

## TABLE OF CONTENTS

PREFACE	VI
TABLE OF CONTENTS	VII
LIST OF FIGURES	IX
LIST OF TABLES	XII
INTISARI	XIII
ABSTRACT	XIV
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1 Background	1
1.2 Research Problem	2
1.3 Research Scope	2
1.4 Research Objectives	2
1.5 Research Benefits	2
1.6 Research Methodology	3
1.7 Thesis Organization	4
<b>CHAPTER 2 LITERATURE REVIEW</b>	<b>6</b>
2.1 Existing Features Related to Project	6
2.2 Survey on Existing Systems	7
<b>CHAPTER 3 THEORITICAL FRAMEWORK</b>	<b>9</b>
3.1 Social Media and Digital Marketing	9
3.2 Human-Computer Interaction	12
3.3 Cognitive Modelling in Human-Computer Interaction	15



3.4	Software Engineering Methodology	17
<b>CHAPTER 4 ANALYSIS AND DESIGN</b>		24
4.1	Market Survey	24
4.2	System Requirements	26
4.3	Design	35
<b>CHAPTER 5 IMPLEMENTATION</b>		44
5.1	Implementation Plan	44
5.2	Code	48
5.3	User Interface and Experience	54
<b>CHAPTER 6 TESTING AND DISCUSSION</b>		60
6.1	Testing	60
6.2	Discussion	65
<b>CHAPTER 7 CONCLUSION AND FUTURE WORK</b>		67
7.1	Conclusion	67
7.2	Future Work	67
REFERENCES		68
APPENDIX 1		70
APPENDIX 2		75
APPENDIX 3		83



## LIST OF FIGURES

Figure 3.1 Waterfall model (Pressman & Maxim, 2015)	19
Figure 3.2 Spiral Model (Pressman & Maxim, 2015)	21
Figure 4.1. Who or Where Would People Ask to Take Care of Their Pets	24
Figure 4.2 Would People Consider using a Pet Sitter Social Network?	25
Figure 4.3 Use Case Diagram	29
Figure 4.4 Use Case Diagram	30
Figure 4.5 Activity Diagram on the relationship between users (pet sitters and pet owner) and the system for requesting a sitter	31
Figure 4.6 A more detailed activity diagram that explains what goes on inside the system in more detailed for requesting a sitter	32
Figure 4.7 System Design	35
Figure 4.8 Database Diagram	37
Figure 4.9 Prototype B (left) and Prototype A (right)	38
Figure 4.10 Final design of the homepage	41
Figure 4.11 From left to right: request a Sitter Form, request details	42
Figure 4.12 From left to right: add a pet form, user profile of a logged in user	42
Figure 5.1 Code snippet of firebase configuration	48
Figure 5.2 Above: firebase console which enabled login via email and password. bottom: sign up function and call on Firebase to add new data	49
Figure 5.3 Above: code snippet from Dashboard.js, below from left to right: pet sitter dashboard, pet owner dashboard	50
Figure 5.4 Left to right: code snippet for if the user has logged in and check authentication	51



Figure 5.5 Code snippet from PostPhoto.js. From top to bottom: query for Firebase Storage, query for Firebase Firestore to add new data	52
Figure 5.6 Snippet from SearchSitter.js to get data where the role of user is pet sitter	52
Figure 5.7 From left to right: code snippet from BackButton.js to go back to previous page, example page of the use of the back button	53
Figure 5.8 Security Rules screen shot from Firebase console log for additional security	53
Figure 5.9 Types of buttons used in the system	54
Figure 5.10 Color Palette for the user interface provided by TailwindCSS	54
Figure 5.11 Highlighted Status colour from request details page	55
Figure 5.12 From top to bottom: navigation bar for pet owner, navigation bar for pet sitter	55
Figure 5.13 from left to right: sign up, sign in page	55
Figure 5.14 Interface for choosing a role, after sign up	56
Figure 5.15 from left to right: pet owner profile, pet sitter profile	56
Figure 5.16 Pet profile page	57
Figure 5.17 Dashboard for both roles	57
Figure 5.18 From left to right: request sitter form, top to bottom: Requests Form, Request details	58
Figure 5.19 Send a request to chosen sitter page	58
Figure 5.20 Pet sitter's page to manage requests	59
Figure 6.1 Percentage of results from black box testing	63
Figure 6.2 User Evaluation Questionnaire results based on likert scale	64
Figure 6.3 score of mean from each user's answers from all comparisons	64



Figure 6.4 Screenshot from the google form responses sheet



## LIST OF TABLES

Table 2.1 Previous Papers with similar topics	7
Table 4.1 Functional Requirements	27
Table 4.2 Risk Assessment	33
Table 4.3 Summary of the timings for each tasks	39
Table 4.4 User Evaluation Questionnaire of User Test on Prototype	40
Table 4.5 GOMS Method on the 'Post' feature	41
Table 6.1 Black Box Testing	60
Table 6.2 Black box testing for pet owner role	61
Table 6.3 Black box testing for pet sitter role	62