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Project Title: Rent Management Webapp, Tarif

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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.

Abstract

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1. Introduction

The pandemic made people more aware and enthusiastic for cashless payment options. While managing rents looks trivial, it can get out of hand very quickly if you own multiple properties to rent. Besides, traditionally, people either do not keep a record of the rents they push or pay; or record it on paper. Keeping a record of rents is extremely useful as it can provide statistical benefit. Comparing the rents paid for different houses can give one an idea on what the market is offering them which can be used in decision making while searching for rents. On the flip side, keeping tabs of bills pushed or rent collected can be valuable to landlords to gauge what people are willing to pay and what their property's worth should be to tenants. By keeping record of rents paid/collected, the users can make educated decisions about what properties are worth and what amount they should be paying.

This is where the Rent Management WebApp (Tarif) comes to play. The webapp makes it easier to find rentable houses and tenants by displaying all the rents available in the user's vicinity in a map. It provides multiple options to both tenants and landlords along with reviews and ratings to help in screening from among the options. The webapp helps the landlords to push bills to tenants by allowing the them to make a bill template by selecting from available billing criteria such as monthly rental, water fees, electricity fees, waste disposal service fees, etc. which can then be used to push bills to the tenants. The webapp helps not only the landlords, but also helps the tenants to pay it via cashless methods if they so desire. The webapp also visualizes the rental data of landlord or tenant to them through graph so that they can make educated decisions on their rental journey.

1.1. Problem Scenario

The problems that the webapp intends to solve are as follows:

i. Finding a rent or finding a tenant is very difficult given the limited means of reaching out to one another in Nepal.
ii. People are opting to spend money via cashless means due to the pandemic. However, house rents are paid mostly via cash when the landlord visits the tenant door to door.
iii. Pushing consistent bills to tenants takes quite a bit of time as landlords mostly need to do all the calculations themselves, write it all down on a piece of paper, sign it, and manually send it to tenants.
iv. While pushing a bill or paying a bill, most of the parties involved in house rents, do not keep track of the transactions being made. That is ignorance of data which could serve as a valuable asset in decision making.
v. Often there is no reliable way for screening available options of landlords and tenants. Thus, after a contract is signed, either party could end up stuck with a bad or unwanted company.

1.2. Project as solution:

The project solves the aforementioned issues by the following means:

i. The app displays a google map-based view which helps users locate houses ready to be rented. Similarly, since the houses are now viewable in map, the landlords can find tenants more frequently.
ii. The app provides a cashless means to pay rent if the user desires to do so.
iii. The app supports development of a bill template which the landlords can then use to push consistent bills to all tenants.
iv. The app keeps track of all rent related transactions and visualizes the data in form of graph so that the user can make educated decisions.

The app supports ratings and reviews which help in screening both tenants and landlords.

1.3. Aim and Objectives:

1.3.1. Aim

The major aim of the project is to make finding and managing rents easier. The project helps tenants find reliable rent and help landlords find reliable tenants. To help tenants and landlords make educated guesses based on their previous data. To provide tenants and landlords a reliable way to pay and push bills respectively via e-payment.

1.3.2. Objectives

The objectives of this webapp are:

- To learn about web development and its required paradigms
- To learn about database designing in a real-world scenario
- To learn how restful APIs work
- To better understand third party APIs in development such as map APIs.
- To better understand frontend technologies like react, and JS in general.
- To better understand backend technologies such as Django and Django REST framework.

1.4. Report Structure

1.4.1. Background

The background section of the report clarifies the project requirements, project description and the end users. The section also covers comparison of the project with other similar projects in order to establish how the project is different from some of the existing solutions.

1.4.2. Development

The development section of the report elaborates how the project is to be developed. The section also covers the considered and selected methodologies while also describing the several phases of the selected methodology. The development process is also visually represented with the help of Work Breakdown Structure and Gantt Chart.

1.4.3. Progress Breakdown

The progress breakdown section of the report specified the progress made till date for the project.

1.4.4. Future work

The last section of the report, future work, describes the work that needs to be done for the project to be completed.

2. Background

2.1. Client description and requirements

Client name : Saral Karki

2.1.1. Description:

The client is Saral Karki, an individual, who resides in rental house, and wants a webapp to enhance their rent experience. Having experienced rental issues firsthand, the client knows the common issues faced in the house rental domain.

Upon presenting this project to Saral, he found the project helpful to him in resolving the issues he has seen in the house rental domain. He agreed to be the client for this project as he sees practicability in the project and is thus willing to provide his insight on the rental domain.

2.1.2. Requirements:

1. Landlord and Tenant registration with citizenship

   The user registers as a landlord or a tenant. While registration, the user must upload a scanned copy of their citizenship which is also stored for security purposes. While it is not a common practice in Nepal for landlords to take a copy of tenant's citizenship, it is a good practice to have it available. Having a citizenship attached to an account also significantly reduces chances of fraud or run-away cases.

2. Houses must be visible on a map

   The webapp must contain a map displaying the houses available for rent which is visible to users after they sign in. This makes it easier for tenants to find houses for rent in their desired location.

3. Push bills as landlord

   The webapp must enable landlords to make house bills and push the bills via email. This makes it easier to calculate the rent amount as well as removes the hassle of physically visiting the tenant or handing out bills.

4. Pay bills as Tenant

The pushed bills must have an e-payment option so that tenants can pay the bills virtually. This removes the hassle of physically meeting the landlord just for paying the rent amount.

5. Leave review and rating for tenant and landlord

Both landlords and tenants must be able to leave a rating on one another after their term has ended. This ensures that there is a way for screening the tenants/landlords even before the interview takes place.

6. Register houses as landlord

A landlord must be able to have multiple houses registered since a user may have multiple houses.

7. Keep track of payment amounts and dates and visualize these data

The webapp must also ensure that it store bill details and bill date paid of each user. The webapp must visualize the given user data in form of graph to enable educated decision making.

8. Visualize user data for educated decision making.

The webapp must visualize the given user data in form of graph to enable educated decision making.

2.2. Understanding the project

2.2.1. Webapp as a medium

Webapps have revolutionized the way we use the internet. While initially web browsers could only render simple HTML contents, nowadays browsers are powerful enough to run heavy webapps and even heavy 3D RPG games, thanks to the JavaScript engines built into browsers. People use the internet very frequently, making it the perfect platform for reaching a huge mass of people. The beauty of webapp is that it runs on any platform so long as you have an internet connection and a browser, be it IOS, Windows, Android, Linux, or any other OS.

2.2.2. Project elaboration

The project is a webapp built using React and Django frameworks. React is the frontend framework used for making the project viewable in browser and to collect input from the users. Django is the backend framework for storing user information. The project uses restful APIs transfer data between the backend and the frontend.

Project deliverables

Similar systems

Systems

Comparison table

Comparison result

Development

Methodologies

WBS (appendix)

Gant Chart (appendix)

Progress analysis

Progress table

Progress analysis….probably not in a separate section

Future work