

Cairo University

Faculty of Computers and Information



CS251

Software Engineering I

University library system

Software Requirements Specifications

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CS251: Phase 1 – Team Name
Project: <Project Name>

Software Requirements Specifications

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Software Requirements Specifications

Team

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Document Purpose and Audience

The purpose of this document is to provide a concise overview of the functionality envisioned for the library software we intend to develop. It serves as a summary of our analysis and brainstorming sessions, outlining key features and capabilities expected from the system.

The system target audience is every university member. The target audience to read this document is the project managers, developers, designers, and any other relevant team members.

Introduction

Software Purpose

Our purpose is to make learning nowadays easy, so this document is about the automation of a library system. Through this platform, students can conveniently browse, access, and borrow books, making learning more accessible and efficient. By integrating user-friendly interfaces and advanced search functionalities, we strive to enhance the educational experience and empower students in their academic pursuits.



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Requirements

Functional Requirements

1. The University member is considered an uncertified university member until he certifies.
2. The certified and the uncertified university member should be able to browse books (explore, search, browse recommended books, see currently available books)
3. Authentication of the certified user could be done through the library book borrowing system login page or through the user's google based university account.
 - 3.1. If the certified university member chooses the library book borrowing system login page for authentication, the login page should provide fields for users to enter their credentials, such as username and password.
 - 3.2. If a user chooses to use his/her google based university account for authentication, the system should require participation from an external identity provider.
4. The certified university member should be able to borrow a book if the book is available.
5. If the certified university member is a member of some syndicates-organizations, he could be offered extended borrowing periods.
6. In case the book isn't available the member will join a waiting list.
7. The certified user should be able to return the books he/she borrowed.
8. There should be an earning points' rewarding system, where the user can earn point through various actions such as borrowing books, participating in library events, or contributing to the library community in other ways.
9. The system should provide checkout process for borrowing books (how many books, the name and the author and the edition of each book, and the borrowing period).
10. The certified member can pay for borrowing a book by two methods.
 - 10.1. The certified member can pay using credit card, where the member will provide his credentials and the system will interact with the bank system to complete the process.
 - 10.2. The certified member can pay using the reward points he/she collected.



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Non-Functional Requirements

	Details
Performance	<ul style="list-style-type: none">• The system must respond to user queries within less than one second under normal load conditions.
Reliability	<ul style="list-style-type: none">• The system will display an error message for the user entering wrong username and password.• The application will give you some hints to write a secured pass
Usability	<ul style="list-style-type: none">• The user interface should be familiar as example like Facebook interface.• Not more than 4 stages/steps/pages to perform any action like browsing or borrowing.
Scalability	<ul style="list-style-type: none">• The system must be able to handle a minimum of 500 parallel user sessions without significant delay in response time.



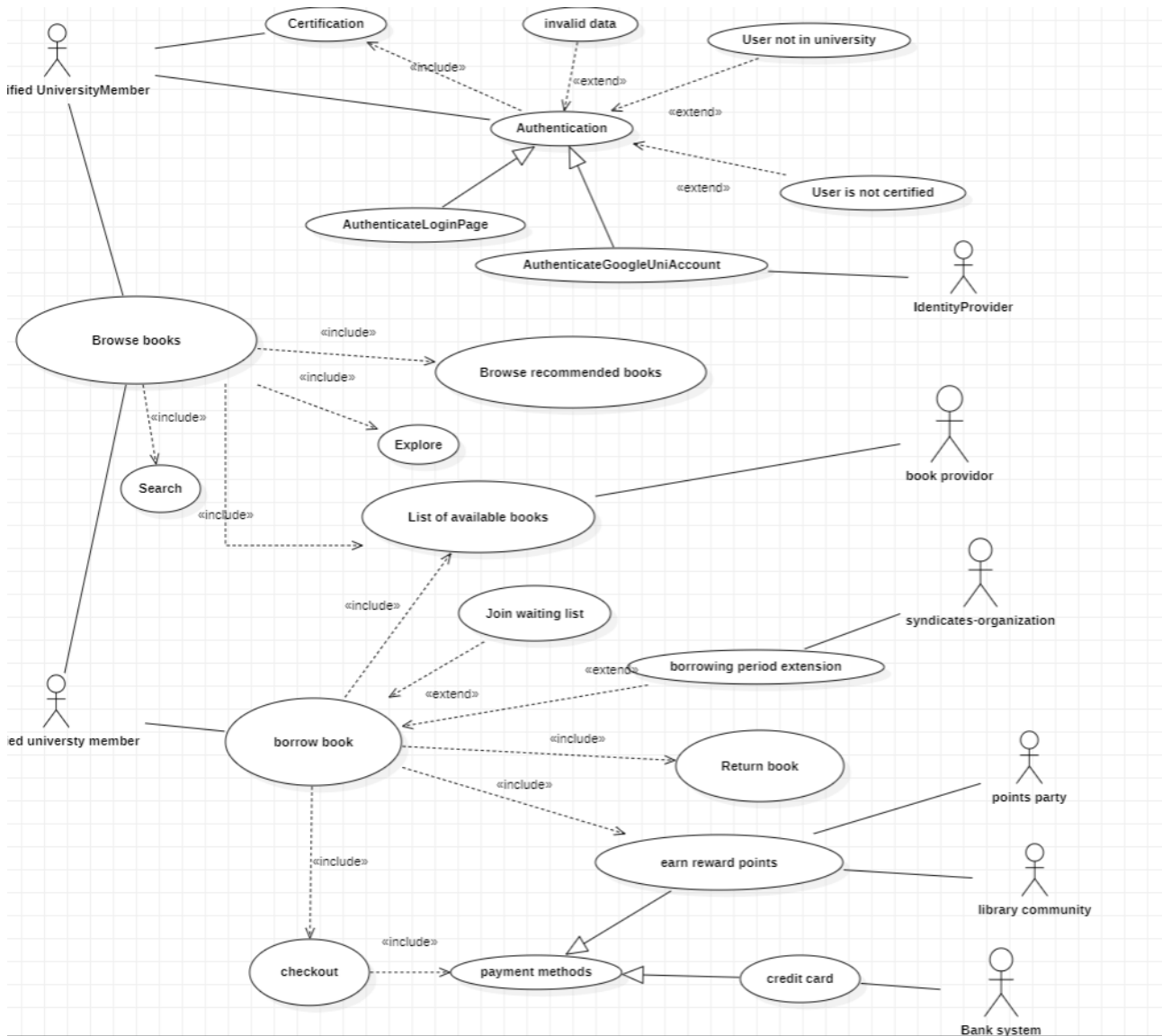
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System Models

Use Case Model



Use Case Tables



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Use Case ID:	UC-1	
Use Case Name:	Authentication	
Actors:	CertifiedMember IdentityProvider	
Pre-conditions:	The user must be registered with the university that owns the library website. University member has an account with username and password.	
Post-conditions:	University member will be directed to his profile page. Or University member receives an explanation why he couldn't be authenticated.	
Flow of events:	User Action	System Action
	1- University member chooses either authenticate using login page or using user's google based university account, If user chooses login page.	
		2- System provides fields for users to enter their credentials such as username and password.
	3- User enters username and password.	
		4- System checks username and password.
	5- If the user chooses using user's google based university account,	
		6- System provides fields for users to enter their credentials such as username and password.



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	7- User enters username and password.	
		8--External identity provider checks username and password.
Exceptions:	User Action	System Action
	1- User enters invalid username or invalid Password.	
		2- System shows error message. 3-System will ask him if he forget his password.
	4-User enters uncertified account.	
		5-System will shows an error message. 6-System will offer the user to certificate an account.
	7-User enters username and password	
		8-System find that the user not registered in that university. 9-System will show error message.
Includes:	Certification usecase	
Notes and Issues:	Generalizations: AuthenticateLoginPage usecase. AuthenticateGoogleUniAccount usecase.	

Use case id	UC-2
Use case name	BorrowBooks
Actors	Certified University member



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	Syndicates-organization-party	
Pre-conditions	The user must be a certified university member to borrow books and a member of some syndicate-organization to get extended borrowing period.	
Post-conditions	The user borrows the book or join the waiting list.	
Flow of events	User-action	System-action
	1- The certified university member requests the available books. 3-The certified university member selects a book. 8-the certified university member accepts the offer.	2- The system displays a list of the available books. 4-The system checks the age of the user, accumulated fees and the borrowing limit using the logged in info. 5- (in case user-age \geq 12) the system checks if the book is available to borrow and returns an availability message. 6-The system checks if the user is a member of some syndicate-organization by syndicate-organization party. If not, the system will not offer an extended borrowing period. 7-The system offers an extended borrowing period according to the member's institute. 9-The system will update the borrowing period of the user.
exceptions	User-action	System-action



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	<p>1- The certified university member requests the available books.</p> <p>3- (First scenario) The certified user selects a book.</p> <p>5- (Second scenario) The certified university member requests an already borrowed book.</p> <p>7-the certified user accepts</p>	<p>2-the system displays the list of available books.</p> <p>4-the system checks the user's age in case age<12 the system will display a rejection message according to age-range.</p> <p>5-The system displays an informing message to the user that's the book is currently borrowed hence unavailable.</p> <p>6-the system asks the user to join the waiting list of the book.</p> <p>8- the system adds the user to the joining list.</p>
includes	<p>List of available books use case.</p> <p>Earn reward points use case.</p> <p>Checkout use case.</p>	
Notes and issues	<p>1-How does the system checks with organization party?</p> <p>The system will send a copy of the user's info to the syndicate-organization party so the syndicate-organization party can approve or disapprove the membership.</p>	



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Use case id	UC-3	
Use case name	Payment Methods	
Actors	Certified University Member, Bank system	
Pre-conditions	1. The user must be certified to borrow a book. 2. The book the user wants to borrow must be available.	
Post-conditions	1. The user gets the book he/she wants to borrow. 2. Or the borrowing operation is canceled.	
Flow of events	User-action	System-action
	1. The user chooses a book he/she wants to borrow 2. The user chooses to proceed with the checkout. 5. The user chooses the option he/she wants to pay by. 5.1. by credit card 5.2. by reward points 7.1. the user enters his bank account's information 7.2. The user confirms the payment.	3. The system directs the user to the checkout page which contains the information about the book/books (book name, author, addition) and the return date. 4. The system displays two ways to pay, by credit card or by the user's reward points. 6.1. the system displays the list of credentials it needs from the user to pay with his credit card. 6.2. the system displays the user's reward points and a confirmation message. 8.1 the system should contact the bank system to confirm the payment. 8.2 the system should decrease from the user's reward points the deserved amount.



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		<p>9. The system displays a confirmation message that the payment is done.</p> <p>10. The system reserve the book for the user so that only him can view the book until the return time.</p> <p>11.the system should integrate with the borrowing system through the checkout system to confirm the payment and to reserve the book for the user so that only him can view the book until the return time.</p>
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exceptions	User-action	System-action
	7.1. the user enters a wrong information.	8.1 the system checks the info and displays an error message with the option to reenter the information.
Includes	<ul style="list-style-type: none"> - Earn reward points use case - Credit card use case - Checkout use case 	
Notes and issues		



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Ownership Report

Item	Owners
Authentication usecase description	<i>Mai Hassan Awad</i>
BorrowBook usecase description	<i>Habiba Ayman Hamed</i>
Payment method description	<i>Maria Alfons Kamel</i>

Policy Regarding Plagiarism:

Students have collective ownership and responsibility of their project. Any violation of academic honesty will have severe consequences and punishment for ALL team members.

1. تشجع الكلية على مناقشة الأفكار وتبادل المعلومات ومناقشات الطلاب حيث يعتبر هذا جوهرية لعملية تعليمية سليمة
2. ساعد زملاءك على قدر ما تستطيع وحل لهم مشاكلهم في الكود ولكن تبادل الحلول غير مقبول ويعتبر غشا.
3. أى حل يتشابه مع أى حل آخر بدرجة تقطع بأنهما منقولان من نفس المصدر سيعتبر أن صاحبيهما قد قاما بالغش.
4. قد توجد على النت برامج مشابهة لما نكتبه هنا أى نسخ من على النت يعتبر غشا يحاسب عليه صاحبه.
5. إذا لم تكن متأكدا أن فعلا ما يعد غشا فلتسأل المعيد أو أستاذ المادة.
6. فى حالة ثبوت الغش سيأخذ الطالب سالب درجة المسألة ، و فى حالة تكرار الغش سيرسب الطالب فى المقرر.