HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

GRADUATION THESIS

Manga ECommerce Website

NGUYEN VU MINH

minh.nv194801@sis.hust.edu.vn

Major: Information Technology

Supervisor : Dr. Do Ba Lam

Signature of advisor

Department: Department of Computer Science

School : School of Information and Communication Technology

GRADUATION THESIS ASSIGNMENT

1. Student's information:

Name: Nguyen Vu Minh.

Class: ICT-02 K64

Affiliation: Hanoi University of Science and Technology.

Duration: 07/2023 - 12/2023.

2. Thesis title: Manga ECommerce Website

3. Thesis statement:

This thesis aims to build a manga eCommerce website, where publishers can use the app to publish their mangas, and users can purchase and read those published works. More specifically, the objectives of the thesis are:

- Identify functional and non-functional requirements of a manga e-commerce website.
- Design website's architecture, Graphical User Interface (GUI), database.
- Deploy the website to a cloud server for user access.

4. Declarations/Disclosures:

I - Nguyen Vu Minh - declare that the content of this thesis has been composed by myself under the guidance of my supervisor.

The work presented in the thesis is entirely my own and not a copy of any other research.

Hanoi, date month year 2024 Author

	Nguyen Vu Minh					ļ		
5.	Attestation of supervisor:							
		Hanoi,	<i>date</i> Su	<i>month</i> pervisor	year	2024		

Dr. Do Ba Lam

Acknowledgments

I would like to thank and acknowledge my advisor - Dr. Do Ba Lam - for making this thesis possible. Although he's already busy with researching and teaching, he still does his best to manage his time to guide me through all the steps of the thesis. I would also like to give my deepest gratitude to all of the teachers in the School of Information and Communication Technology for teaching me and giving me all the necessary knowledge to finish this thesis.

ABSTRACT

Manga has seen explosive growth in the past few years. This led to many companies starting to build web applications solely for manga eCommerce purposes. Currently, in Vietnam, there haven't been any similar applications. Therefore, I decided to design and build a manga eCommerce website, using a Client-Server architecture with a front end built with ReactJS and a back end developed with Go and Gin framework. This application will allow publishers to publish their manga on the website, and users can visit to purchase and read these manga. The end results for this thesis will have a simple but stylish interface while satisfying all functional requirements as well as non-functional ones. In this thesis, I will present the progress of my work, including the status survey and requirement analysis, overall system design, the final implementations, and finally some setbacks and possible future works.

Student
(Signature and full name)

Table of Contents

Lis	st of F	igures		7		
Lis	st of T	ables		9		
Lis	st of A	Abbrevia	tions	11		
1	Intro	duction		12		
	1.1	Problem	ms	12		
	1.2	Objecti	ives	12		
	1.3	Solutio	vn	13		
	1.4	Thesis	layout	14		
2	Requirement survey and analysis					
	2.1	Status	survey	15		
	2.2	Function	onal Overview	17		
		2.2.1	System actors	17		
		2.2.2	General use case diagram	19		
		2.2.3	Detailed use case diagram	21		
	2.3	Use cas	ses specifications	24		
		2.3.1	UC01 "Login"	25		
		2.3.2	UC02 "Register"	26		
		2.3.3	UC03 "Search manga"	27		
		2.3.4	UC04 "See manga's description"	28		
		2.3.5	UC05 "Purchase manga"	29		
		2.3.6	UC06 "Read manga"	30		
		2.3.7	UC07 "Set favorite manga"	31		
		2.3.8	UC08 "See favorite manga list"	32		
		2.3.9	UC09 "Comment"	33		
		2 3 10	UC10 "Report error"	34		

		2.3.11	UC11 "Edit personal information"	35					
		2.3.12	UC12 "Rate manga"	36					
		2.3.13	UC13 "Manage mangas"	37					
		2.3.14	UC14 "Manage chapters"	38					
		2.3.15	UC15 "Manage users"	39					
		2.3.16	UC16 "Manage comments"	40					
		2.3.17	UC17 "Manage reports"	41					
		2.3.18	UC18 "Logout"	42					
	2.4	Non-fu	nctional requirements	42					
		2.4.1	Security requirements	42					
		2.4.2	Performance requirements	42					
		2.4.3	Interface requirements	43					
		2.4.4	Extensibility requirements	43					
	2.5	Conslu	sion	43					
2	G 4	1 .		4.4					
3	-	System design 44							
	3.1		ecture design	44					
	3.2		behaviours design with Sequence Diagram	45					
		3.2.1	Use case "Register"	45 46					
		3.2.2	Use case "Login"						
		3.2.3	Use case "Search manga"	46 47					
	2.2	3.2.4	Use case "Purchase manga"	47					
	3.3		Se design	48					
		3.3.1	Database overview						
	2.4	3.3.2	Collection design	51					
	3.4	Conciu	sion	55					
4	Reco	ommenda	dation system design 56						
	4.1	Introdu	ction to recommendation system	56					
		4.1.1	Definition	56					
		4.1.2	Popular recommendation methods	56					
	4.2	Recom	mendation algorithm design	59					
		4.2.1	Problems	59					
		4.2.2	Solution	59					
	4.3	Results		60					
	4.4		ation	61					
	4.5	Conclu	sion	61					

5	[Imp]	lementation and Evaluation	62			
	5.1	Used technologies	62			
		5.1.1 ReactJS	62			
		5.1.2 Golang and Gin framework	63			
		5.1.3 Other tools and libraries	64			
		Deployed application	64			
		Application Evaluation	74			
	5.4	Conclusion	74			
6	Con	Conclusion				
	6.1	Summary	75			
	6.2	Future works	76			
Re	feren	ces	77			

List of Figures

2.1.1	Mangaplus homepage	15
2.1.2	Mangadex homepage	16
2.1.3	Mangaplaza homepage	17
2.2.1	General use case diagram	19
2.2.2	Detailed use case diagram for "Search Manga" use case	21
2.2.3	Detailed use case diagram for "Edit personal information" use case	21
2.2.4	Detailed use case diagram for "Manage mangas" use case	22
2.2.5	Detailed use case diagram for "Manage chapters" use case	22
2.2.6	Detailed use case diagram for "Manage users" use case	23
2.2.7	Detailed use case diagram for "Manage comments" use case	23
2.2.8	Detailed use case diagram for "Manage reports" use case	24
3.1.1	System architecture overview	44
3.2.1	"Register" use case sequence diagram	45
3.2.2	"Login" use case sequence diagram	46
3.2.3	"Search manga" use case sequence diagram	46
3.2.4	"Purchase manga" use case sequence diagram	47
3.3.1	Entity relationship diagram	48
3.3.2	Database overview	49
3.3.3	User model diagram	51
3.3.4	Manga model diagram	52
3.3.5	Chapter model diagram	53
3.3.6	Comment model diagram	54
3.3.7	Report model diagram	55
4.1.1	Collaborative recommendation demonstration	57
4.1.2	Content-based recommendation demonstration	58
4.3.1	Recommendation results	61

5.1.1	React logo	62
5.1.2	Golang and Gin logo	63
5.2.1	Homepage	65
5.2.2	Homepage with recommendations	65
5.2.3	Login page	65
5.2.4	Register page	66
5.2.5	User info page	66
5.2.6	User favorite manga list page	66
5.2.7	User owned chapter list page	67
5.2.8	User report page	67
5.2.9	Search page	67
5.2.10	Manga info page	68
5.2.11	Momo payment page	68
5.2.12	Comment page	68
5.2.13	Reading page	69
5.2.14	Report page	69
5.2.15	Mobile homepage	70
5.2.16	Mobile homepage with recommendations	70
5.2.17	Mobile login page	70
5.2.18	Mobile Register page	70
5.2.19	Mobile main user page	71
5.2.20	Mobile user info page	71
5.2.21	Mobile user favorite manga list page	71
5.2.22	Mobile user owned chapter list page	71
5.2.23	Mobile user report page	72
5.2.24	Mobile search page	72
5.2.25	Mobile manga info page	72
5.2.26	Mobile Momo payment page	72
5.2.27	Mobile comment page	73
5.2.28	Mobile reading page	73
	Mobile report page	73
	Lighthouse evaluation results	74

List of Tables

2.3.1	Use case list table	24
2.3.2	"Login" use case specification	25
2.3.3	"Register" use case specification	26
2.3.4	"Search manga" use case specification	27
2.3.5	"See manga's description" use case specification	28
2.3.6	"Purchase manga" use case specification	29
2.3.7	"Read manga" use case specification	30
2.3.8	"Set favorite manga" use case specification	31
2.3.9	"See favorite manga list" use case specification	32
2.3.10	"Comment" use case specification	33
2.3.11	"Report error" use case specification	34
2.3.12	"Edit personal information" use case specification	35
2.3.13	"Rate manga" use case specification	36
2.3.14	"Manage mangas" use case specification	37
2.3.15	"Manage chapters" use case specification	38
2.3.16	"Manage users" use case specification	39
2.3.17	"Manage comments" use case specification	40
2.3.18	"Manage reports" use case specification	41
2.3.19	"Logout" use case specification	42
3.3.1	User model design	51
3.3.2	Manga model design	52
3.3.3	Chapter model design	53
3.3.4	Comment model design	54
3.3.5	Report model design	55
5.1.1	Other used tools	64