotel Sea In,Dhaka
 Office: 01775-011208, 01715-864809
[Sign in](#) [Sign up](#)

[HOME](#) | ACCOMODATION | GALERY | SERVICES | DINING | CONTACT US ...

Frst Name	<input type="text"/>	
Last Name	<input type="text"/>	
Email	<input type="text"/>	
Phone Number	<input type="text"/>	
Address	<input type="text"/>	
Check In	<input type="text"/> mm/dd /yy 	
Check Out	<input type="text"/> mm/dd /yy 	
Rooms	<input type="button" value="3"/>	Adults <input type="button" value="3"/> Children <input type="button" value="3"/>
Proceeds to payment		

[privaci policy](#) [site map](#) [location](#) [Contact with us](#)   



Hotel Sea In
 <http://home/hotel-sea-in.com>

Hotel Sea In,Dhaka
 Office: 01775-011208, 01715-864809
[Sign in](#) [Sign up](#)

[HOME](#) | ACCOMODATION | GALERY | SERVICES | DINING | CONTACT US ...

Login Here

Email

Password

Remember me [Login](#)

[Forget Password?](#)

Not a Member? [Join for free](#)

[privaci policy](#) [site map](#) [location](#) [Contact with us](#)   

Figure 4.2.2.7: Wireframing for hotel booking page

Let's create an account.

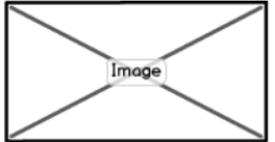
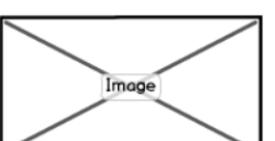
Content 9

Hotel Sea In
 <http://home/hotel-sea-in.com>

Hotel Sea In,Dhaka
 Office: 01775-011208, 01715-864809
[Sign in](#) [Sign up](#)

[HOME](#) | ACCOMODATION | GALERY | SERVICES | DINING | CONTACT US ...

Register Here

Name	<input type="text"/>	
Email	<input type="text"/>	
Password	<input type="text"/>	
Create Account		Terma & Condition

[privaci policy](#) [site map](#) [location](#) [Contact with us](#)   

Figure 4.2.2.9: Wireframing for hotel registration page

4.3 Paper prototyping

Paper Prototyping is a prototyping method in which paper models are used to simulate computer or web applications. After initial design, a paper prototype is drawn on plain or construction paper, sometimes with colored markers. This is often a quick method, but can have some drawbacks over using prototyping software, in which designs can be easily copied, adapted and simulated.

Variation of usability testing where representative users perform realistic tasks by interacting with a paper version of the interface that is manipulated by a person “playing computer,” who doesn’t explain how the interface is intended to work.

Paper Prototyping is a prototyping method in which paper models are used to simulate computer or web applications. After initial design, a paper prototype is drawn on plain or construction paper, sometimes with colored markers. This is often a quick method, but can have some drawbacks over using prototyping software, in which designs can be easily copied, adapted and simulated [25].

4.3.1 Advantage of paper prototyping

The most obvious advantage is that they are low cost and quick to produce. It allows for Usability Testing to take place early in the design process and get instant feedback as the design evolves. In addition, because you are using paper, people feel more at ease giving their opinions or criticisms. This feedback can be implemented right there on the spot by simply sketching out how an element needs to change or if it might potentially behave differently. This is a fundamental difference (and benefit) I’ve found between the flexibility of the Paper Prototype compared with the fixed nature of a clickable one created for example with Sketch and InVision [26].

➤ Reduced time and costs:

Prototyping improves the quality of the specifications and requirements provided to customers. With prototyping, customers can anticipate higher costs, needed changes and potential project hurdles, and most importantly, potential end result disasters. Strong prototyping can ensure product quality and savings for years to come [26].

➤ Improved and increased user involvement:

Most customers want to feel like they are involved with the intricate details of their project. Prototyping requires user involvement and enables them to see and interact with a working model of their project. With prototypes, customers can give their immediate feedback, request project changes and alter model specifications. Prototyping most importantly helps eliminate misunderstandings and miscommunications during the development process [26].

- It is a quick, simple, and cost-effective way to mockup an idea at its very early stage:

Because our idea for the new commenting system is in its early stage, we were able to gain preliminary feedback from potential users on which version of our prototype they preferred. With these data we have some idea of what steps to complete next & what additional research we need to do to create our digital prototype [26].

- It's a good way to show / test ideas that may be simple to complete:

If you have a prototype where the user is only required to do a couple simple tasks for you to get an idea of how effective your design is, go for it.

- You don't have to write actual code:

If in the process of conducting usability tests with your prototype you realize a huge design mistake, you haven't cost your company anything! This is better than having your engineering team spending an eternity working on a feature, only to realize a huge design / usability problem afterwards. Another reason for you to never skip usability tests—no matter if you have money or not [26].

- It's fun. Paper prototyping ought to be fast and fun. If it's slow and painful, there's definitely something wrong with your prototyping process.
- Rapid iteration: It takes minutes to create a few different versions of a design.
- Low cost: Paper prototyping is very inexpensive. Basic toolset includes pen and paper. Digital prototyping tools vary in price. But most digital prototyping tools require either a one-time purchase or a subscription.
- Low commitment: No one wants to throw out a digital prototype that took hours to create. It's much easier to throw out a sketch that takes only 5-minute to create.
- Eliciting honest feedback: An important advantage of paper prototypes is their sketchy look. The prototypes don't look like you've spent a lot of time on them. As a result, people feel more comfortable criticizing sketches rather than polished designs.
- Team building: Since paper prototyping doesn't require any special skills, anyone can participate in this process. You can easily do paper prototyping as a group activity. People from all kinds of backgrounds can participate in creating paper prototypes [27].
 - Users can really feel the product
 - Test the usability of the product to find problems
 - Easy to communicate with users, leaders and other relevant people
 - Improve the efficiency of product design
 - Potential usability problems can be detected at a very early stage in the design process before any code has been written.

- Promote communication between developers and users.
 - Paper prototypes are quick to build and refine.
 - Fast iteration.
 - Requires only little resources and materials.
- Possible to show UI pictures to a wide audience via projector [27].

4.3.2 *Paper prototyping of our software*

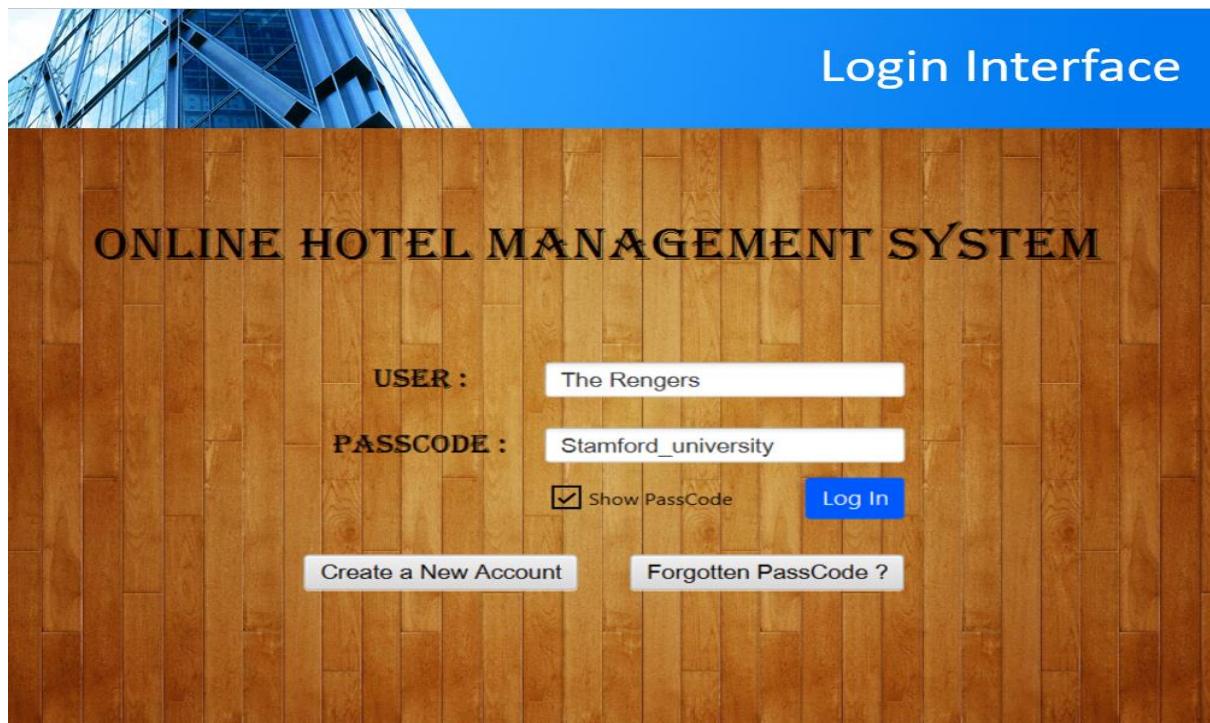


Figure 4.3.2.1: Login Interface

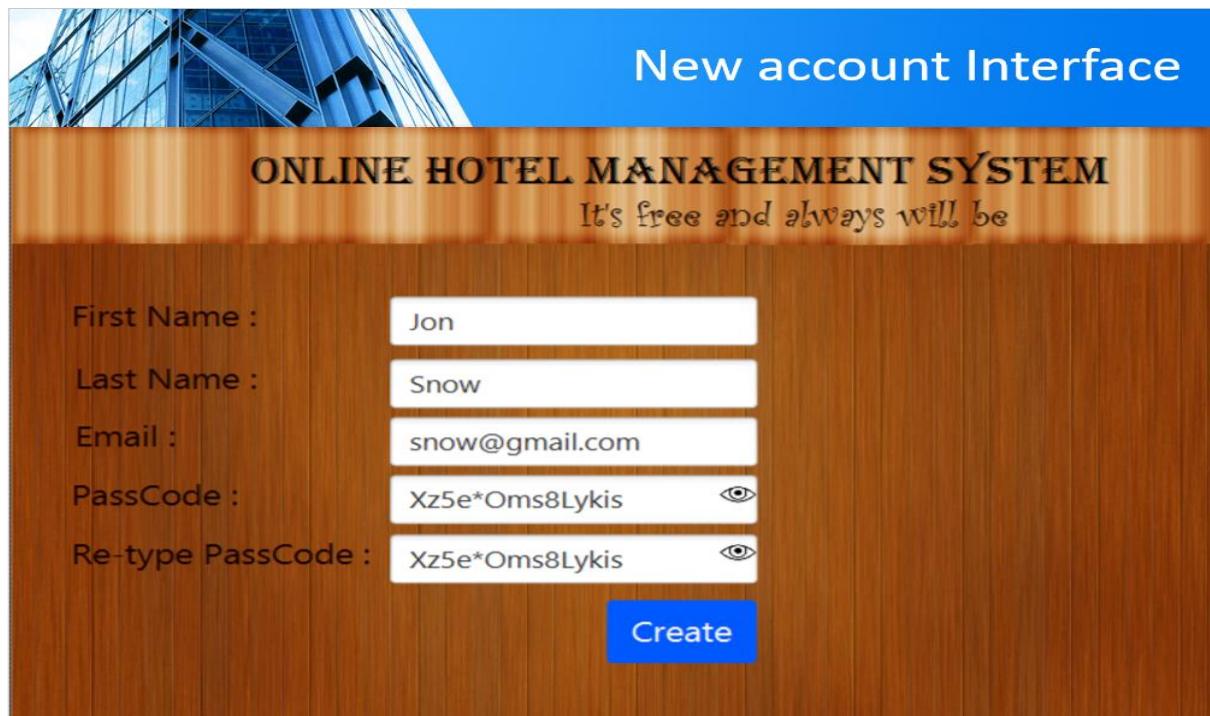


Figure 4.3.2.2: New Account Interface



Figure 4.3.2.3: Admin Interface



Figure 4.3.2.4: User Interface

The image shows the Room Check Interface of the Online Hotel Management System. The top banner features the text "Room Check Interface" on the right. The main content area includes a table titled "LIST OF THE AVAILABLE ROOM" showing room details, a search bar, and several action buttons. The table data is as follows:

Room_no	Room_type	Bed_type	Tariff_per_room
100	Non_Ac	Single	700
101	Non_Ac	Single	700
102	Non_Ac	Single	700
103	Non_Ac	Single	700
104	Non_Ac	Single	700
105	Non_Ac	Double	1000
106	Ac	Double	1000
107	Ac	Double	1000
108	Ac	Family	1500
109	Ac	Family	1500
110	Ac	Family	1500

On the right side of the interface, there is a photograph of a hotel room with a double bed and a nightstand. Overlaid on this image are several blue rectangular buttons with white text: "Check Room", "Book Room", "Room Details", "Update Booking", and "Delete Booking". Above the table, there is a search bar with the placeholder "search the room" and a green "Search" button.

Figure 4.3.2.5: Room Check Interface

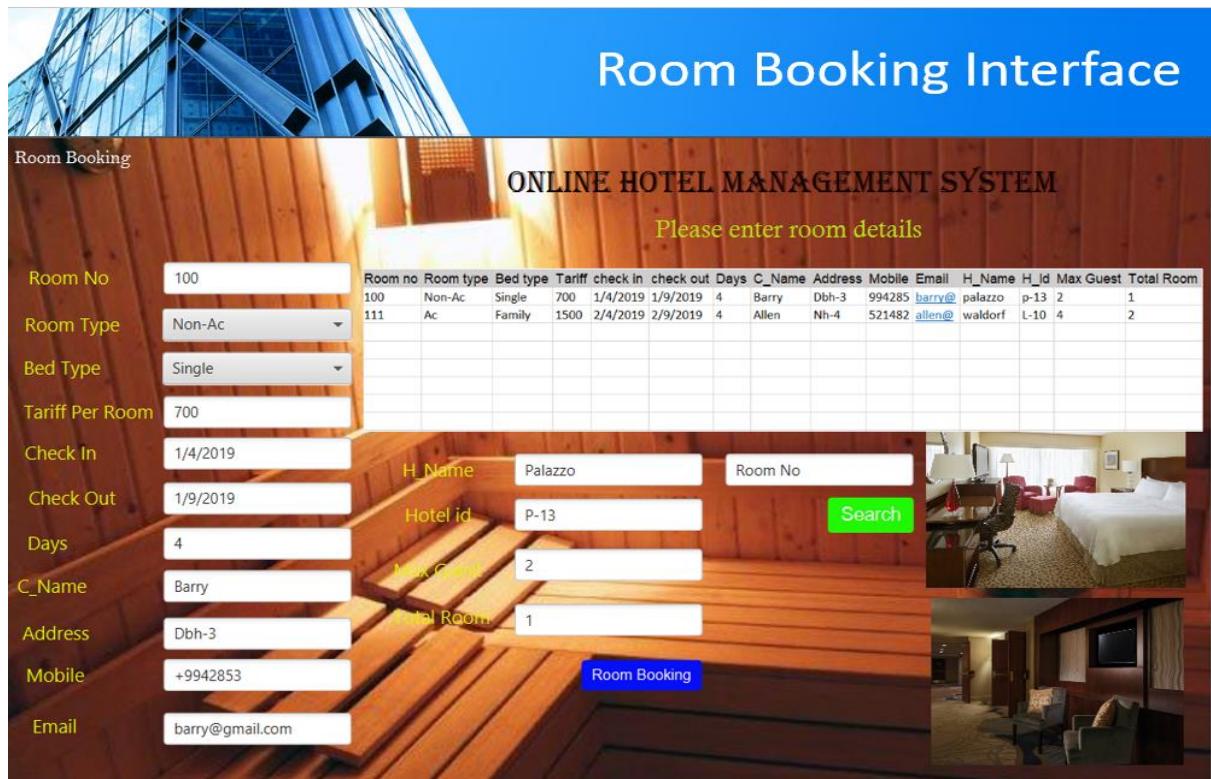


Figure 4.3.2.6: Room Booking Interface

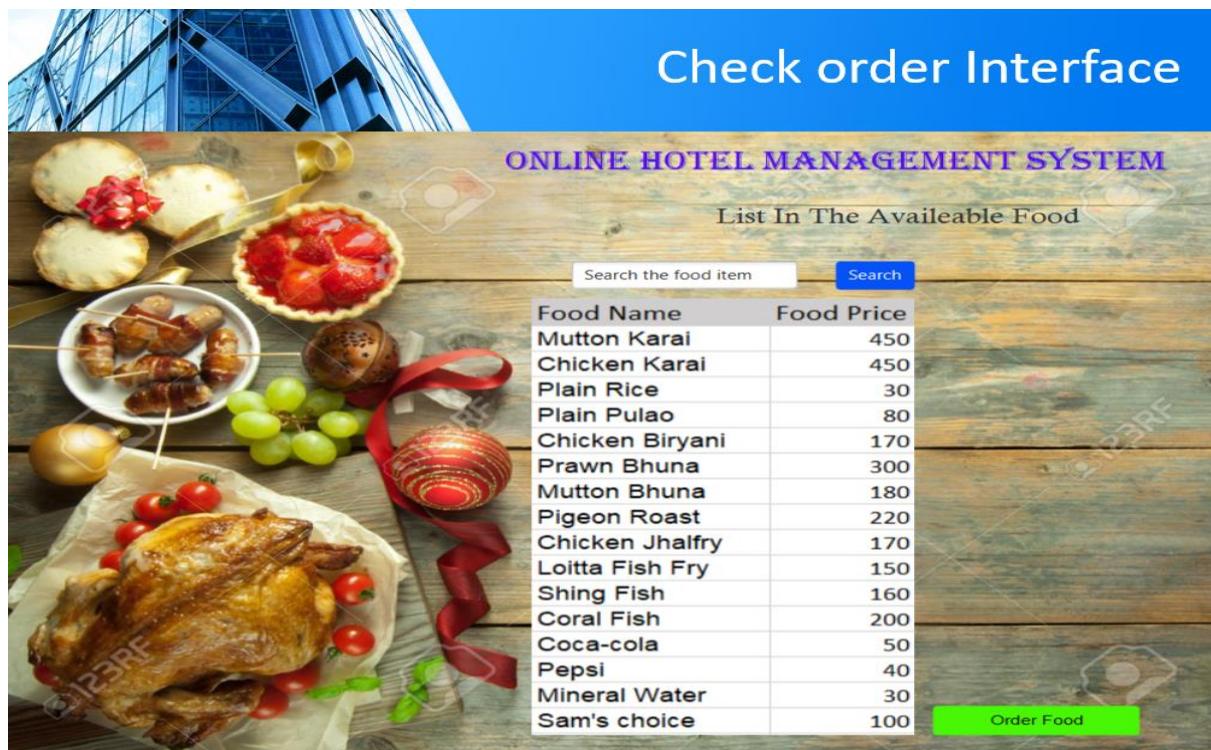


Figure 4.3.2.7: Check Order Interface

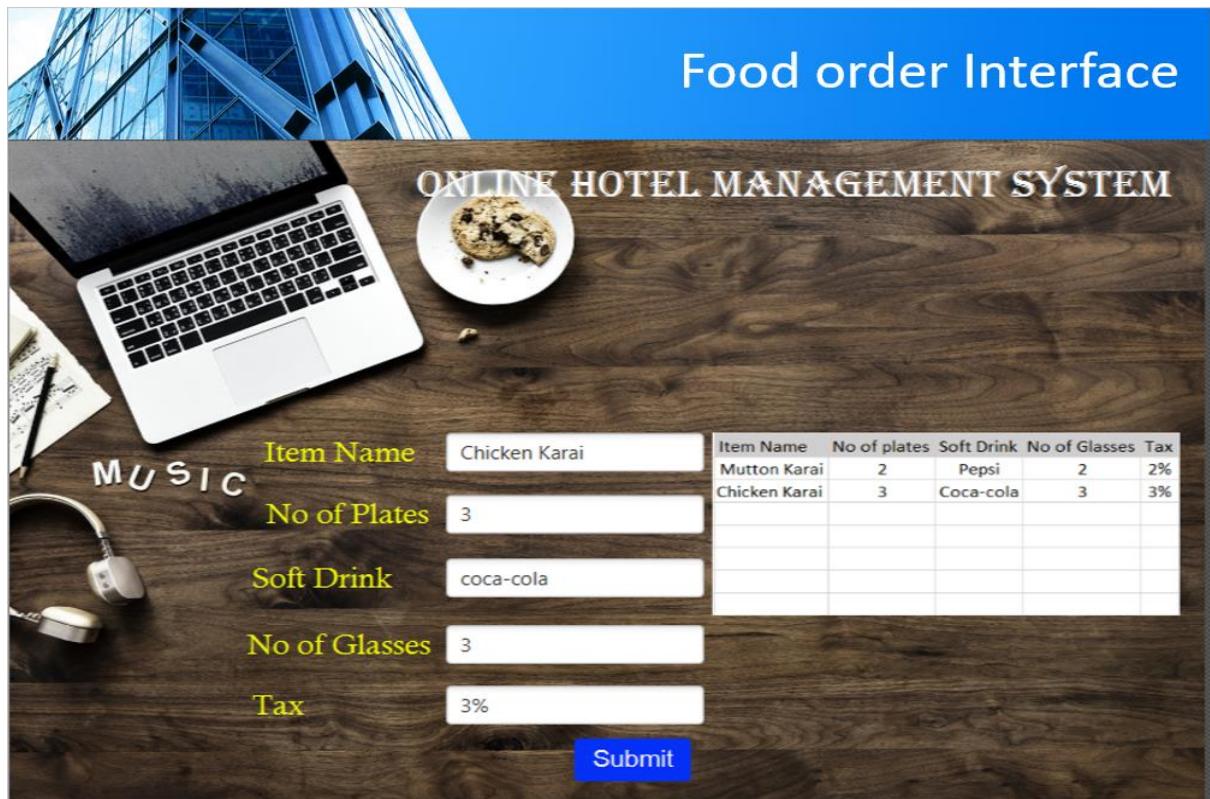


Figure 4.3.2.8: Food Order Interface

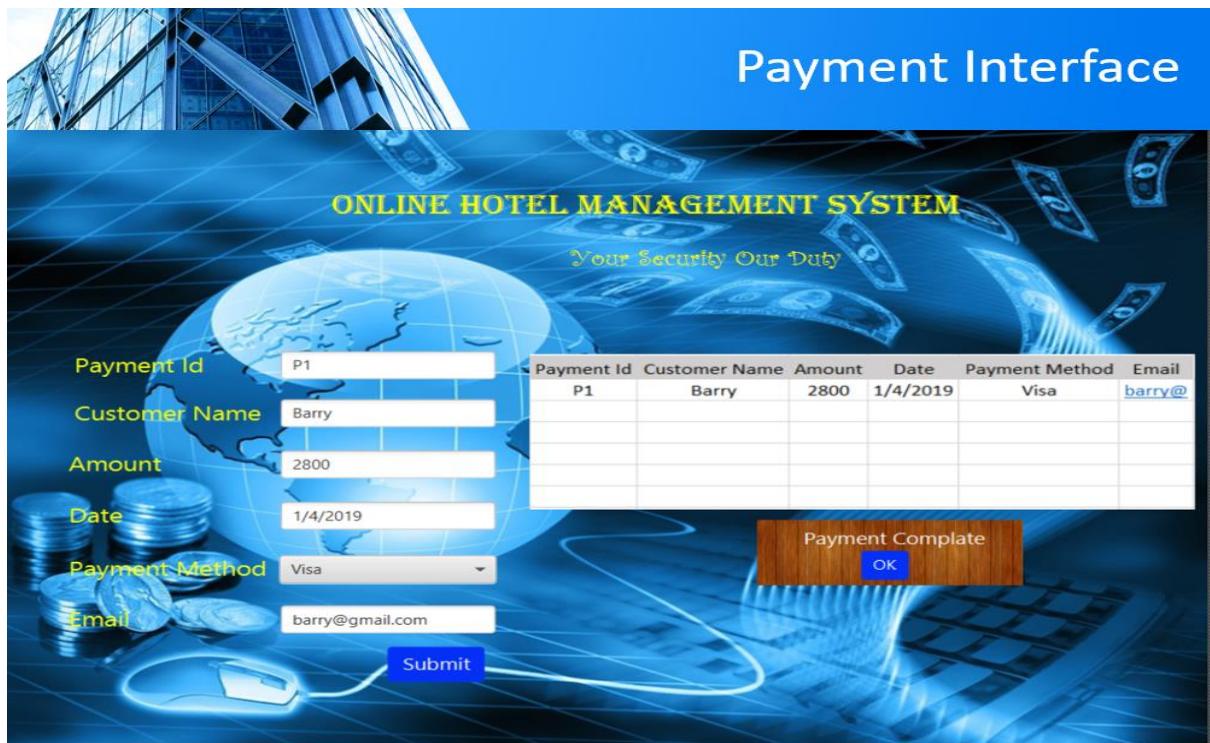


Figure 4.3.2.9: Payment Interface

Employee Interface

ONLINE HOTEL MANAGEMENT SYSTEM

List of Employee

E_Id	E_Name	Designation	Email	Phone	Country	Address	Salary	Work start	Work End	Gender
E1	Zerin	Waiter	zerin@	92548	japan	j-9	5000	7.00 AM	12.00 AM	Female
E2	Dipu	Manager	dipu@	36585	india	i-5	8000	7.00 AM	12.00 AM	Male
E3	Nabila	Cleaner	nabila@	84569	Koria	k-3	5000	7.00 AM	12.00 AM	Female
E4	Rafid	Sales	rafid@	78452	usa	u-2	7000	7.00 AM	12.00 AM	Male
E5	Ria	Cashier	ria@	36548	Africa	A-7	7500	7.00 AM	12.00 AM	Female

[Show Record](#) [Employee Attendance](#)
[Add Employee](#) [Delete Record](#)
[Salary Statement](#) [Update Record](#)

Figure 4.3.2.10: Employee Interface

Add employee Interface

ONLINE HOTEL MANAGEMENT SYSTEM

Please fill up the White box

E_Id	<input type="text" value="E6"/>	Address	<input type="text" value="A-14"/>
E_Name	<input type="text" value="Jon snow"/>	Salary	<input type="text" value="10000"/>
Designation	<input type="text" value="Manager"/>	Work Start	<input type="text" value="7.00 AM"/>
Email	<input type="text" value="jon@gmail.com"/>	Work End	<input type="text" value="12.00 Am"/>
Phone	<input type="text" value="+9587426"/>	Gender	<input type="text" value="Male"/>
Country	<input type="text" value="Iceland"/>		

Figure 4.3.2.11: Add employee Interface

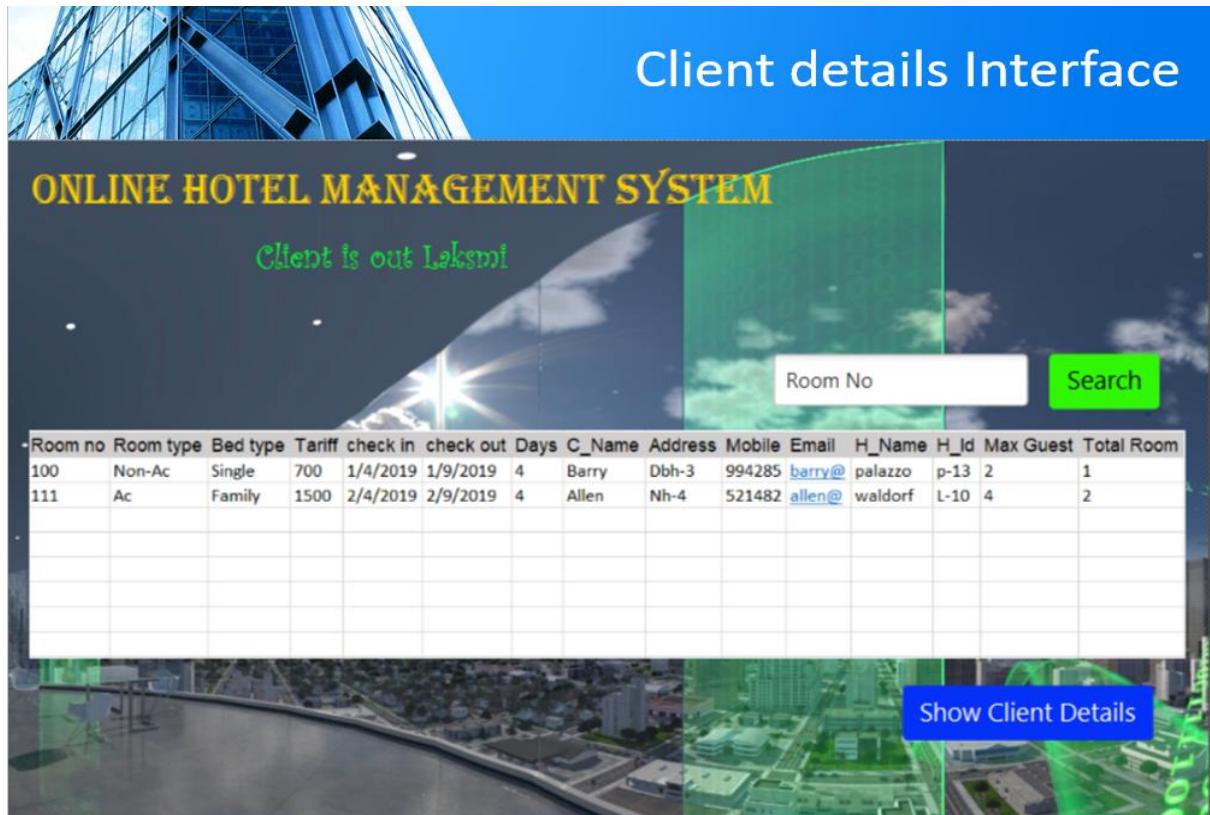


Figure 4.3.2.12: Client details Interface

4.4 User experience design (UXD)

User experience design (UXD, UED, or XD) is the process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure provided in the interaction with the product. User experience design encompasses traditional human-computer interaction (HCI) design, and extends it by addressing all aspects of a product or service as perceived by users [28].

User Experience Design (UXD or UED) is the process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure provided in the interaction with the product.

UX design is the process of enhancing customer satisfaction and loyalty by improving the usability, ease of use and pleasure provided in the interaction between the customer and the product. What this means, in more simple terms, is that a UX designer works to ensure that the user's experience of a piece of software or website is as enjoyable, intuitive and satisfying as possible [28].

UX design includes a variety of disciplines – visual design contributes to it (although is often considered separate), as does information architecture (the way in which information is ordered and organized throughout the product) and more abstract tasks such as interaction design (designing the way users interact with the product). However, rather than focus on the components of a user's experience, I want to explore how investing in that experience can benefit your business [28].

4.4.1 Advantages of user experience design

- UX will help to discover your goal and audience:

A lot of research goes into UX design and during the process, you will get a lot of opinions. These will shape your site design goals. With your goals in mind, you should research your customer base by creating personas. Ask yourself who will most likely visit your site and once you figure this out, you will be on the path to providing a good user experience. The idea is to make sure you can make these personas happy [29].

- It helps you save money and make money:

By doing the research and planning, you can create a website that works for both your customers and organization. If you know your customers, create engaging content, and provide a good service, everything should fall into place. When this happens, you will get a big return on all of the time and effort that went into building your site [29].

- User Experience Touches the Product Itself, Not Just the Promotion of It:

There is a fundamental difference between digital marketing and user experience, and it really boils down to this: marketing is about making people want things. The design is about making things that people want.

- User Experience Uses Multiple Research Approaches:

Digital marketing typically doesn't generate much in the way of research. Marketing research tends to be focused more on quantifying a known market, for a fixed product. On the contrast, UX is an intensive research focused on discipline, that is naturally focused on discovering and understanding real human needs that can be solved for with a well-designed product [29].

- Increased conversions:

People want products and services that meet their needs. A good UX can help properly convey how a product or service will satisfy their need. Through implementing a good UX, a User may not end up going with a competitor offering which features a better UX [29].

- Customer loyalty and repeat purchases:

A good UX can be the difference between a once-off sale and repeat purchases. Take Apple as an example. They have gathered a cult-like customer loyalty following through good UX across all their touch-points. Customers needs are met and they know there will be a consistent UX offering over the different types of products.

- Lower overhead costs:

A good UX can lower development costs over time as only features which bring value are implemented and those which don't are left on the cutting-room floor. Moreover, a good UX will lower workload on support staff who may have to help Users caught up in a bad UX [29].

- Market success over competitor products:

With so many product offerings available, a good UX can be the critical piece to standing out and coming out on top. With such a vast variety of products which may offer similar features to satisfy user needs, a good UX may be the make or break factor for market success.

- UX design is the process used to determine what the experience will be like when a user interacts with your product.
- The creative and analytical process of determining what a website, device, or piece of software is going to be.
- It's a process for designing systems that offer a great experience to users.
- UX design is a commitment to building products with the customer in mind.
- It's design with an awareness of every touchpoint that makes up the overall experience with your product or service.
- It's a design methodology rooted in a deep understanding of the user.
- It's a commitment to developing products and services with purpose, compassion, and integrity.
- UX design is the process of designing a solution that considers all the needs of the user [29].

4.4.2 User experience for our software

➤ Booking Calendar Usability:

The first thing that a user encounters when trying to go through a hotel booking process is the booking calendar. For reservation we add booking calendar.

➤ Refund Option:

At times some customers may cancel their booking due to some reason and they may ask for a refund. In our website we add this option.

➤ Google Maps Integration:

We use Google Maps on our hotel website to helps customers discover the hotel.

➤ Booking Progress Bar.
➤ Language Translator.

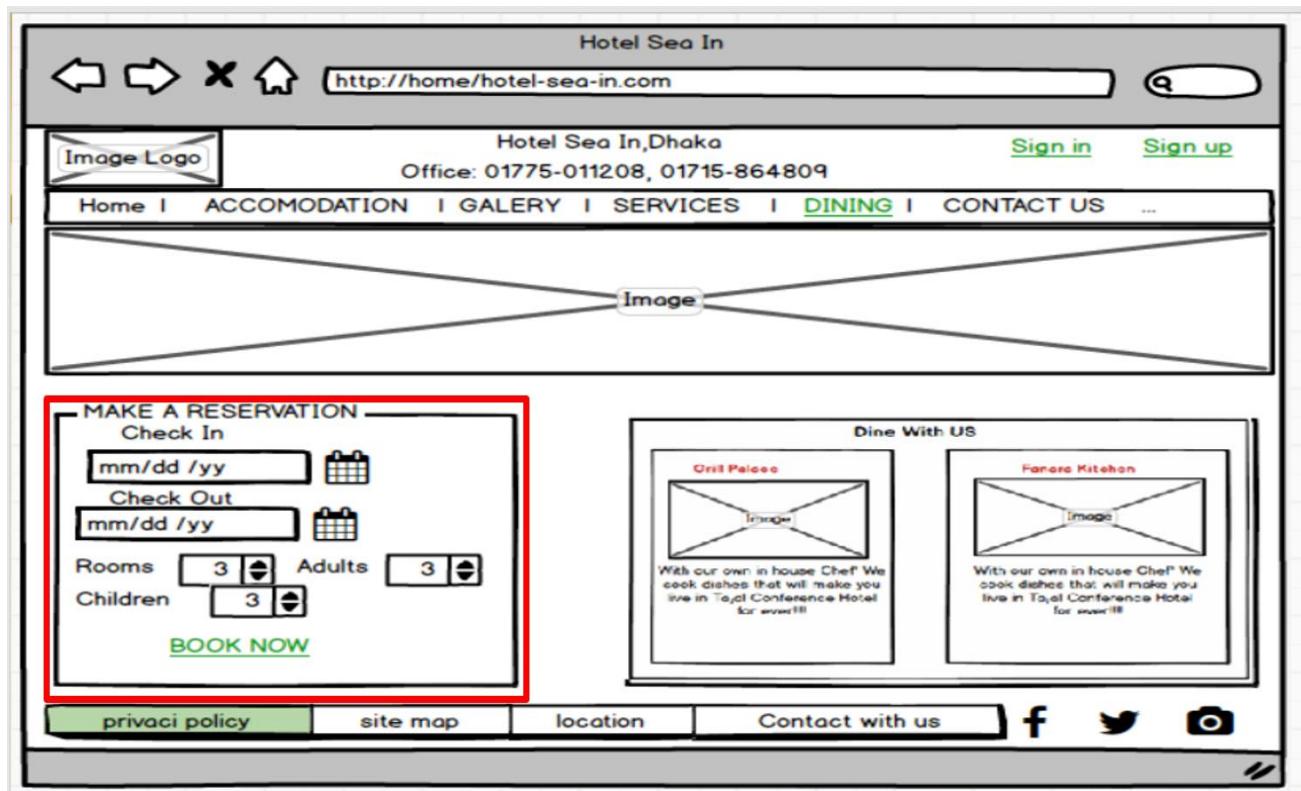


Figure 4.4.2.1: Booking Progress Bar

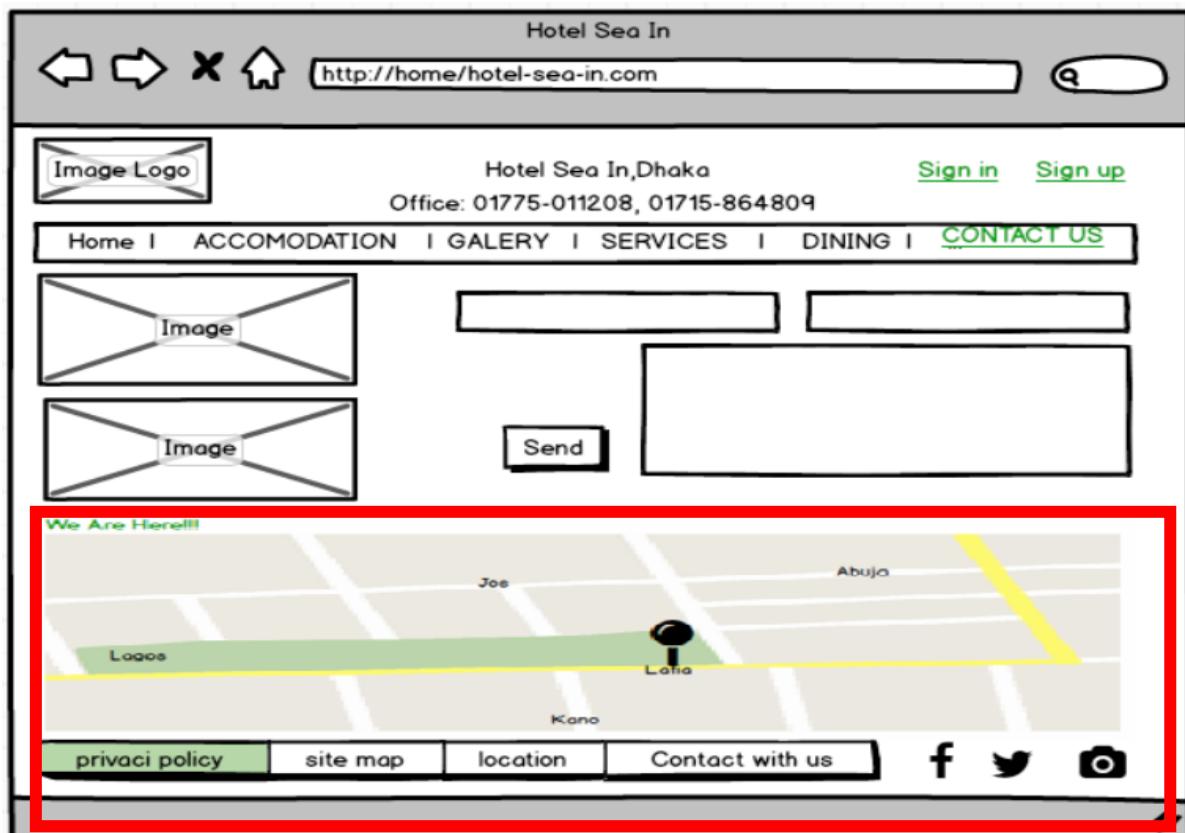


Figure 4.4.2.2: Google Maps Integration

3 Conclusion

It has been a matter of immense pleasure, honor and challenge to have this opportunity to take up this project and complete it successfully. While developing this project we have learnt a lot about hotel management, We have also learnt how to make it user friendly (easy to use and handle) by hiding the complicated parts of it from the users. During the development process we studied carefully and understood the criteria for making software more demanding, we also realized the importance of maintaining a minimal margin for error.

It provides knowledge about the latest technology used in developing web enabled application and client server technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

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