

Kingdom of Saudi Arabia  
Royal Commission at Yanbu  
Colleges & Institutes Division

Yanbu University College  
Computer Science & Engineering Dept.  
Information & Computer Technology Dept.



المملكة العربية السعودية  
الهيئة العامة للتعليم  
قطاع الكليات والمعاهد  
كلية ينبع الجامعية  
قسم علوم وهندسة الحاسب الآلي  
قسم تقنية المعلومات والحاسب الآلي

## PROJECT 2

ACADEMIC YEAR 1441/1442 H (2020/2021 G), SEMESTER II (202)

# PRINC. OF SOFTWARE ENGINEERING CS277

DATE: Sunday, 21 March, 2021

START TIME: 7:00 A.M.

FINISH TIME: 4:30 P.M.

STUDENT NAME: AYA ALHARBI

STUDENT ID:

3	8	2	0	1	2	3			
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SECTION: 1

FOR INSTRUCTOR USE ONLY				GENERAL INSTRUCTIONS
Q. No.	CLOs /PLO	MAX MARK	MARKS OBTAINED	<ul style="list-style-type: none"><li>• Write your name and I.D. number in the space provided above.</li><li>• Conduct a preliminary study for business processes / industrial problem(s) / industrial need(s) received from the customer and produce a Software Requirement Document report minimum 200 words.</li><li>• Refer Project Cover Paper 2 rubric to guide your answer.</li><li>• Download the Project 2 Cover Paper. Write your name and I.D. number in the space provided and, signed and saved as .pdf.</li><li>• Upload this cover paper at the link provided at Project 2 Submission Link by <b>March 15, 2021</b>.</li></ul>
a , g , i	1.2/A	15		
b	1.3/C	5		
d, e	2.1/A	10		
f , j	2.2/A	10		
c, h, k , l	4.1/A	20		
TOTAL MARKS		60		

INVIGILATOR'S SIGNATURE:

MARKED BY: SITI HARYANI MOHD HARIS

Signature:

CHECKED BY:

Signature:

# PRINC. OF SOFTWARE ENGINEERING\_\_CS277\_Sunday, 21 March, 2021

## Academic Integrity

### Plagiarism

The practice of taking someone else's work or ideas and passing them off as one's own. An example of plagiarism is to use creative works of another, without appropriate acknowledgment of the author or source.

### Collusion

Secret or an illegal cooperation in order to deceive others. Collusion is the presentation of an assignment as one's own which is in fact the result in whole or in part of unauthorized collaboration with another person(s). Collusion involves the cooperation of two or more individuals in plagiarism or other forms of academic misconduct.

Both plagiarism and collusion constitute cheating. Disciplinary action will be taken against students who engage in plagiarism and collusion.

### Student Declaration

I have read and understood the statement of academic integrity written above. I certify that the attached work is entirely my own except where work quoted is duly acknowledged in the text; that I have not worked with another person or persons except where specifically permitted by the teacher, and that this work has not been submitted for assessment by myself or any other person in any other time. I have retained a copy of my work.

Student's name: \_\_\_\_\_ Student's signature: \_\_\_\_\_

Course Learning Outcome	Topic(s)
<ul style="list-style-type: none"><li>Describe the software process in developing software system.(1.1/ A)</li><li>Understand different models, methodologies, tools, techniques used during the development lifecycle of software system.(1.2/A)</li><li>Analyse the basic principle of project management in software evolution.(1.3/C,D)</li><li>Write technically software requirements as basis of software design.(2.1/A)</li><li>Distinguish different models and diagrams in designing software systems.(2.2/A)</li><li>Demonstrate the ability to work in a team and communicate using the appropriate tools.(4.1/A)</li></ul>	<p><b>Cognitive Skills Outcomes:</b></p> <ol style="list-style-type: none"><li>Ability to specify software process in the requirement specification report(1.1/A)</li><li>Ability to analyze problems and transform into a formal problem statement (1.2/A).</li><li>Outline roles and responsibilities(1.3/C)</li><li>Ability to identify problem solutions (2.1/ A).</li><li>Ability to defend solution through feasibility study (2.2/A).</li></ol> <p><b>Interpersonal Skills Outcomes:</b></p> <ol style="list-style-type: none"><li>Develop capability in project management skill through proposed Gantt-chart.(4.1/A)</li></ol>

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## **1.0 GENERAL INFORMATION**

### **1.1 Purpose**

Provide an easy and professional way for tourists to Saudi to book a temporary place and for Saudi citizens to monetize their extra space (property) and showcase it to an audience of thousands.

### **1.2 Scope**

The project scope is two main types of users. First, citizens in Saudi as merchants will be able to advertise their extra space. The second type of user, tourists in Saudi as clients will be able to reserve a place for a period of time. However, even Saudi citizens can become clients and they shall be able to reserve a place for a long or short time.

### **1.3 System overview**

The Kingdom's Vision 2030 emphasized the work to take pride in the historical and cultural legacy of our Saudi, Arab, and Islamic heritage and to make them accessible to everyone and, in the process, create cultural events and build world-class museums which will attract visitors from near and far. However, there is a major challenge which is the speed of preparation to builds new hotels to receive tourists and provide them with real experience living in Saudi.

Therefore, GuestHouse is providing a unique approach toward lodging. It is an online marketplace that connects people who want to rent out their homes with people who are looking for a place to stay instead of a hotel.

It offers a better experience for tourists to live with citizens and explore more about the culture and real life in Saudi Arabia. Moreover, it will give hosts a way to earn some income from their property.

## 1.4 Acronyms and abbreviations list

Table 1 Acronyms and abbreviations list

<b>Term</b>	<b>Description</b>
GH	GuestHouse
PC	personal computer
UX	User experience
UI	user interface
UML	Unified Modeling Language
Html	Hypertext Markup Language
CSS	Cascading Style Sheets
PHP	Hypertext Preprocessor
HTTP	Hypertext Transfer Protocol
Airbnb	Air Bed and Breakfast

## 1.5 Points of contact

Table 2 The team contact information

Team member	Phone Number	Email
Aya Alharbi	056 561 6812	3820123@stu.rcyci.edu.sa
Anhar Ebrahim	0561416865	3820050@stu.rcyci.edu.sa
Rahaf Ali	0547149407	3820124@stu.rcyci.edu.sa

## **2.0 MANAGEMENT SUMMARY**

### **2.1 Environment**

#### **2.1.1 People Involved**

The project is developing a web-based online booking website. It contains different functionalities for each type of user and will take almost 3 months for the development. This project's development involves a software development team that includes a System Analyst, UX UI designer, and a developer. Moreover, the requirement specification phase involves interviewing the sample of merchants and tourists in Saudi Arabia. The following section outlines detailed elaboration on the proposed project.

#### **2.1.2 Tools and Techniques**

- **Analysis Phase**

Microsoft Excel, Microsoft Word, Microsoft PowerPoint, Google Forms and Brainstorming.

- **Design Phase**

Use-case diagram and UML schemas will be designed using Creately Website. Interfaces designs will be made using Photoshop.

- **Code Phase**

Responsive Web-based online booking website which will be running on different devices and platforms.

- **Test Phase**

Use Case testing, unit-testing, release-testing, user-testing, and debugger tool

#### **2.1.3 System Requirement:**

- **Software Implementation:**

The implementation will be done using Visual Studio Code to write the Html, CSS, JavaScript, and PHP code. Furthermore, Chrome will be used to run and test the website. XAMPP Control Panel will be used which is a web server solution, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP languages. It will help to run the PC as a local host, test PHP code, and manipulate the Database.

- **Hardware Implementation:**

A device with internet access such as a laptop, smartphone with at least 2GHz processor and at least 8GB RAM is recommended.

- **System Execution:**

Operating system such as MAC OS, Windows. Any web browsers such as chrome, Firefox to run the website.

The developer will divide the work into pieces and they will have one meeting in a week for reviewing, testing, and adding piece by piece with one condition that each piece is fully functional. Thus, keep on adding the pieces until the project is complete. Any browser in any operating system to any device with internet service will be enough to run the project.

## **2.2 Current Functional Procedure(s)**

The most traditional procedure usually starts by placing the property in a real estate office by the merchant. He/she will have to visit multi real estate offices to place his/her property in different offices to ensure that their property will be seen by a client. Even for the client especially if the client is from out of the city and in the worst case if the client is a foreigner from outside Saudi which means he/she will have a hard time finding a free room, apartment, or chalet to rent. This manual process can lead to a real difficulty for a foreigner who does not know the country also he/she probably does not speak the Arabic language. That is mean more difficulty with communicating with real estate office owners. Eventually, if the merchant and the client agree they will do all the rent processes manually, and if they don't agree they will start searching again.

## **2.3 Functional Objective(s)**

### **2.3.1 Functional requirements**

Functional requirements are the services which the system should provide such as what the system should do. The proposed system shall offer different functionality for each type of user and since the proposed system has two types of users. The first user, a merchant who will offer a property for renting, and the second user is a client who is looking for property to rent.



*2.3.1.1 The merchant functional requirements are:*

- The merchant shall be able to create an account.
- The merchant shall be able to log in.
- The merchant shall be able to add a property.
- The merchant shall be able to edit a property.
- The merchant shall be able to delete a property.
- The merchant shall be able to accept/reject rent requests from a client.

*2.3.1.2 Client functional requirements are:*

- The client shall be able to create an account.
- The client shall be able to log in.
- The client shall be able to search for a property.
- The client shall be able to book a date and send a rent request to the merchant.
- The client shall be able to complete payment if the merchant accepts the rent request.

The shared functional requirement for both users is the website shall support two languages Arabic and English language to ensure the website understandable by citizens and tourists. Moreover, they can view destinations, properties list and property details.

**2.3.2 Non-functional requirement:**

Non-functional requirements characterize the system criteria, the system qualities, and how it will be such as usability, availability and performance.

- Availability: The proposed system shall be available to all users 24 hours a day and 7 days a week.
- Usability: The proposed system shall be easy to use.
- Performance: The response time for the proposed system must be less than 10 seconds.
- Portability: The system shall be able to operate on Windows, Macintosh, and Android.

### 2.3.3 Use-Case diagram

A use-case diagram illustrates the users and their functionalities in using the website.

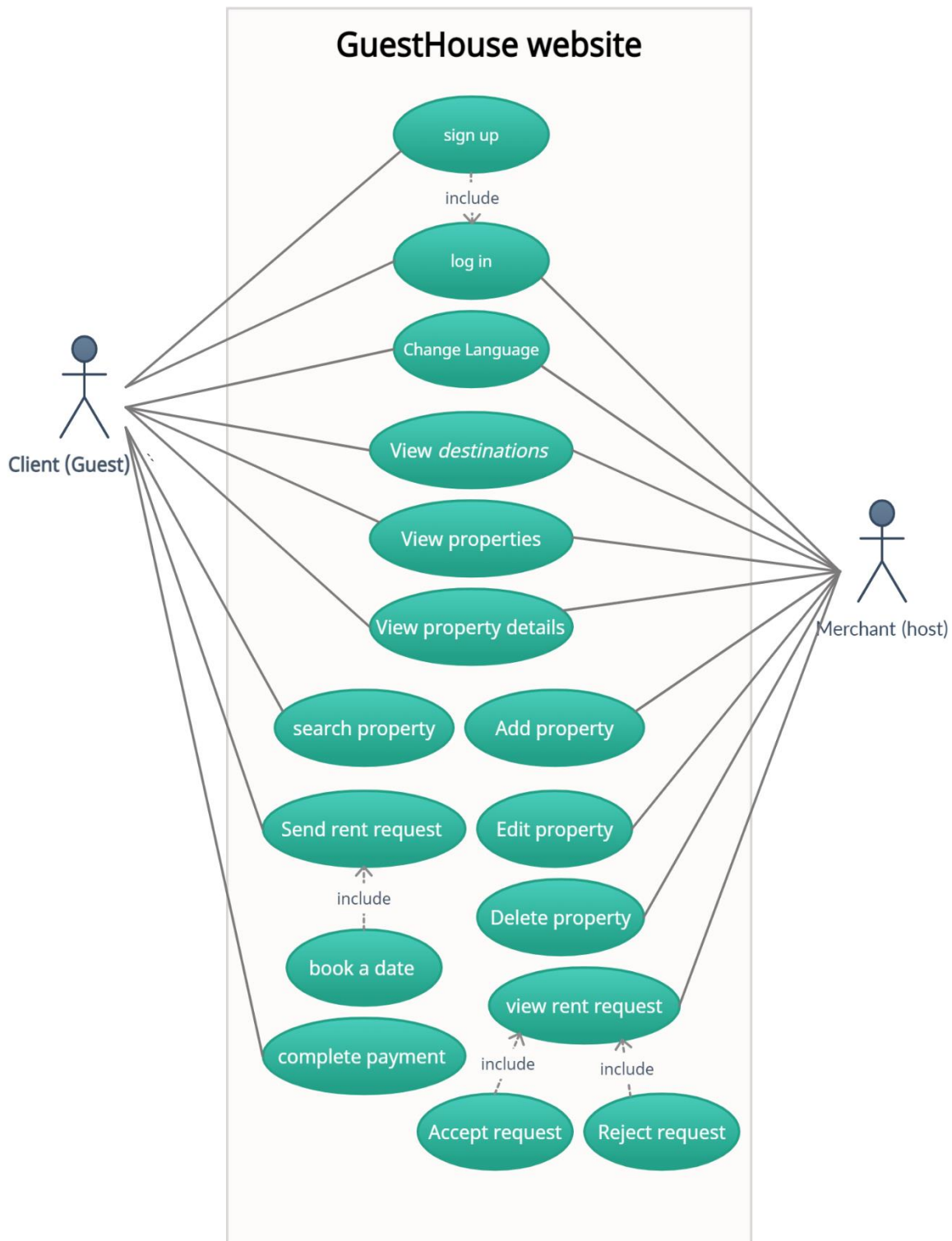


Figure 1 use-case of GuestHouse website

## **2.4 Performance Objective(s)**

The GuestHouse development team is devoted to design and develop an online booking website that serves all Saudi Arabia citizens and tourists both customers and merchants in booking and advertising in an easy way to save time and effort for both of them. The main objective of this project is to eliminate the manual search of property by introducing a more professional way an online marketplace that will connect people together. Support both languages Arabic and English to enhance both users' (citizens and tourists) experience. Enhance tourism in Saudi Arabia and Participation in the Kingdom's vision as Saudi citizens. The project will be delivered in small parts to be tested thoroughly by analysts, developers, and a sample of the customers to take their feedback and suggestions. Finally, ensure that the system is meeting all requirements and expectations within the time and the budget agreed.

## **2.5 Methodology**

Software Development Life Cycle (SDLC) has many models that share the same phases with a different strategy to help in managing, develop and delivered a software product in steps from start to end.

The incremental model is used in this project. An incremental process is one in which the functionality of the desired system is divided into separate modules (increments) and each of these modules has a separate set of waterfall activities including requirements gathering and analysis, design, implementation, deployment, and maintenance one after another in quick succession. This model is used because the major requirements are understood but some requirements can evolve within the passage of time. So, it is more flexible and less costly to change scope and requirements.

The process is started by collecting and analyzing the system requirements and determine the problem domain before any actual design or implementation. The system requirements will be collected by first, observing the current functional procedure which was explained above, and studying the Alternative Systems by stating the difference between the alternative systems and the proposed system and avoiding their weaknesses. The second method is interviewing the real estate manager and some tourists to make sure the functionality of this project is clear to the developers. After requirements are identified, the team can proceed to the design phase to implement the first increment which acts as a prototype for the next increment. Also, increments are exposed to the client to continue collecting the feedback and suggestions, and every increment is tested and implemented. Furthermore, a beta version of the system is produced before the final version is delivered.

### **3.0 PROPOSED SYSTEM**

#### **3.1 Description of the proposed system**

Centralized booking services from adding a property to renting this property in a professional and easy way. By allowing property owner (merchant) to advertise her/his available property online to a variety of clients. Moreover, allow the client(tourist) to view and compare different properties before deciding to book one of them. Provide an easy booking process and payment without the need for physical attending. Finally, providing an opportunity for the merchant to make money from renting her/his available property.

##### **3.1.1 User Interface initial design**

The home page for the website with simple design.



Figure 2 GuestHouse home page



The second section of the home page is representing the cities in Saudi Arabia in which the properties will be categorized.

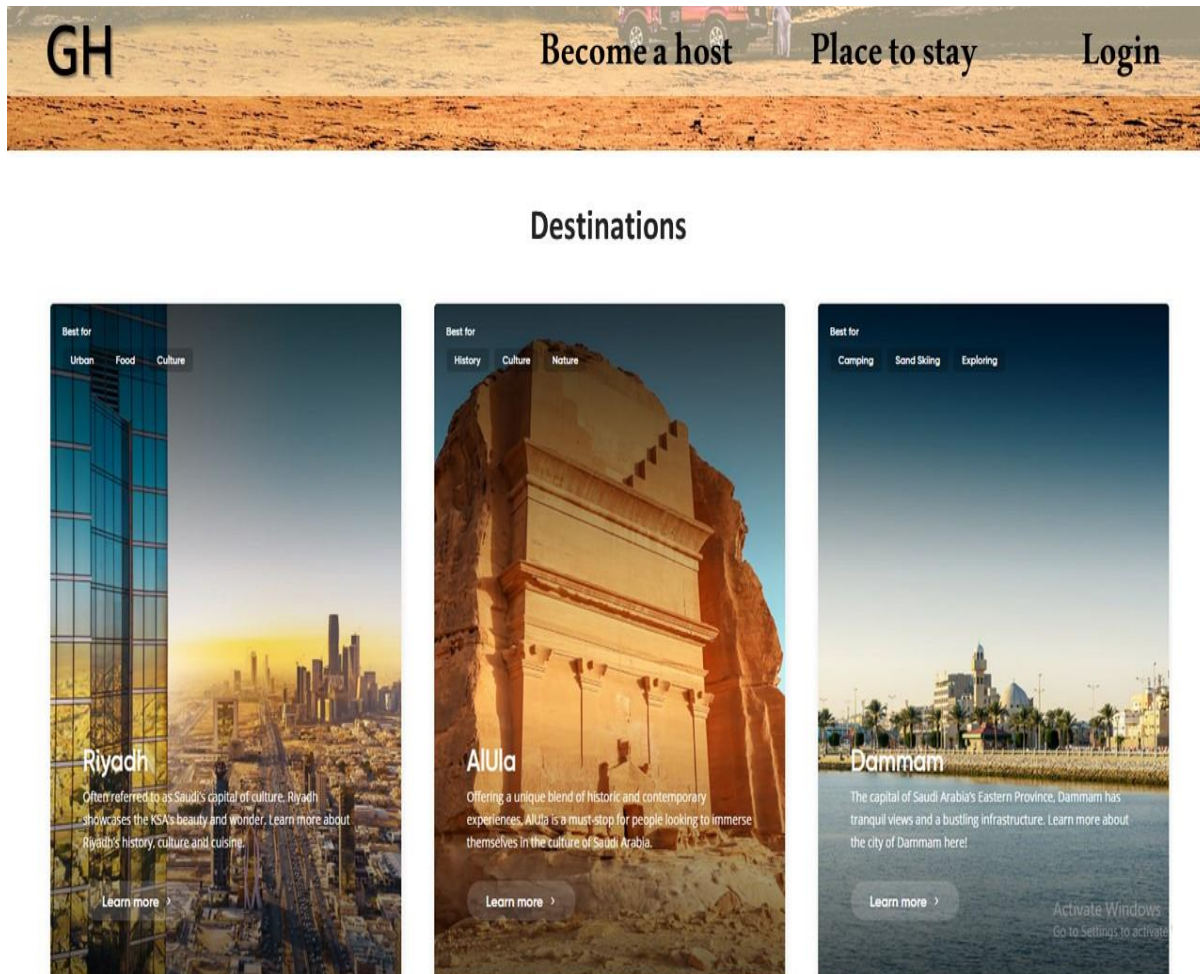


Figure 3 Home page destinations section

The login page will contain a form to ask the user to enter his/her username and password that the user signs up with.

**GH****Become a host****Place to stay****Login**

**LOGIN**

Username

Password

Login

Don't have an account yet?  
**Sign Up**

Figure 4 Login page

If the user picks a place to stay a list of properties will be displayed with a brief description and its price for one night.

GH

Become a host

Place to stay

## Stays in Jeddah



Entire house· Jeddah

Sunset apartment

SR390/ night



Entire house· Jeddah

Sunset apartment

SR200/ night



Entire house· Jeddah

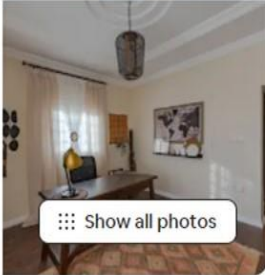




Sunset apartment

SR190/ night

Figure 5 list of properties in Jeddah

After choosing a property, a page with property details will be displayed. The page will display images, a complete description of the property, and a form to book this property by entering the check-in date, checkout date, and the number of guests.

GH



Show all photos

Entire house · Jeddah

Sunset apartment

2 guests · 1 bedroom · 1 bed · 1 bath

SR190/ night

Read more

Become a host

Place to stay

SR190/ night

CHECK-INCHECKOUT

Guest number ▼

Figure 6 property details



If the user decides to become a host, he should add a property by filling the form correctly.

GH	Become a host	Place to stay
<h3>Become a host</h3> <p>Add property</p> <div><div>Enter property type</div><div>Enter property details</div><div>Enter price for night</div><div>Add images</div><div>SUBMIT</div></div>		

Figure 7 add property page

### 3.2 Improvement(s)

The main aim of GH is to make the booking process short, easy, and reachable by everyone. Moreover, the website should be understandable by both citizens and tourists by supporting two languages which should enhance the communication between them. Improving the interface to include icons and graphics to help in the visual understanding and attracted more users to use the website. Finally, this website target is Saudi citizens and its tourists. Therefore, this website is developed to serve its users in the best way by making sure to advertising the available property based on the “Saudi Seasons” such as Riyadh Season, Jeddah Season Festival, and Diriyah Season. These seasons started in 2019 and visitors attended from different nationalities and even Saudis from different cities visited these seasons which made a huge demand on the marketplace. The website will make sure to serve these visitors and the merchants by viewing their property by these visitors and eventually renting their properties.

### 3.3 Time and resource cost(s)

List of Resources Needed:

- Team members (System Analyst, UX UI designer, developers)
- Tourists to Saudi
- Merchants (property owner)
- Employee in Ministry of Tourism
- PC
- Internet

Table 3 Roles and responsibilities

Role	Description
- Project Manager - Analysis	<ul style="list-style-type: none"><li>• Decides system platform going to be used, tools/application and gather all sub-modules, ensure successful integration from all units, foresee/assist sub-units in developing</li><li>• Plan activity using Project Manager and write description of each unit's activity, which has been done.</li><li>• Specify requirement elicitation process, user requirement specification, study the system specification suitable for implementation.</li></ul>
Design	<ul style="list-style-type: none"><li>• Design system/application based on the system requirement or functional requirement.</li></ul>
- Code - Test	<ul style="list-style-type: none"><li>• In charge of developing interfaces to enable interaction between user and system that includes designing and implementing the interface using any tools</li><li>• Develop set of testing tools during development, site installation and system test acceptance with user</li></ul>

Table 4 List of tasks and dependencies

<b>Task</b>	<b>Task description</b>	<b>Duration</b>	<b>Dependency</b>
T1	Collect the Technical background information of the project and analysis it.	1 weeks	-
T2	Meet the clients and interview them.	4 days	T1
T3	Risk identification and analysis.	3 days	T2
T4	Build a prototype of the system to show it to the client.	1 weeks	T3
T5	Test the prototype by a sample of the users.	1 week	T4
T6	Programming the static web page by using HTML and CSS.	1 weeks	T5
T7	Design the database.	1 week	T6
T8	Programming the dynamic web page.	2 weeks	T7
T9	Initial Testing	1 week	T8
T10	User's feedback	1 week	T9
T11	Implementation changes in system based on users' feedback	1 weeks	T10
T12	Final Testing and maintenance	1 weeks	T11

**Limitations:**

- Only properties in Saudi Arabia are allowed to be added to the website.

### 3.3.1 Gantt Chart

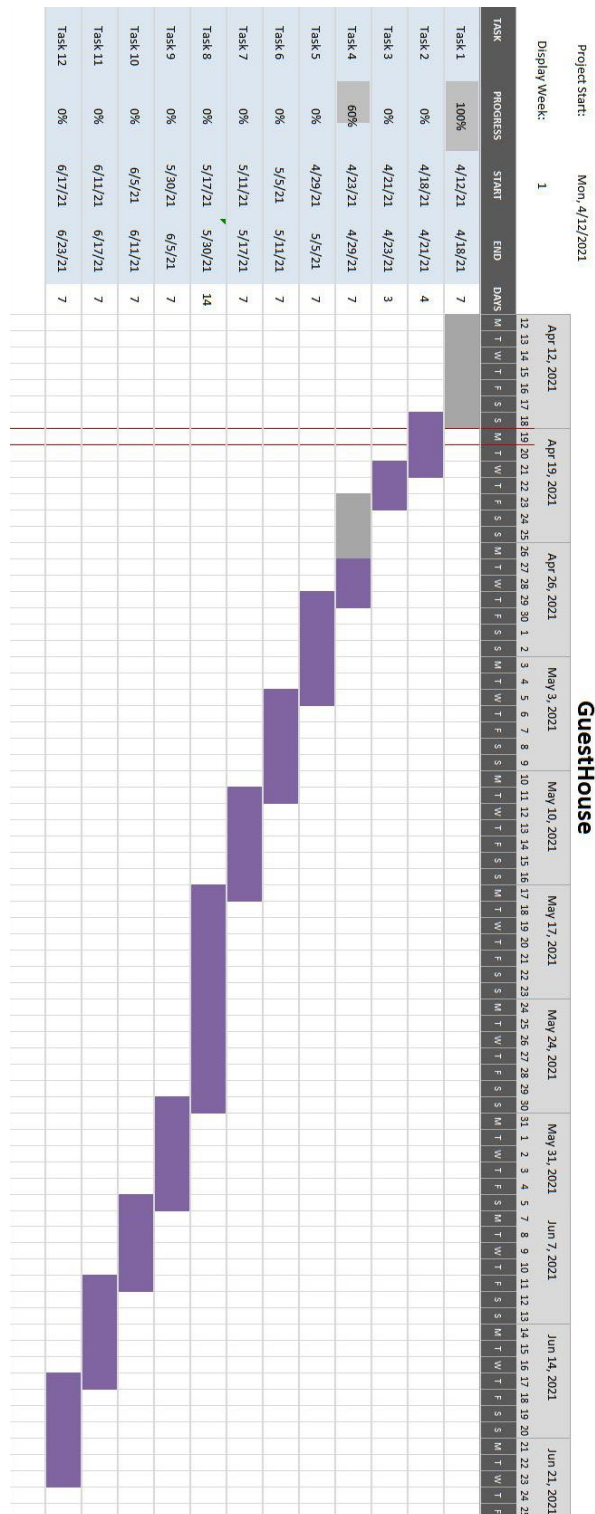


Figure 8 Project scheduling

## 4.0 ALTERNATIVE SYSTEMS

### 4.1 Airbnb



Airbnb founders Joe Gebbia, Brian Chesky, and Nathan Blecharczyk developed the business in 2008. It is an American rental online marketplace company based in San Francisco, California. Airbnb maintains and hosts a marketplace, accessible to customers on its website or via its app.

Airbnb offers someone's home as a place to stay instead of a hotel. On Airbnb, user can find places to crash on your backpacking trip or find a place to stay for a month. It's a great way for finding an alternative to traditional hotel options. Airbnb is the first and the most popular in the rental online marketplace since it has a variety of options for the user. It also starting providing different services as Discover Experiences (Unique activities we can do together, led by a world of hosts) which means that the host and the guest will be sharing unique activities together.

The main difference between Airbnb and GuestHouse is Airbnb's scope is all over the world but GuestHouse will focus on Saudi Arabia. Furthermore, Airbnb does not support the Arabic language which will make it difficult for Saudi citizens to use the website.

## 5.0 CONCLUSION

As we all know the investment in the tourism sector is one of the pillars of the Saudi Vision 2030. Moreover, investment in the sector contributes to creating investment opportunities that are profitable for local and foreign investors. We do not consider tourism as only a driver for economic growth, but also as a bridge for cultural communication with the world, which can enhance the level of understanding and joint respect.

This project aims to give our tourists more options to live with citizens and explore more about the culture and real-life in Saudi Arabia. finally, we introduce GuestHouse project to enhance tourism in Saudi Arabia and to Participation in the Kingdom's vision as Saudi citizens. We think our project will shift the traditional way of booking to an online marketplace that will connect people together.

## **6.0 REFERENCES**

- Introduction to Software Engineering, Second Edition
- The Fundamental Practice of Software Engineering.
- Vision 2030: How Saudi tourism is evolving <https://www.visitsaudi.com/en/understand/vision-2030--how-saudi-tourism-is-evolving>
- How Airbnb works <https://www.airbnb.com/d/howairbnbworks>

**ASSESSMENT RUBRIC:**

Grade is given based on evidence and by group members. It is very IMPORTANT to maintain your group work performance. Each task has several attributes to look at and each will be evaluated using this grading system.

**1- Below level    2- Developing Level    3- Accepted Level    4- Good    5- Excellent**

**Descriptions:**

- 1- **Below level** ~ attribute(s) for evaluation not exist or exist but poorly stated or prepared (format not visible, obvious typo errors, obvious grammatical errors. Group did not turn up in the exhibition/presentation.
- 2- **Developing level** ~ attribute(s) visible but without details. Description may be vague and difficult to understand. Visible minor error. Group member/s absence/s during exhibition/presentation.
- 3- **Accepted level** ~ attribute(s) visible with simple description and understandable. Exist proper formatting with acceptable errors. All group members are present and at least 2 of each member demonstrate min capability in delivering the content of the presentation.
- 4- **Good** ~ attribute(s) has complete descriptions with supporting details and materials, in a proper format and fulfill report documentation. Contents are error free. All members are present during exhibition/presentation and able to deliver and discuss their unit.
- 5- **Excellent** ~ attribute(s) produced reach to an exceeding expectation. All members are present during exhibition/presentation and able to deliver/discuss confidently and correctly on their unit assigned.

**PROJECT EVALUATION**

<b>1</b>	<b>Introduction</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
a.	Summarizing the ideas of concept clearly from problem statement.(1.02/A)					
b.	Discuss the system overview, purpose, scope, and project roles clearly.(1.03/C)					
c.	Evident understanding organizing content based on flow and content relativity (4.01/A)					
<b>2.</b>	<b>Management Summary</b>					
d.	State tools used for development (hardware and software), and identify the types of physical systems.(2.01/A)					
e.	Evident requirement engineering process (identify process requirement, system requirement for implementation and execution).(2.01/A)					
<b>3.</b>	<b>Proposed system</b>					
f.	A clear problem solution (problem crafting tool).(2.02/A)					
g.	Details project management strategies(functional objectives, project plan and costing).(1.02/A)					
h.	Ability to communicate points individually.(4.01/A)					
<b>4.</b>	<b>Alternative systems</b>					
i.	Provide alternative systems related to the project. ( 0 – 0pt , 1 – 1pt, 2 -2 pts, 3 - 3 pts, 4-4 pts, > 4 – 5pts(1.02/A)					
j.	Compare and analyze the weaknesses of alternative systems.(2.02/A)					
k.	Discussion concluded is using author(s) opinion clearly.(4.01/A)					
<b>5.</b>	<b>Conclusion and structure</b>					
l.	Following the format feasibility report as attached (4.01/A).					
	<b>Total:</b>					<b>/ 60</b>
<b>OBSERVER'S NAME :</b>		<b>SITI HARYANI MOHD HARIS</b>	<b>POSITION :</b>	<b>LECTURER</b>	<b>DATE :</b>	

**- END OF DOCUMENT -**