Online services for real estate and buildings

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Abstract

All of us from time to time think to move to a better quarter or change the neighborhood, due to some problems, to live in a better environment concerning neither place nor people, or even to be near to the places you go often.

Some people the price is their highest priority, also the reliability and fast response are the first concern of some other people. No offense that all those kinds of people need the security and protection of their money and paper from being scammed or manipulated by any possible way.

I don't want to be disappointing but all those services, including trust, in one place is really hard, if it is not impossible, to be found, especially in those days, as nothing is easier than scamming, and its ways is more nowadays, making it hard to be granted as a trustworthy place in its services.

Our system with specialized experiences can make you avoid suspicions by providing detailed information covering the whole process, neither from the buyer side, nor the seller one.

In addition to those mentioned problems above that we tried hardly to gather these services in one place, assisted by our experts, to reach the users' trustworthy.

As we believe that this searching process is not an easy one, if it is provided at the highest accuracy level, that occurs in our services.

Finally the flexibility that we offer in our service involve nearly everything from choosing the region or quarter as a buyer, or choosing your specifications freely without restrictions inside the category of real estate as a seller, to the contract signature and ownership transfer process completion.

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1-Introduction

Nowadays online services are overlapped strongly in our daily operations. Dealing in term of buying or renting with real estate is a critical activity all of us has confronted it. Many problems arises in this procedures and the modern technologies created to solve people problems and ease their life so why we do not benefit from its exist in managing real estate trading. Our website aims to decrease problems facing people in real estate trading and made them satisfied with this experience. All services in the website are provided for free. With the help of the website people can browse many real estate and choose the suited one to their needs. Now people not fearing about high brokerage paid to the agent or choosing a wrong building because they can see all specification and images of the building clearly to make them ensured with their choice. The website can also recommend good real estate to users according to their location and history. The website will enable people to offer their real estate to be rented or sold easily without brokers. With the help of monitoring systems and machine learning users will be satisfied with the usage. An administration field in the website will help users to be more comfortable in using it without abuses form other members. So we aim to build a dependability website can be trusted by its users and offers good services to them.

2-Problem definition

Many people wish to buy or rent real estate with the growth of this processes and various options to deal with it many problems arise to face consumer and buildings owners. With the help of modern technologies many of these problems can be avoided. As soon one decides to buy or rent a real estate the first problem he is facing is that there many buildings to choose from so he became confused and hardly can choose the right unit with the proposed attributes and a good location. A second problem owners facing they cannot find people to buy or rent their real estate. One another problem consumer facing is the highly brokerage paid to the agent. Also some agents are impostors and cheat their customers with wrong information to make more money. So across this website we wish to overcome these problems in different ways. Users can post their real estate which they wish to be bought or rented. During writing posts users specify all real estate attributes and description of the whole building and every unit in it users can also attach images to the real estate. Users can filter the results according to their need to find the perfect building. They can also search about any building by its location, his agent or simply its name. Also the website will recommend real estate according to users desire and their location. Using online map in website will make finding good locations for real estate very easy. There is no any costs to use the website all services will be available for free so now both owners and buyers are not fear of highly brokerage paid. The website also will have a mechanism to avoid fake buildings advertisements to keep users safe. Also the website will recommend good agents with a good reputation according to users evaluation. If there is any problems in the website admins can detect it and dealing quickly with it to provide a safe reliable environment to

users. The website will provide various ways to contact with owners or agents. Simply it will show their contact information if it available or users can communicate with each others via chatting on website. If there is any abuses users should report it to website admins to deal with it.

2.1- Any person connected to the internet and have a web browser can open the website by entering its URL.

2.2- All visitors to the website will be able to see some of its services, they can navigate in real estate advertisements without provide them with more specified information and cannot use the chat mechanism in the website.

2.3- Only website members can use the website with all its services.

2.4- Visitors can register to the website to be members and benefit from it, in registration they will enter all information needed.

2.5- Website members can sign in with the help of their username and password.

2.6- After this process the main website page will be opened and all real estate advertisements appeared here.

2.7- The website will provide a filtration mechanism to advertisements to ease the process of finding what you need quickly, it will also recommend some real estate according to your location and your activities on the website, also a search mechanism will be provided by location, member names or real estate specification.

2.8- All advertisements appeared here will be provided by all its specification, images, rooms, location, price and ways to contact with the real estate agent.

2.9- A chatting mechanism can be used by members to inquire about a specified real estate.

2.10- The chatting icon should be appeared in all posts, also it should be appeared in the website header to enable users interact with chats for many posts.

2.11- From the main page members can go to their personal page in the website, in this page they can see all their previous advertisements and they can delete or updated their information and post them again, also all their personal information appeared here with the ability to change it.

2.12- Members can visit personal pages to another users and see their previous posts and rates, so members rate each other after finishing their processes to help website users.

2.13- If there is any abuses in chats users must report it to admins to deal with this problem.

2.14- If any fake advertisements arise admins should be informed to decrease this problem and maintain the safety of users.

2.15- Admins will have the ability to use the website from any place with additional rights, so they will sign in to it like normal users but they will have distinct usernames, they are added to the system directly in the database not from the website.

2.16- The main page appears to admins will be like the normal one appears to members but he can choose any post and delete it and show more information about it.

2.17- From the main page they can move to the reports about abuses page to deal with them, firstly admins will see the report and information inside it then they will search about this problem accurately if any trespasses found admins will delete it and delete people responsible on this to maintain a safety polite environment.

2.18- A monitoring system should be provided to admins to maintain a good performance to the website and show how satisfied users.

2.19- Because website usage is free so its owners make money from commercial advertisements, admins have the ability to manage all advertisements appeared in the website.

3-System objectives

- ➢ Building a dependability website that can be trusted by its users.
- ➢ Providing a good digitalized environment to offer free online services to real estate and buildings.
- ➢ Providing an easy way to who wish to buy or rent real estate.
- ➢ Providing users with methods to make them write all real estate specification and attach images for them to inform consumers with all information.
- ➢ Decreasing number of fake buildings advertisements.
- ➢ Providing users with all contact information they need.
- ➢ Offering a simple way to negotiate between users about a specified real estate via online chatting.
- ➢ Providing users with all necessary information about each other and real estate to be comfortable to their processes.
- ➢ Recommending real estate to users according to their desire.
- ➢ Filtering all offered real estate according to users needs.
- ➢ Using maps to present good real estate locations to users.
- ➢ Providing an administration field to monitor the website to help in any arising problems.
- ➢ Reporting feature to users to avoid abuses.
- ➢ Admins should have many rights to deal with abuses and search about reports to ensure a good environment to users.
- ➢ Evaluation and comments on offered real estate and agents from users.

4-Work breakdown structure

In this phase the project is divided into manageable tasks and then we will use this division to logically order them to ensure a smooth evolution between tasks. Some of these tasks may be performed in parallel, whereas others must follow one another sequentially. All tasks are shown in the next figure.
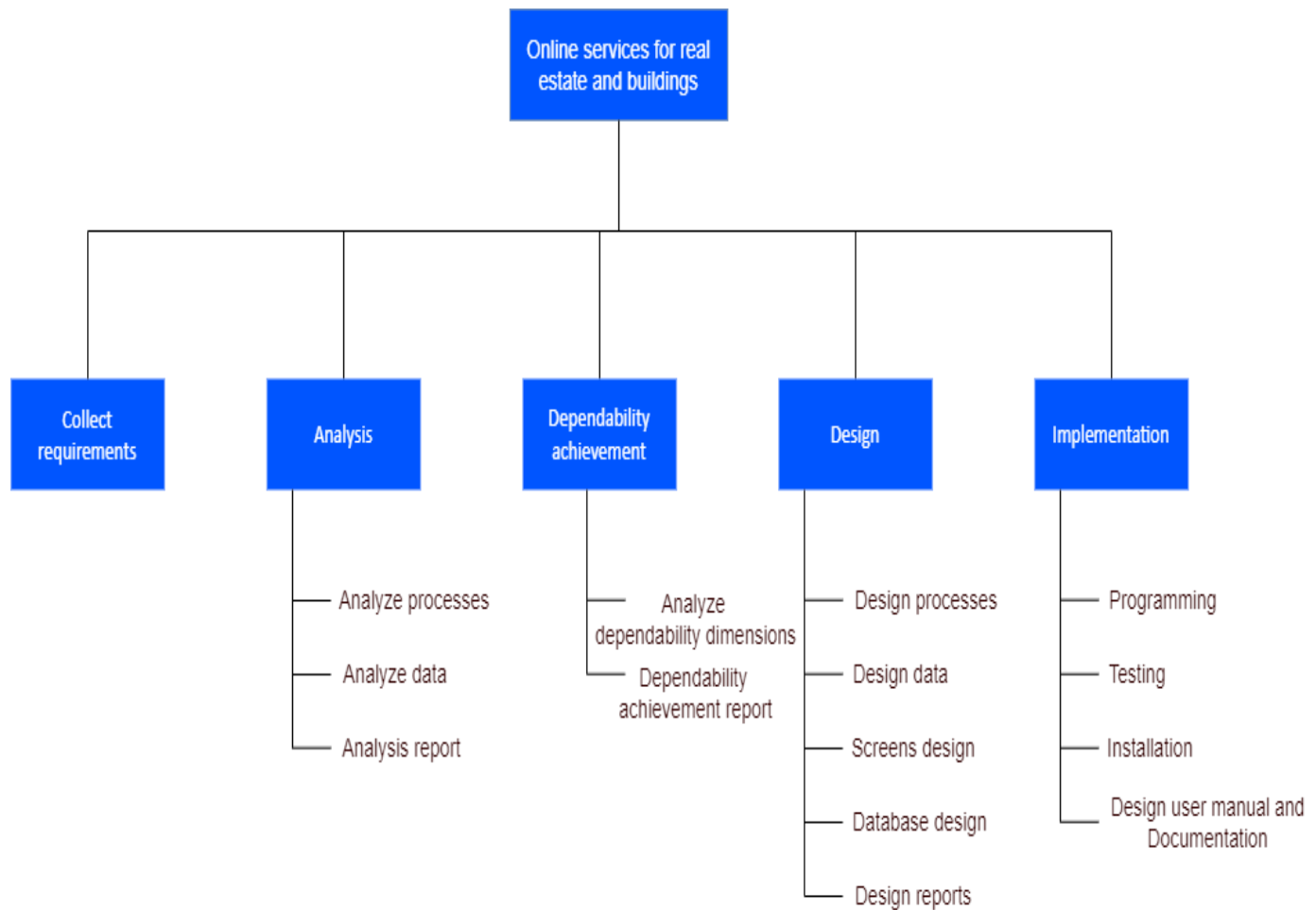
"draw.io" software was used to make this figure.

5-Pert equation

Task number	Task	o	r	p	ET
1	Collect requirements	1	2	3	2
2	Analyze processes	2	2	3	2
3	Analyze data	1	2	3	2
4	Analysis report	1	1	2	1
5	Analyze dependability dimensions	2	3	4	3
6	Dependability achievement report	1	2	2	2
7	Design processes	2	3	4	3
8	Design data	1	2	4	2
9	Screens design	3	4	5	4
10	Database design	1	2	3	2
11	Design reports	2	2	3	2
12	Programming	5	7	9	7
13	Testing	2	3	5	3
14	Design user manual and documentation	1	2	4	2
15	Installation	1	2	3	2

Note that: the time in the table is in weeks.

o: is abbreviation for optimistic time.

p: is abbreviation for pessimistic time.

**r:** is abbreviation for Realistic time.

ET: is abbreviation for expected time.

This formula was used to calculate ET value.

$$ET = \frac{o + 4r + p}{6}$$

6-Network diagram

Task number	Task	Time(Weeks)	Immediate predecessors
1	Collect requirements	2	-
2	Analyze processes	2	1
3	Analyze data	2	1
4	Analysis report	1	2,3
5	Analyze dependability dimensions	3	4
6	Dependability achievement report	2	5
7	Design processes	3	6
8	Design data	2	4
9	Screens design	4	7,8
10	Database design	2	7,8
11	Design reports	2	9,10
12	Programming	7	11
13	Testing	3	12
14	Design user manual and documentation	2	13
15	Installation	2	13
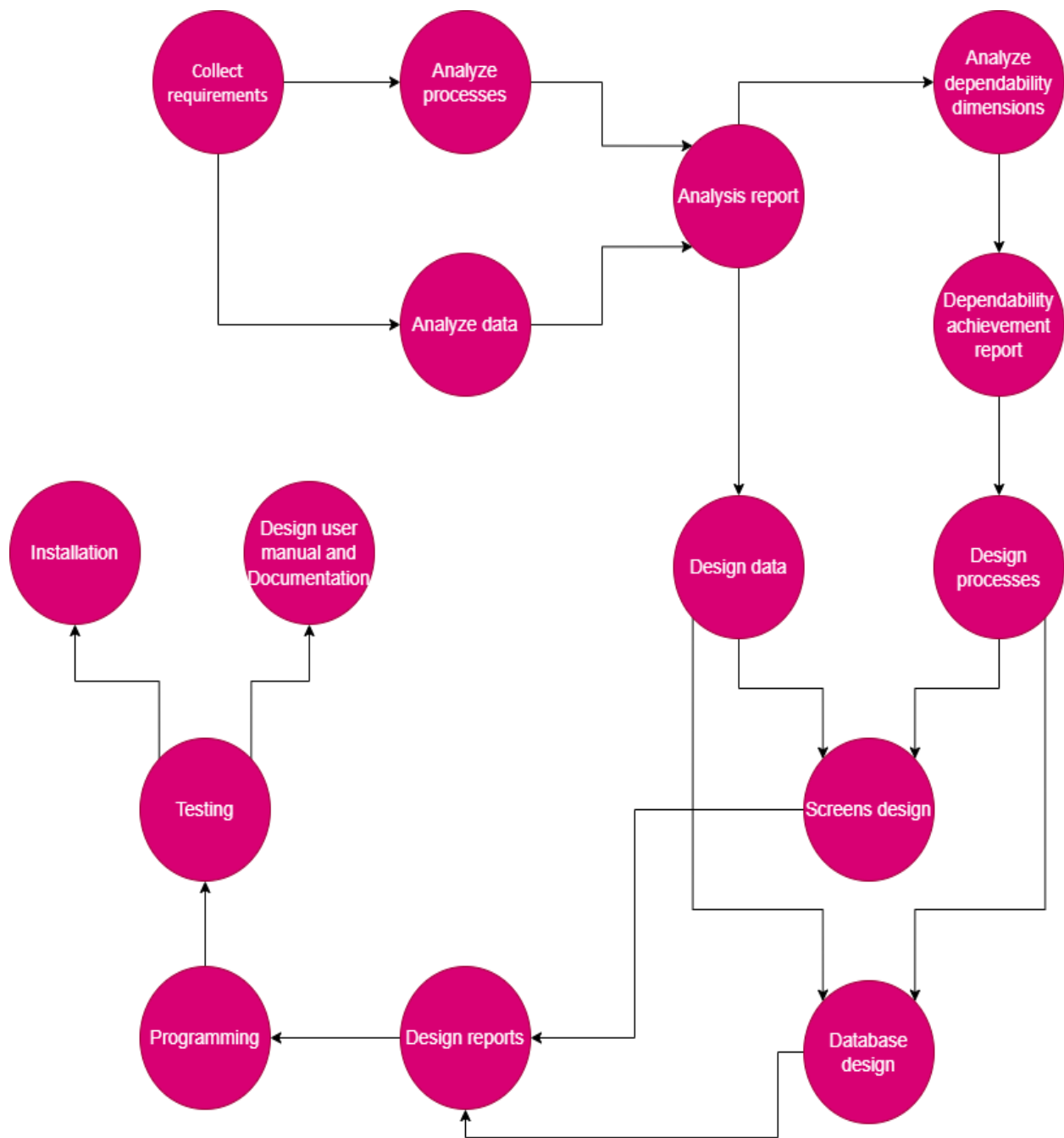
"draw.io" software was used to make this figure.

7-Critical path

A scheduling technique whose order and duration of a sequence of task activities directly affects the completion data of a project and the shortest time in which a project can be completed.
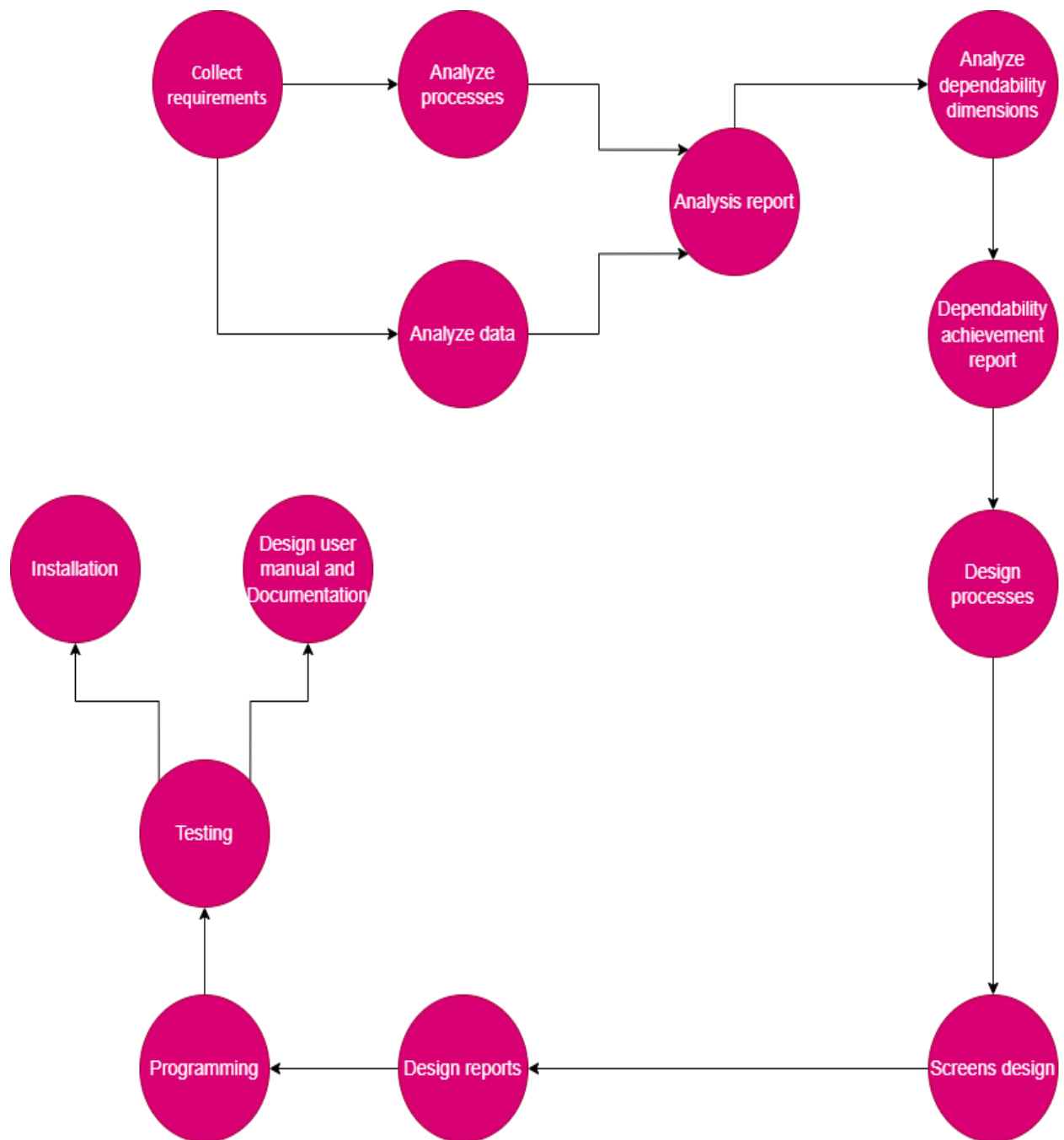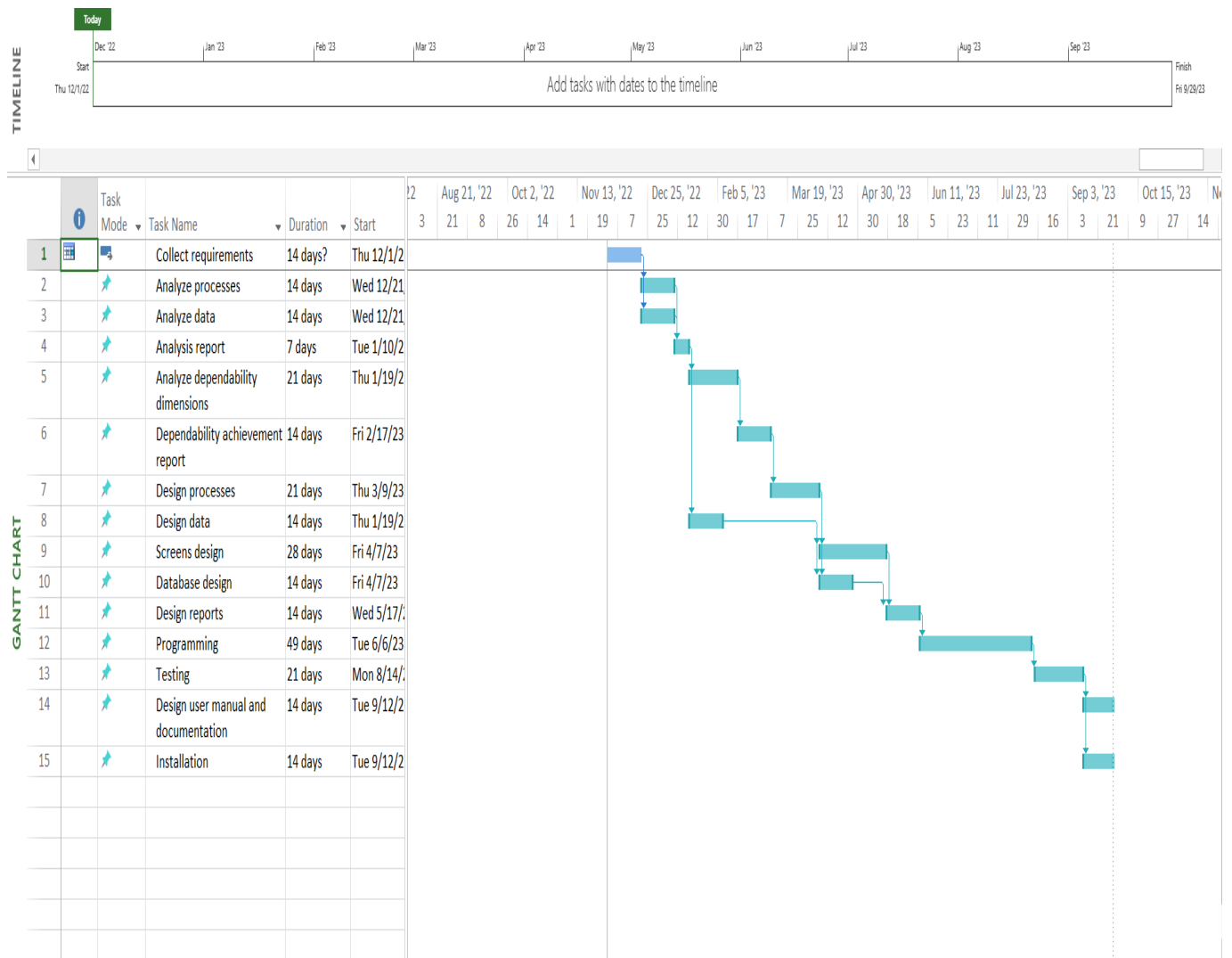

"draw.io" software was used to make this figure.

8-Gantt chart

	Task Mode	Task Name	Duration	Start
1		Collect requirements	14 days?	Thu 12/1/2
2		Analyze processes	14 days	Wed 12/21,
3		Analyze data	14 days	Wed 12/21,
4		Analysis report	7 days	Tue 1/10/2
5		Analyze dependability dimensions	21 days	Thu 1/19/2
6		Dependability achievement report	14 days	Fri 2/17/23
7		Design processes	21 days	Thu 3/9/23
8		Design data	14 days	Thu 1/19/2
9		Screens design	28 days	Fri 4/7/23
10		Database design	14 days	Fri 4/7/23
11		Design reports	14 days	Wed 5/17/:
12		Programming	49 days	Tue 6/6/23
13		Testing	21 days	Mon 8/14/:
14		Design user manual and documentation	14 days	Tue 9/12/2
15		Installation	14 days	Tue 9/12/2

"Microsoft project" software was used to make the gantt chart.

9-Project risks

Risk	Type	Probability	Impact	Description	Strategy
Management change	Project	Low	High	There will be a change of organizational management with different priorities	1-Prepare the organization for change. 2-Handle the change. 3-Review progress and analyze results.
Requirements change	Project and product	Medium	High	There will be a larger number of changes to the requirements than anticipated	1- Evaluate proposed change requests. 2- Execute the proposed change. 3- Validate Feedback. 4- Implement and Integrate. 5- Verify and Review.
Underqualified staff	Project	Medium	Medium	If member of staff is unqualified, he does not	1- Talk to the underperformer. 2- Confirm whether the

				have any qualifications, or he does not have the right qualifications for a particular job	person is coachable. 3- Make a plan. 4- Regularly monitor their progress.
Downfall of security	Project	Medium	Medium	Damage for the system or any indirect interference with the system	1- Know what you are securing. 2- Keep security up to date. 3- Strengthen customer relationships
Unsolved bugs	Business	High	High	When testing there are bugs that are not willing to be solved according to the schedule	1-Bug visibility. 2-Bug prioritization. 3-Bug resolution. 4-Bug analysis.
Difficult usage of Site	Business	Medium	Low	The users of the Site will find it difficult to use	1-Provide user manual. 2-Provide help section in the

					website to help user reaching his target.
Cost estimates unrealistic	Business	Low	High	That's because no one person has insight into the full scope of project costs and because different estimators operate under different assumptions	1-Find more cost-effective solutions. 2-Find a partner 3-Find finance websites Ex: Zoomaal 4-Reduce requirements.
Time estimates unrealistic	Business and product	Medium	High	An estimate of the number of hours or days required to complete a software feature is almost always inaccurate	1-Reduce requirements. 2-Find a freelancer developer. 3-Enable working overtime.
Team size	Project	Low	Low	Small or large	1-Search for

				members of team can lead to team dysfunction and failure to achieve important organizational objectives	new developer that have self-discipline. 2-Find a freelancer developer. 3-divide tasks on available members temporary.
and product					
Team members that do not have knowledge in the business they work on	Project and business	Low	High	This problem appears when the scope of the current project is not fully known	1-Provide business courses for team members. 2-Increase awareness of business problems.

10-Security achievement

10.1- Security terminology

term	Example
Asset	- The records and history of each user and personal information.
Exposure	- Loss of information about real states or the consumer which leads to bad reputation and loss of trust between the system and clients.
Vulnerability	- Weakness in the password of the users that can be easily hacked.
Attack	- An impersonation of authorized user or a blocked user enter the system. - Virus infect the system.
Threat	- An unauthorized user access the system by guessing the name and password of an authorized user. - Admin account get hacked. - System contains fake accounts.
Control	- A password checking system that disallows user passwords that are proper names or words that are normally included in a dictionary. - Check if there is more than one account with the same id. - Connect the users accounts with the mobile phone number and e-mail then send verification message, so we can make the user account and the system more secure. - If the account of the user logged into the system in different device send an e-mail and verification message to the user to make sure there is no attacks.

	-Provide a virus checker in the system so they can find and remove the virus before infect the system.

10.2-Security assurance:

❖ Vulnerability avoidance:

- Make a password checking step before sign up and make account in the system so that no fake accounts or unauthorized access can be done.

❖ Attack detection and elimination:

- Provide a virus checker in the system so they can find and remove the virus before infect the system.
- Send verification mail to the users of the system every time they log in to prevent unauthorized access.

❖ Exposure limitation and recovery:

- The system has a backup policy allows damaged information to be restored.
- Block the account if it's hacked, fake or unauthorized.

11-Safety achievement

11.1- Safety terminology

term	Example
Accident	- People may be stolen. - People may be kidnapped for illegal operations. - In the worst probability they could be killed.
Hazard	- Fake posts from bad persons which provide users with impostor information for illegal desire.
Damage	- The damage can be ranged from only abuse people using the website to kill and kidnap people. - These accidents will affect the reputation of the website owners and may reflect on users put them in doubt to benefit from many online services and avoid using new technologies fearing from these disadvantages.
Hazard severity	- The worst possible damage could result is that people may be killed. - The minor possible damage could result is that people may be abused and get angered from the system.
Hazard probability	- Unfortunately there is a little probable for events that cause hazard (1/1000 chance of hazard occurring).
Risk	- Some fake advertisements may be pass from all avoiding techniques and affect users. - Impostor people enter the system by tricking all protection techniques. - Members of the website are not collaborative and do not report bad persons and fake posts they see.

11.2- Safety achievement

❖ Hazard avoidance:

- Applying methods to check people registering to the system.
- With the help of machine learning the website can check real estate posts to filter them and accept only the valid advertisements.

❖ Hazard detection and removal:

- With the help of monitoring system and collaborative users admins can deal with impostors and fake posts which causing hazard.

❖ Damage limitation:

- If any person been abused from the website or have a bad situation with it because of a bad member this bad one should be removed from the website and inform all users who treated with him and inform police if any crimes had done from him.