

A novel and generic resource allocation and sharing approach

Virrat Devaser

School of Computer Science and Engineering, Lovely Professional University,

Dr Priyanka Chawla

School of Computer Science and Engineering, Lovely Professional University.

Abstract: Resource sharing is required for various applications, various approaches are used for different type of application scenarios. Some applications require nearest neighbor methods to resolve the best sharing mechanism whereas some rely on optimum resource utilization in terms of cost, consumption and availability of resource. The term resource in itself is generic as depending upon type of problem the resource meaning changes. The allocation principles can be used by applying different types of techniques like KNN or simple nearest neighbor method techniques. In the current research we tried to create a novel and generic approach for resource allocation and sharing.

Introduction

Resource allocation and resource sharing is a generic problem associated with various domains and different techniques and approaches are used for solving the problem. In the current research we tried to create a novel and generic approach. To make the approach generic it is has been tested for a very generic scenario of books sharing. Our approach will create the generic solution and techniques that can be applied to other scenarios. A platform for testing is created which will be used for book exchange. An online platform is created and tested for generic use, however it can be adapted to use for other scenarios by customizing the requirements.

Background and Terminology

Resource allocation and resource sharing problem is a generic problem to different set of problems which were being solved traditionally by applying various other techniques and algorithms. In the current research an online platform is created to exhibit the generic behavior of such a system by creating the book sharing platform. It s an online platform for exchange of books within the community. In today's world the need for books is a common struggle for every book lover and it has become a very expensive deal for most of the people but here with our platform they could easily borrow books from those who have them. On the other hand there are people who have a stack of books with them which lie without being used but with our platform these people could instead give those books to those in need to get more books they haven't read and make connections with those people who have same kind of book interests. We may not always find the books we need in the library or afford to buy a new one but what we can do is get them from those who have it and also help those like us to get the books they need in case we have them and make learning easy, available and free of cost.[1] This website is intended to be of use for a particular community for instance within a university where there are a number of students and faculty who are always in need of some or the other kind of books for various purposes be it either for their assignments, exams or some research. There are libraries which most of the time do not have such a number of books to meet the demands of the entire university and also book stores where one could purchase new ones but with our platform the people in need and could not afford to buy a new one could borrow it from those who have it whenever needed.[3]

The project is an online platform which is the perfect replacement for your library or the bookstore. Here people can sign up and add any book they no longer need or find books they and request them from those who have it. This project substitutes the need for a library or a bookstore to find books that too in a economically feasible and convenient way within ones own community. This platform is the easiest of all the platforms as the user interface very simple with clear labeling and minimal process for either adding or requesting to make it very convenient to user even for the people thus enriching the user experience.[2]

The platform has a hassle free one step login process and the dashboard containing the available book along with the options to add, request and check requests of the books with a properly labeled drop down menu and this minimal options make it a very simple to use. As we know that the need for books is high in current world especially in big universities this platform provides the possibility to find those books which aren't available in library or maybe are expensive to buy whenever you need. The books are readily available for collection anytime in case of last minute emergencies like the day before exams upon request as we put you in touch with the owner as soon as the request is accepted.[5] The platform is completely secure with the data being masked while authentication and the data hosted by us is inaccessible to anyone outside the admin team. The contacts are also invisible to each other and could not be accessed without the authorization of the users. The privacy of the users is out topmost priority and we are committed to ensuring it. We also have a function to report any issues so that we could take immediate action. This platform is a cost effective way of getting the books as we could get all the books you need in this platform from the people who do not need them thus saving the money you need to spend on buying them and also as we do not have any charges for using our platform and is completely free. This platform is a completely free pass to knowledge. [7]The platform is very much flexible and there is no limit to the number of books you can add or request at any time it is highly flexible to meet the user demands which makes it a more attractive option to consider using than the library or bookstore. There are three views for this website to look at they are the Book Sender, Book Receiver and the Back end Management views. The Back end Management has unconditional access to the entire platform with the scope of upgrading the platform to its latest versions and also manipulating the data or fixing the bugs. The Book Sender has the access to add a book and decide to accept the book requests as per his/her choice. The book receiver has the access to request the books needed. There isn't any such platform at current to operate in this way within any community and that makes this one of the finest solution. System strengths are analyzed at this stage and the business proposal is developed with the most common project plan and specific cost estimates. During the evaluation process, a study of the feasibility of the proposed program should be undertaken. By this measure the platform will not be of any hindrance to the actual entity it operates in. In this step, there must be a clear idea of the major platform requirements. [6]This step was conducted to look at the effect of this platform on the economy of the entity. The amount of funds this entity could spend on research and platform up gradation is limited. Spending should have a reason. Of course The program was developed once on a tight revenue scale and this was done because most of the features used were available online at no charge. This study was conducted to determine the feasibility of the technology, which is a technical requirement of the system. Any system built should not have a great need for technical resources.[8] This will lead to higher demand for customers. The upgraded system should have a limited requirement, as it is only a small or green change to operating the system. A feature of the study is to verify the acceptability of the program by the end user. This includes actual usage by selected users who will test the platform thoroughly. This user must not face any issues while using the platform, instead should feel the essence of such a platform in this age. The extent of user acceptance is a true measure of the success of this platform.

Research Methodology

In the paper after the clear analysis of the requirements listed earlier in the report the system is designed. With our data, we planned to make a website rather than an android application despite of the fact that

android applications are more convenient to use. We went for the website because it is well known that filling forms with much details and looking at lot of analytical data over a small screen is too clumsy. Implementation is the phase in which we used all the analytical planning into execution. In order to support our idea to be reality we used various languages like js, HTML and JavaScript. We will be building up the modules independently and afterward in later stage we will apply the paste code. There are 2 individuals in our gathering and we have separated the 2 fundamental modules among us – Authentication Module, Analytical Module, Front-End Designing, Back-End and Hosting and Database Normalization and Integration.

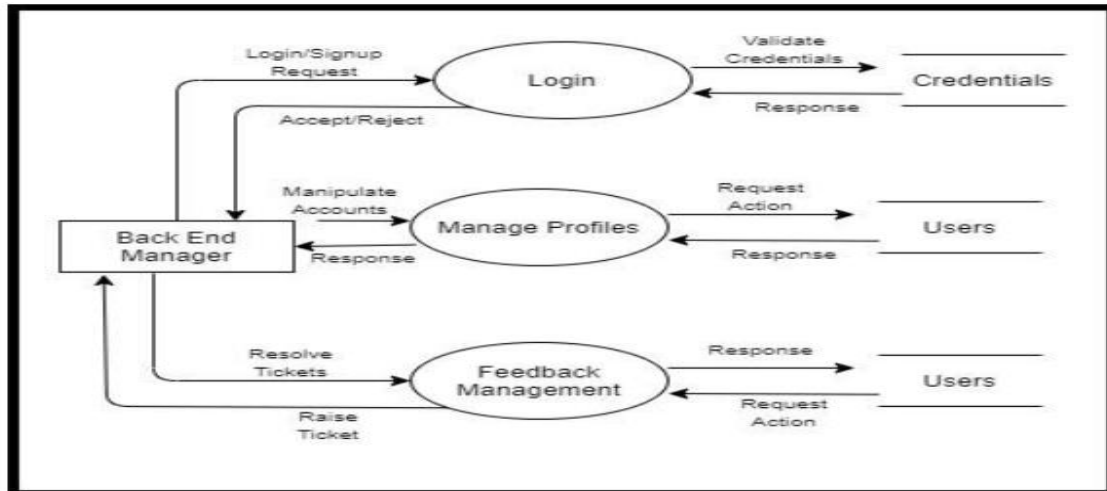
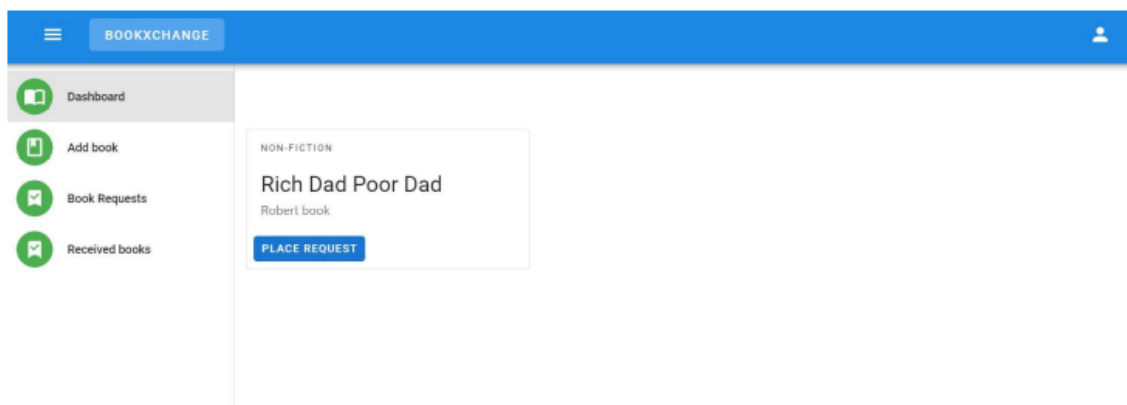


Figure 1: Level 1 Management of operations

Results and Discussion

The application was created and tested as a generic resource sharing application following the basic functionality of resource allocation and sharing. Figure 2 presents one snapshot of the application created for resource sharing taking the example of book allocation and sharing. The performance was completely tested as if its a generic resource allocation and sharing mechanism. After the clear analysis of the requirements listed earlier in the paper the system was designed. With our data, we planned to make a website rather than an android application despite of the fact that android applications are more convenient to use. We went for the website because it is well known that filling forms with much details and looking at lot of analytical data over a small screen is too clumsy.



CONCLUSION

In this research, a system was created to test and visualize the performance of resource allocation and sharing mechanism. The problems with other systems can also be solved by making suitable assumptions related to those specific areas. The results were encouraging as the intent of creating a generic system was fulfilled. The work can be extended to other areas of where resource constraints are present and specially where channeling of resources is required. An approach can be created and tested to solve the issues faced for specific areas by making changes in the current approach discussed.

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