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Digital Assignment 1

Book Renting Service

ABSTRACT

The project entitles "Online Book Rental Portal" is a very effective, feasible online portal that facilitates the readers to read the books and magazines on a very much reliable rent. If a reader wants to read a book, he/she has to purchase the book, where they have to give much money or they can go to the library to lend a book where firstly they have to be a member and have to follow the library rules and regulations - like to return the book at the specified date that is given by the library. So, a lot of time and money gets wasted on these. But with our portal situation becomes very easy. The person which is having the book can give the book on rent for some days at a reasonable rent and can gain money and on the contrary, those who want to rent a book can communicate with the book giver through our portal. So, in general, our online book rental system will allow a user to rent a book online from the website. Once a book is rented it is no longer available to rent again by other users until the book is returned. The book which has already been rented will show the name of the renter and the date until when it is rented for the main objective of the project is to create an online book rental site that allows users to search and rent a book online based on title, author and subject. Using this Website, the user can rent a book online instead of going out to a book store and library spending a lot of their time.

UTILITY

Online Book rental is an online web application where the customer can rent books online. Through a web browser, the customers can search for a book by its title or author, in general by this project one can rent the book from anywhere at any time. The convenience of an online book rental is a major consideration for most of us, especially those living in areas where access to a large bookstore is limited or is quite far away. Many books are too much expensive and for these types of books, this system is most preferable. If a book is too expensive, then one can rent that Book for some amount and can read that book by spending a very small amount of money. After reading the whole book they can return a book and another one can take Benefit of this type of expensive books. Also, Textbook rentals are great for when you only need the textbook for a small section of the course. In such cases, purchasing a book just for one chapter could be a waste of money. So overall by this system one can read the book of their choice at any time by spending a very small amount of money. Using our platform both parties' problems will get solved. The person which is possessing any book will get some sort of rent price so he will get benefited and the person who wants to read the book can get a book at a much less price and should return that book as per the norms and conditions decided. The user can also give feedback on the condition of the book and convey its overall renting experience by giving ratings on a score of five and can add beneficial comments so that the buyers get to know the genuine sellers. This also prevents the buyers from fraud and hence creating the best experience.

CHALLENGES

- **Book faltering**

  The difficulties encountered during the process of renting books are difficult to address, for example, if the book is ripped, it causes a complication for both the lender and the borrower.

- **Malicious Renter**

  The lender might attempt to defraud the customer by charging an additional fee after the deal’s done or by scamming the customer by not authenticating the end of book subscription, therefore, locking the customer into an endless rent cycle.

- **Malicious Borrower**

  The borrower didn't return the books, or he/she wanted to concoct a scheme to avoid paying the late fee and fine.

SOLUTIONS OF CHALLENGES

A database will be created to keep track of the customers' names, book IDs, locations, phone numbers, and so on. The fee structure is determined by the database, as well as the penalty for the duration. As a result, we will generate an OTP that will only be given to the lender and will be confirmed after the transaction is completed. Every renter and borrower will be given ratings to be maintained as a metric to verify their authenticity to reduce the risk of frauds since if the ratings are high the borrower can get an assurance that the renter is genuine.

PROCESS MODEL SELECTION

Incremental model

We have picked the incremental process model for our project because our project is modular in the sense that each module of our project can be developed independently with only the routes to be established to integrate a module into our project. The entries in the database for our project are interconnected to each other to facilitate the reusability of models amongst the modules. Our project in the simplest case can be divided into 6 modules

- Database model creation
- Sign-in, Sign-up, Sign-out

- User Profile management
- Book rental system
- Book borrower system
- Book return system

After database model creation, the next 5 modules can be designed and maintained as independent modules. This makes our project scalable, easy to maintain and modify, and makes the development process a lot faster.

Disadvantages of using other software development models:

1. Waterfall Model

    - Because of its rigid structure, the Waterfall Model does not work well for complex projects where there is a chance of a change in requirements and/or significant impromptu testing throughout the software development stage.
    - It is not possible to alter or update requirements.
    - Once we move into the next phase, we cannot make changes to our modules in the project.
    - We cannot start the next phase until the previous phase is completed.
    - The Cycle time of this model is very long for our project and it makes the development of the project inefficient and slow.

2. Evolutionary Model

    - Management complexity is more than the incremental model.
    - The modularity of features of our project makes it easier to maintain and add features so, the evolutionary model is not required as the incremental model can still facilitate what the evolutionary model has to offer to our project
    - Sometimes it is hard to divide the problem into several versions that would be acceptable to the customer which can be incrementally implemented and delivered.

3. Reuse Oriented Model

    - Each module of our project can have its own set of requirements for development, so the reusability of the objects is only limited to intra-modular reusability and inter-modular reusability of resources is quite limited.
    - The reuse-oriented model is not constantly worked as a practice in its true form.
    - The old component, will not be compatible with the newer version of the component, which will lead to an impact on system evolution.
    - The difficulty of finding, understanding, and adapting reusable components.

4. Iterative Model

    - The time for the delivery of the entire functionality is higher.
    - Wrong planning results in disaster and our project can be scaled up at any time of the development process, so the scalability of the project makes it difficult to plan everything ahead of time.
    - It does not offer anything particularly enticing to our project's use case

5. Spiral Model

    - It is a more complicated and risk-driven model.
    - Since this model is highly customized, repurposing the process can be confusing.

6. Agile Model

    - Because there are no formal papers, there is a chance of crucial decisions made during different phases will be misread by various team members at a later time.
    - It's difficult to get important project decisions, such as design decisions, reviewed controlled by external professionals when there are no formal papers.
    - Documentation is also minimal for an Agile software development strategy and requires a well-versed, cross-functional team. Since, future scalability is such a huge part of our project, an organized work environment, and proper documentation are crucial for the application's success even if it is at the cost of some of the time from our development stage but the parallel development feature of the incremental model more than makes up for it

FEATURES AND PHASES OF THE PROJECT

Database model creation

A database model shows the logical structure of a database, including the relationships and constraints that determine how data can be stored and accessed. Individual database models are designed based on the rules and concepts of whichever broader data model the designers adopt. Most data models can be represented by an accompanying database diagram.

Sign-in, Sign-up, Sign-out

Sign-in

Sign-in is for the session creation

Sign-up

Sign-up is for the registration of customers & lenders.

Sign-out

Sign-out is for ending an already existed session

User profile management

The User Profile Management feature provides central management for user-specific data and settings stored in the users' model.

Book rental system

Users can make the books available for rent from here for other people to borrow.

Book borrower system

Users can browse the books and send a borrow request.

Book return system

This is where the borrower will return the book and pay if any due is there.

PROJECT’S SDLC

Project Module	Module Stage	Initiation Date (2021)	Completion Date (2021)
Database Model Creation	Requirement Analysis	18th August	20th August
	System Design	21st August	22nd August
	Implementation	23rd August	25th August
	Testing	26th August	27th August
	Deployment	28th August	28th August
	Maintenance	29th August	--- --- --- --- --- ---
Sign-in, Sign-up, Sign-out	Requirement Analysis	30th August	1st September
	System Design	2nd September	4th September
	Implementation	5th September	12th September
	Testing	13th September	14th September
	Deployment	15th September	15th September
	Maintenance	16th September	--- --- --- --- --- ---
User-Profile Management	Requirement Analysis	17th September	17th September
	System Design	18th September	18th September
	Implementation	19th September	22nd September
	Testing	23rd September	23rd September
	Deployment	24th September	24th September
	Maintenance	25th September	--- --- --- --- --- ---
Book Rental System	Requirement Analysis	26th September	28th September
	System Design	29th September	1st November
	Implementation	2nd November	19th November
	Testing	20th November	23rd November
	Deployment	24th November	26th November
	Maintenance	27th November	--- --- --- --- --- ---
Book Borrower System	Requirement Analysis	26th September	28th September
	System Design	29th September	1st November
	Implementation	2nd November	19th November
	Testing	20th November	23rd November
	Deployment	24th November	26th November
	Maintenance	27th November	--- --- --- --- --- ---
Book Return System	Requirement Analysis	26th September	28th September
	System Design	29th September	1st November
	Implementation	2nd November	19th November
	Testing	20th November	23rd November
	Deployment	24th November	26th November
	Maintenance	27th November	--- --- --- --- --- ---