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Streamlining Task Prioritization: A Smart To-do List Approach with ABC Analysis

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ABSTRACT: In today's fast-paced world, individuals often have to juggle multiple tasks and responsibilities, ranging from work assignments to personal commitments. It can be challenging to manage these tasks efficiently, particularly when they are competing for one's time and attention. A priority list of tasks can help individuals stay organized and focused on the most important tasks, thereby making the best use of their time. However, traditional to-do lists have several limitations in terms of providing a comprehensive view of tasks and prioritizing them effectively. For example, traditional to-do lists often lack the ability to account for different factors that affect task prioritization, such as effort, importance, deadlines, urgency, and tags. Consequently, individuals may find it difficult to determine which tasks to focus on first, which can lead to delays and inefficiencies. The Smart To-Do List web application is designed to address these limitations and provide a user-friendly interface for creating and organizing tasks based on different factors. The application allows users to create a task list and give each task different tags, such as social, office, school, or house chores. Then, the user can input the importance, urgency, effort, and deadline for each task. The Smart To-Do List web application uses an algorithm to sort the tasks and create timings for each task according to priority. This algorithm takes into account various factors, such as the importance, urgency, and deadline of each task, to ensure that the user completes the most important tasks first. The user is then presented with a screen that shows the timing and task list with resume and pause options for each task. Additionally, the Smart To-Do List web application allows users to track their progress and check off completed tasks. The user can exit the screen after all tasks are completed, or the screen will exit itself at the given deadline provided by the user. The pending tasks and new tasks for the next day will be scheduled accordingly. Overall, the Smart To-Do List web application is expected to enhance the traditional to-do list by providing users with a more comprehensive and effective tool for managing their tasks and improving productivity. The features and algorithm of the application are developed with careful consideration of user needs and preferences. Future research can explore the effectiveness of the application and its algorithm in different contexts and populations.

KEYWORDS: Importance, Urgency, Effort, Deadline, Priority, Task.

I. INTRODUCTION

Effective task management is crucial for individuals and businesses to achieve their goals and increase productivity. However, managing tasks can be difficult, especially with the increasing workload and distractions in our lives. Many task management applications are available in the market, but most lack features tailored to the needs of individual users. The Smart To-Do List web application is designed to help users prioritize their tasks based on various factors, such as effort, importance, deadlines, urgency, and tags. The application offers a comprehensive set of features tailored to individual users' requirements. The application's intuitive user interface and task priority algorithm allow users to manage their time efficiently and complete tasks according to their priorities. The purpose of this paper is to describe the design, implementation, and evaluation of the Smart To-Do List web application. [1]

II. LITERATURE SURVEY

Applications for managing tasks have been around for a while, and the market is filled with both paid and free options. Trello, Asana, Todoist, and Wunderlist are a few of the well-known task management programmes. Features like task creation, deadline setting, and progress tracking are available in these programmes. However, the majority of these programmes are missing features that are designed to meet the demands of specific users. According to a study by Cohen and Freeman (2019), task management app users frequently struggle to prioritise their tasks and end up putting them off. The study also discovered that users favour programmes with features for personalised task management. Numerous research studies have suggested developing personalised task management applications to meet the needs of different users. A task management system that recommends personalised task prioritisation using artificial intelligence was proposed in a study by Dzindolet et al. (2018). The system recommends task priorities based on user information like task completion rates and task history. Zhu et al.'s (2019) task management system was suggested in another study.

It uses machine learning algorithms to suggest task priorities. To suggest task priorities, the system makes use of user data such as task categories, due dates, and dependencies. The research into personalised task management applications is the foundation for the Smart To-Do List application, which offers a wide range of features that are individually tailored to each user's needs. The application uses a task priority algorithm that considers factors such as effort, importance, deadlines, urgency, and tags to recommend task priorities. [2][3] III.

III.OPEN ISSUES

Traditional to-do lists have been used for decades as a simple and effective tool to manage tasks and increase productivity. However, these lists have several limitations and open issues that may hinder their effectiveness. Some of the major limitations and open issues of traditional to-do lists are discussed below: Lack of prioritization: Traditional to-do lists do not provide any means of prioritization, which can lead to an overwhelming feeling of having too much to do and not knowing where to start. Lack of context: To-do lists often lack context, which can make it difficult to understand the significance of a task and its relation to other tasks. No time allocation: Traditional to-do lists do not allocate time for each task, making it difficult to plan and manage time effectively. No task grouping: To-do lists do not allow for the grouping of tasks based on different categories or tags, making it difficult to filter and sort tasks based on their nature and importance. No flexibility: Traditional to-do lists do not allow for any flexibility in managing tasks. Once a task is added to the list, it is expected to be completed within the given timeframe, even if circumstances change. Lack of motivation: Traditional to-do lists do not provide any motivation or reward system for completing tasks, which can result in procrastination and lack of motivation. [4][5][6].

IV. PROPOSED ALGORITHM

A smart to-do list is made to address many of the drawbacks and unresolved problems of conventional to-do lists. Some of the ways it can address those issues are as follows: Prioritisation based on various criteria: One of the main drawbacks of traditional to-do lists is that they frequently fail to account for the varying degrees of importance and urgency of various tasks. The use of a smart to-do list, on the other hand, enables users to rank tasks according to a variety of criteria, including effort, importance, deadlines, urgency, and tags. Users can concentrate on the most crucial and urgent tasks first, and then move on to other tasks, thanks to this. Automated task scheduling and rescheduling: With conventional to-do lists, users must manually schedule their tasks and reschedule them if they can't finish them on time. However, a smart to-do list employs an algorithm to schedule tasks automatically according to their importance and the user's available time. The algorithm will automatically reschedule a task for a later time if it cannot be finished in time.

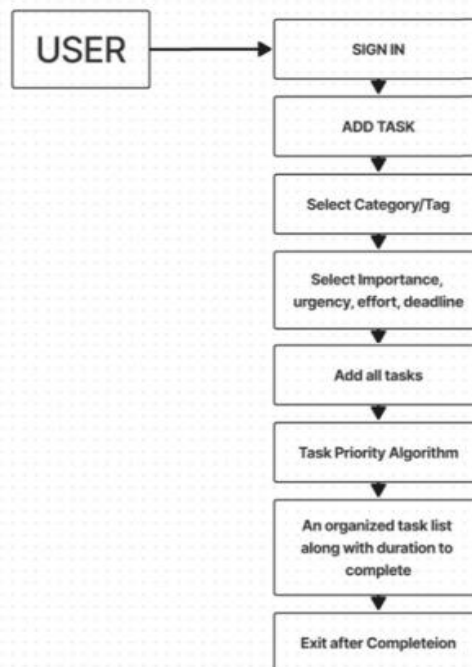


Fig.1 System Architecture

Collaboration: Individuals frequently use traditional to-do lists to organise and manage their own tasks. On the other hand, a smart to-do list enables user collaboration. Teams working on projects together will find this feature especially helpful because it allows them to keep track of each other's tasks and progress. Smart to-do lists have customizable tags that users can create, including ones for social, office, school, housework, etc. Users can quickly identify and group related tasks using this feature, which makes it simpler to manage their workload. Reminders and notifications are sent to users by the smart to-do list to help them stay on top of their to-do list. This keeps users motivated and focused while also ensuring that they don't overlook any crucial tasks.

ABC Analysis: Let n be the total number of tasks.

- Sort the tasks by value in descending order.
- Calculate the cumulative percentage of tasks by value.
- Categorize tasks into A, B, and C based on the cumulative percentage of value.
- WSJF Calculation:
 - Define the weights for value, urgency, and effort as $value_weight$, $urgency_weight$, and $effort_weight$, respectively.
 - For each task:
 - Calculate the WSJF score using the following formula:
 - $WSJF = (value * value_weight) + (urgency * urgency_weight) + (effort * effort_weight)$
 - Assign the calculated WSJF score to the task.

V.SYSTEM IMPLEMENTATION

The Smart To-Do List is a web application created to assist users in organizing their tasks and completing them quickly. The user is given the choice to sign up or sign in at the start of the application's flow. If a user is signing up for the first time, they will make an account. After logging in, the user will be taken to a page where they can create a list of their tasks and tag each one with various categories, such as social, office, school, or housework. The importance, urgency, effort, and deadlines associated with each task will also be provided. Following the creation of the task list by the user, the task priority algorithm will sort the tasks and generate timings for each task based on the provided criteria. After that, the user will see a screen with a task list, timings, and options to resume and pause each task. This screen can be closed by the user once all tasks have been finished, or it will close on its own at the deadline the user has specified. The user will mark the tick boxes next to the completed task after it has been completed. The following day's tasks will be scheduled accordingly, including any new ones that have been added. Users can easily keep track of their progress with the aid of the application, maintain organization, and concentrate on finishing the most crucial tasks first. Procrastination can be avoided, and work can be completed quickly with the help of this application.

VI.RESULTS AND DISCUSSIONS

The Smart To-Do List web application and task priority algorithm are designed to help users improve productivity by prioritizing tasks based on factors such as effort, importance, deadlines, urgency, and tags. The application and algorithm are expected to be effective in achieving this goal. The application will allow users to create task lists and assign different tags to tasks such as social, office, school, and house chores. Users will also be able to set the importance, urgency, effort, and deadlines for each task. The task priority algorithm will then sort the tasks and create a schedule for each task based on the priority. The effectiveness of the application and algorithm will be evaluated by testing it with early adopters. The early adopters will report on whether the application and algorithm are helpful in organizing their tasks and prioritizing them based on different factors. They will also report on whether the application and algorithm help them eliminate procrastination and complete tasks efficiently. The algorithm is expected to be helpful in creating a task priority list that keeps users on track and helps them complete tasks on time. The algorithm will consider the importance, urgency, effort, and deadlines of each task, and prioritize tasks accordingly. This will help users stay focused on the most important and urgent tasks and complete them in a timely manner. Future possibilities for this application are numerous. This application also considers the possibilities for generating reports and analytics in the future. The application offers reports and analytics on the user's job completion rates, usual task completion times, and overall productivity. The application will notify the user of reminder alerts for due dates and outstanding tasks. information and Analytics: The application gives users information and analytics on their job completion rates, typical task completion times, and overall productivity. User choices: The user can customize the application to suit their needs, including notification choices, task categories, and task priority standards. Overall, the Smart To-Do List web application and task priority algorithm are expected to be effective in helping users improve productivity by prioritizing tasks based on different factors. The application and algorithm will help.

VII.CONCLUSION

The Smart To-Do List web application is a powerful tool designed to help users improve productivity and eliminate procrastination. By prioritizing tasks based on factors such as effort, importance, deadlines, urgency, and tags, the application and task priority algorithm help users stay organized, focused, and efficient in completing their tasks. The application and algorithm have been developed with careful consideration of user needs and preferences. The application allows users to create task lists, set priorities, assign tags, and create schedules based on task priority. The algorithm considers the importance, urgency, effort, and deadlines of each task, and prioritizes tasks accordingly. Overall, the Smart To-Do List web application is an effective tool that helps users stay organized, focused, and efficient in completing their tasks. The application and task priority algorithm are expected to help users improve productivity, eliminate procrastination, and achieve their goals. Future research can explore the further development and refinement of the application and algorithm, as well as their effectiveness in different contexts and populations.

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