

SOFTWARE ENGINEERING PROBLEM SPECIFICATION TABLE, identifying the following elements.

CLIENT	ReadX
USER	ReadX users and employees
FUNCTIONAL REQUIREMENTS	<p>RF0: Book register</p> <p>RF1: Magazine Register</p> <p>RF2: Modifying bibliographic resources</p> <p>RF3: Deleting bibliographic resources</p> <p>RF4: User registration</p> <p>RF5: Purchase of books</p> <p>RF6: Magazine Subscription</p> <p>RF7: Viewing bibliographic resources</p> <p>RF8: Simulation of reading sections</p> <p>RF9: Report Generation</p> <p>RF10: Test management</p>
CONTEXT OF THE PROBLEM	<p>The design of a prototype for the management of bibliographic products and users for the company ReadX is to be carried out. The company's business model is based on the sale of books and magazines, with the possibility of adding other types of products in the future. Data such as the unique identifier of each product, its name, number of pages, publication date, genre/category, cover URL, sale or subscription value, number of copies sold or active subscriptions and accumulated pages read should be stored.</p> <p>Users can be regular or premium, with limitations and advantages in the purchase of books and magazine subscriptions. The platform should allow registering, deleting and modifying bibliographic products and users. In addition, it should allow the cancellation of subscriptions and the presentation of a library in the form of a matrix for the user.</p> <p>On the other hand, it should allow the simulation of a reading session, with the presentation of advertisements at specific times for regular users. Finally, real-time reports should be generated to inform the total accumulated number of pages read, the genre, the most read category, the Top 5 most read books and magazines, the number of books sold and the total sales value per genre.</p>
NO FUNCTIONAL REQUIREMENTS	<p>RF0: Test management: A test plan should be developed that includes the validation of the prototype functionalities and its scalability. The</p>

test plan should define the test cases, acceptance criteria and the tools to be used for test execution and follow-up.

RF1: Scalability: the prototype design should contemplate the future creation of other types of bibliographic products and other types of users, anticipating the dynamic growth of the platform.

RF2: Usability: the menu that allows the user to visualize his or her collection of bibliographic products should be intuitive and easy to use, and the graphical representation of the Library should be clear and attractive to the user.

RF3: Security: the system must ensure the privacy and confidentiality of user data, as well as protect users' financial and personal information.

RF4: Performance: the system must be able to handle a large volume of simultaneous transactions and operations without affecting the system's performance or speed of response.

RF5: Availability: the system must be available and accessible to users at all times, without interruptions or connection failures.

RF6: Reliability: the system must be stable and reliable, minimizing the possibility of errors or failures in the information transaction or data processing.

RF7: Maintainability: the code and structure of the system must be easily modifiable and upgradable, allowing its maintenance and continuous improvement.

Name or identifier	RF0: Register books		
Summary	The system should allow the company's employees to register the books that, over time, are acquired. The books will have a unique identifier, which will allow them to be identified in the event of a search, a name, a number of pages, a short review, a genre, the sale value, URL, date of publication of the book, the number of copies sold and the number of pages read.		
Inputs	Entry name	Data type	Selection or repetition condition
	Id	String	<ul style="list-style-type: none"> - Must not have two or more books with the same id - The entry must not be empty -Valid numbers and characters -Must contain only 3 hexadecimal characters (0 to 9 and from A to F)
	nameBook	String	<ul style="list-style-type: none"> - They can have the same name - The character must not be empty -Valid numbers and characters
	numPagesBook	int	<ul style="list-style-type: none"> - The entrance must not be empty -Allowed only numeric characters

	shortReview	String	<ul style="list-style-type: none"> - It must contain a maximum of 80 words. - The entrance must not be empty -Valid numbers and characters
	saleValue	double	<ul style="list-style-type: none"> - The entry must not be empty -Only valid numeric characters
	genre	int	<p>Only 3 valid numerical values will be allowed:</p> <ol style="list-style-type: none"> 1. Science fiction 2. Fantasy 3. Historical novel <ul style="list-style-type: none"> - The entry must not remain empty
	URL	String	<p>Any page or service format.</p> <p>//server:port/directory/page</p>
	publicationDateBook	Date	<ul style="list-style-type: none"> - The entry must not be empty - Valid date format: Day/month/year
	numberBookRead	int	<ul style="list-style-type: none"> - The entry must not be empty -Only numeric characters allowed
	numberPagesRead	int	<ul style="list-style-type: none"> - The entry must not be empty -Only numeric characters allowed

Result or postcondition	The system will receive the information provided by the user and save it in the database, then it will display a verification message.		
Outputs	Name output	Data type	Selection or repetition condition
	msg	String	Formatted message of satisfaction: - "Data successfully recorded".

Name or identifier	RF1: Magazine register		
Summary	The system should allow company employees to register magazines. The journals will have a unique identifier, which will allow them to identify themselves in case of search, a name, a number of pages, a publication date, a category, a URL that leads directly to the journal, the value of the subscription (in dollars), the periodicity of issue, the number of active subscriptions and the accumulated number of pages read.		
Tickets	Entry name	Data type	Selection or repetition condition
	Id	String	<ul style="list-style-type: none"> - You must not have two or more books with the same id - The entrance must not be empty -Valid numbers and characters -Must only contain 3 alphanumeric characters (0 to 9 and A to Z)
	nameMagazine	String	<ul style="list-style-type: none"> - They cannot have the same name - The character must not be empty -Valid numbers and characters
	numPagesMagazine	int	<ul style="list-style-type: none"> - The entrance must not be empty -Allowed only numeric characters

	saleValue	double	<ul style="list-style-type: none"> - The entrance must not be empty -Only valid numeric characters
	categories	int	<p>Only 3 valid numerical values will be allowed :</p> <ol style="list-style-type: none"> 1. Varieties 2. Design 3. Scientific <ul style="list-style-type: none"> - The entrance must not Empty
	URL	String	<p>Any page or service format.</p> <p>server:port/directory/page</p>
	publicationDateMagazine	Date	<ul style="list-style-type: none"> - The entrance must not be empty - Valid date format: Day/month/year
	numberSuscriptionActives	int	<ul style="list-style-type: none"> - The entrance must not be empty -Allowed only expressed in numeric characters
	numberPagesRead	int	<ul style="list-style-type: none"> - The entrance must not be empty -Allowed only expressed in numeric characters

	emissionPeriodicity	int	- The entrance must not be empty -Allowed only expressed in numeric characters
Resultado o postcondición	The system will receive the information provided by the user and save it in the database, then display a verification message		
Outputs	Entry name	Data type	Selection or repetition condition
	msg	String	Satisfaction message formatted: - "Correctly recorded data"

Name or identifier	RF2: Modification of bibliographic resources		
Summary	The system will allow the user to modify the data previously provided in the registration section. First enter the id of the book or magazine you want to modify. Subsequently, all the information of the registered bibliographic resource will be shown and that the user can modify to his preference.		
Tickets	Entry name	Data type	Selection or repetition condition
	Id	String	- The entrance must not be empty -Valid numbers and characters
Resultado o postcondición	The system will receive the information provided by the user and modify it in the database, then display a verification message		
Outputs	Entry name	Data type	Selection or repetition condition
	msg	String	Satisfaction message formatted: - "Successfully modified data"

Name or identifier	RF3: Deletion of bibliographic resources		
Summary	The system will allow the user to delete the bibliographic resources, that is, the books or journals that he has registered by means of the identifier of which it was stored in the database, since the unique identifier will be automatically deleted from the record of the selected resource.		
Tickets	Entry name	Data type	Selection or repetition condition
	Id	String	- The entrance must not be empty -Valid numbers and characters
Resultado o postcondición	The system will delete the book or journal directly from the database, and then display a verification message.		
Outputs	Entry name	Data type	Selection or repetition condition
	msg	String	Satisfaction message formatted: - "Resource successfully deleted"

Name or identifier	RF4: User Registration		
Summary	The system must allow to register two types of user (Premium or regular), the premium will be able to acquire books and subscribe to as many magazines as he wishes and can pay, while the regular can only buy 5 books, subscribe to up to 2 magazines and during his use of the platform, he will be presented with advertisements. Of the two users their name (name, ID and date of linking) will be registered.		
Tickets	Entry name	Data type	Selection or repetition condition
	typeUser	Int	<ul style="list-style-type: none"> - It will only be allowed to choose between two types of user, in numeric characters: <ol style="list-style-type: none"> 1. Regular 2. Premium
	nameUser	String	<ul style="list-style-type: none"> - The entrance must not be empty -Only valid alphabetic characters
	id	String	<ul style="list-style-type: none"> - The entrance must not be empty -Only valid numeric characters -There cannot be two or more people with the same id
	dateVinculation	Date	<ul style="list-style-type: none"> - The entrance must not be empty - Valid date format: Day/month/year
Resultado o postcondición	The system will save the information provided (name and id) in the database and display a satisfaction message.		
Outputs	Entry name	Data type	Selection or repetition condition

	msg	String	Satisfaction message formatted: - "User registered successfully"
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Name or identifier	RF5: Buying Books		
Summary	The system must allow you to buy books depending on the benefits of the type of user in which you are registered. When the user buys a book, the date of operation and the amount paid must be stored on an invoice. In addition, the number of such books sold should be updated. The program must search for the name of the book to buy, in order to make the purchase, in case there is more than one book with the same name you must choose it according to the type.		
Tickets	Entry name	Data type	Selection or repetition condition
	nameBook	String	- The character must not be empty -Valid numbers and characters
	typeNumBook	int	- The entrance must not be empty -Only valid numeric characters - Limited options according to him the number of books with the same name
	amountPaid	double	- The entrance must not be empty -Only valid numeric characters
	dateOperation	Date	- The entrance must not be empty - Valid date format: Day/month/year
Resultado o postcondición	The system will save the date of operation and the payment amount in the database and display a message of purchase satisfaction		
Outputs	Entry name	Data type	Selection or repetition condition

	msg	String	Satisfaction message formatted: - "Book purchase successful"
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Name or identifier	RF6: Journal Subscription		
Summary	<p>The system must allow the subscription of journals depending on the benefits of the type of user in which it is registered. When the user subscribes to a magazine, the date of operation and the amount paid must be stored on an invoice. In addition, the number of active subscriptions must be updated. The program must look for the name of the journal to subscribe, in order to make the subscription, in case there is more than one journal with the same name you must choose it according to the type. The user may also unsubscribe from the magazine at any time.</p>		
Tickets	Entry name	Data type	Selection or repetition condition
	nameMagazine	String	<ul style="list-style-type: none"> - The character must not be empty -Valid numbers and characters
	typeNumMagazine	int	<ul style="list-style-type: none"> - The entrance must not be empty -Only valid numeric characters - Limited options according to him the number of books with the same name
	amountPaid	double	<ul style="list-style-type: none"> - The entrance must not be empty -Only valid numeric characters
	dateOperation	Date	<ul style="list-style-type: none"> - The entrance must not be empty - Valid date format: Day/month/year

	cancelSubscription	int	<p>- It will only be allowed to choose between cancellation options, in numeric characters:</p> <p>1. Yes</p> <p>2. No</p>
Resultado o postcondición	The system will save the date of operation and the payment amount in the database and will display a message of satisfaction of the subscription to the chosen magazine.		
Outputs	Entry name	Data type	Selection or repetition condition
	msg	String	<p>Satisfaction message formatted:</p> <p>-</p> <p>"Magazine subscription successful"</p>

Name or identifier	RF7: Visualization of bibliographic resources		
Summary	<p>The system should allow the user to view his collection of bibliographic resources, which he has registered, quickly. The Library must be represented through 5x5 matrices that graphically present the code of the bibliographic products associated with the user's account. Products should be sorted by date of publication, from oldest to newest.</p> <p>In addition, the user must be allowed to navigate on it (previous or next page). The user must be able to select a bibliographic product either by its x,y coordinate in the presented matrix or the 3-character identifier of the product in order to start a reading session</p>		
Tickets	Entry name	Data type	Selection or repetition condition
	IdCode	String	<ul style="list-style-type: none"> - The character must not be empty -Valid numbers and characters
	translator	int	<ul style="list-style-type: none"> - The entrance must not be empty -Only valid numeric characters and commas - Coordinates must be chosen within the matrix
	previousPage	String	<ul style="list-style-type: none"> - The entrance must not be empty -Only one valid character (A)
	nextPage	String	<ul style="list-style-type: none"> - The entrance must not be empty -Only one valid character (S)
Resultado o postcondición	The system will show the reading section, depending on the books and magazines acquired by the user, as the displacement of the pages he has.		

Outputs	Entry name	Data type	Selection or repetition condition
	library	String	Matrix 5x5 that shows the codes and reading sections that the user has registered, with X and Y coordinates

Name or identifier	RF8: Simulation of reading sections		
Summary	<p>The system must allow the realization of a simulation of the reading session that presents by console the name of the bibliographic product, will show the current page that is being read and some navigation options to read the previous page, the next page and to return to the Library.</p> <p>Each page read in the simulation increases the number of pages read of the corresponding bibliographic product on the platform. This through a counter, which increases as it is read. Finally, in the case of regular users, advertisements must be presented at two times: at the beginning of the reading session and after every 20 pages read from a book or 5 pages read from a magazine.</p>		
Tickets	Entry name	Data type	Selection or repetition condition
	nameLecture	String	<ul style="list-style-type: none"> - The character must not be empty -Valid numbers and characters
	previousPage	String	<ul style="list-style-type: none"> - The entrance must not be empty -Only one valid character (A)
	nextPage	String	<ul style="list-style-type: none"> - The entrance must not be empty -Only one valid character (S)
	returnLibrary	String	<ul style="list-style-type: none"> - The entrance must not be empty -Only one valid character (B)
Resultado o postcondición	The system will show the reading section of the book or magazine to be searched, with the pertinent data to it.		
Outputs	Exit name	Data type	Selection or repetition condition

	nameLectures	String	Format of the name of the selected book or journal Reading: (name)
	pageActual	int	Current page format read to the total bibliographic resource Reading page 4 of 500

Name or identifier	RF9: Reporting		
Summary	<p>The system must generate reports on bibliographic resources:</p> <ol style="list-style-type: none"> 1. For each type of bibliographic product, book and journal, report the cumulative total number of pages read throughout the platform (type of product and number of pages read). 2. Report the most read book genre and journal category for the entire platform (name of genre or category and number of pages read). 3. Report the Top 5 books and the Top 5 most read magazines on the platform (name of the book, name of the genre or category and number of pages read). 4. For each genre, report the number of books sold and the total sales value (\$). 5. For each category, report the number of active subscriptions and the total value paid for subscriptions. 		
Tickets	Entry name	Data type	Selection or repetition condition
	Id	String	<p>- The entrance must not be empty</p> <p>-Valid numbers and characters</p>
	Option	Int	<p>- The entrance must not be empty</p> <p>- Select only the 5 options from the back menu of the generation of reports</p>
Resultado o postcondición	The system will show the report of the option requested by the user		
Outputs	Entry name	Data type	Selection or repetition condition
	report	String	Report in ascending list format according to the requirement to be evaluated

Name or identifier	RF10: Test management		
Summary	In order to make it easier for the end user to carry out tests, the prototype will contain functionality that is responsible for automatically generating in the system, when the user requests it, at least one object for each type of user and bibliographic product.		
Tickets	Entry name	Data type	Selection or repetition condition
	Option	String	- The entrance must not be empty -Valid only numbers
Resultado o postcondición	The system will create the simulation or the objects related to the functionality		
Outputs	Exit name	Data type	Selection or repetition condition
	msg	String	Format of message: “Objects created in the system successfully”