LUCID Daily Vision

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***Abstract*—Lucid Daily Vision, a web application, which is simply a list of tasks app, where users need to complete the tasks that he/she wants to complete. The goal of making this web app is to help people to frame a list of tasks regularly which can help user track one's short-term goals or ideas or accomplishments which will certainly provide an overall beneficial impact on his/her career. In this project we propose to create daily task completion tracking web application that provides regular overview about the progress of one's goals/tasks by using "add, edit, delete to-do tasks" features.**

***Index Terms*—to-do list, GCP**

I. Introduction and Motivation

This web app enlists tasks of a person who wants to accomplish only in a single user friendly application. By this, user won't forget anything significant. Additionally, by using prioritization feature, user can give or set importance to specific tasks/goals in the list he/she plans to finish within deadline. In this way, users will be motivated to end those tasks by giving immediate attention based on user defined priority. Once logged in, the application provides a task entry page where the user can enter a task set priority, deadline and current status of the task. The page also displays the list if the task entered by the user so far so as help the user to keep a check on high priority tasks.

In a nutshell, by writing down one's daily tasks on a list through app/web app can help one maximize efficiency by securing better mental health and reduce stress in one's personal life. So, by keeping that in mind our To-do list web app will facilitate users to segment their goals into achievable actions. This also enable users to conclude big projects by splitting them into smaller tasks. Therefore, this record of tasks can allow them to manage time intelligently and can uplift people to attain more throughout their day.

II. Architecture

The Lucid Habit Tracker application is designed using an REST API architecture. This architecture conveniently separates the frontend and the backend design and its operation. The frontend is designed with HTML5 and Bootstrap CSS and some additional custom CSS. The backend is developed with Python Flask. A PostgreSQL database is used as database for this application.

The frontend files and the flask server are hosted behind an NGINX server. The NGINX server works as a middleware that forwards HTTP/S requests to the frontend. The frontend is flexibly coupled with the flask server using JavaScript's Fetch API. The fetch API is primarily used to forward CRUD requests to the flask server which further carries out the required transactions with the database.

III. Focus Area and Research Questions

A. Description

When the user base grows, naturally, more resources will be required to handle simultaneous requests. However there could be instances when the usage is low. In these situations, it makes less sense to keep all the resources deployed as this could become expensive in the long run. Therefore, in this research, we study and find optimal solution to allocate and deploy resources based on optimal speed and desired user load of the application. In our web application, the user will be creating an account, will add daily goals/ to-do lists, edit lists, delete lists according to his/her priorities. The research questions are as follows:

1) Will the application still work even when the usage is applicable via low speed network?
2) Can the application survive the load when multiple users order at the same time?

IV. An overview of report structure

To accomplish the ultimate goals of the project there are several steps accompanied with. For instance, user's device/browser where users send requests and renders the responses where user interface is run. Then web application interfaces comes in front of users where they can visualize the web application service with the help of front-end technologies along with back-end servers at the the behind.In this

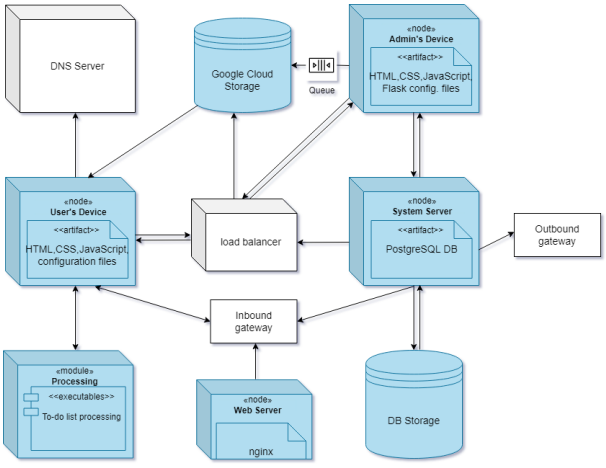

Figure: Deployment View

regard, DNS server stores the domain information for Lucid Daily Vision web app in it where Application/System server runs as back-end server, it parses HTTP requests, accesses databases and renders web UI by means of HTML and data flows from application server to database server.After that, the web application sends requests to the database server to create account having user credentials, add, edit, delete to-do list information. Then the database server responses to the application server with necessary information. Data flow between users and load-balancer stays active where inbound traffic from clients is distributed over available-required nodes to enable whole processing more reliable and efficient. The inbound gateway is there by which we can use the API Gateways for HTTP request for web APIs. Eventually, cloud storage named as Google cloud for storage is applied in our application. In addition, web server that we use, is a dynamic server-side rendering server to forward a request-parameter named nginx. As mentioned earlier for database storage, PostgreSQL is integrated on GCP.We have chosen this database for its having an remarkable number of attributes for instance: performance, security, programming extensions, and configuration among other databases. It stores the user and content based information.

V. Approach

Our approaches towards the research tasks are as follows: Firstly, we try to lower the internet speed and test by login and entering a set of tasks at that lowered speed of network. Secondly, by simultaneous logging in via multiple user accounts, adding and updating a task to check if the application can take the user load properly or not.

VI. Findings

It is observed that on lowering the internet speed the application was reachable and it was also possible to enter or update a task. Although at lower speed there was considerable delay in page loading.Later on, the application was found to perform well under the load test with multiple users logging in and adding or updating a task on web app.

VII. Limitations

Earlier we assumed to be working on what exact impact the dynamic scaling of resources will have on the overall performance of the application and the user experience. But in our project, we could not perform a load test on the application along with consolidation of dynamic scaling and compare the performances and also estimate the cost differences.Also, although maintaining user privacy and secure system data is of main concern for any web app, regrettably in our case, user and storage data are not encrypted to prevent any suspicious activity.

VIII. Conclusion

In this paper,we have described how the web application will provide specific valuable services to users who wants to manage and control daily tasks list or activities in a structured way so that they do not lose track of their time and motivation. In order to achieve efficient planning of daily tasks/activities, this Lucid Daily Vision web app provides guidance and basic task management capability to use users' time optimally. Here the users are permitted to access the web app after successful registration with our web app. Then they can keep track of to-do lists/goals and get insights of their daily improvements through closing each completed tasks.The System actor is responsible for the tasks that are necessary for our web app to properly function. Not to mention, the System actor is not a real person. Furthermore, irrespective of some down-times and errors, usability is achieved through our web app where users can satisfy themselves by using and fulfilling specific goals/ tasks to increase their productivity. And both users and admin are flexible enough to operate their functionalities as per expectation.But, when either the web server, database server or application server via cloud service will be down, the availability will also face obstruction certainly.

IX. Future Work

This project can be re-executed having an additional recommendation facility through the help of different Machine Learning algorithms such as cluster analysis, decision trees, random forests and artificial neural networks to allow extra task recommendations to the users.

References

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