

**VIRTUALSHRINE: AN INTERACTIVE MUSEUM WEBSITE FOR
CASA REAL SHRINE**

Claro, Sharvien Paul M.

Gabutina, Carlo Elijah R.

Mauricio, Angelo D.

Mergal, Jhan Mar D.

Nacional, Kristine Joy S.

Navarro, Rovi Keith Y.

Tapang, Jhel Ansel D.

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**VIRTUALSHRINE: AN INTERACTIVE MUSEUM WEBSITE FOR CASA REAL
SHRINE**

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By:

Claro, Sharvien Paul M.

Gabutina, Carlo Elijah R.

Mauricio, Angelo D.

Mergal, Jhan Mar D.

Nacional, Kristine Joy S.

Navarro, Rovi Keith Y.

Tapang, Jhel Ansel D.

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APPROVAL SHEET

In partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology, this capstone project entitled "**VIRTUALSHRINE: AN INTERACTIVE MUSEUM WEBSITE FOR CASA REAL SHRINE**" has been prepared and submitted by Sharvien Paul M. Claro, Carlo Elijah R. Gabutina, Jhan Mar D. Mergal, Angelo D. Mauricio, Kristine Joy S. Nacional, Rovi Keith Y. Navarro, and Jhel Ansel D. Tapang who are hereby recommended for oral examination.

MA. RUBY ANGELA CRISOSTOMO

Capstone Adviser

Approved in partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology by the Committee on Oral Examination.

LILIBETH ANTONIO

Critic/Member

LYKA DL. SAN PEDRO

Critic/Member

ENGR. TERESITA MANGAHAS

Critic/Chairman

MAYLEEN DORCAS CASTRO

Capstone Project Coordinator

Accepted in partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology.

GABRIEL M. GALANG, MSIT

Area Chair, Web and Mobile Applications

Development Track

ROSEMARIE M. BAUTISTA, DIT

Department Head, BSIT

KENO C. PIAD, DIT

College Dean

December 2022

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DEDICATION

This thesis is dedicated to my family, friend and my groupmates who have meant and still mean the world to me. Despite the fact that they are no longer among us, their memories still guide my life.

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ABSTRACT

This study was developed in order to describe the daily operations and its encountered problems of NHCP Museo ng Kasaysayang pampulitika ng Pilipinas, Casa Real. These problems were addressed and analyzed in the developed Casa Real Shrine website and web-based admin information and content management system of cases. The project covers the creation of interactive website, managing of contents uploaded on the website, user management, and reports generation. This study also covered resolving common IT-related problems upon implementation of the web-based management information system. This study was evaluated using standard web evaluation criteria by its intended users and experts.

The proponents conducted observations, interviews, and surveys to acquire the objectives of this study. The research methodology utilized in this project was the quantitative approach. Quantitative approach was applicable to this study as it aims to collect and understand the behavior of Casa Real Shrine's visitors and how the proponent will apply the results in the implementation of the VirtualShrine website. On developmental research, the proponents studied a process systematically, developed, and evaluated processes that met the set criteria for user's acceptance to the developed system. The researcher used the Agile Software Development methodology to develop the web-based system. It was used to quickly produce the desired output while allowing the researcher to go back past phases without finishing the whole cycle.

For the acceptability of the developed Casa Real Shrine website, the researchers consulted with IT professionals from different fields, IT instructor from Bulacan State University, and the end-users or clients of the developed system such as the museum staff, students, local and foreign tourist. The evaluation form has the following criteria for software quality evaluation as follows: (1) functional suitability; (2) performance efficiency; (3) usability; (4) reliability; (5) security; and (6) portability. The researchers conclude that the developed website is usable and functional and also provides a user-friendly UI/UX design to end-users and also proves that the system is reliable and secured based on the data gathered. The researchers also believe that the system will be a catalyst in booking, storing and protecting the records of the Casa Real Museum. With this, the following recommendations were drawn that can be a basis for future researchers who would want to develop the same type of museum website. (1) An enhance VR control capabilities in virtual tours that could focus on improving the user experience and accessibility of VR technology; (2) A Museum maps that could focus on exploring the use of augmented reality (AR) technology to enhance the visitor experience; (3) QR codes for audio guides in museums could focus on studying the effectiveness of this technology as a tool for enhancing visitor engagement and understanding of museum exhibits; and (4) Calendar integration for museum closures could focus on studying the effectiveness of different notification systems and strategies for informing researchers and other stakeholders about unexpected closures.

TABLE OF CONTENTS

TITLE PAGE	ii
APPROVAL SHEET	iii
ACKNOWLEDGEMENT	v
DEDICATION	vi
ABSTRACT	viii
TABLE OF CONTENTS	ix
LIST OF TABLES	xii
LIST OF FIGURES	xv
LIST OF APPENDICES	xvi

CHAPTER I. INTRODUCTION

Project Context.....	1
Purpose and Description	2
General Objectives.....	3
Specific Objectives	3
Scope and Limitations of the Study	4

CHAPTER II. REVIEW OF RELATED LITERATURE/SYSTEM

Related Literature.....	6
The utilization of Interactive Website to Museums	6
Online Booking Admission.....	8
Virtual Gallery	8
Virtual Tour Guide.....	9
Digital Learning	9
Related System.....	10

CHAPTER III. TECHNICAL BACKGROUND

Project Methodology.....	13
Conceptual Framework	14
Conceptual Process of the System Development	14

Initiation Phase.....	15
Planning Phase	15
Design Phase.....	16
Development Phase.....	17
Testing Phase	18
Gantt Chart.....	18
Implementation Phase	19
Project Evaluation	19
Maintenance Phase.....	19
System Specifications	19
Hardware Specifications	20
System Design and Processes	22
Conceptual System Design	33
System Architecture.....	33
Security Matrix	34
The Online Booking Reservation Process	35
The Walk-in Admission Process.....	35
Network Infrastructure.....	36
Description of Prototype	37
CHAPTER IV.	
RESULTS AND DISCUSSION	
Part I. Development of VirtualShrine: An interactive museum website for Casa Real Shrine.....	61
1.1 Online Booking Reservation.....	61
1.2 Virtual Museum Tour	63
1.3 Gallery Collections	65
1.4 User Assisting Features.....	67
Part II. To design and develop a Management System.....	68
2.1 Manage User Admins	68
2.2 Accept and Reject Visitor Booking	70
2.3 Upload Website Content	71

2.3.1 Collections	71
2.3.2 Exhibits	74
2.3.3 Blogs	75
2.4 Generate and Print Admin Activity Record.....	77
2.5 Booking Confirmation through email after reservation	78
Part III. Software Quality Evaluation of the VirtualShrine: An Interactive Museum Website for Casa Real Shrine	78
CHAPTER IV.	RESULTS AND DISCUSSION
Summary of Findings.....	89
Conclusion	91
Recommendations.....	92
REFERENCES.....	93
APPENDICES	98
CURRICULUM VITAE.....	146

LIST OF TABLES

Table	Page
1 Requirements for Web Server.....	20
2 Requirements for Database Server.....	20
3 Requirements for Android Server	21
4 Requirements for IOS Server.....	21
5 Security Matrix	34
6 Total Number of Respondents	79
7 5-Score Likert Scale	79
8 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Functional Suitability	80
9 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Performance Efficiency	81
10 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Compatibility	82
11 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Usability	83
12 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Reliability	84
13 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Security	85
14 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Maintainability	86
15 Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Portability	87
16 Overall Mean	88

LIST OF FIGURES

Figure		Page
2	Conceptual Model of the System Development	14
2	VirtualShrine: An Interactive Museum Website for Casa Real Shrine of Malolos Gantt Chart	18
3	Context Diagram (Level 0)	23
4	Data Flow Diagram (Level 1).....	23
5	Entity Relationship Diagram – Booking System	24
6	Entity Relationship Diagram – Admin and Type of User.....	24
7	Entity Relationship Diagram – Exhibit	25
8	Entity Relationship Diagram – Exhibit Display	25
9	Entity Relationship Diagram – Blog	26
10	Entity Relationship Diagram – Audit log	26
11	Entity Relationship Diagram – Categories and Posts	27
12	Use Case Diagram	28
13	Booking Admission Flowchart	29
14	QR Code Scan Flowchart	30
15	Content Management Flowchart	31
16	Admin View VTOC	32
17	The Client's Access to the Website	33
18	Online Booking Process	35
19	Walk-in Admission Process	36
20	The Network Infrastructure	36
21	VirtualShrine Homepage	37
22	Data Privacy Issue disclaimer	38
23	Data Privacy Issue disclaimer – Warning	38
24	Online Reservation Form page – Online Reservation Form	39
25	Online Reservation Form page – Calendar	40
26	Reservation Confirmation page	41
27	Plan your visit page	42

28	Galleries page	43
29	Virtual Tours page	44
30	Virtual Tour – Gallery 360° View	45
31	Virtual Tour – Gallery 360° View Navigation	45
32	Virtual Tour – Gallery 360° View Navigation	46
33	Virtual Tour – Gallery 360° Display Short Information	46
34	Virtual Tour – Gallery 360° Display Short Information	47
35	Virtual Tour - Virtual Lobby Events	47
36	Virtual Lobby	48
37	Audio Guide	49
38	Audio Guide – Choose a gallery	50
39	Audio Guide – Gallery Playlist	51
40	Audio Guide.....	51
41	Head admin login page	52
42	Head Admin – Main Dashboard	52
43	Head Admin – Assistant Admin menu	53
44	Head Admin – Edit user information	53
45	Head Admin – Add new admin	54
46	Head Admin – Archive account	54
47	Head Admin – Archive Menu	55
48	Head Admin – View Archive account details	55
49	Head Admin – Audit Logs Menu	56
50	Assistant Admin – login page	56
51	Assistant Admin – Dashboard	57
52	Assistant Admin – Pending Bookings	57
53	Assistant Admin – Booking Details	58
54	Assistant Admin – Approved Bookings	58
55	Assistant Admin – Content Management	59
56	Assistant Admin – Add Post	59
57	Assistant Admin – View Post	60

58	Assistant Admin – Edit Post	60
59	Booking Consent Form	61
60	Booking Form	62
61	Booking Submitted Confirmation Page	62
62	Access to the Virtual Tour Page	63
63	Casa Real Shrine Virtual 360.....	64
64	Casa Real Shrine Lobby Virtual 360	64
65	Casa Real Shrine Lobby Virtual 360	65
66	Galleries Collections	66
67	Display Description	66
68	Plan Your Visit Page	67
69	Audio Guide	68
70	User Management	68
71	Edit User Information	69
72	Add New User	69
73	View all Pending Booking	70
74	View More booking details	70
75	View More booking details	71
76	Content Management System - Collections	71
77	Content Management System – Edit Collection Information	72
78	Content Management System – Add new Collection	73
79	Content Management System – Exhibit Display	74
80	Content Management System – Add new Exhibit Display	74
81	Content Management System – Edit Exhibit Display	75
82	Content Management System - Blog	75
83	Content Management System – Create a Blog Post	76
84	Content Management System – Edit Blog	76
85	Activity Report	77
86	Printing Report	77
87	Content Management System – Edit Collection Information	78

LIST OF APPENDICES

Appendix		Page
A	Relevant Source Code.....	99
B	Evaluation Tool.....	116
C	Letter to the Casa Real Shrine Curator	119
D	Request Letter for Capstone Adviser.....	124
E	Request Letter for Capstone Panels	126
F	BSIT Capstone Project Application for Final Defense	130
G	Capstone Project Final Defense Evaluation	135
H	Certificate Against Intellectual Fraud and Dishonesty	137
I	User Manual.....	139

CHAPTER I

INTRODUCTION

Project Context

The internet's global expansion over the years has impacted human activities through digital media, museums are evolving to adapt to the change and encourage young netizens to access and use museum materials Chen, T. L., Lai, W. C., & Yu, T. K. (2021). However, capturing and maintaining the attention of visitors is an absolute challenge in today's world, where information can be found online. Along with the digital revolution, visitor expectations have shifted somewhere along the way, and museums are striving to meet the difficulties posed by this new wave of digital expectations from their visitors Balanchine S., (2018).

In order to adapt with the changes in technology, museums need a visually appealing, informative, and entertaining website to attract visitors. According to Butler J. (2017), digital communications has created an opportunity for many museums around the world to create connections, communities, and relationships. It gives museums new avenues to share information about their exhibits and collections with a vast number of audiences and at the same time, allows them to understand visitor experience. To create a website that accurately depicts what makes a museum unique is to implement an engaging and interactive feature into the website Charr M., (2020). An interactive website is one that allows users to engage with and communicate with the website's content. It takes a unique and entertaining approach that is sure to catch the interest of its users.

It is apparent that museum websites play a significant role in information dissemination. According to a growing body of literature: Increased online and off-line museum visits is an effective strategy to boost visitors' interest and satisfaction and encourages online website visitors to visit the actual museum Allen L. B, Crowley K. J (2014). According to Madriaga, Virto, & Blaso (2017), the websites of museums were originally intended to provide basic information such as hours of operation, location, and costs. But because of the evolution of digital media, websites now provide a variety of interactive capabilities, like virtual galleries as well as a variety of materials to help visitors navigate better.

Most museums around the world offer the opportunity to purchase or book tickets online because of the threat of Covid-19 virus, museums and galleries are required to have a booking system to limit the visitors visiting the museum at the same time. This way, the spread of virus within the museum could be prevented. Billock J. (2020)

The Casa Real Shrine is one of Malolos oldest structures that was built in 1580 and has witnessed most of the Philippines political history, which is why today, it functions as a museum of Philippine political history. The museum displays the exhibits,

printing press of Malolos, display of 21 Women of Malolos memorabilia, Miniature dioramas, theatrical backdrops, interactive terminals, and original artifacts recreate these periods, from the earliest communities to the Spanish and American colonial periods through the Second World War until the present. It is recognized as one of the country's most notable museums and is one of Bulacan's pride. National Historical Commission of the Philippines (2022)

The Casa Real Shrine plays an important role in the preservation of the local culture and history. Its existence also shapes knowledge by putting together visual cultural narratives that build views of the past and consequently of the present. Which is why it is important that they be able to clearly convey knowledge and information to their visitors all the while accommodating all visitors' needs during their visit. The Casa Real Shrine is popular amongst local and foreign visitors that want to learn about the Political History of the Philippines. The museum also caters educational tours for students and researchers.

Over the years, the Casa Real shrine has used conventional techniques to spread information, generally through live exhibitions of artifacts where people must first visit the physical museum, but in this modern day and age, new trends have emerged, overshadowing the traditional way of attracting visitors. The proponents proposed the development of an Interactive website for casa real which is suitable for adapting digital advancement in the museum and be able to satisfy the needs of the visitors.

The proponents believe that the implementation of the Casa Real Interactive Website will benefit both the Casa Real management and the visitors. Through the Casa Real interactive website, Visitors who want to visit the museum could inquire and book for admission online, the website could serve as the visitors' digital itinerary and virtual tour guide as they venture into the museum making their visit hassle free. During the testing phase, feedback from end users will be gathered and used to identify recurring issues while also further improving the development of the website. Following the observation of these issues at Casa Real Shrine, the proponents would like to design and develop an Interactive Website for Casa Real Shrine.

Purpose and Description

The study aims to propose a web base system and bring the Casa Real Shrine to the virtual world as a virtual museum. The study also aims to utilize technology to freely walk and virtually visit the museum of Casa Real Shrine.

Proposing a virtual museum is the main concern of the proponents to develop an interactive museum that is user friendly, interactive and provides additional information through the web for Casa Real Shrine is the main concern of this study.

VirtualShrine is expected to provide significantly detailed information about the shrine. Besides providing information, the proposed system aims to create an interactive environment for the visitors where they can interact with virtualized versions of the

shrine's artifacts to maximize their experiential learning. Additionally, the system is expected to feature other features like audio guides, 360 visualizations of the museum and museum galleries, and digital archiving of records and documents.

It is the goal of the study to create a user-friendly system that is easily maintainable, easy to use and as cyber secure as possible. The system is also mobile friendly so people can use it no matter where they are.

Finally, the study focuses on providing an overall better experience for anyone who wants to interact with the Casa Real Shrine virtually. By enabling easy access to its artifacts, scripts, works and other historical documents, the VirtualShrine aims to bring the shrine closer to the people it serves.

General Objective

The main purpose of this study is to design and develop a “VirtualShrine: An Interactive Museum Website for Casa Real Shrine” that will be utilized to virtualize Casa Real Shrine. The purpose is to deliver more knowledge to the online museum user by improving users' experience, interactivity, and comprehensive knowledge.

Specific Objectives

In order to develop the Interactive Website, specific objectives will be considered:

1. To develop a website that can perform functionalities such as:
 - 1.1 Online Booking reservation;
 - 1.2 Virtual Museum tour;
 - 1.3 Gallery Collections;
 - 1.4 User assisting features.
 - 1.4.1 Plan Your Visit
 - 1.4.2 Audio Guide
2. To design and develop a Management System that can perform functionalities such as:
 - 2.1 Manage User Admins
 - 2.2 Accept and Reject Visitor booking;
 - 2.3 Upload Website Content
 - 2.3.1 Collections
 - 2.3.2 Exhibits
 - 2.3.3 Blog
 - 2.4 Generate and Print Admin Activity Report
 - 2.5 Booking confirmation through email after reservation

3. To evaluate the level of acceptability of the proposed system using the software quality standard ISO 25010 instrument in terms of the following criterions:
 - 3.1 Functionality Suitability;
 - 3.2 Performance Efficiency;
 - 3.3 Compatibility;
 - 3.4 Usability;
 - 3.5 Reliability;
 - 3.6 Security;
 - 3.7 Maintainability; and
 - 3.8 Portability

Scope and Limitations

The main concern of this study is to design and develop “VirtualShrine: An Interactive Museum Website for Casa Real Shrine”. This study will help to improve the current situation and will promote the benefits of using an Interactive Website to improve museum operations. The main advantage is its accessibility at any time since it is web-based.

The proponents will consider several system functionalities which will be incorporated into the proposed system as follows: (a) Online Booking Admission; (b) Virtual Museum Tour; (c) Email confirmation after reservation; (d) Create Educational and Informative Contents; (e) User assisting features; and (f) Report Generation.

In addition, the proposed system will offer features like a virtual gallery, number code to access the audio guide.

In designing and developing the proposed system, website requirements will also be considered. The website will be developed using Visual Studio Code. The Visual Studio Code is a software under the Visual Studio .NET. This application will be used in developing both the website and admin panel. PHP and JavaScript will be used as the main programming language in developing the system.

For the analysis of the system Agile Software Development will be used it is an iterative approach to project management and software development that helps teams deliver value to their customers faster and with fewer headaches.

While for the level of acceptability of the proposed system, it will be measured using the following criterions: (1) Functionality Suitability; (2) Performance Efficiency; (3) Compatibility; (4) Usability; 5) Reliability; (6) Security; (7) Maintainability; and (8) Portability.

Lastly, as a part of the limitation of the study, the study will only address the improvement of Casa Real Shrine in integrating a web based interactive museum website.

Other areas or matters affecting the structure and maintenance of the museum are not part of our research study.

The study will be utilized using a beta test to observe its purpose, potential changes, and any hazards towards the user. By this method the proponents will be able to come up with information that is vital to the research that could help improve the development of the system and will have great results once the final output is done.

CHAPTER II

REVIEW OF RELATED LITERATURE/SYSTEM

This chapter will present the review of related literature and systems that will help the proponents develop a thorough understanding and insight into previous work and even make comparisons between the findings of other similar studies. It will assist the proponents in searching for a guide in the formulation of the conceptual framework and in the preparation of the research design, methodology, sampling techniques, instrumentation, and statistical analysis.

Related Literature

To improve this project, related literature that is relevant to this study will be studied and assessed. These texts will also aid in the organization, interpretation, and interpretation of the various concepts that may emerge during this project.

The utilization of Interactive Website to Museums

New technologies are changing the way businesses communicate and interact with customers, and the tourist sector, and museums are no exception. As a result, the usage of digital communication tools has become widespread, considerably broadening the horizons of communication Fernandez, Crespo, & Fernández, (2022) and at the same time, it has provided alternative visitor interactions and many advantages Kabassi, (2017). The main focus of this study is to design and develop a website that could improve the visitor experience. The proponents discovered that there is no existing website for Casa Real Shrine that could efficiently highlight the museum's uniqueness and services to its target audience. According to Anggai, Blekanov, & Sergeev (2015), The web is the most powerful platform when it comes to dealing with problems being faced by museum institution, these problems include time, distance, and space problems. These stated problems are present in the museum. For this reason, the proponents proposed a website system that could efficiently display and inform visitors of what to expect in the museum and be able to reach information about the museum to a much wider audience online.

Over the years, the website operations have changed, based on modern web technologies, responsive web pages have been designed to be interactive and dynamic. Museums, which are present in the global network, seek to present to their visitor's information about their collections and cultural activities in an increasingly interactive and innovative manner, as does any institution tuned into the dynamics that have changed since the emergence of technology in our daily lives. The internet has changed the tourist sector, influencing new trends. It has altered the way individuals and organizations, such as museums communicate Komarova (2015). The goal of this study is to develop an interactive museum website for Casa Real Shrine. Presently, the museum has a Facebook page that only displays basic information about the museum. Being able to attract visitors at the first glance of the website is important in order to effectively encourage them to

visit the physical museum, thus why, the proponents will prioritize the interactivity of the website.

Cultural Heritage Professionals (CHP) is becoming more involved in the development of interactive technology. The growing access and affordability of digital technology enables CHPs with less experience in interactive technologies to develop content for and incorporate these technologies into their museums Maye, Bouchard, Avram, & Ciolfi (2017). The Casa Real Shrine has already begun to adapt interactive elements and services within physical museums, and the museum's interactive website would be able to assist the museum to further adapt to technological advances and at the same time, attract bigger numbers of visitors. According to the findings of Raimo, De Turi, Ricciardelli, & Vitolla (2021), the adoption of digital technology stems from a desire to attract more visitors, decrease expenses, improve the visitor experience, and adapt to competition

The internet is critical in advertising and attracting museum visitors Cristóbal, Ramón, Daries, & Serra (2021) for this reason, the Casa Real Shrine also try to boost visitor loyalty by redesigning their services through the implementation of the museum website in order to delight visitors with pleasant experiences that would help distinguish them from other competitions. According to Madriaga, Virto, & Blaso (2017) The museum websites were originally intended to provide basic information such as hours of operation, location, and costs. But because of the evolution of digital media, websites now provide a variety of interactive capabilities, like virtual galleries as well as a variety of materials to help visitors navigate better. In order to adapt to these new trends, the proponents will design the website according to the preferences of website users and the new trends in the industry. The availability of web-based materials has opened museums to a broader and more diversified user base, resulting in a huge increase in the number of visits to museum websites Walsh, Hall, Clough, & Foster (2020).

Researchers have attempted to understand and improve several aspects of audience online and offline experiences over the last two decades, including identifying factors that motivate individuals to visit museums, elements of the visit that influence their overall satisfaction, what is retained following their visit, ways to improve online visitors' website experiences, and understanding how all these combines to encourage visits to museum websites Chen, Lai, & Yu (2021). As specified in the study conducted by Lopatovska (2015), a comparative analysis of four distinct websites that evaluated strengths and shortcomings in the sites' navigation, design, and content components revealed that a website's aesthetics were the strongest predictor of visitor's overall impressions. Through web-based interfaces, museums are improving access to their collections and enabling enhanced user experiences Walsh et al. (2020). However, Kabassi (2017) stated that for a website to attract more people to the museum, it must be useful and functional. It is indeed important to make sure that the website would appeal to the visitors therefore, the proponents will design the website according to the rules of web design, at the same time, the proponents will consider the importance of the functionality of the applied design

Online Booking Admission

One of the proposed website features is the online booking admission. According to (2019: The recent state of online booking), when the first Electronic Online Booking was created in 1995 by SAS for their airline (<https://scandinaviantraveler.com>) the way of selling tickets was much faster and avoided the problem that the ticket was being sold out. In the year 2019, the Online Booking had some minor enhancement like having an online payment, fast processing, and even paying online with cryptocurrencies that you can also book online with just a few taps using your mobile phone. The Online booking system is one of the features that will help Casa Real Virtual Museum visitors when they visit Casa Real Shrine.

Providing a hassle-free museum visit experience to the museum visitors is one of the goals of the Casa Real Shrine and scheduling a visit ahead of time will help lessen the need to process a visiting pass through a walk-in process. Online Booking is a system that allows the customer or people to self-book and pay through a website to secure their spot on the place that they want to go K Steeve (2020). That's why other businesses are using online booking because this will help them to save people time that are coming to their place.

There are many features to consider in creating an online booking system. Some examples of this are: (a) Online booking in real time may help the customer to see the available dates or if that date is fully booked. (b) Various Currencies and Language features might be considered one of the needs in an online booking system because if a customer is from another country, they can still use the system as it supports different languages and accepts other currencies in payment. (c) Intelligent Calendar/Diary, this feature provides the user a summary of all bookings. This will help avoid unnecessary work. (d) Booking management via Smartphones and Tablets is much more convenient instead of using PCs. These features can help customers access the system easily using their smartphones. Ruiz (2020)

The proponents believe that incorporating an online booking admission system into the proposed website will help both visitors and the client. The online booking system will allow a systemized visitor admission as opposed to the current manual booking system in the Casa Real Shrine, where visitors will only be able to schedule or book for a visit once they arrived at the onsite museum.

Virtual Gallery

A virtual gallery is one of the features of the proposed website, this feature will allow the Casa Real Shrine to display their collections online for the viewing of the website visitors. The researcher Tambahani, G. S., Wenas, M. B., & Somya, R. (2016) created an Online Virtual Gallery using the most recent technology, HTML5, to store files such as drawings, paintings, sketches, films, games, etc. As a result of this research, a virtual container was produced that could allow the program to hold exhibition files effectively online. It is relevant to the study since it has the same features as the proposed website, such as storing files like museum collections, relics, and more.

A virtual gallery is meaningless without its online visitors. The author Stefano, C. D., and Battisti F. (2017) designed a framework that allows the user to visit a virtual museum in which all canvases painted by Caravaggio and conserved in Rome are displayed. The synergistic collaboration between Art History and ICT provided this project a unique goal, combining the interests and demands of both disciplines to create a Digital Humanities project. One of the goals of proposing the Casa Real Shrine website is to engage people online using the proposed website, to showcase museum displays in a virtual gallery, and to encourage museum website visitors to visit the physical museum.

Alawad, A., Aljoufie, M., Tiwari, A., & Daghestani L. (2015) examines the advantages and disadvantages of a virtual gallery. Virtual galleries provide new opportunities for architects, designers, artists, and experts of other disciplines to lay the foundation for new social networks. It will be a fantastic opportunity to break down cultural boundaries. Because the internet has a wide reach on any part of the world, the online presence of Casa Real and at the same time, showcasing the collections in the virtual gallery will allow audience from different parts of the world to view the history the museum holds.

Virtual Tour Guide

Recent events that took the world to a new norm of virtual interactions, including all business. Using web-based Virtual Tours and the resource of the museum has the academic and educational approach the students need for research Wang, Y., Stash, N., Sambeek, R., Schuurmans, Y., Aroyo, L., Schreiber, G., & Gorgels, P. (2009). Famous museums are now providing these services online with the prediction that more people will visit with more personalized and engaging new or old visitors. The focus of the study is to create a virtual Casa Real Shrine with virtual tours to completely immerse the visitors in a whole new virtual world of Casa Real Shrine.

According to the article about a common fear that apparently “remains the biggest fear” for people, Mortality Threat, and technology effects on tourism Nanni, A., & Ulqinaku, A. (2020). A troubling thought through people wanting to visit museums in the middle of a pandemic and are afraid to catch something, affecting the mental and actual well-being of the person. The ideal solution is the virtual museum with a more in-depth virtual tour for the visitors to resolve the conflict of the visitor. The main study is to tackle the common threat and issues of the visitors and give a proper solution with no compromises to the visitors' well-being by creating the virtual tour.

Digital Learning

Learning via digital resources such as desktop computers, laptops, tablets, and smartphones is known as digital learning. The proposed website is designed to be responsive, thus, it can be accessed with the use of either desktop or mobile. The interactive opportunities provided by the devices, rather than the equipment themselves, are what make digital learning engaging. By allowing the learner to choose and control the flow of information through mouse-clicking or screen-tapping, certain digital tools

engage the learner. In multimedia learning, these characteristics are referred to as interactivity Chong, C., & Smith, D. (2017).

Digital technology has played a large role in shaping the new learning opportunities because digital content is far more engaging, easier to update, and it is portable and cheaper. Digital learning has the ability to maximize information absorption and excel at building higher order critical thinking abilities Aldrich, E., Bessette, K., Mueller, P., & Prakash, M. (2016). One of the objectives of the proposed website is to be able to provide learning through the use of digital media.

Related System

These Related Systems are research form books, articles, research journals, electronic source and other work that will help this research to make it more meaningful and easier to understand the purpose of the research.

Li J., Nie J-W, Ye J. (2022) conducted a study entitled, "Evaluation of virtual tour in an online museum: Exhibition of Architecture of the Forbidden City" which evaluates the purpose of how to try to construct a set of user experience evaluation methods for online museum virtual tours; and to evaluate, as a case study, the Exhibition of Architecture of the Forbidden City (EAFC), to further demonstrate and develop the proposed method.

There have been notable research evaluations of virtual museum tours, in which it describes user preference in order to enhance users' experience, navigation functions, control options, and information acquired during the virtual museum tour. These are also being evaluated as three critical qualities which are usability, entertainment, and learning. These critical qualities are simple, and the scope is limited, Kabassi (2017). made a study in a museum in Italy and concluded that the three most important parts in a three-dimensional museum are coordination of movements and performance, support of navigation, direction, and support of learning.

To meet the purpose of this study, Li J., et'al (2022) applied a quantitative approach to this work consisting of a pre-test and an official test, and SPSS was used for reliability analysis of the data. The pretest was gathered from January 4 to January 13, 2020, with 22 subjects; 18 valid questionnaires were collected, and the reliability test results showed that the Cronbach's α coefficient was 0.815 (> 0.7). The official test ran from January 15 to February 20, 2020, and Cronbach's α coefficient of all valid questionnaires was 0.932 (> 0.7). The above results prove that the scale had high reliability. This result confirmed that the virtual tour provided a poor navigation experience, but a good experience in terms of reality and other aspects.

The study supports the current proposed system in which it helps the proponents on how to make the proposed system effective by enhancing users' experience, navigation functions, control options, and information acquired during the virtual museum tour.

Implementing the most important part which are the coordination of movements and performance, support of navigation direction, and enhancing mode of learning.

Werner Schweibenz (2019) “The “Virtual Museum”: New Perspectives for Museums to Present Objects and Information Using the Internet as a Knowledge Base and Communication System” The relationship between museums and mass media as well as the possible impact of information technology on museums are described. The “virtual museum” is defined as a means to establish access, context, and outreach by using information technology. The Internet opens the “virtual museum” to an interactive dialog with virtual visitors and invites them to make a virtual museum experience that is related to a real museum experience. Some research is described on how the Internet can be used as a knowledge base and trends from surveys how museums and virtual visitors use the Internet as a communication tool.

The use of telecommunication technologies offers interesting perspectives for museums and the opportunity to add a new, digital dimension to the traditional museum, thereby creating a “virtual museum”. The foundations for the “virtual museum” are already laid. Bearman (1995b, pp. 15f) estimates that by the end of this decade over 20 million original objects will have been digitized. In this way, museums, and the digital information they offer will become loadstones of content for the growing multimedia industry and for museum initiatives for outreach to the public (Bearman 1995a, p. 12). As some statistics and research suggest, the public looks for and appreciates museum information on the Internet but has high standards that the museums have to meet. The Internet is a great opportunity which the museums should use to broaden its audience. So, there is a piece of advice for museums concerning the Web: “Be there or be square!”

Technology offers an opportunity to museums. The technology is established to access context, with the use of the internet, out of reach information can be exposed by utilizing virtual museums. Since almost everything is being digitalized, virtual museums can offer digital information. This can be an opportunity to invite virtual visitors to traditional museums.

According to Liu Z., Wang M., Qi S. & Yang C., (2019) study on the Anti-Theft Technology of Museum Cultural Relics Based on Internet of Things, With the development of society, the museum has exhibited rapidly and more cultural relics, the number of visitors has also increased rapidly, and more criminals have stolen cultural relics due to its vulnerability. The traditional anti-theft methods cannot completely block their pace. This paper proposes a museum anti-theft scheme based on the Internet of Things (IoT) technology, which identifies whether the cultural relics are within the safe range through the passive RFID readers/writers. Once stolen, the cultural relics will leave the effective RFID identification range, which results in immediately alarming, then the system starts the anti-theft plan. The method is free from the drawbacks of the traditional infrared anti-theft, door magnetic detection and the like, the proposed anti-theft method monitoring has the immediacy, and the safety factor is higher.

The traditional museum is vulnerable to thieves, this study helps the clients from

drawback of the traditional infrared anti-theft. In which case of the modernized museum in the virtual world the safety factors are higher.

In accordance with the study conducted by Albadawi, Bushra Izzat (2021) with the title “The Virtual Museum VM as a Tool for Learning Science in Informal Environment” where the study aims to verify whether a virtual museum (VM) is a tool for learning science in an informal environment for the lower grades of elementary school from a parent and child perspective. The study is a quantitative and qualitative mix of methods obtained from the main field test phase from the user's (children's and parents' perspective) in Educational Research and Development (R & R & D) methodologies, evaluation tools used as tools for parents. Using the data according to the data, they collected one of the parents for children who conducted a focused interview. The parent evaluation test gave positive feedback and the parent determined that the VM was appropriate. His parents were members of the VM with the same opinion as his degree. The child placement test was positive. The kids felt that the VM was appropriate. Children's comments show a growing interest in learning science using technology through games and multimedia. They were very enthusiastic about using VMs. This allowed him to understand the subject and navigate when searching for scientific information.

Implementing website museums can be beneficial to any age, either children or adults. This study shows a growing interest in learning using multimedia or virtual tours.

Chen, Lai, & Yu (2021) “Participating in Online Museum Communities: An Empirical Study of Taiwan’s Undergraduate Students” In 2019, the Ministry of Culture of the Taiwanese government said that the museum will adopt technology for digital applications, promote cultural participation and utilize friendly access to promote the country's cultural civil society, the digital age. Large museum-related exhibitions and events are dedicated to communication and interaction within the online community. The online museum community is unique and important. Internet-based communication allows you to discuss extended experiences and goals compared to traditional museums. The results show that perceived uniqueness not only slightly increases emotional response, but also slightly improves user engagement. The playfulness perceived by the viewer is a powerful way to increase user engagement, and emotional resonance has a weak but significant impact on user engagement. The interactivity between members and the reaction of the exhibition will encourage the audience to participate in the online community. Such a community is important for museums. Perceived relevance and respect slightly increase emotional resonance and increase user engagement. These results provide researchers and professionals with important insights into the important role that museum managers play in attracting audiences by providing an interactive experience in an online environment.

Traditional museums play a vital role in our society, however as time goes by the number of exhibits decreases and the number of visitors decreases as well. Adopting technology to advertise the museum to utilize and promote cultural appreciation and help visitors to engage in museum communities.

CHAPTER III

TECHNICAL BACKGROUND

This chapter presents the technical considerations in developing the VirtualShrine: An Interactive Museum Website for Casa Real Shrine. The project approach, conceptual framework, Visual Table of Contents (VTOC) of Casa Real Shrine, conceptual system design, security matrix, and deployment diagrams will be discussed.

Project Methodology

The quantitative technique was used in the study to collect data from visitors of the Casa Real Shrine of Malolos. The proponents gathered statistics on visitor satisfaction comparing the present museum operations without the website and the museum operations after the website is implemented.

The research and development element of the design involves (1) analyzing the existing museum operations, (2) innovating and developing a system based on the findings, and (3) testing the efficacy of the innovation.

The approach includes a quantitative examination of the program/system, its components, as well as implementation and outcome data. Essentially, the procedure includes conducting comprehensive documentation analysis.

The study was used an agile method for research, it is based on based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams. can help develop the features of the Casa Real Virtual Museum.

According to Altameem E. (2015), Agile is an important tool in software development because this methodology addresses the common project drawbacks including schedule predictability, scope creep and costs. The team members are also able to work effectively and accomplish the project tasks and increase motivation to the team that cause to increase in creativity and innovativeness thus delivering a high-quality software.

Conceptual Framework

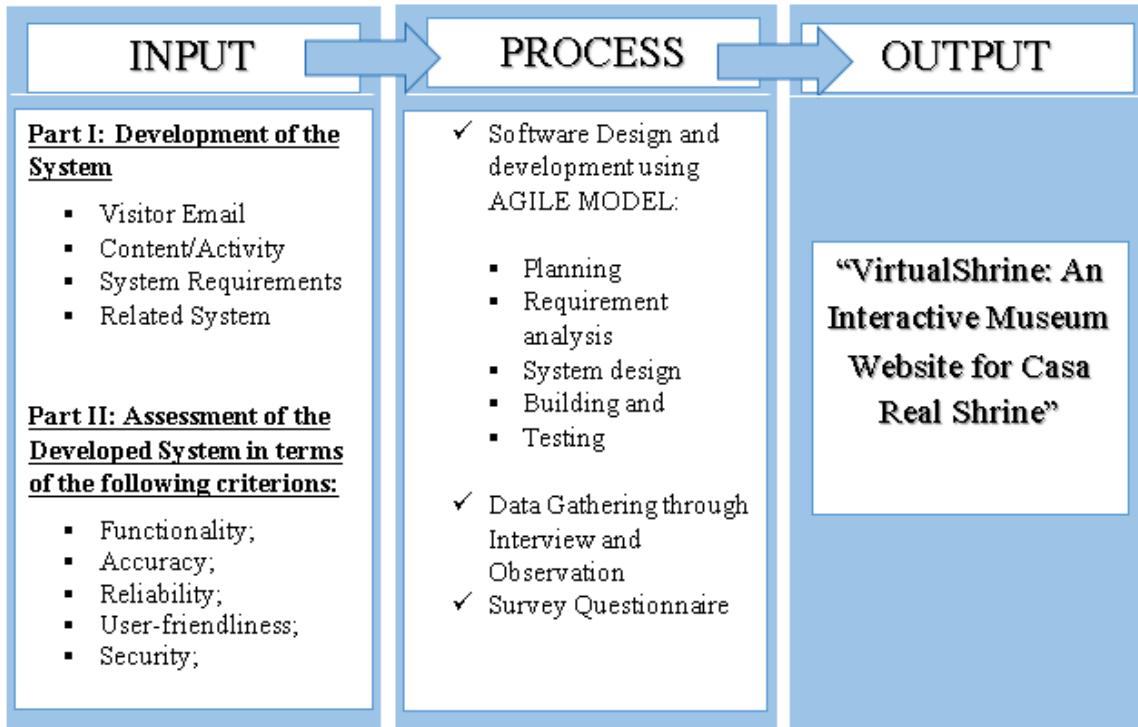


Figure 1. Conceptual Model of the System Development

The first frame is the input stage wherein it involves the primary data and information of the Casa Real Shrine to develop the system. System Requirements is necessary to have the hardware and software requirements needed to develop the system. Related Systems in books, internet articles, related studies and online research will also be reviewed.

The second frame is the process stage, wherein this part of the diagram the proponents adopted the System Development Life Cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project, from a first feasibility study through maintenance of the completed application. SDLC can apply to technical and non-technical systems. In most use cases, a system is an IT (Information Technology) technology such as hardware and software. Project and program managers typically take part in SDLC, along with system and software engineers, development teams and end-users.

In development of the system the proponents used the Agile model. Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suit the project requirements. In Agile, the tasks are divided into time boxes (small time frames) to deliver specific features for a release. Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer.

Agile uses an adaptive approach where there is no detailed planning and there is clarity on future tasks only in respect of what features need to be developed. There is feature driven development and the team adapts dynamically to the changing product requirements. The product is tested very frequently, through the release iterations, minimizing the risk of any major failures in future. It has five phases from planning, requirement analysis, system design, building, and testing. The Agile SDLC model is a combination of iterative and incremental process models with a focus on process adaptability and customer satisfaction by rapid delivery of working software products. Agile Methods break the product into small incremental builds.

Lastly, for the Output stage, this is the developed system, the VirtualShrine: An Interactive Museum Website for Casa Real Shrine.

In order to construct the system, each SDLC phase in the Process stage is discussed below.

Initiation Phase

The initiation phase begins when the client identifies the idea, need, or chance to improve the system. The purpose of the Initiation Phase is to: (a) Identify ways to further improve the system from the current situation that left a dent in visitors count, scarcity relating to the museum. (b) Ideally is to provide answers to every occurring problem.

In this study, Virtual Shrine focused on the virtualization of the museum for visitors reassuring the safety of the visitors without compromising any content and added content as well. Adding Online Booking Admission to the system will add more security for data.

And popular museums have done online 3D virtual tours around 1999, boosting the number of visitors both online, and in person, using the technology now as an advantage to the system. Through an online web-based system the visitors can take the tour anytime and with the Online Booking making it convenient for any visitors.

Attentiveness to the systems performance will make sure the plans will proceed as intended in the project for a higher chance of success.

Upon approval of the proposed system, VirtualShrine: An Interactive Museum Website for Casa Real Shrine used the feasibility study and support documentation to begin the planning phase.

Planning Phase

The Planning phase is a step before developing a software. This will help the developers to avoid problems in the early stage of developing the project that might help them for the future of the software. In creating the VirtualShrine website, the features of the software are important for the developers. That's why creating a plan is a must for the satisfaction of their audience.

A project becomes nothing more than a collection of tasks without a plan. The challenge for most businesses is not whether or not they have a plan, but how well that plan has been laid out and implemented. Weedmark (2019)

Weedmark (2019) also added that there are aspects for a good project plan. (a) Describe the project. This will state the main objective of the problem and problem that they may encounter, and they can solve it. The proponents of Casa Real Virtual Museum are going to reintroduce the importance of museum to the new generation of people. (b) Break down the project into specific tasks. Make certain that each activity flows naturally into the next. Since the project has many features, the proponents need to divide the task to different members including the developers. (c) Estimate the resources required for the project and make a resource plan to guarantee that the appropriate resources are gathered successfully. Creating the virtual museum needs a device to fulfill other features including 360 cameras for the virtual tour and personal computer/laptops on creating the project. (d) Develop the project schedule since the task is divided you also need to include a due date. The Proponents need to value the time of the project since the project is big time is important to avoid problems that can affect the project. (e) Develop a communication plan. Communication is a must for the proponents to make sure the project development is improving, and it includes the client for their suggestions and problems about the given project. (f) Write the statement of Work (SoW) This document outlines the tasks to be completed, deliverables, and the intended outcome once the project is completed. The proponents of Casa Real Virtual Museum should complete all the given tasks and to make sure to always consult in the Management of Casa Real Shrine to fulfill all the requirements they need.

Design Phase

The Design Phase includes turning every gathered information, functions, and request during the initiation and planning phases into a well-constructed design with specifications that developers use to create systems during the development phase.

As used in this study, with a thorough look at ideas for the designs, it seems there are numerous ways to implement program designs. Using Object Oriented Analysis and Design (OOAD), to identify and connect important parts or components, expanding layouts to verify each branch of systems and connections.

Contemporary design techniques are commonly used because of its minimalist design that aren't outdated, due to its popularity that can be used as a tool in prototyping that creates the basic foundation of items such as the layouts, system architectures. Providing end-users, designers and programmers with digital prototyping should inspect the presented prototype design in an iterative process until the design is on par with the ideal design.

However, in designing the website for VirtualShrine, the management is very open to any ideas and will also be prepared to make changes even after presenting the system design.

It is also important to document the complete design precisely by the designer with specific details to aid the programmer in developing and changes it may encounter. The full document will also provide help in managing the final output of the program and to verify if the system followed the original goals.

Development Phase

Converting the design phase into executable programs is part of the development phase.

Effective development standards at this point include specifications that the researchers design before programming begins. The processes aid in the comprehension of program designs and functional requirements.

Many programmers employ a variety of strategies to create computer programs. Procedural programming approaches have traditionally been used to construct big transaction-oriented programs connected with financial organizations. Line-by-line scripting of logical instructions that are combined to make a program is what procedural programming entails. The generation and testing of source code, as well as the refinement and finalization of test strategies, are all important procedural programming tasks. Individual programmers often write and test program modules or components, which are little routines within an application that execute a certain task. Completed components are combined with other components and inspected, usually by a group of programmers, to ensure that they work together effectively. As component groups are gradually merged and interfaces between component groups and other systems are tested, the process continues.

In developing the Casa Real Shrine Museum website, system documentation includes the system description which provides the explanations of operating environments as well as the interconnected input, processing, and output operations of integrated application systems.

System flowcharts and models identify the source and kind of input information, processing and control actions and the nature and location of output information as part of the system documentation.

Flowcharts have traditionally been used by designers and developers to show graphical perspectives of procedural program sequencing. Flowcharts are a useful tool for illustrating complicated programs and processes. There is flowcharting software available that can automatically chart programs or allow programmers to dynamically chart programs without having to design them manually.

Operator instructions for all processing applications should be established by organizations. The instructions should detail how to complete certain tasks, as well as how operators should respond to system requests or interruptions. Only information relevant to the computer operator's job should be included in the documentation. An operator should not have access to program documentation such as source listings, record layouts, or program flowcharts. Operator instructions should be detailed enough that an experienced

operator unfamiliar with the application can effectively complete a program without assistance.

End-user instructions that define how to use the museum website were also established by the built system. Operation manuals, online help features, and system error messages are all examples of instructions that help operators to manage the back end.

Testing Phase

Organizations must undergo a beta test during the testing phase to ensure the accuracy of programmed code, the inclusion of desired functionality, and the website's compatibility. Thorough testing is required to ensure that systems meet the needs of the organization and the end users. Testing teams are composed of software engineers and end users who are responsible for gathering and loading representative test data into a testing environment. Finally, testers typically find program faults or errors throughout the testing process. There should be procedures in place to guarantee that programmers address faults as quickly as possible and that any changes or revisions are documented. By decreasing tester downtime, quickly resolving issues enhances testing efficiencies. It also saves a programmer time troubleshooting a section of a program that isn't working because another programmer hasn't debugged a faulty linked code. Corrections and adjustments must be documented in order to maintain the integrity of the overall program documentation.

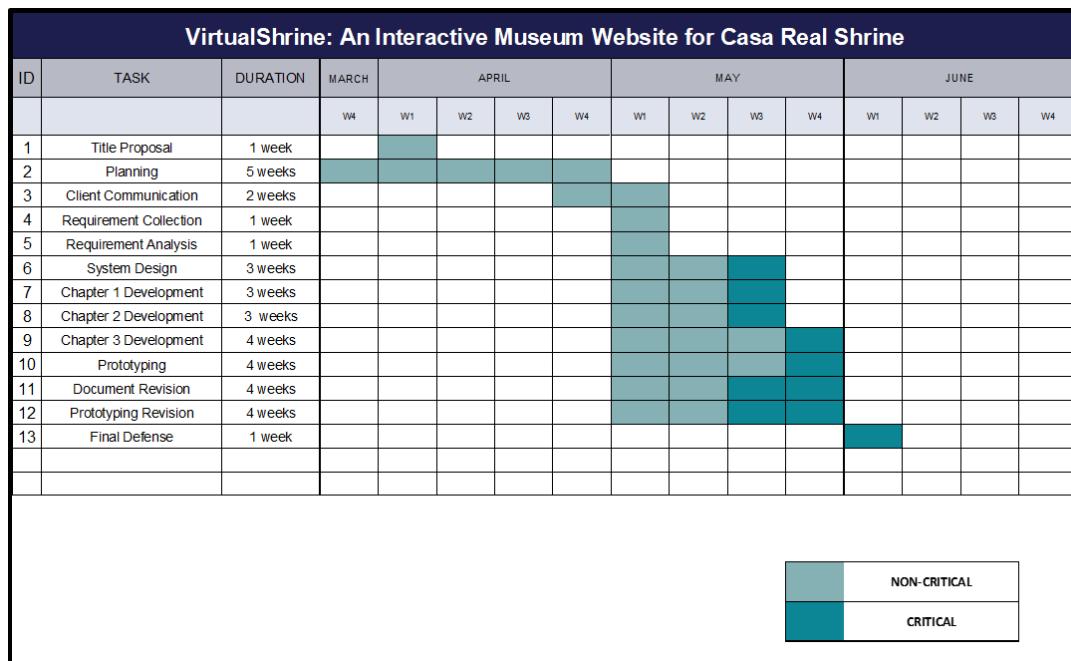


Figure 2. VirtualShrine: An Interactive Museum Website for Casa Real Shrine of Malolos Gantt Chart

The Gantt Chart, as illustrated in Figure 2, depicts the schedule that the system's proponents will follow during its development. The Gantt Chart were used to track the progress of the system's development.

Implementation Phase

The implementation phase involves an approved website into production environments. In this stage, the primary tasks include the implementation schedule, training end users, and access to the website. In addition, Casa Real Shrine should input and verify data, configure, and test system and security parameters, and conduct post-implementation reviews.

Verifying the input data and security parameters for accuracy is an important element of the implementation process. Organizations frequently run a new system alongside an old system until the new system's quality and reliability are verified. During the verification process, employees should document any programming, procedural, or configuration changes.

Project Evaluation

In this stage, management should perform post-implementation evaluations at the end of a project to confirm that project objectives have been met and to evaluate project management actions. Management should conduct interviews with all people and staff members who are actively involved in the operational usage of a product or document and resolve any issues that are discovered.

Maintenance Phase

It entails making changes to software and documentation to support its operational effectiveness throughout the maintenance period. It entails making modifications to improve a system's or website's performance, resolve issues, increase security, and meet user needs. The museum should implement suitable change management standards and procedures to guarantee that alterations do not disrupt operations or harm a system's functionality or security.

System Specifications

Software Specifications. The system was developed using Visual Basic .Net and ASP.Net. The Visual Basic .Net and ASP .Net are software under the Visual Studio.NET. These applications will be used in creating web pages as the front-end of the application. The .NET framework features will be used for the well optimized web application.

The PHP Admin were used as the database application of the web. This will be the storage of data and other information needed by Casa Real Shrine. Jasper Report were used to display different reports.

Hardware Specifications

Hardware Specifications. The performance of the web application is based on the hardware used in deploying the system.

Below are the recommended hardware requirements:

Table 1
Requirements for Web Server

Hardware Requirement	Minimum Requirement	Recommended Requirements
Processor	1.6 GHz CPU	2 x 1.6 GHz CPU
RAM	1.75 GB RAM	3.5 GB RAM
HDD	40 GB	40 GB

Table 1 shows the requirements for the Web Server. The minimum requirement for the processor is 1.6 GHz CPU and the recommended requirement is 2x1.6 GHz CPU. For RAM, the minimum requirement is 1.75 GB RAM, and the recommended requirement is 3.5 GB RAM. And lastly, for HDD, both the minimum and recommended requirement is 40 GB.

Table 2
Requirements for Database Server

Database Server Requirement	Minimum Requirement	Recommended Requirements
Processor	2x 1.6 GHz CPU	4 x 1.6 GHz CPU
RAM	3.5 GB RAM	7 GB RAM
HDD	40 GB	40 GB

Table 2 shows the requirements for the Database Server. The minimum requirement for the processor is 2x 1.6 GHz CPU and the recommended requirement is 4x1.6 GHz CPU. For RAM, the minimum requirement is 3.5 GB RAM, and the recommended requirement is 7 GB RAM. And lastly, for HDD, both the minimum and recommended requirement is 40 GB.

Table 3
Requirements for Android Server

Database Server Requirement	Minimum Requirement	Recommended Requirements
Processor	ARM Mali-T880 MP4	ARM Mali-G52 MP2
RAM	2.5 GB RAM	7 GB RAM
HDD	40 GB	40 GB

Table 3 shows the requirements for the Android Server. The minimum requirement for the processor is ARM Mali-T880 MP4 and the recommended requirement is ARM Mali-G52 MP2. For RAM, the minimum requirement is 2.5 GB RAM, and the recommended requirement is 7 GB RAM. And lastly, for HDD, both the minimum and recommended requirement is 40 GB.

Table 4
Requirements for IOS Server

Database Server Requirement	Minimum Requirement	Recommended Requirements
Processor	Apple A4	Apple A6
RAM	2.5 GB RAM	7 GB RAM
HDD	40 GB	40 GB

Table 4 shows the requirements for the IOS Server. The minimum requirement for the processor is Apple A4 and the recommended requirement is Apple A6. For RAM, the minimum requirement is 2.5 GB RAM, and the recommended requirement is 7 GB RAM. And lastly, for HDD, both the minimum and recommended requirement is 40 GB.

System Design and Processes

Front Office: The website's front office consists of the following menus: (1) Home. The Home page is the system's default web page. The home page displays a welcome banner for visitors, as well as a "book a tour" and "plan your visit" buttons for visitors' convenience. The homepage also highlights featured exhibitions and information, upcoming events, galleries, and group trips. The homepage also includes a footer with basic information about the museum, contact information, quick links, and a list of social media pages that visitors can like or follow. (2) Plan your visit. This website displays information on the museum's operations, such as the opening time, location, museum map that can be seen and downloaded in PDF format, and health and safety guidelines that visitors must follow. This website will assist visitors in preparing for their visit to the museum, this way, they will have a hassle-free visit; (3) Booking Reservation. The visitor can book for reservation for their physical museum visit. Pre-booking is recommended to have a hassle-free visit. The visitor will enter the date and time of reservation, and the number of people who will visit; the system will also ask for the representative visitor information such as name, email that were used for the confirmation, mobile number, address, and the name of company, agency, or school if applicable. At the end of reservation, the visitor will receive an Acknowledgement Receipt on the email they provided with the following details: (a) Reservation Date and Time; (b) Total number of visitors. (4) Virtual Tour. This page displays the virtual tours such as the permanent and current exhibits, virtual gallery with a 360 view of the 5 galleries available in the museum, and the narrated tours.

Back Office: The back office serves as the system administrator and website content manager site where they can view booking lists, approve, or decline bookings, update the website content, post an announcement, and add an assistant admin.

Head Administrator: The Head administrator is mainly the museum curators. The Back Office of the head administrator composed of the following menus: (1) Add user. They will be able to register an assistant administrator. (2) Edit user. able to set their own type of user that will handle the back office. (3) Edit user information. able to modify the assistant admin. (4) Remove user. Has the ability to delete assistant user account in the back office. (5) Reservation. Viewing, approving, and declining of reservation done by the visitor. (6) Update Contents. The head administrator will able to add, update, and delete the content of the front office.

Assistant Administrator: The user of this application is mainly the employee of Casa Real Shrine who handles the booking reservations. The Back Office is composed of the following menus: (1) Log In. The user of the system can log in to access other functions or menus of the system. Required username and password assigned by the head administrator. See security matrix for access role (Table 5); (2) Reservation. Viewing, approving, and declining of reservation done in this module. Any action done by the administrator regarding the status of the reservation application by the client, the system will automatically notify the client via email they provided during the booking process. Reason for declined application must be stated; (3) Update Contents. The assistant administrators can update the content on the website, such as updating the gallery contents,

new exhibits, and museum information; (4) Post Announcements. Posting of announcements and events. Figure 3 shows the flow chart of the back-office part of the website. Only the administrator can access the back office of the system.

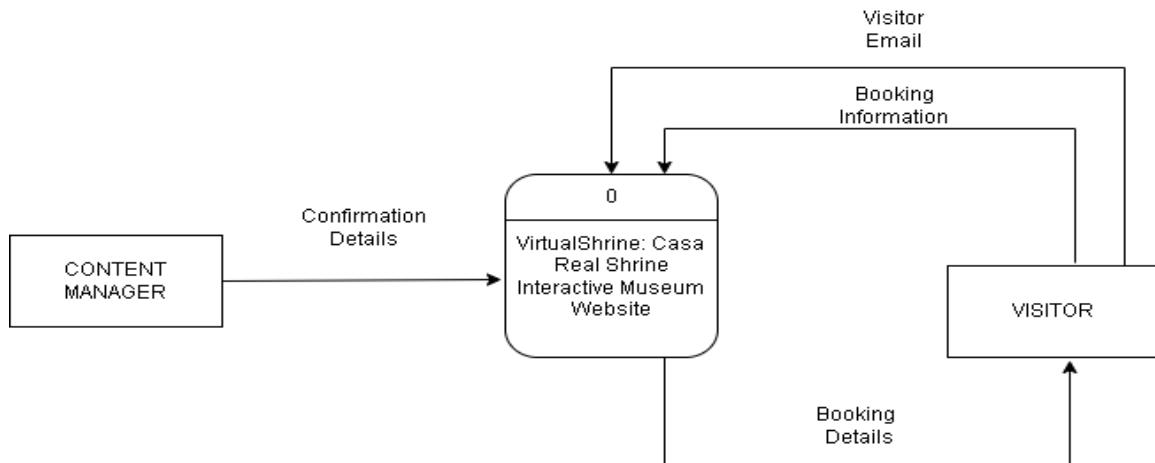


Figure 3. Context Diagram (Level 0)

In this level, it displays the input and output of the booking of Casa Real Shrine

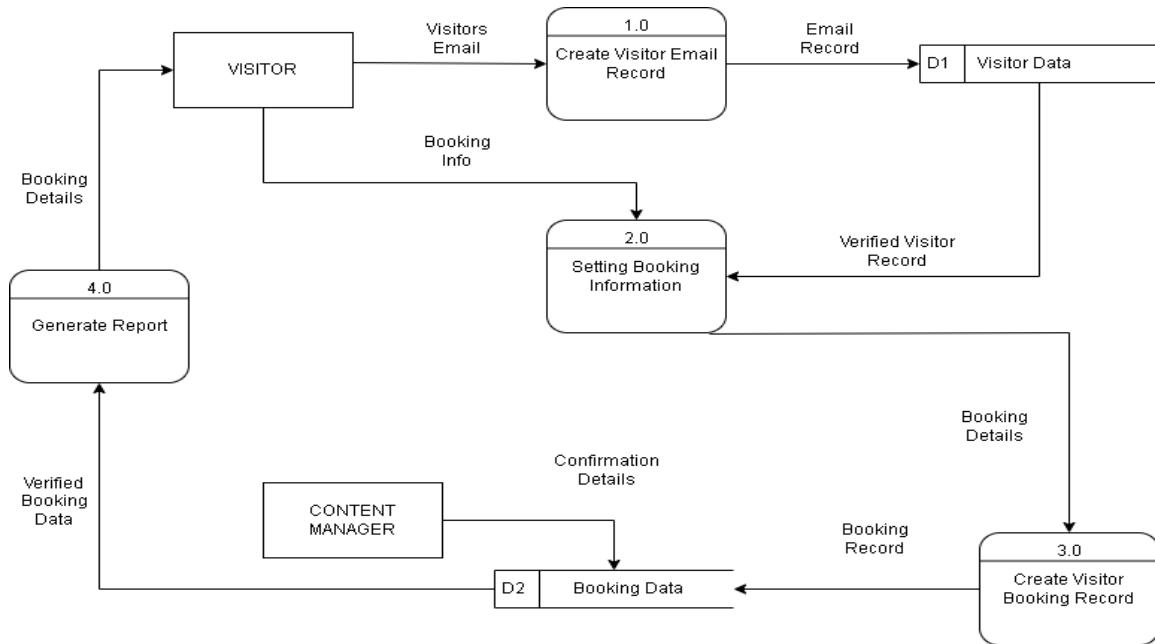


Figure 4. Data Flow Diagram (Level 1)

In this level, the system displays the process specifically from the Visitors to the content manager/admin who will interact with the system.

u117302041_virtualshrine bookings	
booking_id	int(11)
bookingID	varchar(200)
fname	varchar(200)
lname	varchar(200)
phone_no	varchar(50)
email	varchar(200)
id_image	varchar(200)
org_name	varchar(200)
date_visit	varchar(100)
time_visit	varchar(100)
# no_visitors	int(50)
# status	tinyint(1)
# notif_status	tinyint(1)
created_at	timestamp

Figure 5. Entity Relationship Diagram – Booking System
This figure displays the data for the booking system.

u117302041_virtualshrine users	
id	int(11)
user_id	varchar(255)
fname	varchar(200)
lname	varchar(200)
username	varchar(200)
email	varchar(200)
password	varchar(200)
# role_as	tinyint(4)
# status	tinyint(1)
profileImage	varchar(200)
created_at	timestamp
updated_at	timestamp

Figure 6. Entity Relationship Diagram – Admin and Type of User
This figure displays the data for the Admin User.

v u117302041_virtualshrine exhibit	
#	exhibit_id : int(11)
□	exhibitID : varchar(200)
□	name : varchar(200)
□	slug : varchar(200)
□	description : text
□	meta_title : varchar(200)
□	meta_description : mediumtext
□	meta_keyword : mediumtext
□	image : varchar(200)
#	status : tinyint(1)
□	start_date : date
□	end_date : date
□	created_at : timestamp

Figure 7. Entity Relationship Diagram – Exhibit

This figure displays the data for the Exhibit.

v u117302041_virtualshrine exhibit_display	
#	display_id : int(11)
□	displayID : varchar(200)
#	exhibit_id : int(11)
□	name : varchar(200)
□	slug : varchar(200)
□	description : text
□	year : varchar(50)
□	object_type : varchar(100)
□	image : varchar(200)
□	meta_title : varchar(200)
□	meta_description : mediumtext
□	meta_keyword : mediumtext
#	status : tinyint(1)
□	created_at : timestamp

Figure 8. Entity Relationship Diagram – Exhibit Display

This figure displays the data for the Exhibit Display.

u117302041_virtualshrine blog	
blog_id	: int(11)
blogID	: varchar(200)
name	: varchar(200)
slug	: varchar(200)
description	: longtext
image	: varchar(200)
meta_title	: varchar(200)
meta_description	: mediumtext
meta_keyword	: mediumtext
status	: tinyint(1)
author	: varchar(200)
created_at	: datetime

Figure 9. Entity Relationship Diagram – Blog

This figure displays the data for the Blog.

u117302041_virtualshrine auditlog	
id	: int(10)
username	: varchar(200)
action	: text
created_at	: datetime
time	: time

Figure 10. Entity Relationship Diagram – Audit log

This figure displays the data for the Audit log.

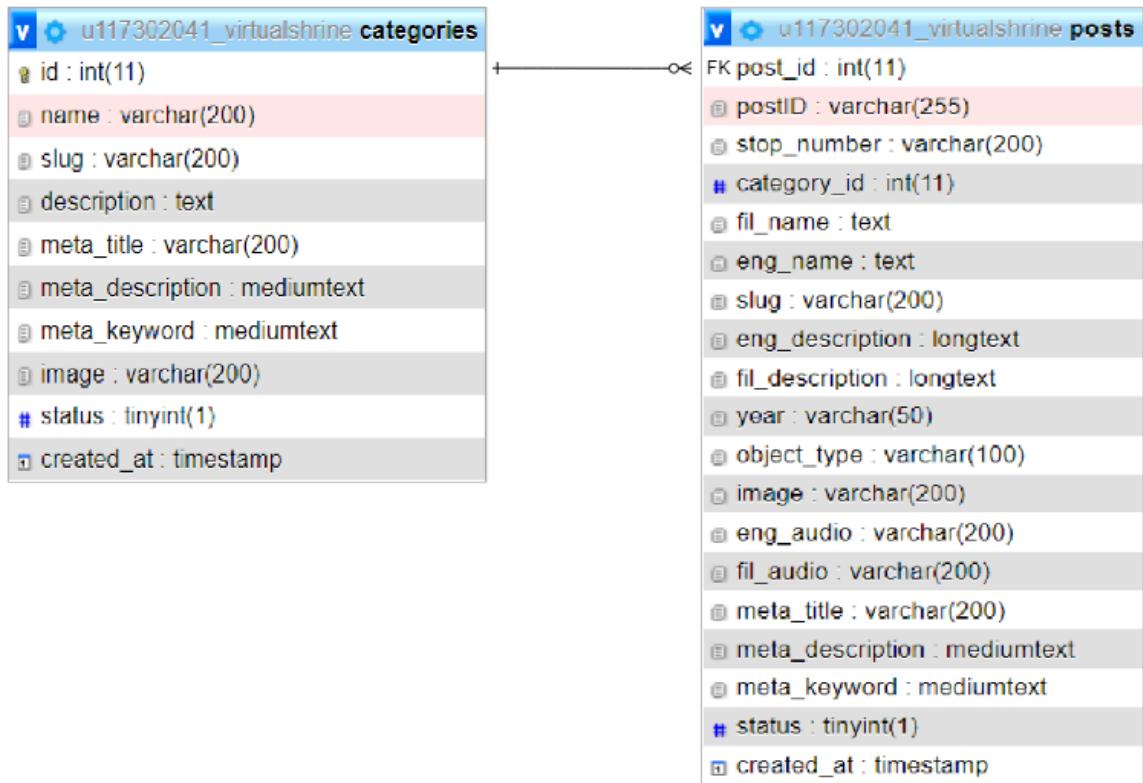


Figure 11. Entity Relationship Diagram – Categories and Posts

This figure displays the relationship between categories and posts.

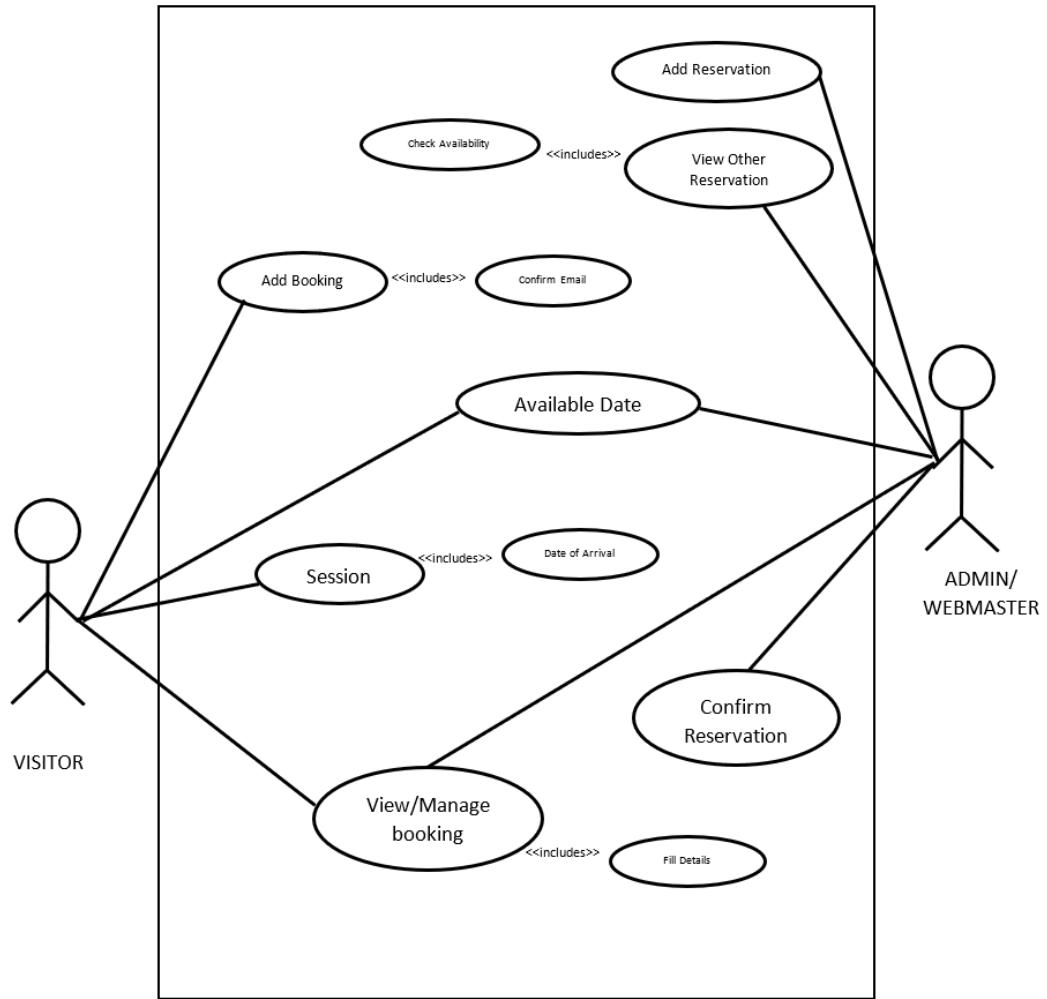


Figure 12. Use Case Diagram

This figure shows the use-case diagram that shows and describes the context and objectives of an entire system to its users.

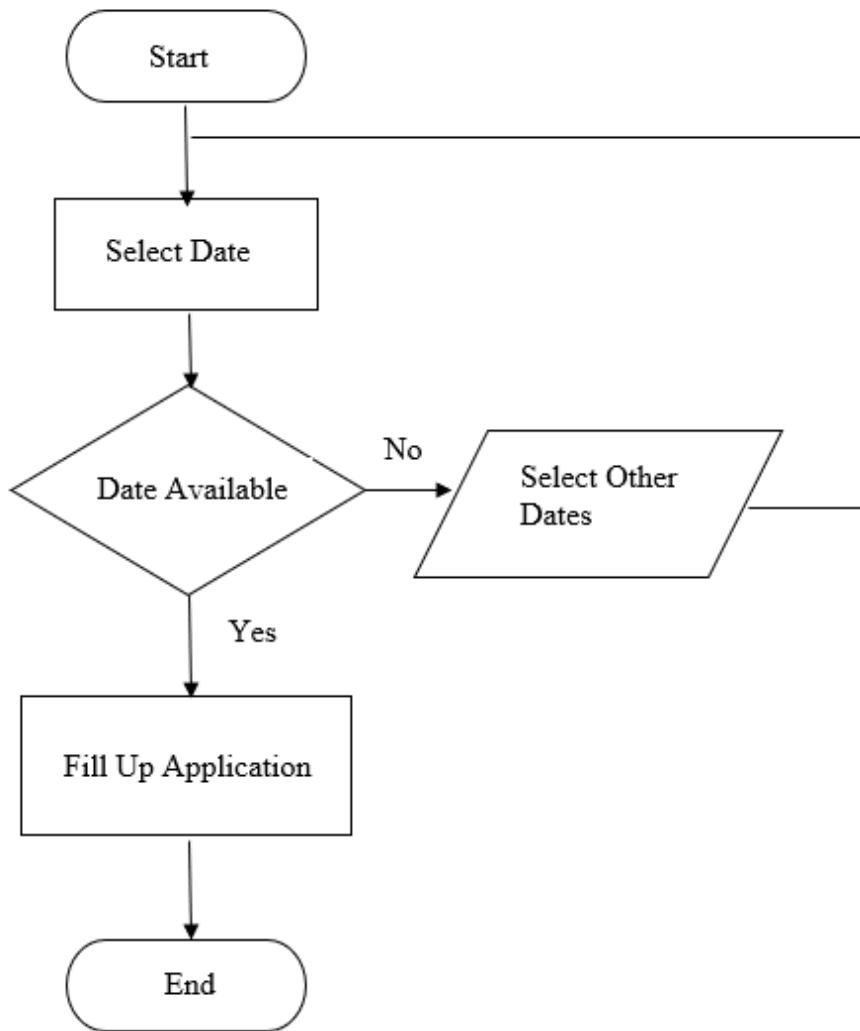


Figure 13. Booking Admission Flowchart

The figure shows the booking procedure done in the booking reservation website page.

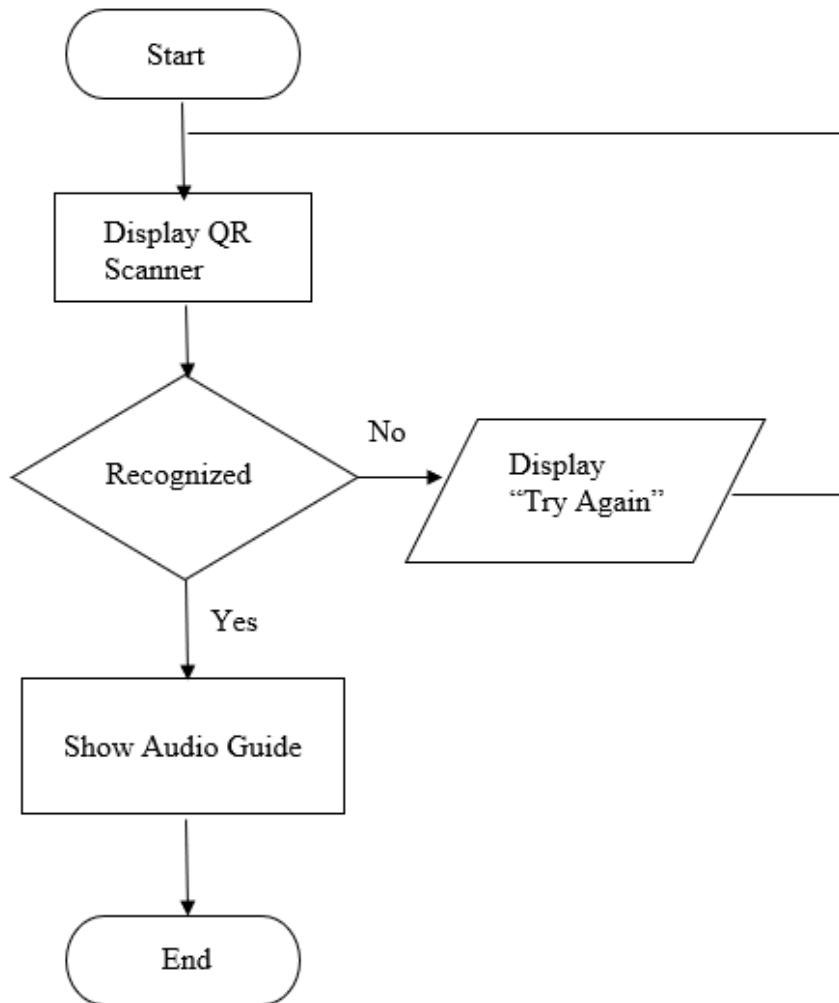


Figure 14. QR Code Scan Flowchart

The figure displays the process of scanning the QR code to access the Audio Guide feature for every exhibit in the museum.

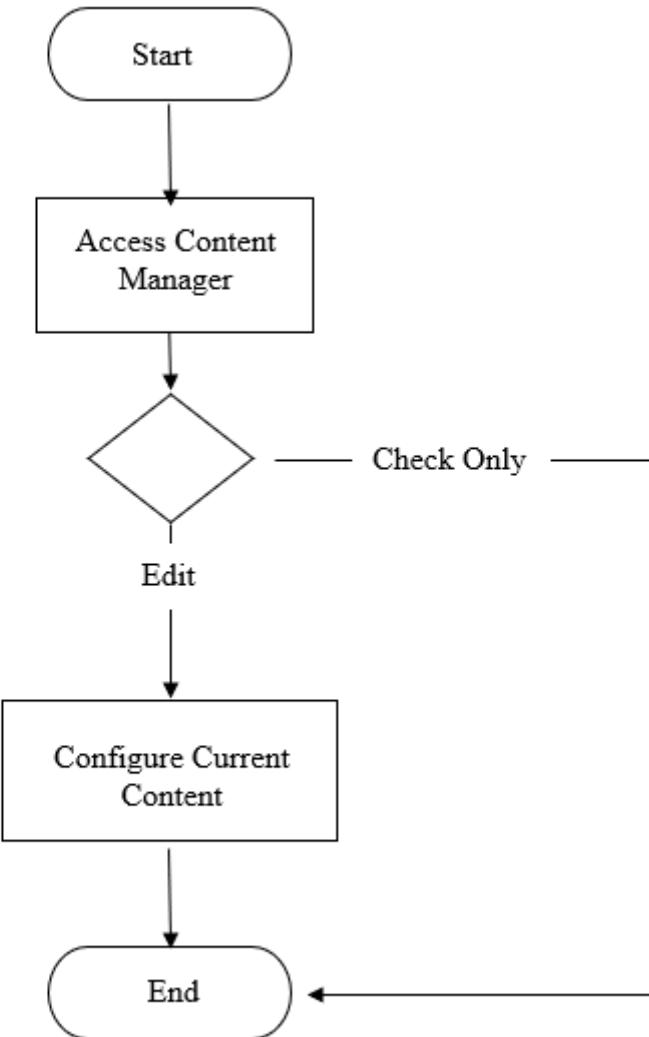


Figure 15. Content Management Flowchart

The figure displays the process on how the admin monitors and updates the website content.

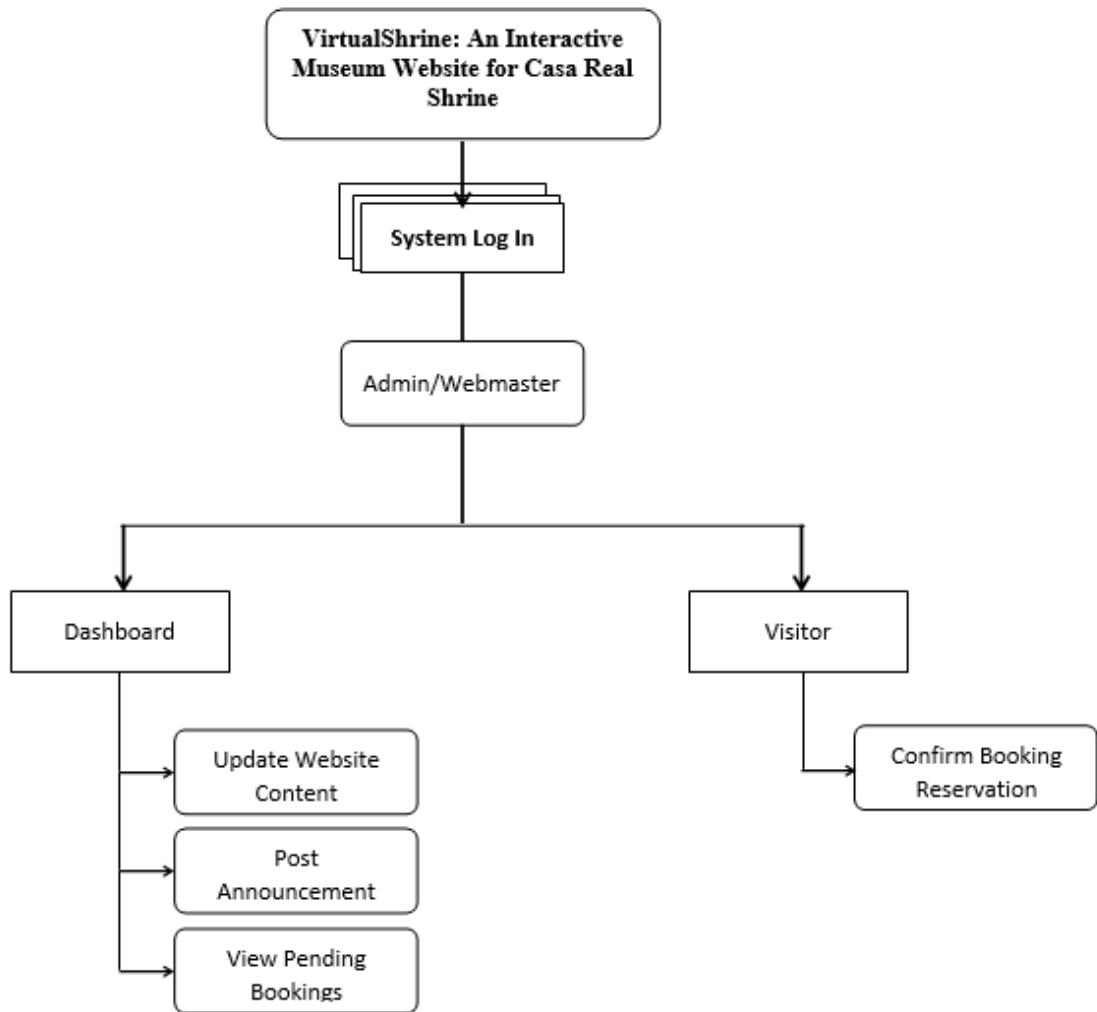


Figure 16. Admin View VTOC

This figure shows the whole flow of the Admin/Webmaster view of the VirtualShrine website content management system.

Conceptual System Design

The VirtualShrine: An interactive museum website for Casa Real is an interactive website that offers interactive features that would help the museum attract more visitors. One of the functionalities of the system is browsing the features and book reservation for the physical museum visit in the desired date and time of the visitors. Financial Transactions such as selling products from the museum gift shops are not included in this system. The system also does not require the visitor to register for an account, the only time that the system will ask for the visitor's information is when they book for reservations.

System Architecture

Figure 4 shows the user's access to the website via the internet through their computer terminal.

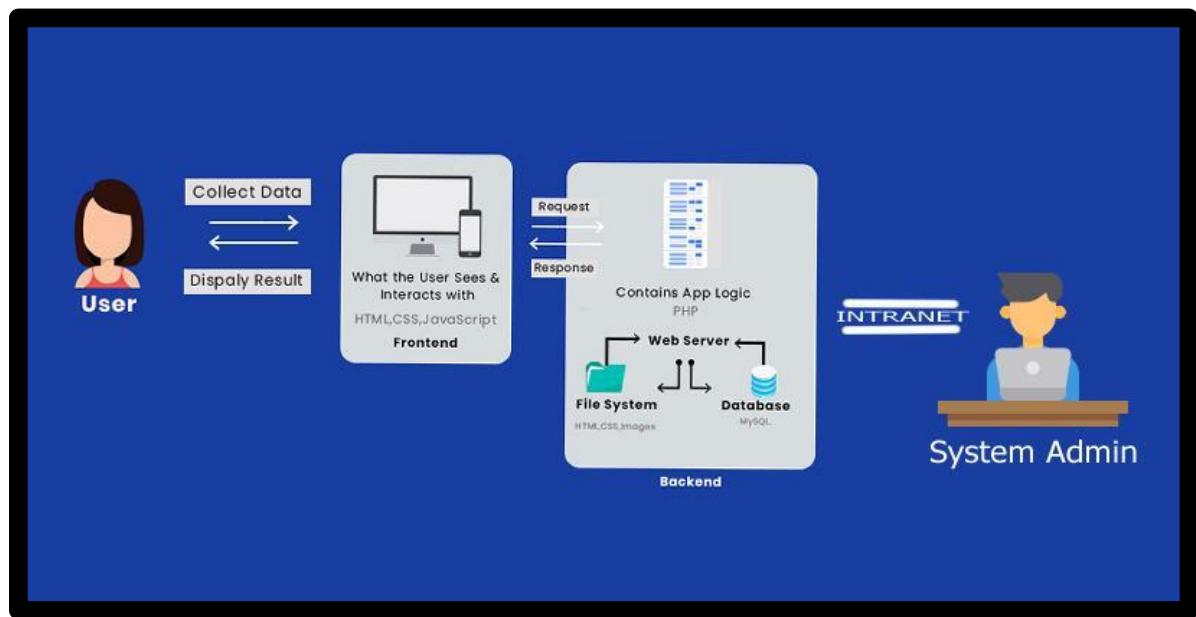


Figure 17. The Client's Access to the Website

The web server replies and saves the client's request to the database server.

The content manager can access the back office of the system via an intranet connection to maintain and update the system.

Security Matrix

This security matrix applies only on the Back-Office application. The matrix shows the accessibility rights of every user of the system.

The following are the different modules that the Administrator can access and modify, Upload/Update the contents of the museum like a virtual gallery.

Table 5
Security Matrix

Module	Head Admin	Assistance Admin	User
Log In	✓	✓	
View All Booking Reservation	✓	✓	
Approve/Decline Reservation	✓	✓	
Upload/Update website content	✓	✓	
View Website Content	✓	✓	✓
Add User	✓		
View User Information	✓		
Edit User Information	✓		
Archive User	✓		
Book Reservation	✓	✓	✓
Archive Contents	✓		
Update Personal Profile	✓	✓	

The Online Booking Reservation Process

The booking reservation process of VirtualShrine can be done through online transactions as shown in Figure 6. However, there are some instances that the visitor is not actually using the internet to have their reservation. They visit the museum as walk-in customers.

In order to handle the data that will be submitted by the customer, the system will use a database server which is directly connected to a web server for internet connectivity. Maintenance, modifications, and update can be done by the administrator.

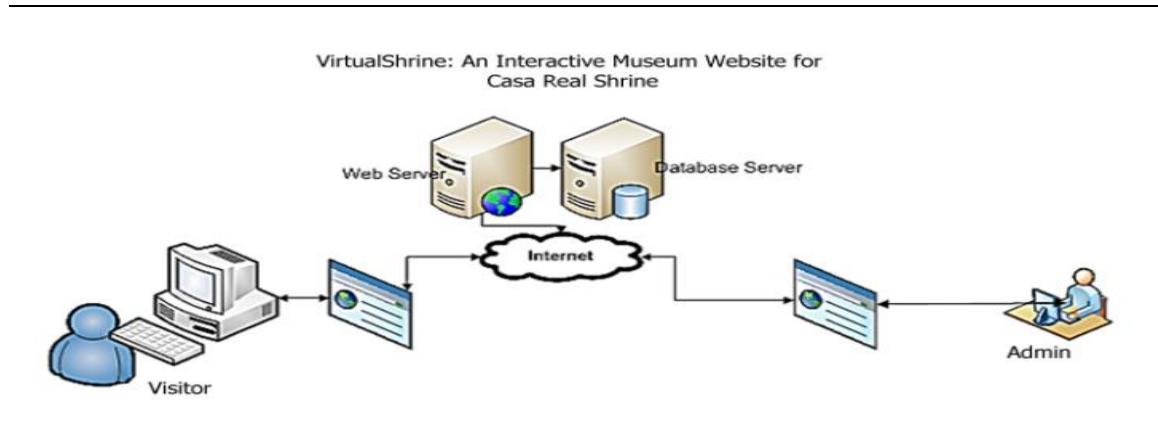


Figure 18. Online Booking Process

The Walk-in Admission Process

Figure 18 will show the illustration for the walk-in admission process. For the customer to make visiting admission, the following steps must be followed:

Step1: Customer inquiries at the Museum staff about the visiting slot availability.

Step 2: The Museum staff will log in to the System Back Office. He will ask for the date of reservation and what to reserve. Using the System, the museum staff can give the availability of the admission slots.

Step 3: Once the visitor decides to book for admission, the clerk will ask the user the basic information for profiling purposes.

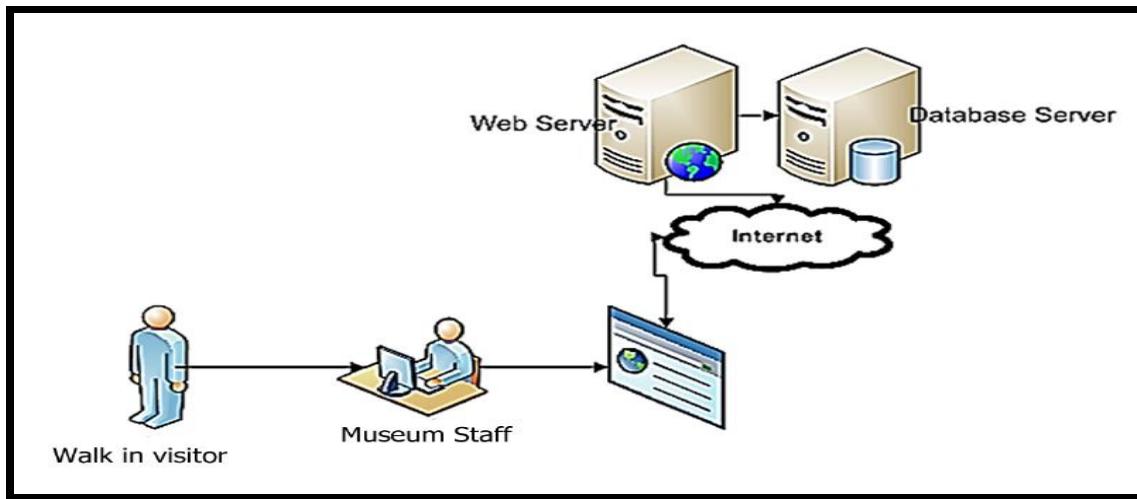


Figure 19. Walk-in Admission Process

Network Infrastructure

Figure 19 will show the network infrastructure of the VirtualShrine Website.

Since the proposed system is an interactive website, Internet connection is particularly important. As can be seen from the figure (Fig. 18), the visitor can browse the VirtualShrine website, and their reservation can be done.

Also, the system will allow website visitors to search for museum information such as operation hours and location from the museum website.

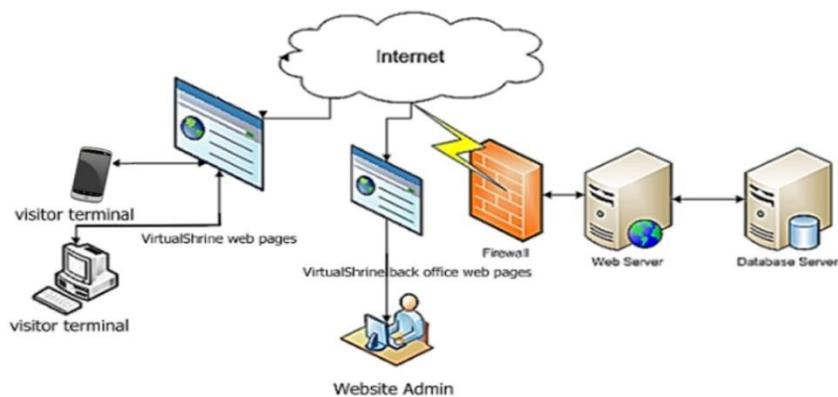


Figure 20. The Network Infrastructure

On the part of the Administrator (back-office account), the system will allow the Website Manager (administrator) to make modifications including updating the contents of the website. They can also approve and reject a booking from the visitor.

Description of Prototype

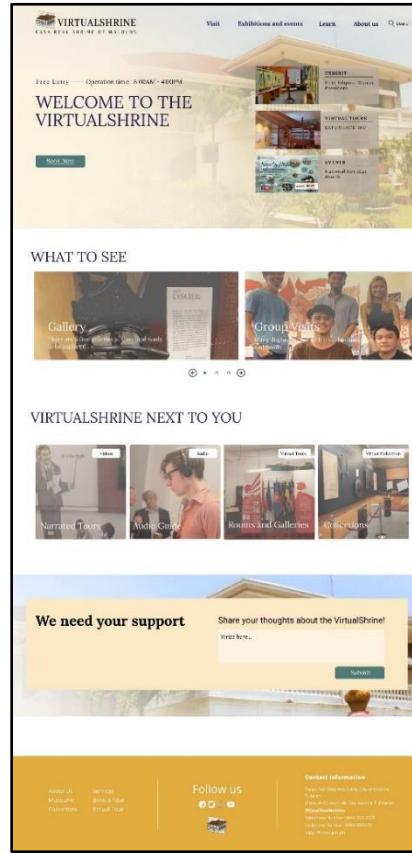


Figure 21. VirtualShrine Homepage

Figure 21 displays the home page of Casa Real Shrine. This page was the default page shown in the browser when a user loads the website.

The following were what can be seen in the website homepage; (1) header. It was located on the top part of the website. The header includes the website logo, and navigation menu; (2) Welcome banner. The welcome banner displays a short welcome greeting for VirtualShrine visitors, the “Book a tour” and “Plan your visit” button, and the basic museum information such as the day and time of museum operation; (3) What to see. This part of the website will display an overview of what the visitor would see on the website; (4) Featured Exhibits. The main objective of this feature is to make the online visitors aware of the ongoing exhibits on the museum, this will serve as the exhibit promotion; (5) Upcoming Events. Announcement about the upcoming events in the museum will be displayed; (6) Museum Fundraising. This part of the homepage served as a promotion for the fundraising of the museum. and lastly; (7) Website Footer. It’s located on the bottom part of the webpage, the footer includes the brief introduction about the Casa Real Shrine Museum, contact information, quick links, links to the museum social media accounts, and a copyright notice.

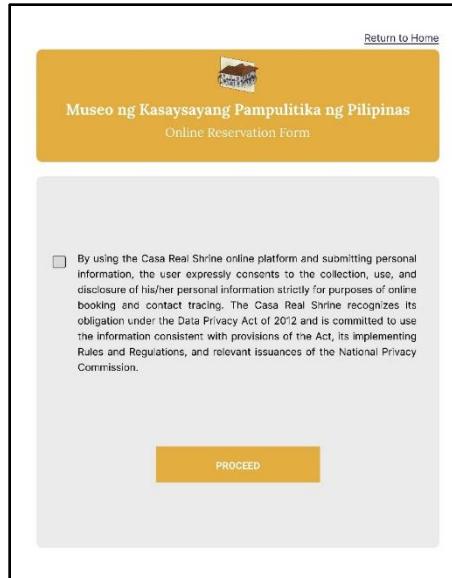


Figure 22. Data Privacy Issue disclaimer

Figure 22 displays the data privacy issue disclaimer, this was displayed before allowing the visitor to proceed to the booking page, this page serves as a reminder and an agreement for both the museum and the visitor regarding the use of the data that was provided by the visitor during the booking process.



Figure 23. Data Privacy Issue disclaimer – Warning

The visitor need have to check the checkbox that means they agree to the terms and conditions. But if the visitors dis not click the checkbox and clicked the proceed button, the website can display a warning reminding them to click the checkbox first before proceeding.

The screenshot shows the online reservation form for the Museo ng Kasaysayang Pampulitika ng Pilipinas. The form is titled "Online Reservation Form" and includes fields for Date of Visit, Time of visit, No. of Visitors, Name of Representative (First Name and Last Name), Phone Number, Email, and a file upload field for attaching a Permit Letter or Valid ID. It also includes fields for Name of Company/Agency/School and Email Address, and a prominent yellow "Submit" button at the bottom.

Figure 24. Online Reservation Form page – Online Reservation Form

Figure 24 displays the Online reservation form. the website will ask for the personal information of representative visitor, this includes the representative name, email for the confirmation of the reservation, Permit letter for the visit from the visitor's institution or organization, and valid ID to confirm if the booking was from a legit individual or organization, and lastly, the name of company, agency, or school.

The screenshot shows the online reservation form for the Museo ng Kasaysayang Pampulitika ng Pilipinas. At the top right is a "Return to Home" link. Below it is the museum's logo and the text "Museo ng Kasaysayang Pampulitika ng Pilipinas" and "Online Reservation Form". A "Date of Visit" section contains a calendar for June 2022. The days are color-coded: yellow for available dates (1, 4, 5, 6, 7, 12, 13, 14, 19, 20, 21, 26, 27, 28), dark yellow for unavailable dates (3, 8, 9, 10, 11, 15, 16, 17, 18, 22, 23, 24, 25, 29, 30, 31), gray for closed days (2), and green for the selected date (3). Below the calendar are fields for "Phone Number" and "Email". A note "Please attach a Permit Letter for Visit and Valid ID :" is followed by a file upload field with a "Choose Files" button. There is also a "Name of Company/Agency/School" field and a "Submit" button at the bottom.

Figure 25. Online Reservation Form page – Calendar

The Online reservation form also provides a calendar. The availability of the date is presented through a color code; yellow means admissions are available, green is the day the visitor selected, gray means the museum is closed, and dark yellow for the dates that are not available.

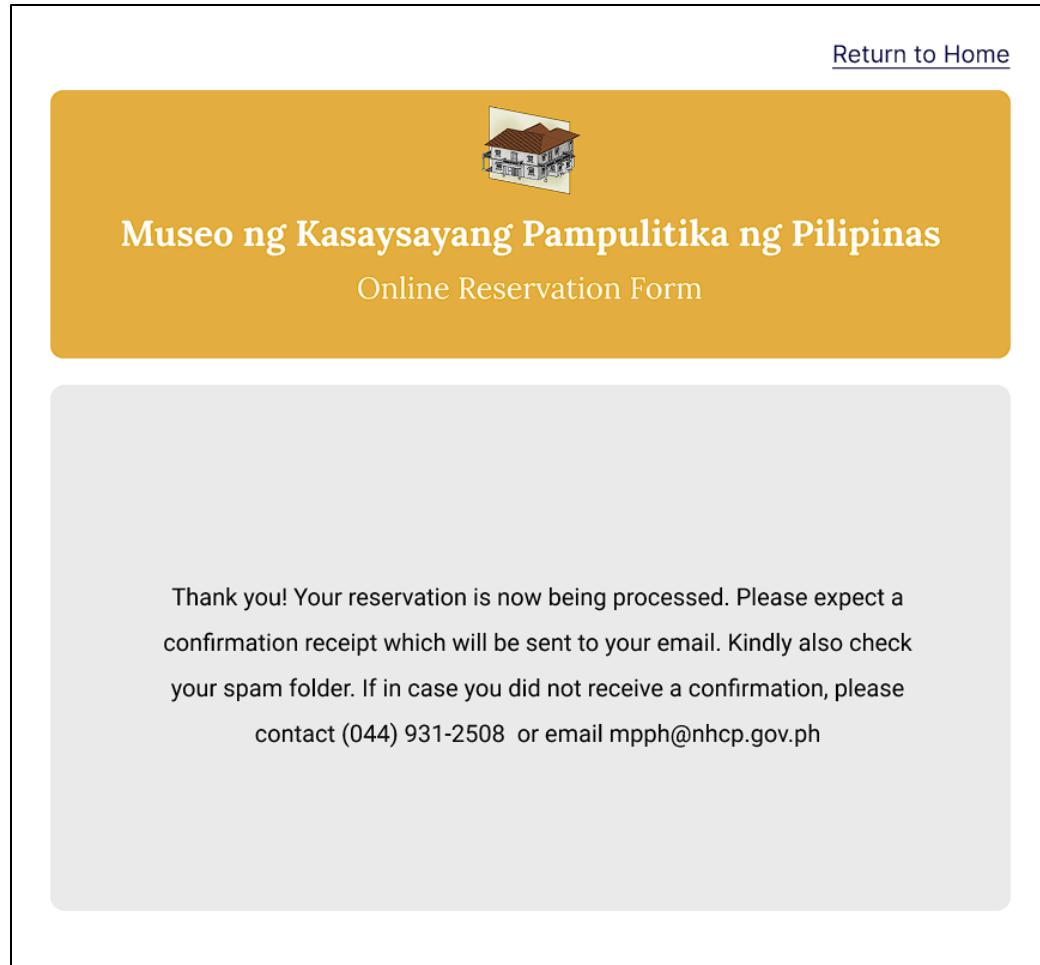


Figure 26. Reservation Confirmation page

Once the visitor successfully fills out the form, the website will display a confirmation message.

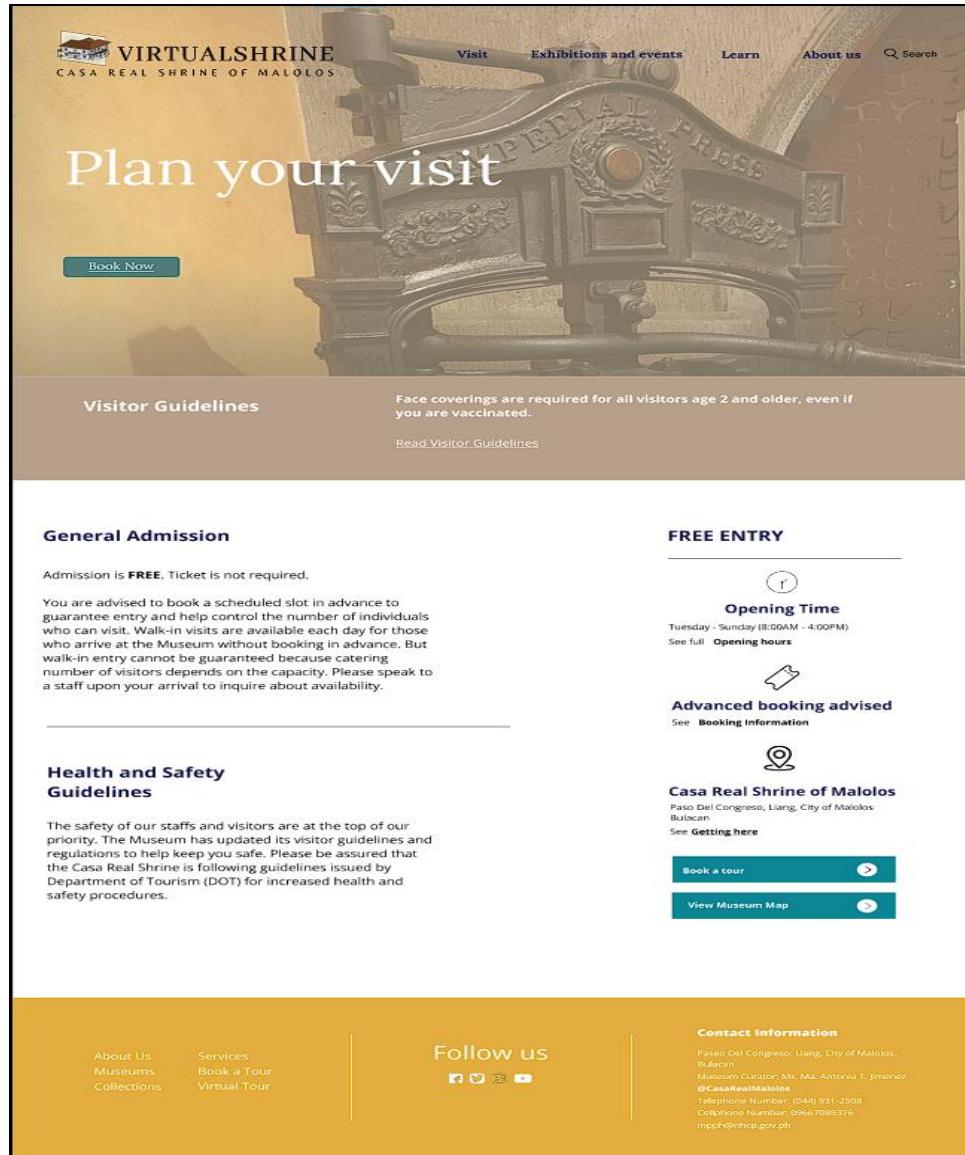


Figure 27. Plan your visit page

Figure 27 shows the ‘plan your visit’ page. This is where the VirtualShrine visitors could view the general information they need to know before they visit the physical museum. This page includes the information about the General Admission and Health and Safety guidelines, museum operation date and time, location, and the thumbnails that link to another page such as the galleries, educational tours, and exhibitions and events.

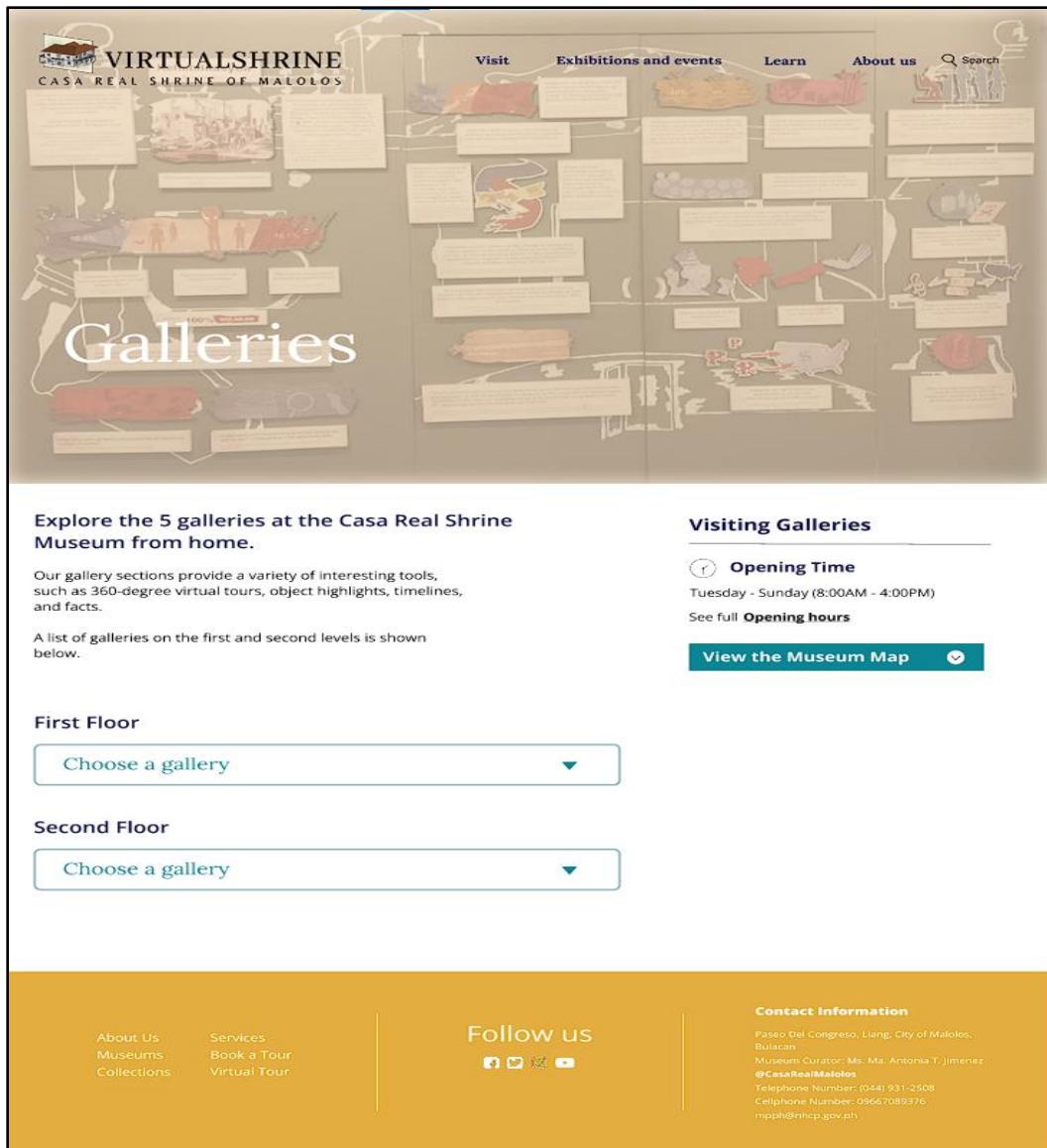


Figure 28. Galleries page

Figure 28 shows the Virtual Shrine website's Galleries page. This page allows website visitors to browse the museum's galleries. Each gallery is distinguished by the floor on which it is placed. The proponents did this so that the VirtualShrine visitor would know on which floor each gallery is placed.

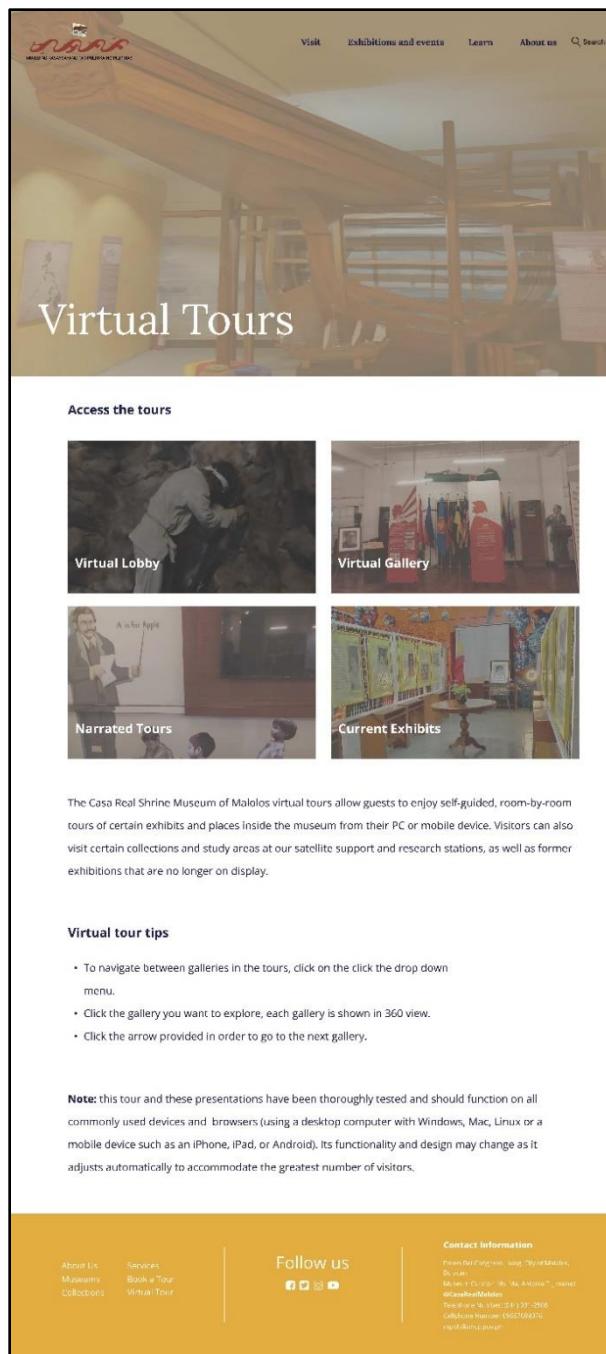


Figure 29. Virtual Tours page

Figure 29 displays the VirtualShrine's virtual tours page. This page displays the virtual museum tours for the VirtualShrine visitors. The goal is for website visitors to be able to experience the museum without having to visit the real museum. This page also contains virtual tour tips that could assist website visitors in navigating the tours so that they can enjoy the virtual tour without difficulty.

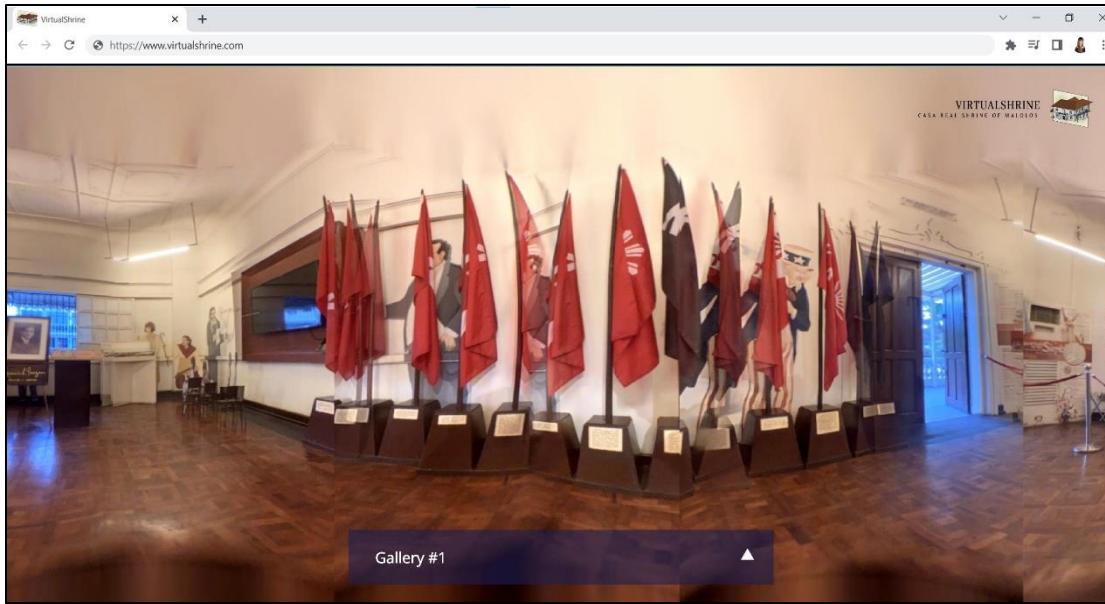


Figure 30. Virtual Tour – Gallery 360° View

Figure 30 displays one of the VirtualShrine feature, the Virtual Gallery 360° view. This feature is added into the website to allow the VirtualShrine visitor witness how the inside of the Casa Real looks like.

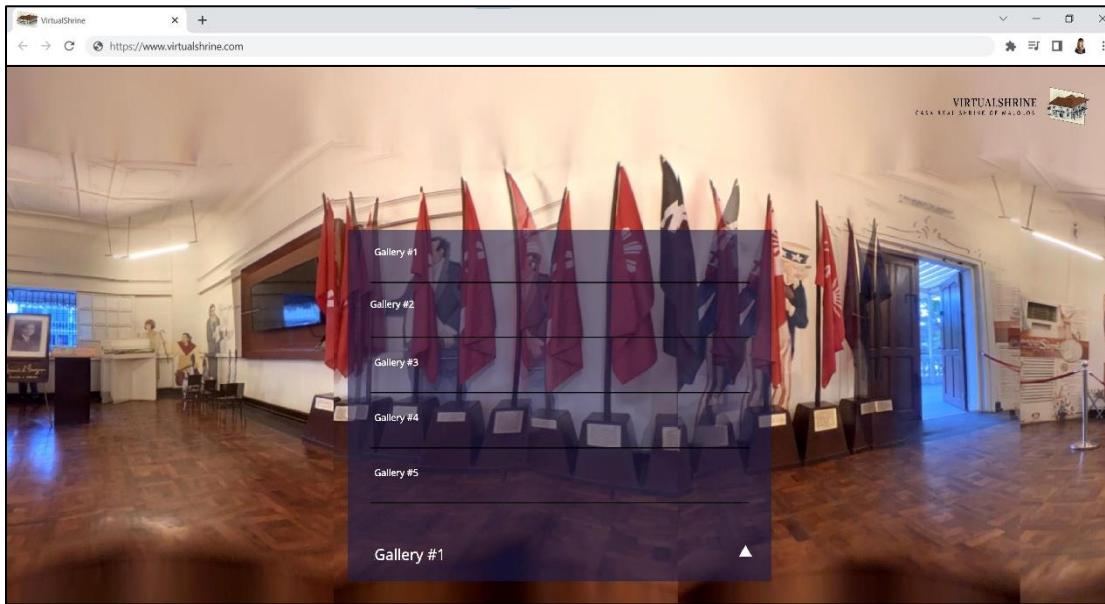


Figure 31. Virtual Tour – Gallery 360° View Navigation

Figure 31 illustrates how the visitor of VirtualShrine can go from one gallery to another. By selecting an option from the drop-down menu, the website will display gallery selections, from which the visitor can select the next gallery to explore.

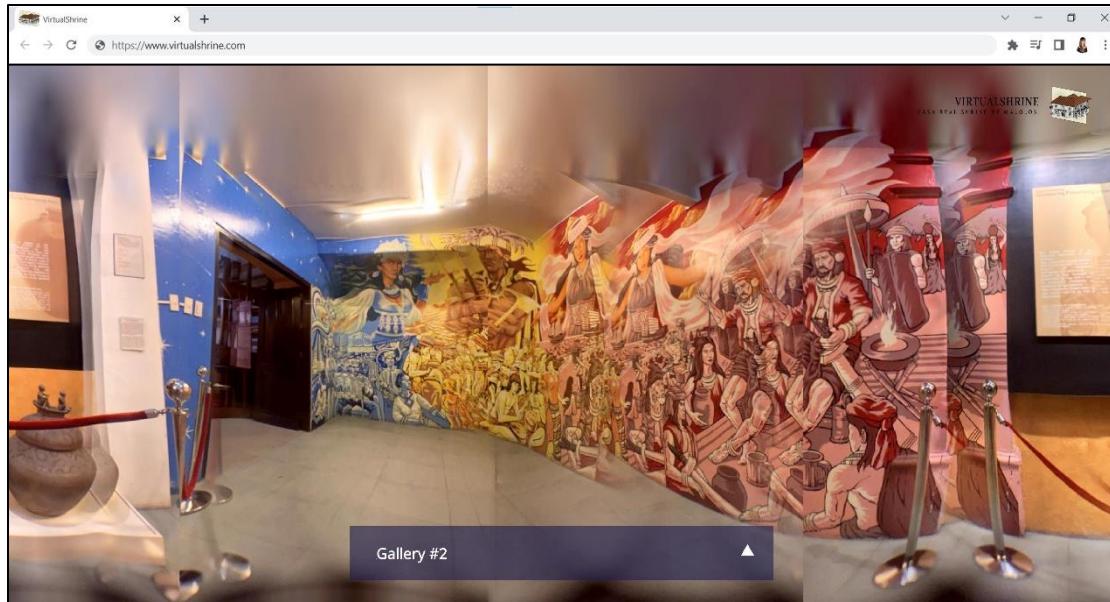


Figure 32. Virtual Tour – Gallery 360° View Navigation

Once the VirtualShrine visitor clicks on any of the gallery on the drop-down menu, the website will automatically redirect the visitor to the chosen gallery.



Figure 33. Virtual Tour – Gallery 360° Display Short Information

Figure 33 displays the Short Information navigation of the display. The visitor will just have to click the “click me” button found right next to the display

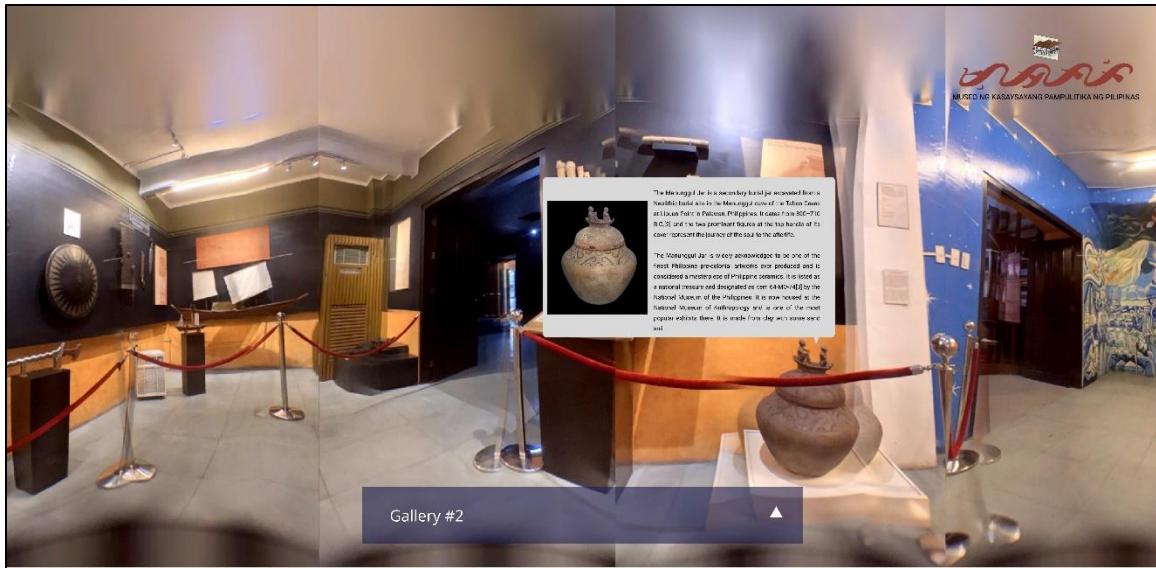


Figure 34. Virtual Tour – Gallery 360° Display Short Information

After clicking the “click me” button, the website will automatically display the short information regarding the display.

Figure 35. Virtual Tour - Virtual Lobby Events

Figure 35 displays one of the features of the virtual tour. The Virtual Lobby. On this page, it displays all the avialble events that the visitor can join in to.



Figure 36. Virtual Lobby

Figure 36 displays the virtual lobby where the even are being help. It has an interactive features that the visitors can use, like help desk, exhibit halls, and more depending on the type of event that is being held.

Audio Guide

Let Casa Real Shrine speak to you.

Choose a display ▾

or

[SCAN USING QR CODE](#)

Featured Audio

The History of Casa Real Shrine of Malolos

About Us
Museums
Collections

Services
Book a Tour
Virtual Tour

Follow us

Contact Information

Paseo Del Congreso, Liang, City of Malolos,
Bulacan
Museum Curator: Ms. Ma. Antonia T. Jimenez
[@CasaRealMalolos](#)
Telephone Number: (044) 931-2508
Cellphone Number: 09662089376
mpph@nhcp.gov.ph

Figure 37. Audio Guide

Figure 37 shows the Audio Guide page of the VirtualShrine. This is one of the features offered in the VirtualShrine, the purpose of this feature is to deliver a spoken commentary about the exhibit or display. This feature will allow the visitors to have more flexibility as they explore throughout the museum.

The screenshot shows the website's header with navigation links: Visit, Exhibitions and events, Learn, and About us. Below the header is a graphic of a speaker emitting sound waves. The main title "Audio Guide" is displayed in large, bold, black font, with the subtitle "Let Casa Real Shrine speak to you." in smaller text below it. To the left, there is a dropdown menu titled "Choose a Gallery" containing five options: "Gallery #1", "Gallery #2", "Gallery #3", "Gallery #4", and "Gallery #5". Below this is a section titled "Featured Audio" featuring a photograph of a traditional two-story house with a tiled roof and a staircase. The caption "The History of Casa Real Shrine of Malolos" is displayed below the image. At the bottom of the page, there is a yellow footer bar containing links for "About Us", "Museums Collections", "Services", "Book a Tour", and "Virtual Tour". On the right side of the footer, there is a "Follow us" section with icons for Facebook, Twitter, YouTube, and Instagram, and a "Contact Information" section with address details.

Contact Information

Paseo Del Congreso, Liang, City of Malolos,
Bulacan
Museum Curator: Ms. Ma. Antonia T. Jimenez
@CasaRealMalolos
Telephone Number: (044) 931-2598
Cellphone Number: 09667089376
mpph@nhcp.gov.ph

Figure 38. Audio Guide – Choose a gallery

Figure 38 displays how to access the audio contents, the visitor must first choose a gallery from the drop-down menu.

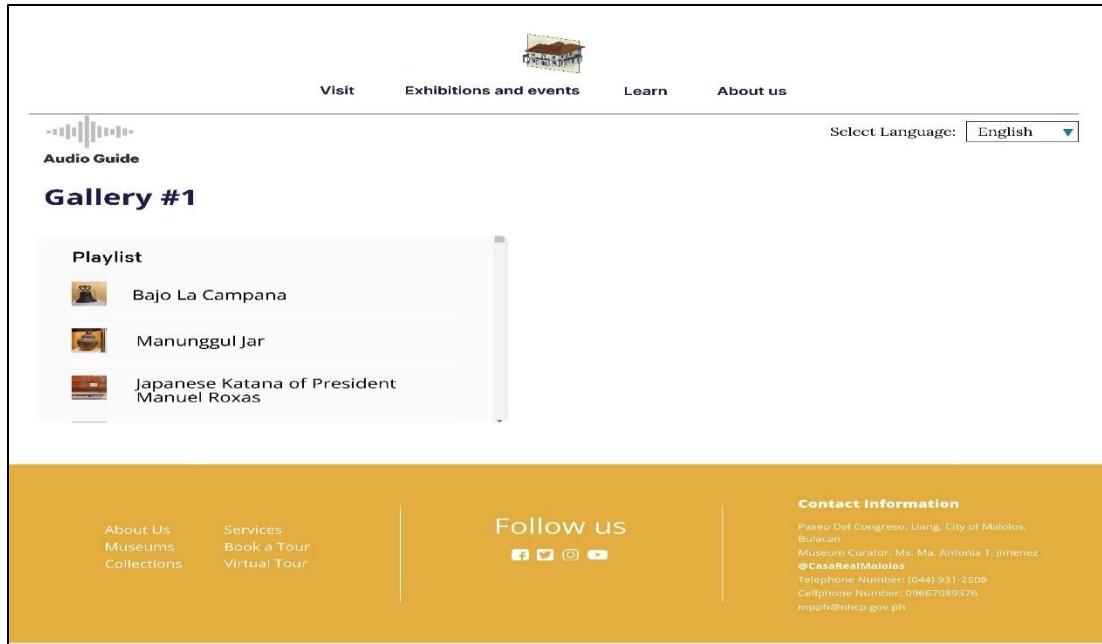


Figure 39. Audio Guide – Gallery Playlist

Once the visitor chooses a gallery, the website will redirect to the Gallery playlist where all the audio guides for the specific gallery are displayed. The visitor can also choose a language they desire, they can select a language on the radio button located at the upper part of the page. After choosing a language, the visitor can now choose any audio to play.

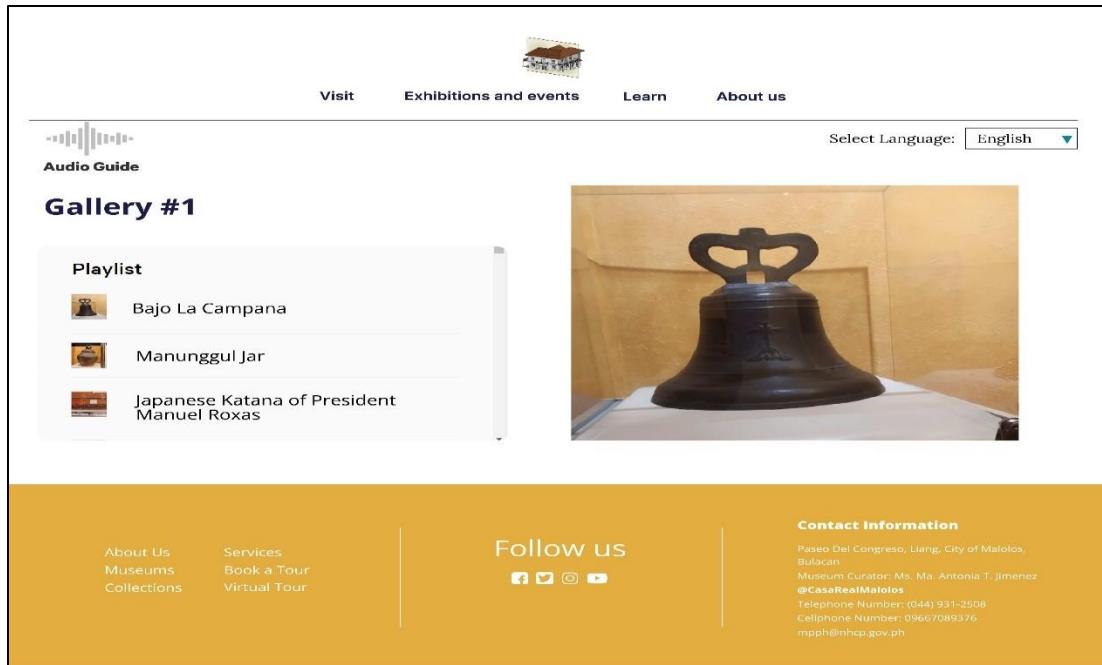


Figure 40. Audio Guide

After the visitor chooses an audio from the playlist. The website will automatically play the audio.

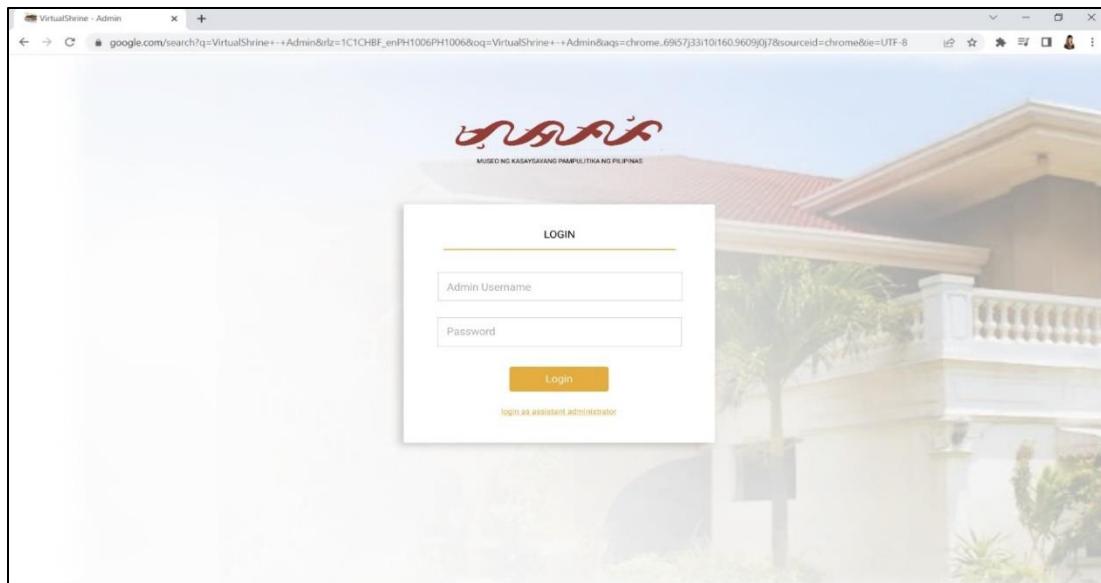


Figure 41. Head Admin – Log in page

Figure 41 displays the Log in page for the head admin.

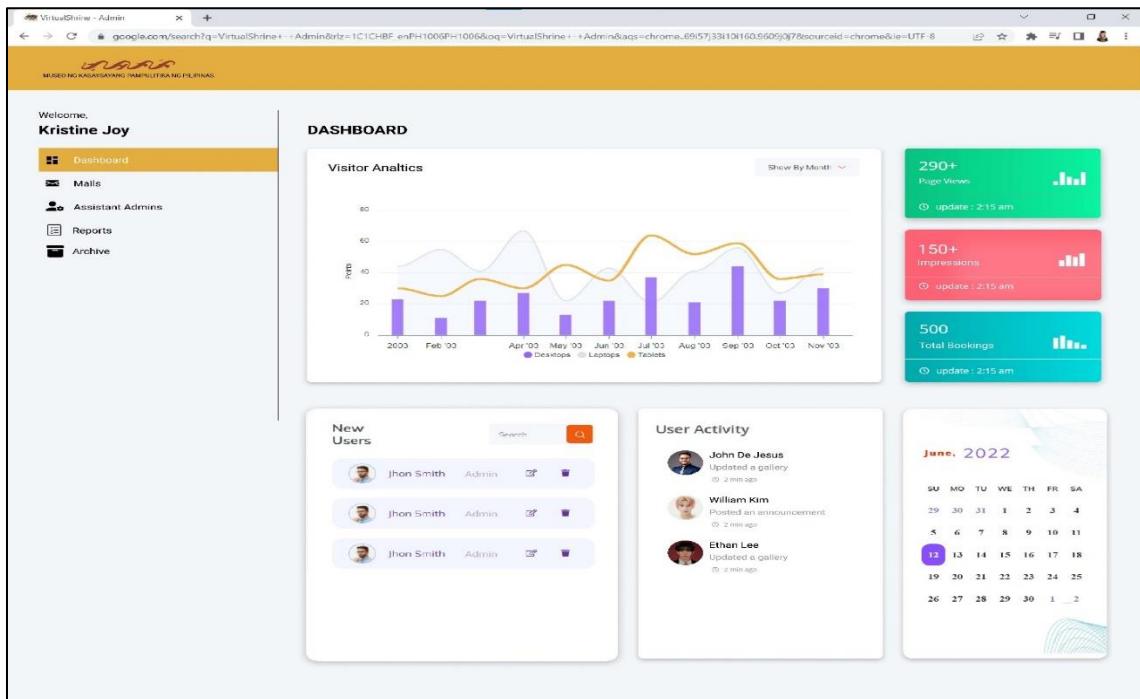


Figure 42. Head Admin – Main Dashboard

Figure 42 shows the Main dashboard for the head admin. Once the head admin successfully signs in into the system, they will be able to access the main dashboard. The main dashboard displays a visual statistical presentation of the Visitor analytics, widgets displaying the new users/admins, user/admin activity, and calendar.

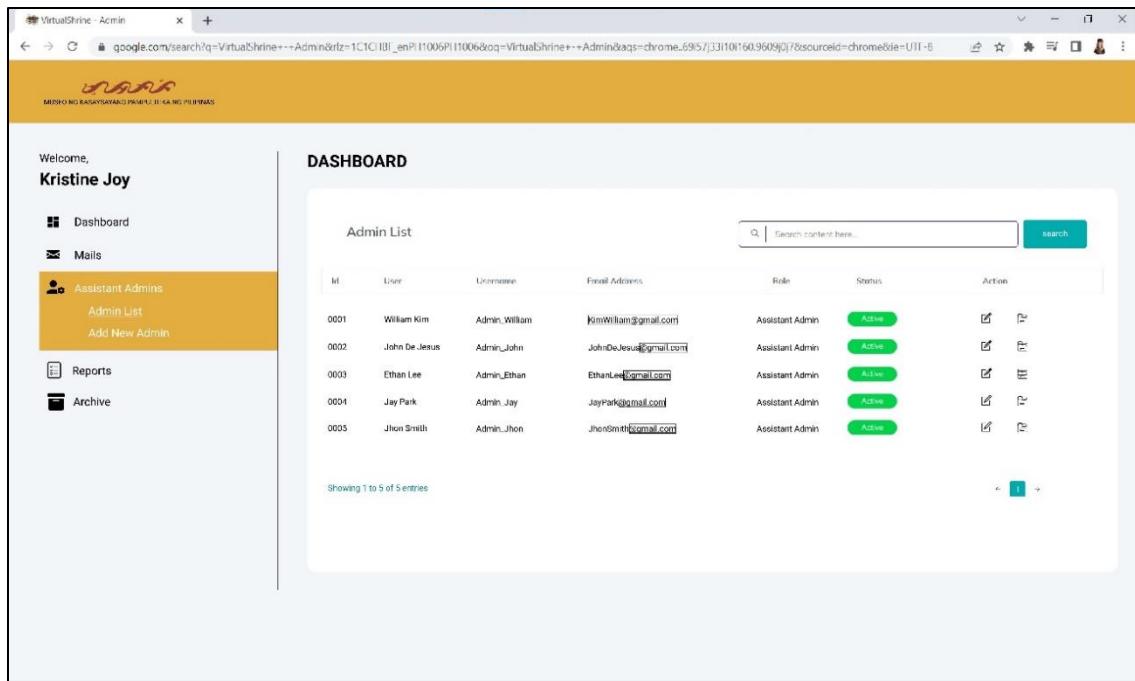


Figure 43. Head Admin – Assistant Admin Menu

Figure 43 displays the Assistant Admin Menu of the main admin dashboard. This is where the main admin will be able to view and manipulate the assistant admin information, actions such as edit, and archive of user information is provided.

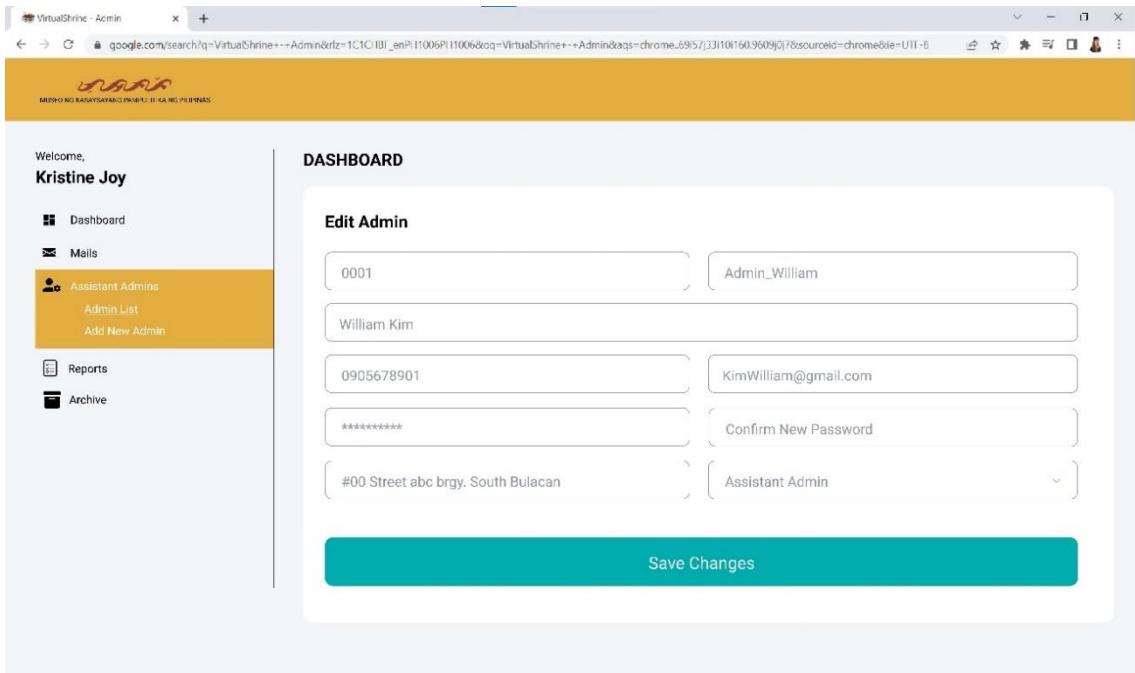


Figure 44. Head Admin – Edit User Information

Figure 44 displays the Edit User Information page of the admin dashboard. This page allows the main admin to edit the existing user information.

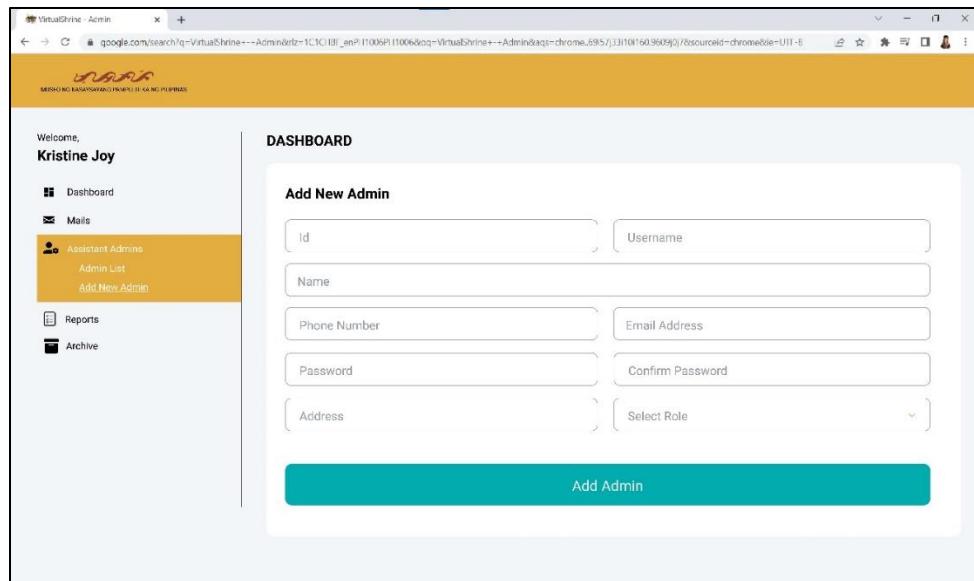


Figure 45. Head Admin – Add a new Admin

Figure 45 displays the Add a new admin page, this page allows the head admin to add a new assistant admin into the system. The main admin just has to provide the information such as the ID, Username, Name, Phone number, Email Address, Password, Address, and the Role.

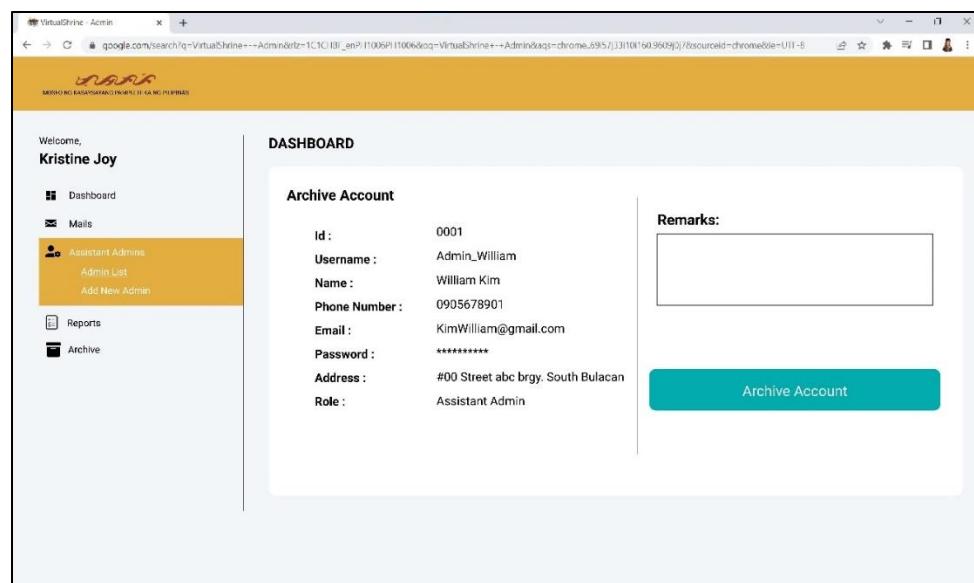


Figure 46. Head Admin – Archive Account

Figure 46 displays the Archive Account page of the admin dashboard. This page will allow the admin to archive an account that is no longer being used. The main admin will have to provide the reason for archiving the account in the remarks area. After doing so, the admin can proceed to click the archive account button and the system will save the account on the archives.

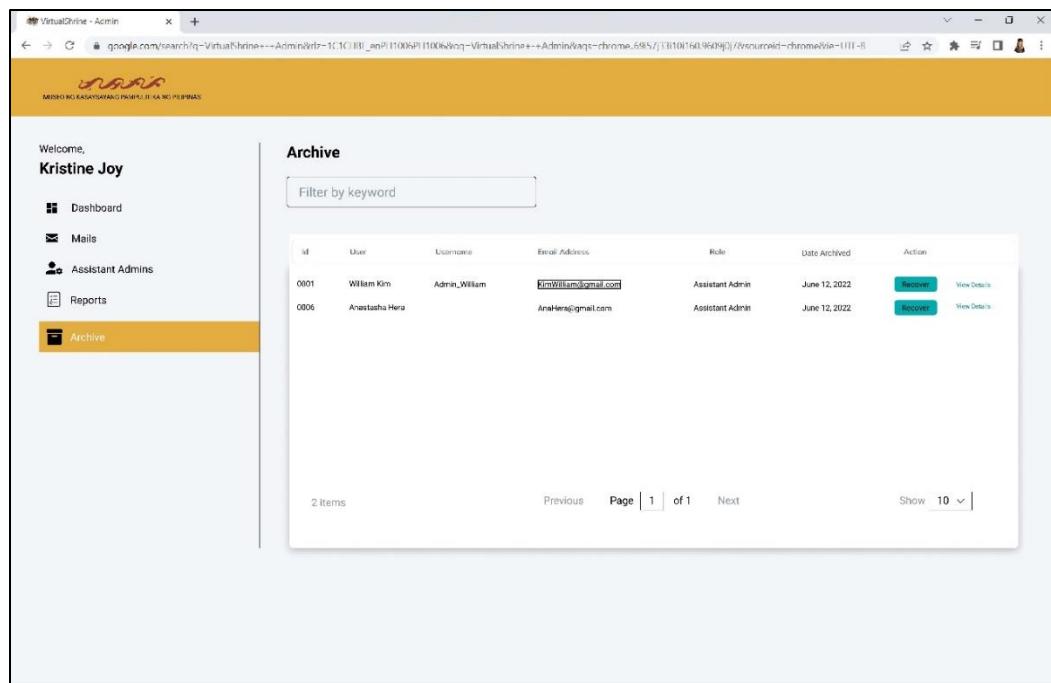


Figure 47. Head Admin – Archive Menu

Figure 47 displays the Archive Menu of the Main Admin dashboard. This page displays the accounts that have been archived by the main admin.

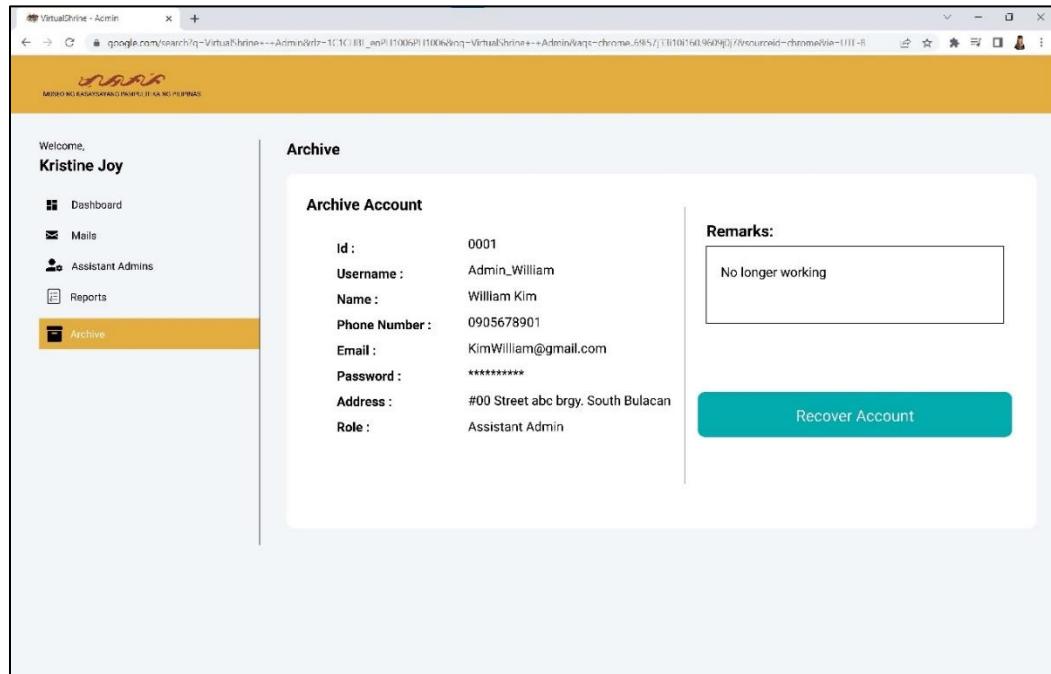


Figure 48. Head Admin – View Archived Account details

Figure 48 displays the details of the archived account where all the information of the previous user is stored, also the remarks of the main admin.

User	ID	Action	Type	Timestamp
William Kim	0001	POST	Announcement	12-June-2022 06:51 AM
John De Jesus	0002	UPDATE	Content	12-June-2022 06:52 AM
Ethan Lee	0003	UPDATE	Content	12-June-2022 06:52 AM

Figure 49. Head Admin – Audit Logs Menu

Figure 49 displays the Audit Logs Menu of the Main admin dashboard. This page will display the actions done by the assistant admins, and this will allow the main admin to monitor the changes made on the website by the assistant admins, this will also serve as a tracking record. The export button will allow the admin to print the audit log for documentation purposes.

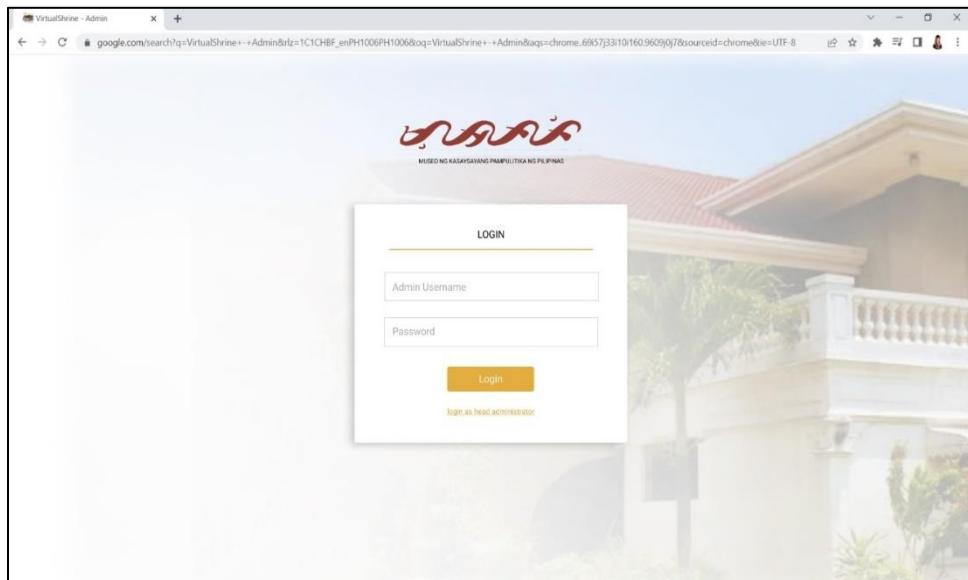


Figure 50. Assistant Admin – Sign in page

Figure 50 displays the assistant admin sign in page. This page will allow the assistant admin to access the dashboard. Only those users who were created by the head admin will be able to access the dashboard.

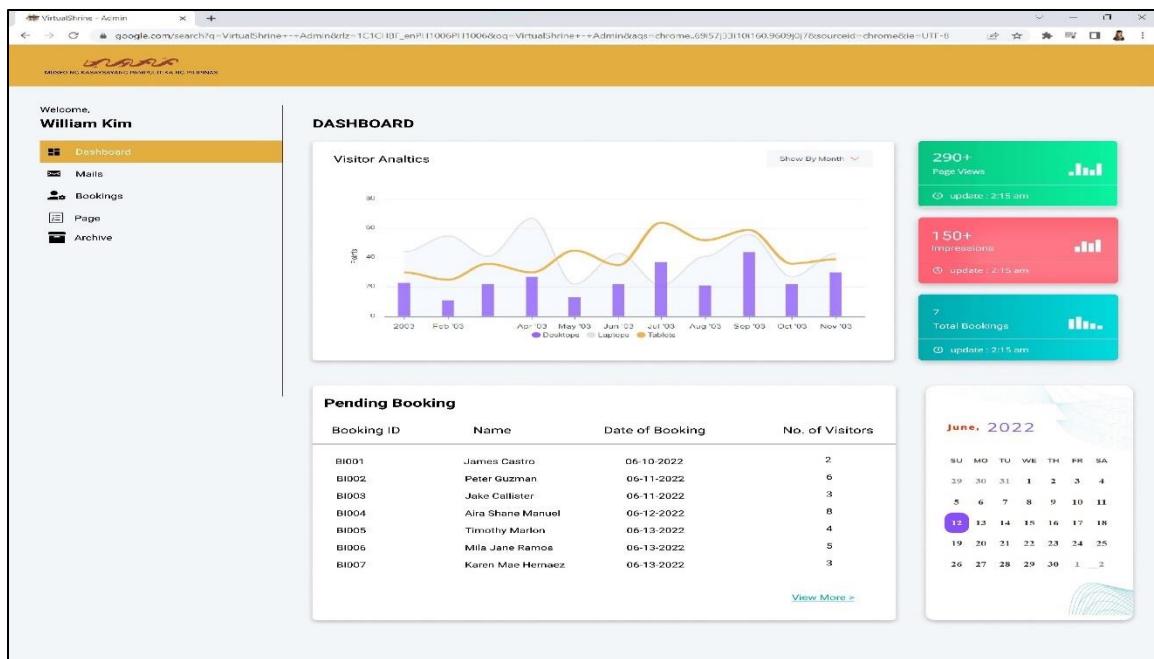


Figure 51. Assistant Admin – Dashboard

Figure 51 displays the Assistant Admin dashboard. If the user successfully signs in into the system using the username and password provided by the head admin, they can access the assistant admin dashboard. This dashboard displays the Visitor Analytics, Website Visit and Impressions, total Bookings, Pending bookings, and the calendar.

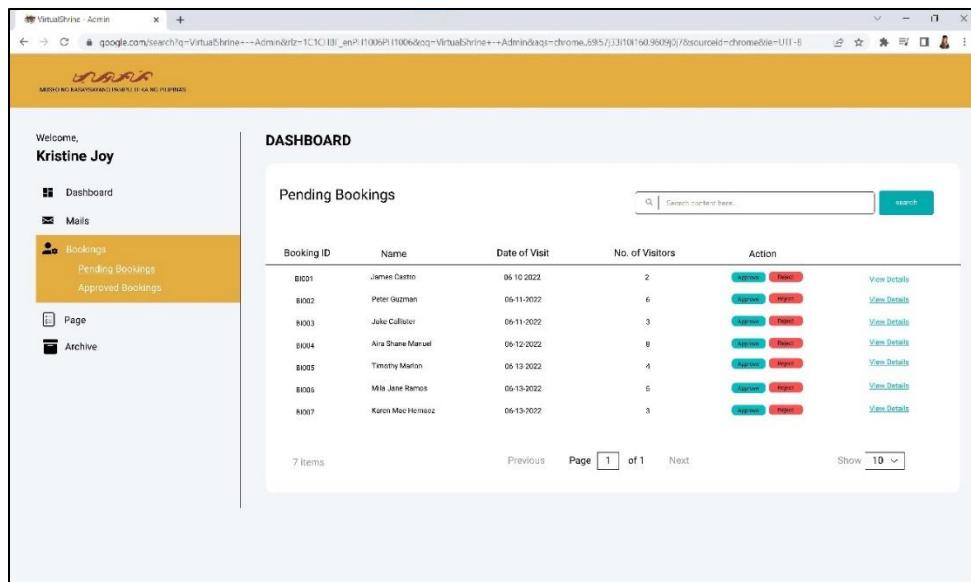


Figure 52. Assistant Admin – Pending Bookings

Figure 52 displays the Pending Bookings page where all the pending visitor bookings are displayed. This page allows the assistant admin to check and validate the submitted bookings, the assistant admin can approve or reject the bookings.

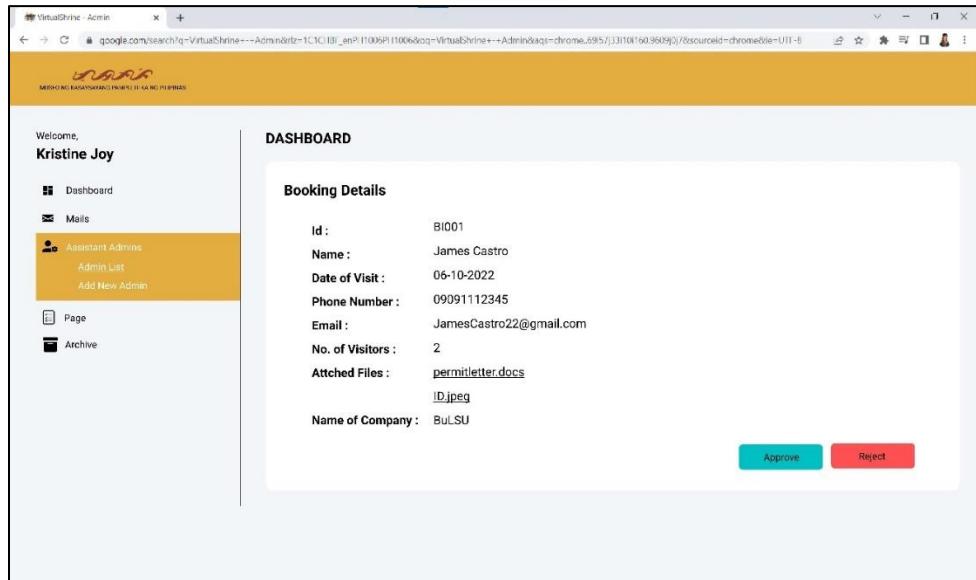


Figure 53. Assistant Admin – Booking Details

Figure 53 displays the booking details page; this page allows the assistant admin to view the full booking information of the visitor. The approve or reject button is also provided on this page.

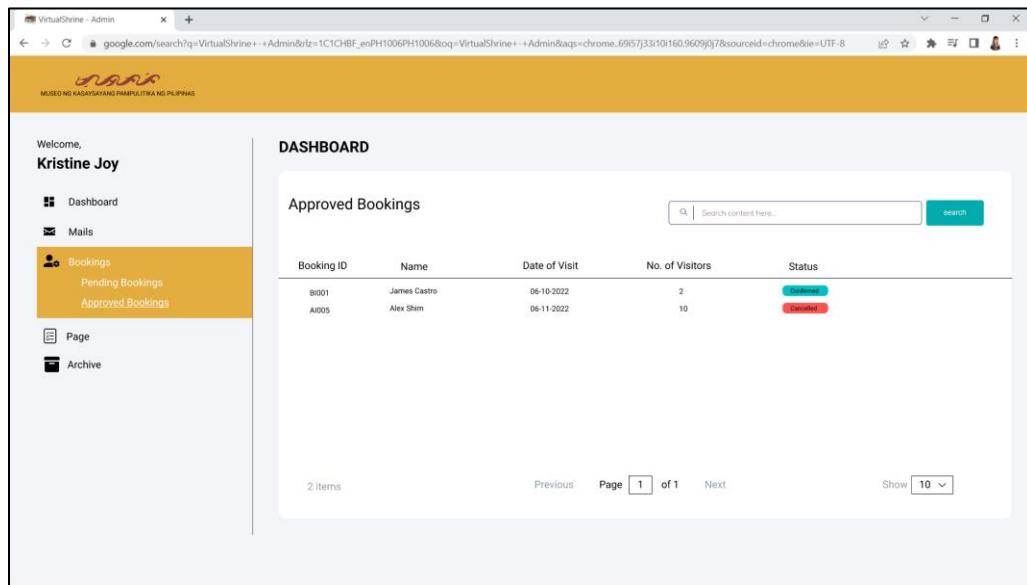


Figure 54. Assistant Admin – Approved Bookings

Figure 54 displays the Approved Bookings page. This page displays all the bookings that has been approved by the assistant admin. This page also display the status of the booking visit, whether if the booking is either confirmed or cancelled by the visitor.

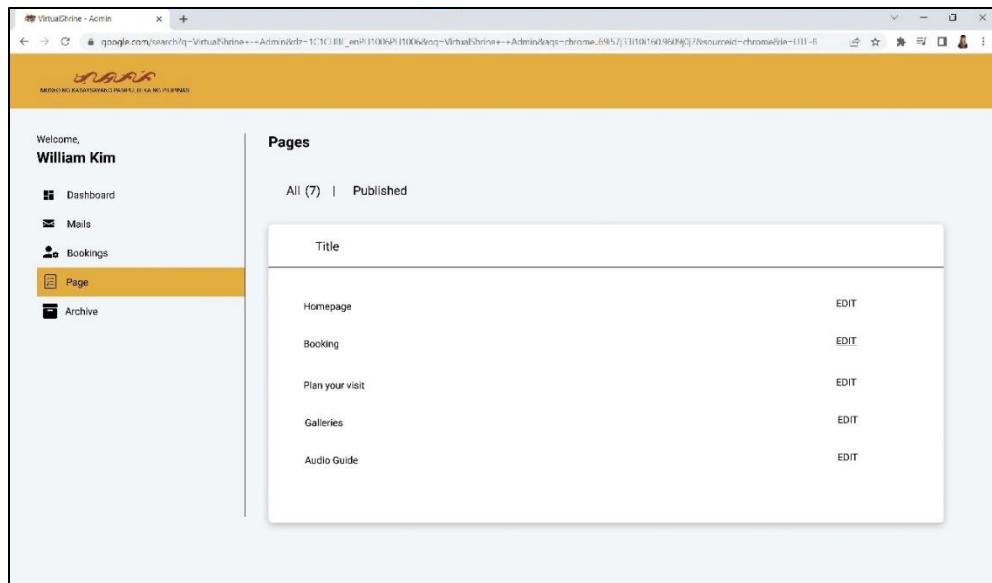


Figure 55. Assistant Admin – Content Management

Figure 55 displays the Content Management page. This is where the assistant admin be able to manipulat and update the web pages.

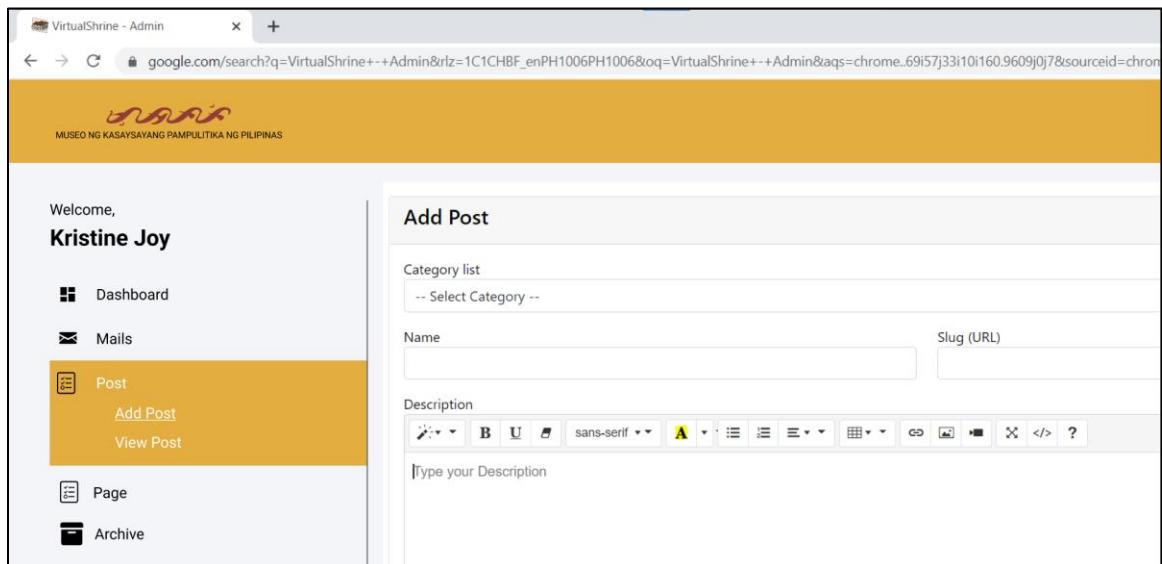


Figure 56. Assistant Admin – Add Post

Figure 56 displays the add post dashboard in Assistant Admin panel. This dashboard menu allows the admins to post a content on the website.

ID	Name	Category	Image	Status	Action
1	Homepage Updated	Homepage		Active	<button>Edit</button> <button>Archive</button>
2	Gallery	Sample Category		Active	<button>Edit</button> <button>Archive</button>
3	Rules and Regulation	Visit		Active	<button>Edit</button> <button>Archive</button>

3 items Previous Page 1 of 1 Next Show 10

Figure 57. Assistant Admin – View Post

Figure 57 displays the view post dashboard in Assistant Admin panel. This dashboard menu allows the admins to view the contents uploaded on the website. This dashboard also allows admin to make actions towards the post such as editing or archiving a post.

Figure 58. Assistant Admin – Edit Post

Figure 58 displays the edit post dashboard in Assistant Admin panel. This feature allows the admins to edit a post.

CHAPTER IV

RESULTS AND DISCUSSION

The main purpose of this chapter is to provide the presentation, analysis and interpretation of data that has been categorized in accordance with the sequence of questions enumerated in the first chapter. All of the data collected from the evaluators were presented in tabular form with corresponding discussion and explanation of the findings obtained.

Part I. Development of VirtualShrine: An interactive museum website for Casa Real Shrine

Over time, museums continue to be forgotten by people, so some of them do not know about the importance of history. One of them is the Casa Real Shrine of Malolos. Because of the continuous advancement of modern technology, some of what can be seen in the museum can also be seen on the internet, the proponents have looked for a way so they introduced the “Virtual Shrine” a website that people can use to see what’s inside of the Casa Real Shrine and can book for their visit via online booking.

1.1 Online Booking Reservation

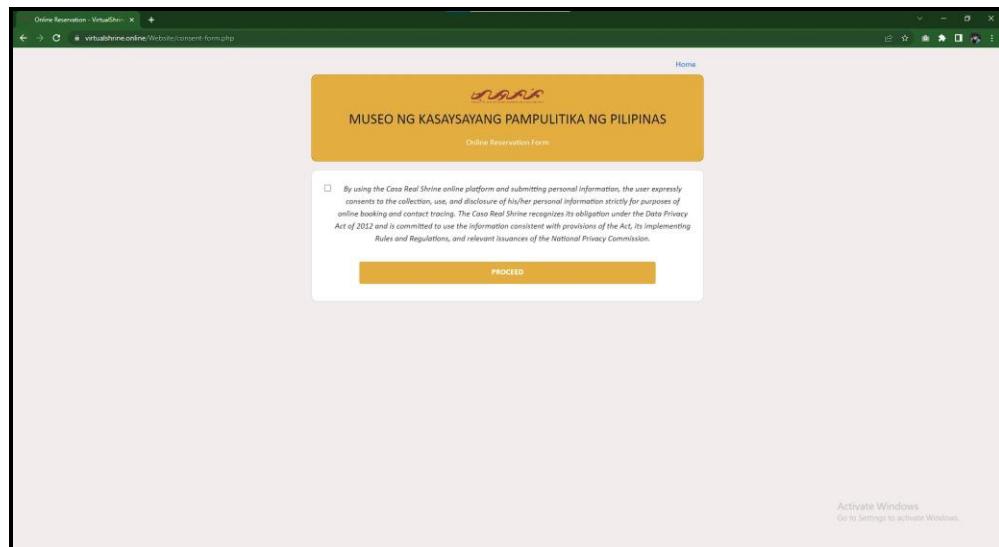


Figure 59. Booking Consent Form

Figure 59 displays the Booking Consent Form page. This page contains a statement regarding the collection of the visitor's booking information. This page is required because the visitor will have to provide their personal information. By checking the consent for checkbox, the visitor consents the collection of their information.

The screenshot shows the 'Online Reservation Form' for the Museo ng Kasaysayan ng Pilipinas. The form is divided into sections: 'Date of Visit*', 'Session*', 'No. of Visitor*', 'Name of Representative' (with fields for First Name, Last Name, Email, and Mobile Number), and 'Attach ID*' (with a file upload input). A yellow 'Confirm' button is located at the bottom right of the form area.

Figure 60. Booking Form

This figure 60 displays the Booking form where the visitor could fill out all of the required fields such as Date of Visit, Session, Number of Visitors, First Name, Last Name, Email, Mobile Number, and attach a screenshot of their valid ID to confirm the user's booking for the date.

The screenshot shows the 'Booking Submitted Confirmation Page' for the Museo ng Kasaysayan ng Pilipinas. The page contains a message: 'Thank you! Your reservation is now being processed. Please expect a confirmation receipt which will be sent to your email. Kindly also check your spam folder. If in case you did not receive a confirmation, please contact (044) 931-2508 or email mpgh@nhcp.gov.ph'. The message is centered on the page.

Figure 61. Booking Submitted Confirmation Page

Figure 61 displays the confirmation page that the visitor's booking is submitted successfully and reviewed by the administrator if all the details that the visitor provided are valid.

1.2 Virtual Museum Tour

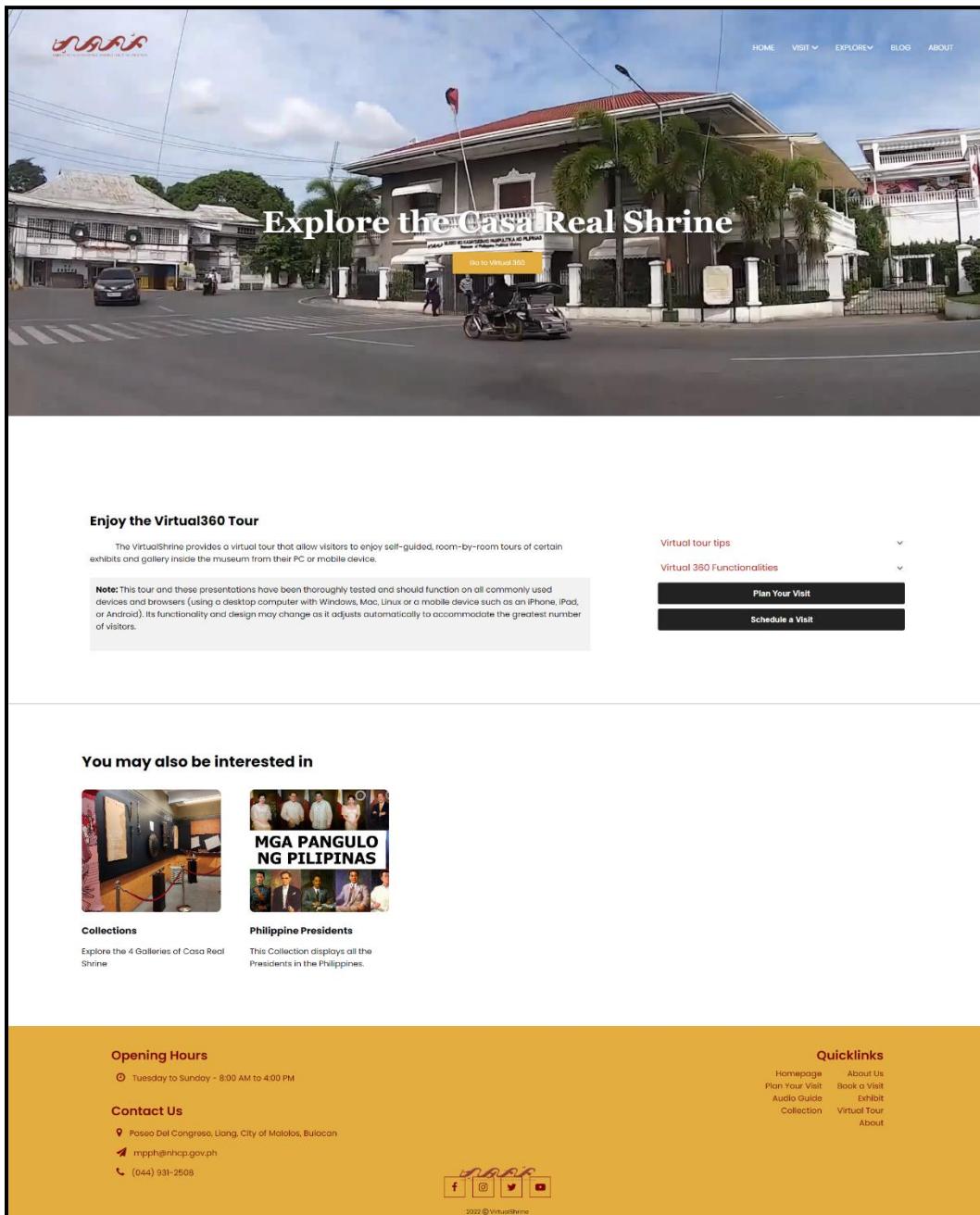


Figure 62: Access to the Virtual Tour Page

One of the main features of the website is the Virtual 360, visitors can interact in the museum virtually meaning if they want to visit the museum, they can check it first on the website using this 360 features. Figure 62 displays the page before accessing the main features of the website which are indicated in the next figures.



Figure 63. Casa Real Shrine Virtual 360

Figure 63 displays the landing page when the user opens the virtual tour. This page reflects the main gate of the Casa Real Shrine, the yellow Door icon is the hotspot for the user to access figure 63 or the lobby of the museum. At the bottom part of, the screen displays the controller for the virtual tour. This helps the user to familiarize themselves with the virtual 360 and navigate it easily. This controller includes Zoom In, Zoom Out, Auto Rotate, Show User Date, Thumbnail Menu, enter to full screen, and exit to virtual tour.

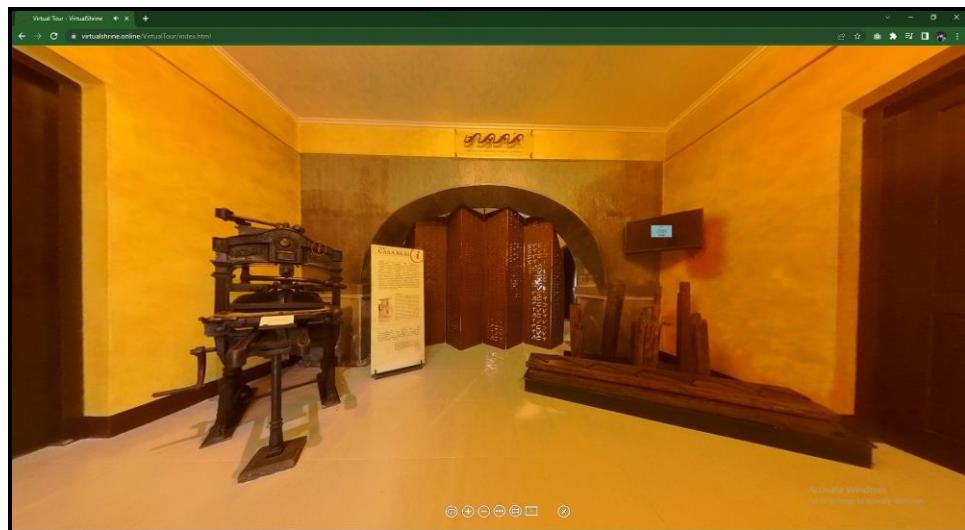


Figure 64. Casa Real Shrine Lobby Virtual 360

Figure 64 displays the first room of the museum after entering the building. The Visitor can swipe from left and right to view the surroundings of the room and to interact with other hotspots they can use for other information of the museum. The hotspot where the visitor can use to interact with the display in the museum. If the visitor presses the hotspot, the system will display a pop-up with the definition of the display.

1.3 Gallery Collections



Explore the 5 Galleries at the Casa Real Shrine

The VirtualShrine collection tells our nation's shared political history.

The scope of objects in VirtualShrine's collection is staggering – relics from the First Philippine Republic, memorabilia of Gen. Emilio Aguinaldo, relics from the wealthy families of Malolos, exhibits, a printing press of the Malolos Republic, and a display of the 21 Women of Malolos memorabilia.

Sorry, we are close!

Address: RRV6+PJC, Paseo del Congreso, Plaza Rizal, Malolos,

3000 Bulacan

Hours: 8:00 AM – 4:00 PM

Closed: Monday

[Plan Your Visit](#)

[Schedule a Visit](#)

Start Exploring the Collections

Witness the Political History of the Philippines through the VirtualShrine's Collection of relics, photographs and artifacts. The Galleries tells the long history of the Philippines from pre-colonial times upto the events under the rule of colonizers and the tenure of the past presidents of the Philippines.



Opening Hours

Tuesday to Sunday - 8:00 AM to 4:00 PM

Contact Us

Paseo Del Congreso, Liang, City of Malolos, Bulacan

mpph@nhcp.gov.ph

(044) 931-2508



Quicklinks

[Homepage](#) [About Us](#)

[Plan Your Visit](#) [Book a Visit](#)

[Audio Guide](#) [Exhibit](#)

[Collection](#) [Virtual Tour](#)

[About](#)

Figure 65. Galleries

Figure 65 displays the 4 galleries in the museum. Every cards lead to different rooms in the museum like Kaginhawaan(Prosperity), Paniniil(Oppression), Pagbabagong-puri(Revolution), Pagbuo ng bayan(Making the nation).

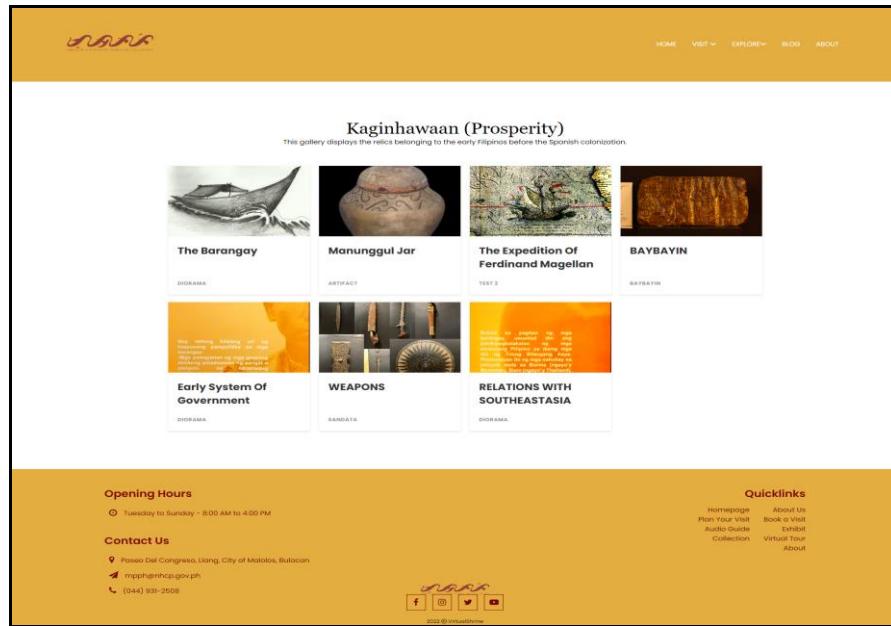


Figure 66. Galleries Collections

Figure 66 displays the gallery Collections and the different displays found inside the gallery.



Figure 67. Display Description

Figure 67 display information about the display. Visitors can also download and print the artifact picture and description but with website mark to avoid plagiarism and copyrights.

1.4 User Assisting Features



General Admission

The Admission is Free

You are advised to book a scheduled slot in advance to guarantee entry and help control the number of individuals who can visit. Walk-in visits are available each day for those who arrive at the Museum without booking in advance. But walk-in entry cannot be guaranteed because catering number of visitors depends on the capacity. Please speak to a staff upon your arrival to inquire about availability.

Upon entry to the museum, make sure to prepare a copy or a screenshot of the booking confirmation sent to your email, and a valid ID to show the guard in order to confirm your scheduled visit.

Museum Operation Details

The museum is open every **Tuesday - Sunday** from **8:00 am to 4:00 pm**. Make sure to follow the rules and regulation being implemented inside the museum.

Booking Online

Booking an admission online is advised. Just show the confirmation email of your booking at the entrance.

Visitor Guidelines

We look forward to welcoming you to Casa Real Shrine! Please review our visitor guidelines outlined below prior to your visit. By visiting in person, you agree to abide by these policies, and Casa Real Shrine reserves the right to ask visitors who do not follow these guidelines to leave the Museum's premises.

Health And Safety

The safety of our staffs and visitors are at the top of our priority. The Museum has updated its visitor guidelines and regulations to keep help you safe. Please be assured that the Casa Real Shrine is following guidelines issued by Department of Tourism (DOT) for increased health and safety procedures.

Staff at Your Service

The Casa Real Shrine's expert team of dedicated staff is here to help if you have any questions or concerns during your visit. So they can provide you with great service, remember that:

- Masks are recommended
- If you can't come to the shrine in person, please see below for more information on the wide range of virtual resources that you can enjoy from home. We will be here to welcome you when you are able to return.
- An inherent risk of exposure to COVID-19 exists in any public space where people are present. We cannot guarantee that you will not be exposed to COVID-19 during your visit to The Casa Real Shrine. Those visiting The Casa Real Shrine do so at their own risk of such exposure.

Please follow the instructions of security officers.

The Casa Real Shrine reserve the right to refuse or revoke the admission of any visitor whose conduct violates these guidelines.

Getting to the Casa Real Shrine

Entering the Building

While in the Museum

Gallery Photography and Video Policy

VirtualShrine Website

Can't visit The Casa Real Shrine in person? Be sure to explore our website for groundbreaking resources that connect you with current exhibitions, VirtualShrine collection, and more. Resources include:

- VirtualShrine Collection
- VirtualShrine 360

Location and Hours



Sorry, we are close!

Address: RRP6+PJC, Paseo del Congreso, Plaza Rizal, Malolos, 3000 Bulacan

Hours: 8:00 AM - 4:00 PM

Closed: Monday

Opening Hours

⌚ Tuesday to Sunday - 8:00 AM to 4:00 PM

Contact Us

📍 Paseo Del Congreso, Liang, City of Malolos, Bulacan
📧 mpfph@nhcp.gov.ph
📞 (044) 931-2508

Quicklinks

Homepage | About Us | Plan Your Visit | Book a Visit | Audio Guide | Collection | Exhibit | Virtual Tour | About

#VirtualShrine

Figure 68. Plan Your Visit Page

Figure 68 displays the general information regarding the operation of Casa Real Shrine such as the operation time and day, and Health and Safety Guidelines that is being implemented in the museum.

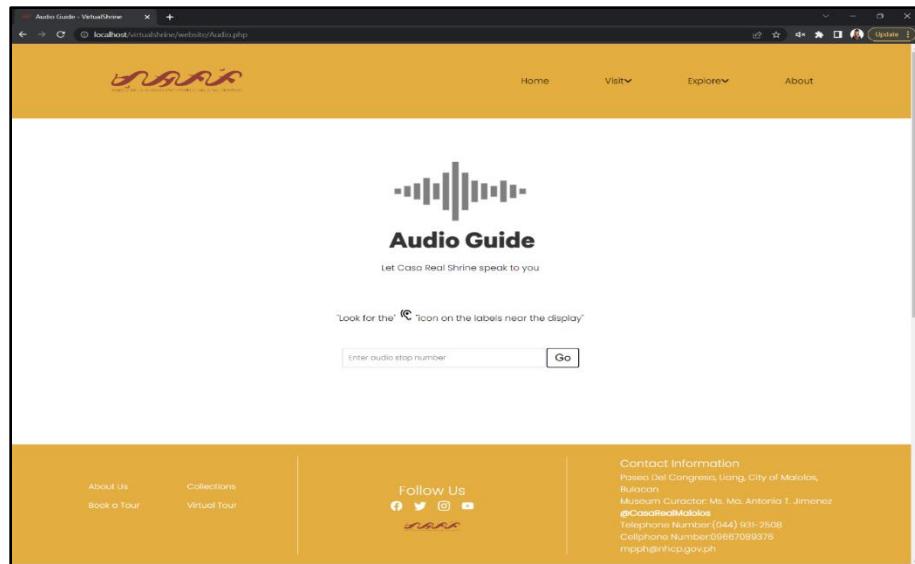


Figure 69. Audio Guide

Figure 69 displays the audio guide page. To access the audio guides for each display, the user will have to input the audio stop number on the textbox provided .

Part II. To design and develop a Management System

In order to better manage the website content and allow admins to upload and modify the contents seen on the website, a Management System was developed.

2.1 Manage User Admins

ID	Name	username	status	Action
CRSA_17387_26	Marthin Cruz	marthin_c	Active	Edit Archive
CRSA_28426_28	Joshua Hong	joshua	Active	Edit Archive
CRSA_79761_27	Samantha Reyes	sammy_r	Active	Edit Archive

Figure 70. User Management

Figure 70 shows the user management panel. This is where the super admin can able to view all the assistant admins. This page displays a table containing the user information ID, Name, Username, and their Status. The action buttons, edit and archive is also available.

Dashboard / Edit User Information

Edit Information

First Name: Martin

Last Name: Cruz

Username: martin_c

Email: martin_cruz@gmail.com

Password: Pass123-

Check Password:

Status - Check the box to set status as active

Update

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Figure 71. Edit User Information

Figure 71 displays the Edit User Information form. This is the form where the Super Admin can make modifications or changes to the user information. The admin can make any alterations they wish to the user information by simply changing the value in the text area.

Dashboard / Add Assistant Admin

Add Assistant Admin

First Name _____ Last Name _____

Username _____ Email _____

Role as:

Password _____ Check Password _____

Status - Check the box to set status as active

Add User

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Figure 72. Add New User

Figure 72 displays the Add User Information form. This is the form where the Super Admin can add the information of the new admin.

2.2 Accept and Reject Visitor Booking

The screenshot shows a web application interface for managing bookings. On the left, there's a sidebar with navigation links: Dashboard, Users, Bookings (with sub-options: Pending, Approved, Rejected, Cancelled), INTERFACES (CMS, Categories, Report, Archive). The main content area is titled "Pending Booking" and shows a table titled "List of Pending Bookings". The table has columns: ID, Name, Date of Visit, No. of Visitors, Status, Action, and View Details. The data in the table is as follows:

ID	Name	Date of Visit	No. of Visitors	Status	Action	View Details
2022CRSB_8191_36	Lance Francis Nacional	15 December 2022	10	Pending	<button>Approve</button> <button>Reject</button>	View Details
2022CRSB_81943_33	Margy Santos	16 December 2022	10	Pending	<button>Approve</button> <button>Reject</button>	View Details
2022CRSB_82078_30	Lance Francis Nacional	24 December 2022	10	Pending	<button>Approve</button> <button>Reject</button>	View Details
2022CRSB_86661_37	Jhel Ansel Tapang	15 December 2022	5	Pending	<button>Approve</button> <button>Reject</button>	View Details
2022CRSB_91847_35	Lance Francis Nacional	16 December 2022	10	Pending	<button>Approve</button> <button>Reject</button>	View Details
2022CRSB_92545_32	vianica velasquez	14 December 2022	2	Pending	<button>Approve</button> <button>Reject</button>	View Details

At the bottom, it says "Showing 1 to 6 of 6 entries" and has "Previous" and "Next" buttons. The footer includes copyright information: "© Copyright VirtualShrine. All Rights Reserved" and "Designed by BootstrapMade".

Figure 73. View all Pending Booking

In Figure 73, a table displays the pending bookings, including the Booking ID, Name of Visitor, Date of Visit, Number of Visitors, and status of the booking. For additional information, the admin can click “View Details”.

The screenshot shows a detailed view of a booking. The sidebar is the same as in Figure 73. The main content area is titled "Booking Details" and shows the following information for a booking with ID 2022CRSB_8191_36:

- Booking ID: 2022CRSB_8191_36
- Name: Lance Francis Nacional
- Phone No.: 09169172067
- Email: nacionallancefrancis0@gmail.com
- Attached File: [Show Image](#)
- Date of Visit: 15 December 2022
- No. of Visitors: 10

At the bottom, there are "Approve" and "Reject" buttons. The footer is identical to Figure 73.

Figure 74. View More booking details

Figure 74 displays the page where the complete booking information is displayed. This page displays the Booking ID, Name, Phone No., Email, Attached File, Date of Visit, and Number of Visitors. The admin can also perform an action on this page either to approve or reject the booking.

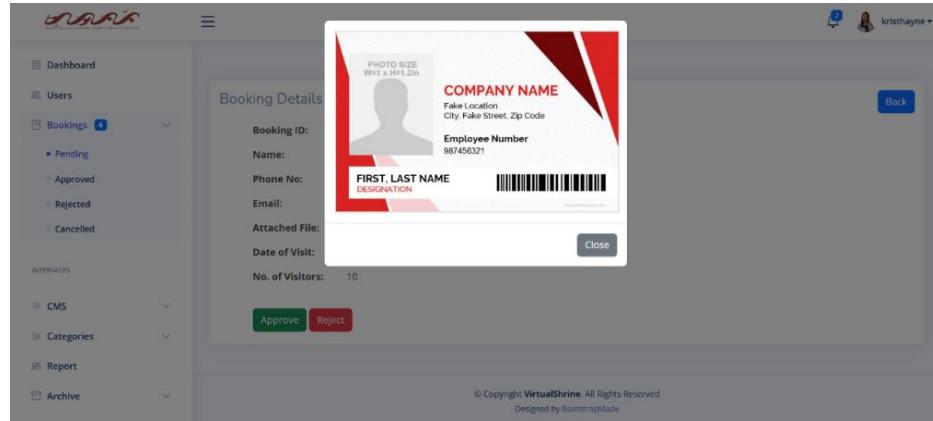


Figure 75. View More booking details

Once the admin clicks the "show image" button, Figure 75 displays the page response. This feature is used to allow admins to verify the legitimacy of the attached ID.

2.3 Upload Website Content

This module is the CMS of the Management System. This allows admins to upload and modify website contents.

2.3.1 Collections

Collection						
Dashboard / Gallery Contents						
Show 10 entries		Name	Category	Image	Status	Action
CRSCOL_1033_58	Mga Patakarang Pang-ekonomiya Ng Pamahalaang Kolonyal	Paninil (Oppression)		Active		
CRSCOL_12869_59	Mga Unang Ideya Ng Pagkabansa	Paninil (Oppression)		Active		
CRSCOL_17321_60	Mga Pagsalisa Laban Sa Pamamalakad Ng Mga Espanyol	Paninill (Oppression)		Active		
CRSCOL_22328_55	Bangong Manunggul	Kaginhawaan (Prosperity)		Active		
CRSCOL_23498_73	Bajo La Campana	Paninill (Oppression)		Active		
CRSCOL_34069_72	Ang Bagong Pueblo	Paninill (Oppression)		Active		
CRSCOL_27976_62	FIDEL V. RAMOS - Twelfth President	Paglububuo ng Bayan/Making the Nation		Active		
CRSCOL_32335_68	Mga Sinaunang Sistema Ng Pamahalaan	Kaginhawaan (Prosperity)		Active		
CRSCOL_42775_70	Ugnayan Sa Timog Srilang Asya	Kaginhawaan (Prosperity)		Active		
CRSCOL_47206_75	Pamahalaang Espanyol Sa Pilipinas	Paninil (Oppression)		Active		

Figure 76. Content Management System - Collections

In Figure 76, the Collection CMS is shown. It includes a table that provides information about the collection, such as its ID, title, the gallery it belongs to, a preview image, and its status. There are also action buttons for editing and archiving.

The screenshot shows the 'Edit Content' page of a CMS. The left sidebar includes links for Dashboard, Users, Bookings, INTERFACES (CMS, Collection, Exhibit Display, Blog), Categories, Report, and Archive. The main content area has a header 'Edit Content' with a 'Back' button. The form fields for the collection 'Kaginhawaan (Prosperity)' are as follows:

- Gallery list:** Kaginhawaan (Prosperity)
- Slug (URL):** Mga-Sinaunang-Sistema-ng-Pamahalaan
- Year:** 14th to the 16th centuries
- Type of Object:** diorama
- Meta Title:** Mga Sinaunang Sistema ng Pamahalaan
- Meta Description:** Mga Sinaunang Sistema ng Pamahalaan
- Meta Keyword:** Mga Sinaunang Sistema ng Pamahalaan
- Image:** Choose File (No file chosen)
- Status:** Check the box to set status as active (checkbox checked)

Below this section, there are two more sections for English and Filipino descriptions.

English Description:

Please provide the following information in English:

- Name (English):** Early System Of Government
- Audio File (English):** Choose File (No file chosen)
- Description (English):**

There were three known forms of political systems in the barangay

- Communities of ethnic groups led by a pangat lo, found mostly in the upland.
- Confederation of barangays headed by datu or rajas generally found on the plains and in coastal areas.
- Sultanates ruled by sultans, such as those in Sulu and Magindanao.

Filipino Description:

Please provide the following information in Filipino:

- Name (Filipino):** Mga Sinaunang Sistema Ng Pamahalaan
- Audio File (Filipino):** Choose File (No file chosen)
- Description (Filipino):**

May tatlóng kilalang uri kaayusang pamaplitika sa mga barangay.

- Mga pamayanang mga grupong etnikong pinamunuan ng pangat o pangulo, na karaniwang matatagpuan sa kabundukan.
- Bikid ng mga barangay na pinamunuan ng mga datu o raha, na kadalasang natagpuan sa kapatagan at mga baybayin.
- Mga sultanatong pinamunuan ng mga sultan, tulad ng sa Sulu at Magindanao.

Buttons: Update, Save, Cancel

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Figure 77. Content Management System – Edit Collection Information

As seen in Figure 77, the Edit Collection form gives admins the ability to edit the collection's information.

The screenshot shows a Content Management System (CMS) interface for adding a new collection. The left sidebar contains navigation links for Dashboard, Users, Bookings, CMS (Collection, Exhibit Display, Blog), Categories, Report, and Archive. The main content area is titled "Add Content". The form fields include:

- Gallery list: Select Gallery
- Slug (URL)*
- Year*
- Type of Object*
- Meta Title*
- Meta Description*
- Meta Keyword*
- Image*: Choose File (No file chosen)
- Status - Check the box to set status as active (unchecked)

Below these fields, there are two sections for providing information in English and Filipino, each with Name, Audio File, and Description fields, along with a rich text editor.

English Section:

- Name (English)*
- Audio File (English)*
- Description (English)*

Filipino Section:

- Name (Filipino)*
- Audio File (Filipino)*
- Description (Filipino)*

At the bottom right of the form is a blue "Post" button.

Figure 78. Content Management System – Add new Collection

In Figure 78, the Add new Collection form is shown. This is where the admin can add new collection that can displayed on its respective gallery category on the website.

2.3.2 Exhibits

ID	Name	Category	Image	Status	Action
CRSEXDIS_23233_8	Emilio F. Aguinaldo	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	Edit Archive
CRSEXDIS_33004_4	Manuel L. Quezon	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	Edit Archive
CRSEXDIS_45688_2	Manuel L. Quezon (second Term)	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	Edit Archive
CRSEXDIS_4885_1	Jose P. Laurel	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	Edit Archive
CRSEXDIS_60605_7	Manuel A. Roxas	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	Edit Archive
CRSEXDIS_81720_5	Cory Aquino	Cory Aquino		Active	Edit Archive
CRSEXDIS_83084_6	Sergio Osmeña	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	Edit Archive

Showing 1 to 7 of 7 entries

Previous 1 Next

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Figure 79. Content Management System – Exhibit Display

In Figure 79, the Exhibit Display CMS is shown. It includes a table that provides information about the Exhibit Display, such as its ID, Title or Name, the Exhibit it belongs to, a preview image, and its status. There are also action buttons for editing and archiving.

Exhibit List
-- Select Exhibit --

Name* Slug (URL)*

Description*
(Rich Text Editor)
Type your Description

Year* Type of Object*

Meta Title*

Meta Description* Meta Keyword*

Image*
Choose Files No file chosen

Status - Check the box to set status as active

Post

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Figure 80. Content Management System – Add new Exhibit Display

In Figure 80, the Add new Exhibit Display form is shown. This is where the admin can add new Exhibit Display.

The screenshot shows the 'Edit Exhibit Display' form. The left sidebar has a 'CMS' section with 'Collection', 'Exhibit Display', and 'Blog' options. The main form has fields for Name (Emilio F. Aguinaldo), Slug (URL) (emilio-f.aguinaldo), Description (a rich text editor containing a quote about no longer being revolutionaries), Year (23 January 1899), Type of Object (Photo), Meta Title (Emilio F. Aguinaldo), Meta Description (Emilio F. Aguinaldo), Meta Keyword (Emilio F. Aguinaldo), and Image (choose file). A status checkbox is checked. The bottom right says 'Status - Check the box to set status as active'.

Figure 81. Content Management System – Edit Exhibit Display

As seen in Figure 81, the Edit Exhibit display form gives admins the ability to edit the Exhibit display information.

2.3.3 Blogs

The screenshot shows the 'Blog' CMS page. The left sidebar has a 'CMS' section with 'Collection', 'Exhibit Display', and 'Blog' options. The main area shows a table of blogs:

ID	Name	Image	Status	Action
CRSBLOG_11046_4	PLAZA MIRANDA: Its Legacy In Philippine Political History		Active	
CRSBLOG_44663_1	To The Young Women Of Malolos		Active	
CRSBLOG_76828_2	Casa Real Shrine Bulacan		Hidden	

Showing 1 to 3 of 3 entries

Figure 82. Content Management System - Blog

In Figure 82, the Blog CMS is shown. It includes a table that provides information about the Blog, such as its ID, Name, a preview image, and its status. There are also action buttons for editing and archiving.

Create a New Blog Post

Blog Title

Slug (URL)

Author

Description

Type your Description

Meta Title

Meta Description

Meta Keyword

Image Choose File No file chosen

Status - Check the box to set status as active

Post

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Figure 83. Content Management System – Create a Blog Post

In Figure 83, the Create a Blog form is shown. This is where the admin can add and upload new Blog posts.

Edit Blog

Name PLAZA MIRANDA: It's Legacy in Philippine Political History

Slug (URL) plaza-miranda

Author Kristine Joy Nacion

Description

At the heart of Quiapo is a public square known as Plaza Miranda named after Jose Sandino Miranda, who was Secretary of the Treasury between 1833 and 1854 during the Spanish colonial era. Inaugurated in its current form by Mayor Arsenio Lacson in 1961, it is the plaza which fronts the Minor Basilica of the Black Nazarene (Quiapo Church), one of the main churches of the City of Manila.

In the era of grand demonstrations and mass mobilizations, Plaza Miranda was described as "the crossroads of the nation, the forum of the land." President Ramon Magsaysay, arguably the most popular of our postwar chief executives, famously recognized the square as a gauge of public opinion

Meta Title PLAZA MIRANDA: It's legacy in Philippine Political History

Meta Description The history of Plaza Miranda

Meta Keyword plaza miranda

Image Choose File No file chosen

Status - Check the box to set status as active

Update

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Figure 84. Content Management System – Edit Blog

As seen in Figure 84, the Edit Blog form gives admins the ability to edit the Blog information.

2.4 Generate and Print Admin Activity Record

The screenshot shows a web-based administration interface for a museum. On the left, there's a sidebar with navigation links: Dashboard, Users, Bookings, INTERFACES (CMS, Categories, Report, Archive), and a language switcher. The main content area is titled "User Report" and "Activity Report". It displays a table of activity logs with columns for ID, Name, Action Made, and Date Created. The table contains 28 entries from November 14 to November 18, 2022. At the bottom, there are pagination controls and a copyright notice: "© Copyright VirtualShrine. All Rights Reserved" and "Designed by BootstrapMade".

ID	Name	Action Made	Date Created
269	kristhayne	Added a New Admin	November 14 2022
270	kristhayne	Archived a Admin Data	November 14 2022
271	kristhayne	Archived a Admin Data	November 14 2022
272	kristhayne	Archived a Admin Data	November 14 2022
273	kristhayne	Archived a Admin Data	November 15 2022
274	kristhayne	Archived a Admin Data	November 15 2022
275	kristhayne	Added a New Admin	November 15 2022
276	Nathan_C	Updated a Gallery Content	November 15 2022
277	kristhayne	Updated a Gallery Content	November 18 2022
278	kristhayne	Updated a Gallery Content	November 18 2022

Figure 85. Activity Report

Figure 85 shows every activity like editing some of the website content or updating profile of the admin. It also includes the date when the data is change.

This screenshot shows the "Admin Activity" report from Figure 85 being printed. The report is displayed in a browser window, and a print dialog box is overlaid. The dialog box shows settings for printing 5 sheets of paper, destination as Microsoft Print to PDF, all pages, portrait orientation, and color. The print button is highlighted in blue. The report table lists numerous activities from December 9, 2022, such as "Uploaded a Gallery Content" and "Added an Exhibit Display Content".

Figure 86. Printing Report

Figure 86 shows the printing report. This will help the admin to have a hard copy of the data when it needs to be submitted on the museum for the documentation.

2.5 Booking Confirmation through email after reservation

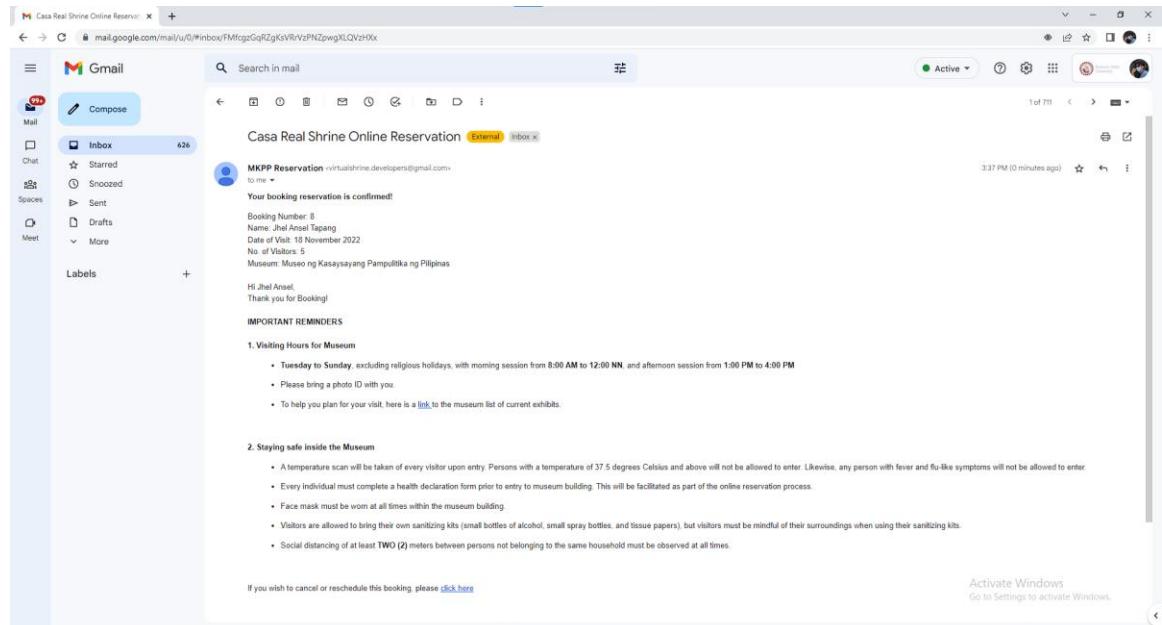


Figure 87. Email from the Administration

Figure 87 displays the confirmation of booking reservation. This confirmation email will automatically be sent to the email provided by the visitor during the booking process if the administrator approves their booking. The email includes the booking information, reminders, and the link for cancellation and rescheduling of booking.

Part III. Software Quality Evaluation of the VirtualShrine: An Interactive Museum Website for Casa Real Shrine

It is comprised of several tables that illustrate how well the VirtualShrine: An Interactive Museum Website performs. Table 3 shows the *Functional Suitability* criterion; Table 4 shows the *Performance Efficiency* criterion; Table 5 shows the *Usability* criterion; Table 6 shows the *Reliability* criterion; and Table 7 shows the *Portability* criterion. In addition, a table that presents the total number of respondents and a five-score Likert scale are also included. The developed application was assessed in terms of functional suitability, performance efficiency, usability, reliability, and portability using the ISO/IEC 25010:2011 or the Square - System and Software Quality Models.

Table 6

Total Number of Respondents		
Evaluators	Frequency	Percentage (%)
IT Professionals	5	11%
CICT Faculty	5	11%
Casa Real Shrine Museum Staff	3	7%
Student	12	27%
Local Tourist	10	22%
Foreign Tourist	10	22%
TOTAL	45	100%

The respondents of this study are five (5) IT Professionals that have proven extensive knowledge or working in the field of Information Technology, five (5) Faculty Members from the College of Information and Communications Technology, five (5) Local Tourist, five (5) Foreign Tourist and five (5) Casa Real Shrine Museum Staff.

Table 7

5-Score Likert Scale		
Scale	Range	Descriptive Interpretation
5	4.60-5.00	Strongly Agree
4	3.60-4.59	Agree
3	2.60-3.59	Moderately Agree
2	1.60-2.59	Disagree
1	0-1.59	Strongly Disagree

The evaluation procedure used a five-score scale which is 1 for Strongly Disagree, 2 for Disagree, 3 for Moderately Agree, 4 for Agree, and 5 for Strongly Agree. The five-score rating with its frequencies was collected from 45 respondents and the computed mean.

Table 8

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Functional Suitability								
No.	Characteristics	5	4	3	2	1	Mean	Descriptive Interpretation
1	Functional Completeness. The system functions according to its intended purpose.	32	10	3	0	0	4.64	Strongly Agree
2	Functional Correctness. The system gives the exact output on each input per module.	30	13	2	0	0	4.62	Strongly Agree
3	Functional Appropriateness. The system functions like any standard system entirely.	32	10	3	0	0	4.64	Strongly Agree
		Weighted Mean				4.64	Strongly Agree	

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59 Disagree, 0 - 1.59 Strongly Disagree

Table 8. Show Under the functional suitability sub characteristics, the functional completeness has a total mean of 4.64, interpreted as Strongly Agree, proved the developed website is capable to attain specified user objectives. Functional correctness has a total mean of 4.62, interpreted as Strongly Agree and still has a high acceptance rating from the respondents. And lastly, functional appropriateness has a total mean of 4.64, interpreted as Strongly Agree proved the developed website has an efficient and effective way of accomplishing all the specified tasks. Based on all the computed mean 4.64 is the final interpretation of the respondents it means that they are strongly agree that the website is with the functionality of the developed web portal.

Table 9

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Performance Efficiency								
No.	Characteristics	5	4	3	2	1	Mean	Descriptive Interpretation
1	Time-Behavior. The system's response and processing times, as well as its throughput rates, carry out its intended tasks and adhere to the specifications.	34	7	3	1	0	4.64	Strongly Agree
2	Resource Utilization. The amount and kind of resources used by the system meet the criteria.	31	11	3	0	0	4.62	Strongly Agree
3	Capacity. The system manages time efficiently and effectively.	32	11	2	0	0	4.67	Strongly Agree
4	System accuracy. The system accurately presents the output at the maximum level.	33	9	3	0	0	4.67	Strongly Agree
		Weighted Mean				4.65	Strongly Agree	

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59 Disagree, 0 - 1.59 Strongly Disagree

Table 9. Based on the information provided, it appears that the VirtualShrine website has performed well in terms of its time behavior, resource utilization, capacity, and system accuracy. The respondents strongly agreed with the performance efficiency of the website, as indicated by the weighted mean of 4.65. This suggests that the website was able to meet the expected results in a short amount of time and uses a small proportion of resources when in use. Overall, it seems that the VirtualShrine website is efficient in its performance.

Table 10

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Compatibility							
No.	Characteristics	5	4	3	2	1	Mean
1	Co-Existence. The system can efficiently perform its required functions while sharing a familiar environment and resources with other systems, with no negative influence on any other method.	34	9	1	1	0	4.69
2	Interoperability. The system can exchange information and utilize data that has been exchanged between two or more platforms.	30	12	3	0	0	4.6
3	Flexibility. The system can be accessed on both phone and computer browsers.	35	9	1	0	0	4.76
		Weighted Mean				4.69	Strongly Agree

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59 Disagree, 0 - 1.59 Strongly Disagree

Table 10. Shows the items used in determining the compatibility of the developed website. Which is categorized by Co-Existence, Interoperability and Flexibility. The Compatibility have a total means of 4.96 which interpreted as Strongly Agree. This shows that the website Virtual Shrine is having complete features when it comes to compatibility.

Table 11

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Usability								
No.	Characteristics	5	4	3	2	1	Mean	Descriptive Interpretation
1	User friendly. The design of the system is easy to understand and use.	32	10	3	0	0	4.64	Strongly Agree
2	Acceptability Recognizability. Users are able to determine whether the system is suitable for their requirements.	33	11	1	0	0	4.71	Strongly Agree
3	System Utility. The system can generate reports that can be viewed online (and can be download).	32	10	3	0	0	4.64	Strongly Agree
4	Operability. The system is simple to use, navigate.	38	7	0	0	0	4.84	Strongly Agree
		Weighted Mean				4.71	Strongly Agree	

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59 Disagree, 0 - 1.59 Strongly Disagree

Table 11. Shows the items used in determining the usability of the developed website. Which is categorized by User-Friendly, Acceptability Recognizability, System Utility and Operability. The Usability have a total means of 4.71 which interpreted as Strongly Agree. This shows that the website Virtual Shrine is having complete features when it comes to usability.

Table 12

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Reliability								
No.	Characteristics	5	4	3	2	1	Mean	Descriptive Interpretation
1	Maturity. Under normal conditions, the system meets the requirements for reliability.	33	10	2	0	0	4.69	Strongly Agree
2	Availability. The system is operational and accessible when required for use.	35	7	3	0	0	4.71	Strongly Agree
3	Fault Tolerance. Despite the presence of hardware or software faults, the system or its components function as planned.	30	14	1	0	0	4.64	Strongly Agree
4	Recoverability. In an interruption or failure, the system can immediately recover the affected data and restore the system to its desired state.	33	9	3	0	0	4.67	Strongly Agree
		Weighted Mean				4.68	Strongly Agree	

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59 Disagree, 0 - 1.59 Strongly Disagree

Table 11. Shows the items used to determining the reliability of the developed website by means of Maturity, Availability, Fault Tolerance, and Recoverability. The total mean of reliability that comes from the respondents is 4.68 which interpreted as Strongly Agree. This demonstrates that the created web portal is trustworthy when used normally and is accessible and fully functional when needed.

Table 13

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Security								
No.	Characteristics	5	4	3	2	1	Mean	Descriptive Interpretation
1	Confidentiality. The system guarantees that the data is only available to those granted access.	38	6	1	0	0	4.82	Strongly Agree
2	Accountability. The actions of an entity can be traced uniquely by the system to the entity.	37	7	1	0	0	4.8	Strongly Agree
3	Integrity. The system prevents unauthorized access to, or modification of data.	33	11	1	0	0	4.71	Strongly Agree
		Weighted Mean					4.78	Strongly Agree

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59

Disagree, 0 - 1.59 Strongly Disagree

Table 12. Shows the items used in determining the security of the developed website. Which is categorized by Confidentiality, Accountability, and Integrity. The Security have a total mean of 4.78 that comes from the respondents which interpreted as Strongly Agree. The system makes sure the data are secure, prohibits unauthorized users from accessing and changing the data, and saves auditable logs that demonstrate each activity was made.

Table 14

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Maintainability								
No.	Characteristics	5	4	3	2	1	Mean	Descriptive Interpretation
1	Modularity. Because the system is made up of distinct parts, altering one has little to no impact on the others.	39	6	0	0	0	4.87	Strongly Agree
2	Modifiability. The system allows updating different user records through level of security.	35	9	1	0	0	4.76	Strongly Agree
3	Testability. It is clear that the application is effective and efficient. For the product, test criteria can be set, and tests can be run to see if the criteria have been met.	35	9	1	0	0	4.76	Strongly Agree
4	Analyzability. The system works well and efficiently. One can evaluate the effects of a planned modification to a system or product on one or more of its components.	35	10	0	0	0	4.78	Strongly Agree
		Weighted Mean				4.79	Strongly Agree	

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59 Disagree, 0 - 1.59 Strongly Disagree

Table 13 shows the items used in determining the maintainability of the developed system, which is categorized by Modularity, Modifiability, Testability, and Analyzability. The total computed mean for the maintainability is 4.79 which interpreted as Strongly Agree. It demonstrates the system's adaptability to various hardware, software, and other operational or usage scenarios. Mobile devices like smartphones, tablets, and PCs can all access the designed system online.

Table 15

Frequency Distribution and Descriptive Measures in the Evaluation of the Developed Website in terms of Portability								
No.	Characteristics	5	4	3	2	1	Mean	Descriptive Interpretation
1	Adaptability. The system can effectively and efficiently be adapted for different evolving hardware, software, or other operational or usage environments.	38	7	0	0	0	4.84	Strongly Agree
		Weighted Mean				4.84	Strongly Agree	

4.60 - 5.00 Strongly Agree, 3.60 - 4.59 Agree, 2.60 - 3.59 Moderately Agree, 1.60 - 2.59 Disagree, 0 - 1.59 Strongly Disagree

Table 14 shows the item used in determining the portability of the developed system, which is categorized by Adaptability. Out of 45 respondents 38 is strongly agree and 7 is agree for the adaptability of the website. The portability have a total mean of 4.84 which interpreted as Strongly Agree. This means that the respondents is strongly agree with portability of the website Virtual Shrine.

Table 16

Software Criteria	Computed Mean	Descriptive Interpretation
1. Functional Suitability	4.64	Strongly Agree
2. Performance Efficiency	4.65	Strongly Agree
3. Compatibility	4.69	Strongly Agree
4. Usability	4.71	Strongly Agree
5. Reliability	4.68	Strongly Agree
6. Security	4.78	Strongly Agree
7. Maintainability	4.79	Strongly Agree
8. Portability	4.84	Strongly Agree
Overall Mean	4.72	Strongly Agree

Functional Suitability registered a computed mean of 4.64 with a descriptive interpretation as “Strongly Agree”. Performance Efficiency on the other hand acquired 4.65 which is also interpreted as “Strongly Agree”. Compatibility registered a computed mean of 4.69 with a descriptive interpretation as “Strongly Agree”. Usability registered a computed mean 4.71 with a descriptive interpretation as “Strongly Agree”. Reliability registered a computed mean 4.68 with a descriptive interpretation as “Strongly Agree”. Security registered a computed mean 4.78 with a descriptive interpretation as “Strongly Agree”. Maintainability registered a computed mean 4.79 with a descriptive interpretation as “Strongly Agree”. Portability acquired 4.84 which garnered the highest mean among the other criteria.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of findings that the researchers have analyzed, the conclusion based on the results obtained, interpreted data based on the previous chapter, and recommendations.

Summary of Findings

The world today lives in an era where Internet has become a vital part of everyone's lives. Websites have become popular to organizations because it is effective in acting as a launchpad that would help them grow and expand their audience. Museum Organizations have also started to use websites to spread information to a greater audience online. However, some museums like the Casa Real Shrine still doesn't have a website, so the proponents conceptualized a website for Casa Real Shrine. The purpose of this study is to develop an interactive museum website for Casa Real Shrine that will allow them to reach more audience and share information and knowledge regarding the Political history of the Philippines by providing interactive features like audio guide, collections, and virtual 360 tour of the museum galleries.

The researchers used the Agile development model for a more flexible workflow. This approach provides an opportunity for the researchers to make improvements and respond to changes constantly during production. The developed Website has (7) features: Homepage; Online Booking; Visitor Guide; Gallery; Audio Guide; Virtual Tour; and About Page. The Homepage will serve as the landing page whenever a visitor access the website. The Online Booking feature allows visitors to book a visit reservation online. Visitor Guide page displays information the visitor needs to know regarding the museum operations, and rules and regulations. The Gallery Page displays all the existing gallery inside the museum, and at the same time, gives visitors access to view the displays inside the gallery. The Audio Guide provides enhance visitor experience. The Virtual Tour has a 360 degree tour of the museum galleries. And lastly, the about page displays the information and the history of Casa Real Shrine.

The ISO/IEC 25010:2011 was used to evaluate the developed website in terms of functionality, performance, usability, reliability, and portability. In total, 36 individuals responded to the assessment survey, including 5 faculty members, 12 BulSu students, 5 IT professionals, 10 local visitors/tourists of Casa Real Shrine, 10 foreign visitors/tourists of Casa Real Shrine, and 4 Casa Real Shrine Museum staff. The results indicated that the developed mobile application had a weighted mean of 4.72, which was classified as "Highly Acceptable".

The primary goal of this study was to create a website that provides enhanced user experience, interactivity, and comprehensive knowledge to the online museum visitor. The following objectives were considered in the research:

1. To develop a website that can perform functionalities such as:

- 1.1 **Online Booking reservation.** The developed website provides a booking feature which allows visitors to easily plan their visit in advance. They can select the date and time of their visit, as well as enter any other relevant information

that may be needed. This feature makes it convenient for visitors to plan and book their visits without having to contact the organization directly.

1.2 Virtual Museum tour. The developed website includes a feature that allows visitors to virtually tour a museum. Through the use of 360-degree technology, viewers can look around and explore the museum as if they were there in person. This feature provides an interactive and immersive experience that allows visitors to explore the museum in full detail.

1.3 Gallery Collections. The developed website includes a Gallery Collection where it allows visitors to explore the library of images and provides definitions to help them understand the images. Additionally, the website provides the option for visitors to choose between English and Filipino as their language.

1.4 User assisting features.

1.4.1 Plan Your Visit. The developed website provides visitors with instructions and guidelines that they should follow while visiting the museum. This information helps visitors plan their museum trip and make sure they have a safe and enjoyable experience.

1.4.2 Audio Guide. The developed website provides visitors with a way to listen to audio recordings that tell stories related to the exhibits they can view while visiting a museum. This Audio Guide feature allows visitors to learn more about the exhibits they are seeing, without having to read information or talk to museum staff.

2. To design and develop a Management System that can perform functionalities such as:

2.1 Manage User Admins. The developed system gives the Head administrator the ability to keep track of and control the data related to assistant administrators. This could include creating, modifying, and deleting user accounts, tracking user activity, and managing user privileges.

2.2 Accept and Reject Visitor Booking. The developed system allows both the head administrator and assistant administrator to approve or deny any requests for bookings from visitors. This system allows for two layers of approval and allows the head administrator and assistant administrator to both have a say in the decisions that are made regarding bookings.

2.3 Upload Website Content.

- 2.3.1 **Collections.** The developed system provides the ability for two types of administrators - a "super admin" and an "assistant admin" - to add images, videos, and other forms of media to a gallery collection.
- 2.3.2 **Exhibits.** The developed website allows two different types of administrators - a super administrator and an assistant administrator - to create a new schedule for an exhibit and upload the content related to the exhibit into the website.
- 2.3.3 **Blog.** The developed website allows both the main administrator (super admin) and the secondary administrator (assistant admin) to upload and publish blog posts on the website.

2.4 Generate and Print Admin Activity Report. The system has been created to provide administrators with a way to create and print out a report that details their activities. This report can be used to track the activities of an administrator and make sure they are carrying out their duties in an efficient and effective manner.

2.5 Booking confirmation through email after reservation. The system has been developed to send an email to the user once the admin has reviewed and approved the visitor's reservation request. The email will confirm the booking and provide additional information needed.

The proponents developed VirtualShrine: An interactive museum website for casa real shrine to provide a useful and reliable website with a pleasant and appealing user interface. The website met the needs of the users in terms of enhancing user experience, interactivity, and comprehensive knowledge regarding the information associated with Casa Real Shrine Museum.

Conclusion

The research conducted in this study led to the creation of a website which fulfilled all the stated and intended features. The website proved to be advantageous to all users, who can use it to discover the history of Philippine politics. It is expected that more individuals will be interested and intrigued by the history of the Casa Real Shrine as a result of the website.

Recommendations

The following suggestion were made given the study's findings and conclusion and can be used by future information technology researchers who would conduct similar research:

1. An enhance VR control capabilities in virtual tours that could focus on improving the user experience and accessibility of VR technology. This could involve exploring new ways to interact with virtual environments, such as using voice commands or gesture recognition, as well as studying how to make VR technology more accessible to people with disabilities.
2. A Museum maps that could focus on exploring the use of augmented reality (AR) technology to enhance the visitor experience. This could involve developing AR museum maps that can be accessed through a smartphone or other device, allowing visitors to see virtual annotations and information about exhibits as they explore the museum.
3. QR codes for audio guides in museums could focus on studying the effectiveness of this technology as a tool for enhancing visitor engagement and understanding of museum exhibits. This could involve conducting user studies to evaluate the usefulness and ease of use of QR code-based audio guides, as well as examining how different design elements and features impact visitor behavior and engagement.
4. Calendar integration for museum closures could focus on studying the effectiveness of different notification systems and strategies for informing researchers and other stakeholders about unexpected closures. This could involve conducting user studies to evaluate the effectiveness of different notification methods, such as email, text message, or push notification, as well as examining the impact of different timing and frequency of notifications on researcher behavior and satisfaction.

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Appendices

Appendix A

Relevant Source Code

CLIENT SIDE - homepage.php

```
<!DOCTYPE html>
<html>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <head>
    <title>Homepage - VirtualShrine</title>
    <link rel="stylesheet" href="assets/css/homepage.css">
    <link rel="preconnect" href="https://fonts.googleapis.com">
    <link rel="icon" type="image/png" href="assets/img/crs-logo.png">
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
    <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.2.0/css/all.min.css">
    <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.css">
    <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.6.1/jquery.min.js"
    charset="utf-8"></script>
    <link
      href="https://fonts.googleapis.com/css2?family=Poppins:wght@100;200;300;400;600;700&display=swap" rel="stylesheet">
  </head>
  <body>
    <!-- push -->
    <section class="header">
      <nav>
        <a href="homepage.php"><image class="logo" src="assets/img/crs-logo-white.png" alt="Casa Real Shrine logo"></image></a>
        <div class="nav-links" id="mySidebar">
          <i class="fa fa-times" onclick="closeNav()"></i>
          <ul>
            <li class="menu-item"><a href="homepage.php">HOME</a></li>
            <li class="menu-item">
```

```

<a href="#">VISIT <i class="fas fa-angle-down"></i></a>

<ul class="sub-menu">
    <li class="sub-item"><a href="plan_visit.php">Plan Your Visit</a></li>
    <li class="sub-item"><a href="consent-form.php">Book a Visit</a></li>
    <li class="sub-item"><a href="audio-guide.php">Audio Guide</a></li>
    <li class="sub-item"><a href="exhibits.php">Exhibits</a></li>

</ul>
</li>
<li class="menu-item">
    <a href="#">EXPLORE<i class="fas fa-angle-down"></i></a>

    <ul class="sub-menu">
        <li class="sub-item"><a href="gallery.php">Collections</a></li>
        <li class="sub-item"><a href="virtual-tour.php">Virtual Tour</a></li>
    </ul>
    </li>

    <li class="menu-item"><a href="blog.php">BLOG</a></li>
    <li class="menu-item"><a href="about-crs.php">ABOUT</a></li>
</ul>
</div>
<div id="main"></div>
<i class="fa fa-bars" onclick="openNav()"></i>
</div>
</nav>
```

```
<!-- [END] NAVIGATION -->

<!-- [START] HEADER -->
<div class="text-box">
    <h1>WELCOME TO THE VIRTUALSHRINE</h1>
    <p>Free Entry - Operation time : 8:00AM - 4:00PM</p>
    <a class="book-btn" href="consent-form.php">Book a Visit Now</a>
</div>
<!-- [END] OF HEADER -->
</section>

<!-- [START] STARTING PAGE -->

<section class="content-split">
    <h1>ABOUT CASA REAL SHRINE</h1>

    <div class="content-wrap">
        <div class="content-split-side rich-text">
            <div class="carousel">
                <div class="carousel-inner">
                    <div class="carousel-item">
                        
                    </div>
                    <div class="carousel-item">
                        
                    </div>
                    <div class="carousel-item">
                        
                    </div>
                </div>
            </div>
        </div>
    </div>
</section>
```

```

<div class="carousel-item">
    
</div>
</div>
<div class="carousel-controls">
    <span class="prev"></span>
    <span class="next"></span>
</div>
<div class="carousel-indicators"></div>
</div>
</div>
```

<div class="content-split-main rich-text">

<p class="about-desc">Located at Paseo del Congreso, Plaza Rizal Malolos Bulacan, Casa Real Shrine served as the

National Museum and the National Printing Press during the First Philippine Republic. It

is a government museum consisting of relics from the First Philippine Republic.

Memorabilia's of Gen. Emilio Aguinaldo are also found here. First class families of Malolos,

their furnitures, old books, stamps, paper money and coin are also displayed in the Shrine.</p>

<p class="about-desc-2">Casa Real is also one of Malolos oldest structure. The building contains

exhibits, printing press of the Malolos Republic and a display of the 21 Women of Malolos

memorabilia. Also presented here are the photographs of the 100 Filipino women. Each of them has

distinct characteristics in their fields.</p>

<button class="button-31" role="button">Learn More</button>

```
</div>
</div>
</section>
<!-- [END] STARTING PAGE -->

<!-- [START] HOMEPAGE CONTENTS -->
<section class="home-content">

    <h1>Explore Our Galleries</h1>
    <p>Tour the 5 galleries of Casa Real Shrine</p>

    <div class="row">

        <a href="GalleryInfo.php">
            <div class="gallery-col">
                
                <div class="layer">
                    <h3>KAGINHAWAAN</h3>
                    </div>
                </div>
            </a>

            <a href="GalleryInfo.php">
                <div class="gallery-col">
                    
                    <div class="layer">
                        <h3>PANINIIL</h3>
                        </div>
                </div>
            </a>
        </div>
    </section>
```

```
</div>
</a>

<a href="GalleryInfo.php">
<div class="gallery-col">
    
    <div class="layer">
        <h3>PAGBABAGONG-PURI</h3>
    </div>
</div>
</a>

<a href="GalleryInfo.php">
<div class="gallery-col">
    
    <div class="layer">
        <h3>PAGBUBUO NG BAYAN</h3>
    </div>
</div>
</a>

</div>

</section>
<!-- [END] OF HOMEPAGE CONTENTS -->

<!-- [START] VIRTUALSHRINE NEXT TO YOU -->

<section class="vs-features">
    <h1>VIRTUALSHRINE NEXT TO YOU</h1>
```

<p>Explore our virtual tours and experience the Casa Real wherever you are</p>

```
<div class="row">
```

```
    <div class="features-col">
```

```
        <a href="audio-guide.php">
```

```
            <div id="container">
```

```
                
```

```
            </div>
```

```
        </a>
```

```
        <div class="card-title">
```

```
            <h3>Audio Guide</h3>
```

```
            <p>Explore Casa Real with an Audio Guide</p>
```

```
        </div>
```

```
    </div>
```

```
    <div class="features-col">
```

```
        <a href="virtual-tour.php">
```

```
            <div id="container">
```

```
                
```

```
            </div>
```

```
        </a>
```

```
        <div class="card-title">
```

```
            <h3>Virtual 360</h3>
```

```
            <p>Check out the virtual 360 tour of the Casa Real Shrine</p>
```

```
        </div>
```

```
    </div>
```

```
<div class="features-col">
```

```

<a href="gallery.php">
<div id="container">
    
</div>
</a>
<div class="card-title">
    <h3>Collections</h3>
    <p>Learn the political history of the Phillipines by visiting the collections of
Casa Real Shrine</p>
</div>
</div></div>
</div>
</section>

```

<!-- [END] OF VIRTUALSHRINE NEXT TO YOU-->

```

<!-- [START] FOOTER -->

<section id="footer">
<div class="title-text">
    <!-- <h1>Visit Casa Real Today</h1> -->
</div>
<div class="footer-row">
    <div class="footer-left">
        <div>
            <h1>Opening Hours</h1>
            <p><i class="fa fa-clock-o"></i> Tuesday to Sunday - 8:00 AM to 4:00
PM</p>
        </div>
    </div>

```

```

<br>
<div>
<h1>Contact Us</h1>
<p><i class="fa fa-map-marker"></i> Paseo Del Congreso, Liang, City of
Malolos, Bulacan</p>
<p><i class="fa fa-paper-plane"></i> mpph@nhcp.gov.ph</p>
<p><i class="fa fa-phone"></i> (044) 931-2508</p>
</div>
</div>

<div class="footer-right">
<div>
<h1>Quicklinks</h1>
<div class="quicklinks">
<span style="margin-right:50px;"><a
href="homepage.php">Homepage</a></span><a href="crs-about.php">About
Us</a><br>
<span style="margin-right:30px;"><a href="plan_visit.php">Plan Your
Visit</a></span><a href="consent-form.php">Book a Visit</a><br>
<span style="margin-right:70px;"><a href="audio-guide.php">Audio
Guide</a></span><a href="exhibits.php">Exhibit</a><br>
<span style="margin-right:30px;"><a
href="gallery.php">Collection</a></span><a href="virtual-tour.php">Virtual
Tour</a><br>
<span><a href="">About</a></span>
</div>

</div>
</div>
</div>

```

```

<div class="social-links">
    
        <a href="https://www.facebook.com/CasaRealMalolos"><i class="fa fa-facebook"></i></a>
        <a href="https://www.instagram.com/nhcpofficial/"><i class="fa fa-instagram"></i></a>
        <a href="https://twitter.com/NHCPOfficial"><i class="fa fa-twitter"></i></a>
        <a href="https://www.youtube.com/@NHCPOfficial"><i class="fa fa-youtube-play"></i></a>
    <p>2022 <i class="fa-regular fa-copyright"></i> VirtualShrine</p>
</div>
</section>
<!-- [END] FOOTER -->
<!-- JAVASCRIPT FOR TOGGLE MENU -->

<script>

    /* Set the width of the sidebar to 250px and the left margin of the page content to 250px */
    function openNav() {
        document.getElementById("mySidebar").style.width = "250px";
    }

    /* Set the width of the sidebar to 0 and the left margin of the page content to 0 */
    function closeNav() {
        document.getElementById("mySidebar").style.width = "0";
    }
</script>

<script src="assets/js/swiper-script.js"></script>
</body>
</html>

```

ADMIN SIDE – login.php

```
<?php
session_start();
?>
<html>

<head>
    <title>Login - VirtualShrine</title>
    <meta name="MobileOptimized" content="width">
    <meta name="HandheldFriendly" content="true">
    <meta name="viewport" content="width=device-width, minimum-scale=1.0,
maximum-scale=1.0, user-scalable=no">
    <link rel="icon" type="image/png" href="image/VirtualShrineLogo.png">
    <link rel="stylesheet" href="assets/css/login-style.css">
    <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/6.2.0/css/all.min.css">
    <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.6.1/jquery.min.js"
charset="utf-8"></script>
</head>
<div class="py5">
    <div class="container">
        <div class="row justify-content-center">
            <div class="col-md-5">
                <div class="card">
                    <div class="card-header">
```

```


<div class="center">
    <div class="center-header">
        <h1>Login</h1>
    </div>

    <hr>
    <div class="center-body">

        <?php include('message.php')?>

        <form action="logincode.php" method="post">
            <div class="txt_field">
                <input type="username" required name="username">
                <label>Username</label>
            </div>

            <div class="txt_field">
                <input type="password" required name="password">
                <span></span>
                <label>Password</label>
            </div>

            <input type="submit" name="login_btn" class="btn btn-primary" value="Login"></input>
            <div class="MainAdmin_link"></div>
        </form>
    </div>
</div>
</div>
```

```
</div>
</div>
</div>
</div>

<!-- Modal

<div class="modal fade" id="no-slot" tabindex="-1" role="dialog" aria-
labelledby="exampleModalLabel" aria-hidden="true">
  <div class="modal-dialog" role="document">
    <div class="modal-content">
      <div class="modal-body" id="loading-msg">
        </div>
      <div class="modal-footer">
        <button type="button" class="btn btn-secondary" data-
dismiss="modal">Ok</button>
      </div>
    </div>
  </div>
</div>

<script src="assets/js/main.js?v1"></script>
<script src="assets/js/parsely.min.js"></script>
<script src="assets/js/popper.min.js"></script>
<script src="assets/js/bootstrap.min.js"></script> -->

<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.js"></scri
pt>

</body>
</html>
```

Virtual Tours – index.html

```
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <title>Virtual Tour - VirtualShrine</title>
    <link rel="icon" type="image/png" href="img/crs-logo.png">
    <meta name="viewport" content="width=device-width, initial-scale=1.0, minimum-scale=1.0, maximum-scale=1.0" />
    <meta name="apple-mobile-web-app-capable" content="yes" />
    <meta name="apple-mobile-web-app-status-bar-style" content="black" />
    <meta name="mobile-web-app-capable" content="yes" />
    <style type="text/css" title="Default">
        /* fullscreen */
        html {
            height:100%;
        }
        body {
            height:100%;
            margin: 0px;
            overflow:hidden; /* disable scrollbars */
            -webkit-tap-highlight-color: rgba(0, 0, 0, 0); /* remove highlight on tab for iOS/Android */
        }
        /* fix for scroll bars on webkit & >=Mac OS X Lion */
        ::-webkit-scrollbar {
            background-color: rgba(0,0,0,0.5);
            width: 0.75em;
        }
    
```

```

:::webkit-scrollbar-thumb {
background-color: rgba(255,255,255,0.5);
}

</style>
</head>
<body>

<!-- ----- 8<----- cut here ----- 8<----->

<script type="text/javascript" src="pano2vr_player.js">
</script>
<script type="text/javascript" src="skin.js">
</script>
<div id="container" style="width:100%;height:100%;overflow:hidden;">
<br>Loading...<br><br>
</div>
<script type="text/javascript">

// create the panorama player with the container
pano=new pano2vrPlayer("container");
// add the skin object
skin=new pano2vrSkin(pano);
// load the configuration
window.addEventListener("load", function() {
    pano.readConfigUrlAsync("pano.xml");
});

if (window.navigator.userAgent.match(/Safari/i)) {
    // fix for white borders, rotation on iPhone
    function iosHfix(e) {
        window.scrollTo(0, 1);
        var
container=document.getElementById("container");
}
}

```

```

var oh=container.offsetHeight;

document.documentElement.style.setProperty('height', '100vh');

if (oh!=container.offsetHeight) {

    container.style.setProperty('height',"100%");

} else {



    container.style.setProperty('height',window.innerHeight+"px");

}

window.scrollTo(0, 0);

pano.setViewerSize(container.offsetWidth,
container.offsetHeight);

};

setTimeout(iosHfix,0);

setTimeout(iosHfix,100);

window.addEventListener("resize", function() {

    setTimeout(iosHfix,0);

    // hide toolbar on iPad happens with a delay

    setTimeout(iosHfix,500);

    setTimeout(iosHfix,1000);

    setTimeout(iosHfix,2000);

});

}

</script>

<noscript>

<p><b>Please enable Javascript!</b></p>

</noscript>

<!-- ----- 8----- cut here ----- 8----- -->

</body>

</html>

```

Appendix B

Evaluation Tool

Name: _____ Date: _____
 Type of Respondent: _____

Scale	Range	Descriptive Interpretation				
5	4.60 - 5.00	Strongly Agree				
4	3.60 – 4.59	Agree				
3	2.69 – 3.59	Moderately Agree				
2	1.60 – 2.59	Disagree				
1	0 – 1.59	Strongly Disagree				
Indicator			5	4	3	2
A. Function and Stability						
1. The system functions according to its intended purpose.						
2. The system gives the exact output on each input per module.						
3. The system functions like any standard system entirely						
4. The system functions to different user with different restrictions.						
5. The system interacts to different inputs and features entirely.						
B. Performance and Efficiency						
1. The system meets the user's expectation and objectives.						
2. The system can be used to its maximum limit from the design capacity.						
3. The system can respond to multiple interaction from the user.						
4. The system manages time efficiently and effectively.						
5. The system accurately presents the output at the maximum level.						
C. Compatibility						
1. Co-Existence. The system can efficiently perform its required functions while sharing a familiar environment and resources with other systems, with no negative influence on any other method.						
2. Interoperability. The system can exchange information and utilize data that has been exchanged between two or more platforms.						

3. The system can be accessed on both phone and computer browsers.					
D. Usability					
1. User friendly. The design of the system is easy to understand and use.					
2. Acceptability Recognizability. Users are able to determine whether the system is suitable for their requirements.					
3. System Utility. The system can generate reports that can be viewed online (and can be download).					
4. Operability. The system is simple to use, navigate.					
E. Reliability					
1. Maturity. Under normal conditions, the system meets the requirements for reliability.					
2. Availability. The system is operational and accessible when required for use.					
3. Fault Tolerance. Despite the presence of hardware or software faults, the system or its components function as planned.					
4. Recoverability. In an interruption or failure, the system can immediately recover the affected data and restore the system to its desired state.					
F. Security					
1. Confidentiality. The system guarantees that the data is only available to those granted access.					
2. Confidentiality. The system guarantees that the data is only available to those granted access.					
3. Accountability. The actions of an entity can be traced uniquely by the system to the entity.					
G. Maintainability					
1. The system's information and interfaces can be updated through administrator account.					
2. The system allows updating different user records through level of security.					
3. The system username and password can be modified online.					
4. The system's hierarchy of authority especially administrator and super administrator can monitor different user's account online.					
H. Portability					
1. Adaptability. The system can effectively and efficiently be adapted for different evolving hardware, software, or other operational or usage environments.					

Appendix C

Letter to the Casa Real
Shrine Curator



**Republic of the Philippines
Bulacan State University**

City of Malolos, Bulacan
Tel (044) 919 7800 local 1101/1102



COLLEGE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

May 16, 2022

MRS. MA. ANTONIA T. JIMENEZ

Museum Curator
Casa Real Shrine

Dear Mrs. Jimenez:

Greetings!

We are 3rd-year college students from Bulacan State University taking up the course of Bachelor of Science in Information Technology. We've decided to design a website for our capstone project a VirtualShrine: An Interactive Museum website for Casa Real Shrine that will be utilized to virtualize Casa Real Shrine. As for that, we are asking for your permission to be our client on this project.

The concept of our proposed system is to deliver more knowledge to the online museum user by improving users' experience, interactivity, and comprehensive knowledge. This proposed project website could also serve as promotion for the Casa Real Shrine of Malolos to a vast audience online.

This system can help you on:

- Promote the Casa Real Shrine on a wider audience online.
- Online Booking Admission
- User Assisting features
- Virtual Museum tours

Students will use the information provided above for educational purposes only. We are hoping for your kind consideration and favorable response. Thank you, and God bless!

Respectfully yours,
The Researchers
Claro, Sharvien Paul M.
Gabutina, Carlo Elijah R.
Mauricio, Angelo D.
Navarro, Rovi Keith Y.
Tapang, Jhel Ansel D.

Nacional, Kristine Joy S.
Project Leader
BSIT 3M – Group 2

Noted by:
Dr. Mayleen Dorcas Castro
Capstone Coordinator

Conforme:
Mrs. Ma. Antonia T. Jimenez
Museum Curator

Received by **KJ** 05/16/2022 ✓
Hesj



Bulacan State University
**COLLEGE OF INFORMATION & COMMUNICATIONS
 TECHNOLOGY**
 City of Malolos 3000, Bulacan
 Tel. No. (044) 796-0147/(044)791-7386
<http://www.bulsu.edu.ph/>



July 7, 2022

MRS. MA. ANTONIA T. JIMENEZ
 Museum Curator
 Casa Real Shrine

Dear Mrs. Jimenez:

Greetings!

This letter is in regard to requesting for Data collection such as images, description, and 360-degree view of the artifacts displayed in your museum. We are 3rd-year college students from Bulacan State University taking up the course of Bachelor of Science in Information Technology conducting a study entitled “VirtualShrine: an interactive website for Casa Real Shrine”.

As part of the study's development, we will photograph the artifacts on display at the museum and capture a 360-degree view of each gallery. We would also want to request a description of the artifacts that are on display.

The intention of our work is to use those data as contents for the interactive museum website for Casa Real Shrine and be able to share the collected data to the museum website visitors.

We will be very grateful to you for your help. We can assure you that your privacy will not be affected.

If you have any further queries, you can reach us at virtualshrine.developers@gmail.com

**Respectfully yours,
 The Researchers
 Claro, Sharvien Paul M.
 Gabutina, Carlo Elijah R.
 Mauricio, Angelo D.
 Navarro, Rovi Keith Y.
 Tapang, Jhel Ansel D.**

Nacional, Kristine Joy S.
Project Leader
BSIT 3M – Group 2

Noted by:

Mrs. Ma. Ruby Angela Crisostomo
Capstone Adviser

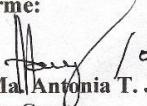
Conforme:

Mrs. Ma. Antonia T. Jimenez
Museum Curator

Noted by:


Mrs. Ma. Ruby Angela Crisostomo
Capstone Adviser

Conforme:


Mrs. Ma. Antonia T. Jimenez
Museum Curator
07/07/2022

Appendix D

Request Letter for
Capstone Adviser



Bulacan State University
**COLLEGE OF INFORMATION & COMMUNICATIONS
 TECHNOLOGY**
 City of Malolos 3000, Bulacan
 Tel. No. (044) 796-0147/(044)791-7386
<http://www.bulsu.edu.ph/>



MRS. MA. RUBY ANGELA CRISOSTOMO

March 31, 2022

ICT Faculty Member
 Bulacan State University

Dear Mrs. Crisostomo:

Greetings!

We, the undersigned, are third year students of Bulacan State University pursuing a degree, Bachelor of Science in Information Technology and currently taking Capstone I subject.

We are writing to humbly request your service and expertise to serve as an adviser for our Capstone project. We believe that your knowledge and insights will be valuable and will greatly enrich our work.

Hoping & praying that you will consider our request. Thank you very much & God bless!

Respectfully yours,

The Researchers

**Claro, Sharvien Paul M.
 Gabutina, Carlo Elijah R.
 Mauricio, Angelo D.
 Nacional, Kristine Joy S.
 Navarro, Rovi Keith Y.
 Tapang, Jhel Ansel D.**

Noted by:

Dr. Mayleen Dorcas B. Castro
 Dr. Mayleen Dorcas B. Castro
 Capstone Coordinator

Conforme:
Mrs. Ma. Ruby Angela Crisostomo
 Mrs. Ma. Ruby Angela Crisostomo
 CICT, Faculty

Appendix E

Request Letter for Capstone Panels



Bulacan State University
**COLLEGE OF INFORMATION & COMMUNICATIONS
 TECHNOLOGY**
 City of Malolos 3000, Bulacan
 Tel. No. (044) 796-0147/(044)791-7386
<http://www.bulsu.edu.ph/>



MS. LILIBETH ANTONIO
 CICT Faculty Member
 Bulacan State University

April 4, 2022

Dear Ms. Antonio:

Greetings!

We, the undersigned, are third year students of Bulacan State University pursuing a degree, Bachelor of Science in Information Technology and currently taking Capstone I subject.

We are writing to humbly request your service and expertise to serve as one of our panel members for our Capstone project Title Oral Presentation. We believe that your knowledge and insights will be valuable and will greatly enrich our work.

Hoping & praying that you will consider our request. Thank you very much & God bless!

Respectfully yours,

The Researchers

Claro, Sharvien Paul
Gabutina, Carlo Elijah
Mauricio, Angelo
Nacional, Kristine Joy
Navarro, Rovi Keith
Tapang, Jhel Ansel

Noted by:

Ctr

Dr. Mayleen Dorcas B. Castro
 Capstone Coordinator

Conforme:

Jg. Mauricio
Ms. Lilibeth Antonio
 CICT, Faculty



ENGR. TERESITA MANGAHAS
 CICT Faculty Member
 Bulacan State University

April 4, 2022

Dear Engr. Mangahas:

Greetings!

We, the undersigned, are third year students of Bulacan State University pursuing a degree, Bachelor of Science in Information Technology and currently taking Capstone I subject.

We are writing to humbly request your service and expertise to serve as one of our panel members for our Capstone project Title Oral Presentation. We believe that your knowledge and insights will be valuable and will greatly enrich our work.

Hoping & praying that you will consider our request. Thank you very much & God bless!

Respectfully yours,

The Researchers

**Claro, Sharvien Paul
 Gabutina, Carlo Elijah
 Mauricio, Angelo
 Nacional, Kristine Joy
 Navarro, Rovi Keith
 Tapang, Jhel Ansel**

Noted by:

Ctr

Dr. Mayleen Dorcas B. Castro
 Capstone Coordinator

Conforme:

[Signature]
Engr. Teresita Mangahas
 CICT, Faculty



MS. LYKA SAN PEDRO
 CICT Faculty Member
 Bulacan State University

April 4, 2022

Dear Ms. San Pedro:

Greetings!

We, the undersigned, are third year students of Bulacan State University pursuing a degree, Bachelor of Science in Information Technology and currently taking Capstone I subject.

We are writing to humbly request your service and expertise to serve as one of our panel members for our Capstone project Title Oral Presentation. We believe that your knowledge and insights will be valuable and will greatly enrich our work.

Hoping & praying that you will consider our request. Thank you very much & God bless!

Respectfully yours,

The Researchers

**Claro, Sharvien Paul
 Gabutina, Carlo Elijah
 Mauricio, Angelo
 Nacional, Kristine Joy
 Navarro, Rovi Keith
 Tapang, Jhel Ansel**

Noted by:

Gr

Dr. Mayleen Dorcas B. Castro
 Capstone Coordinator

Conforme:

LSP
Ms. Lyka San Pedro
 CICT, Faculty

Appendix **f**

BSIT Capstone
Project Application
for Final Defense



BULACAN STATE UNIVERSITY
College of Information and Communications Technology

APPLICATION FOR CAPSTONE PROJECT DEFENSE

Capstone/Project Design Details

VirtualShrine: An Interactive Museum Website for Casa Real Shrine

Academic Year/Semester	2022 - 2023
Capstone/Project Design Adviser	Ms. Ma. Ruby Angela J. Crisostomo
Chairman	Ms. Lilibeth G. Antonio
Panel Members	Ms. Lyka D.L San Pedro
	Ms. Teresita S. Mangahas

Capstone/Project Design Group

Student Number	Last Name, First Name MI.	Signature
Team Leader	Nacional, Kristine Joy S.	
Members	Claro, Sharvien Paul M.	
	Gabutina, Carlo Elijah R.	
	Mauricio, Angelo D.	
	Mergal, Jhan Mar D.	
	Navarro, Rovi Keith Y.	
	Tapang, Jhel Ansel D.	

I certify that I have read the Capstone/Project Design manuscript presented by the student in connection with this application for final defense and classify the same as eligible for defense within the schedule/deadlines set by the Department Head.

Capstone/Project Design Adviser		
Complete Name	Signature	Date
Ms. Ma. Ruby Angela J. Crisostomo		December 01, 2022

Capstone Project Coordinator		
Complete Name	Signature	Date
Dr. Mayleen Dorcas B. Castro		November 29, 2022

Department Head		
Complete Name	Signature	Date
Dr. Digna S. Evale		December 01, 2022

INSTRUCTIONS TO THE STUDENT

1. This form must be accomplished in quadruplicate (4 copies) when all necessary signatures have been completed. Application forms with incomplete information and signatures will not be accepted for processing.
2. Upon submission, the Accounting Office will make an assessment of the relevant fees for the application.
3. Pay the assessed amount at the Cashier's Office.
4. Submit three (3 copies) together with the official receipt to the following: Office of the Dean
(1), Department Head (1), Capstone/Project Design Coordinator (1).
5. Coordinate the schedule and venue of the defense with the Department Head.

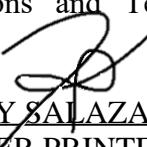
TERMS AND CONDITIONS

1. To be able to apply for Capstone/Project Design Final defense, the student must be enrolled in Capstone Project/Project Design course during the term.

2. A verdict resulting to revision in Capstone/Project Design is classified as "Incomplete." To qualify for completion, revisions must be approved and reported by the Chair of the Defense Panel to the Capstone/Project Design Coordinator within the specified date agreed upon by the Panel Members. In case of failure to comply with the revisions, the "Incomplete" is automatically converted to "Failed," in which case the student has to reenroll the Capstone/Project Design.

STUDENT CONFORME

I have read and understood the "Instructions" and "Terms and Conditions" stipulated above and agree to the same.



KRISTINE JOY SALAZAR NACIONAL
SIGNATURE OVER PRINTED NAME / DATE

VALIDATION OF PAYMENT

OR Number: 2456231

Date: December 7, 2022

Amount: Php. 1,800

ACCOUNTABLE FORM No. 51
REVISED JANUARY, 1992

ORIGINAL



REPUBLIC OF THE PHILIPPINES
OFFICIAL RECEIPT
BULACAN STATE UNIVERSITY



DATE 12/07/2022 No. BULSU 2456231

PAYOR NACIONAL, KRISTINE JOY S ET AL ()

NATURE OF COLLECTION	ACCOUNT CODE	AMOUNT
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Thesis-CICT ₱1,800.00

Other Assessment

1,800.00 / 0.00

1,800.00

TOTAL ₲

AMOUNT IN WORDS

one thousand eight hundred PESOS ONLY

	DRAWEES BANK	NUMBER	DATE
CASH			
CHECK			

RECEIVED THE AMOUNT STATED ABOVE.

No. BULSU 2456231

John M. Perez
COLLECTING OFFICER

NOTE: Write the number and date of this receipt on the back of check received.

Appendix G

Capstone Project Final Defense Evaluation

Appendix H

Certificate Against
Intellectual Fraud
and Dishonesty

CERTIFICATION AGAINST INTELLECTUAL FRAUD AND DISHONESTY

On my honor, I thus certify that the contents of this Capstone Project Documentation are the result of my own intelligence, and that I have properly attributed sources and references. If competent authorities find that what I wrote in this Capstone Project Documentation was gained by fraudulent exploitation of other people's ideas or information, I will bear the penalty or sanction imposed by the College of Information and Communications Technology that goes along with such dishonest behavior.

Claro, Sharvien Paul M.

Gabutina, Carlo Elijah R.

Mauricio, Angelo D.

Mergal, Jhan Mar D.

Nacional, Kristine Joy S.

Navarro, Rovi Keith Y.

Tapang, Jhel Ansel D.

Note: The proponents attached with the certification, the first five pages of the plagiarism report. The complete plagiarism report was submitted to the Capstone Project Coordinator, as part of the requirements of the course.

Appendix I

User Manual

CASA REAL SHRINE MUSEUM

User's Manual

This document was created prior to the use of the VirtualShrine Content Management System. This Document has been issued to the Curator of the Museum as for their reference regarding the use and procedures of reservation of the VirtualShrine Content Management System.

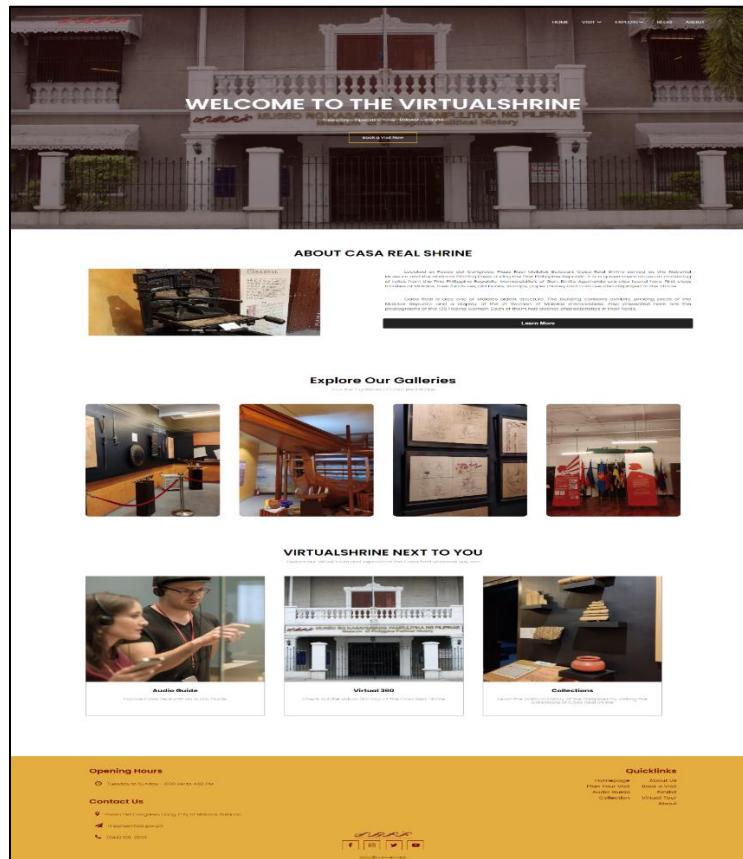
The Front Office:

Description: The front office is where the visitors can view the features of the VirtualShrine Website. Navigate the Museum using the navigation features of the system. The Visitor can also make booking anytime of the day.

To access the front office kindly visit <http://virtualshrine.online>, the home page of the website will appear.

The Homepage

The homepage is the main portal to the entire website. It creates the first impression for visitors and quickly comes to represent the museum to its online audience



The Homepage Header

The website header is where the navigation tags, book now button, and website logo are located. The navigation tags are located on the top of the header where it is aligned with the logo. The header also provides quick access to the booking form.



The Homepage Contents

This section displays the highlight features of the website.

ABOUT CASA REAL SHRINE



Founded at Presencia del Congreso, Plaza Real, Manila, Philippines, Casa Real Shrine serves as the National Museum and the National Printing Press during the First Philippine Republic. It is a government museum consisting of relics from the First Philippine Republic, the Second World War, the Aglipayans, and other historical documents of Manila, their furniture, old books, stamps, paper money and coins also displayed in the Shrine.

Casa Real is also one of Manila's oldest structures. The building contains exhibits, printing areas of the First Republic and a display of the 21 Women of Manila immortals. Also presented here are the photographs of the 100 Filipino women. Each of them has distinct characteristics in their fields.

[Learn More](#)

Explore Our Galleries

Tour the 5 galleries of Casa Real Shrine



VIRTUALSHRINE NEXT TO YOU

Explore our virtual tour and experience the Casa Real shrine, you can:



Audio Guide
Explore Casa Real with an Audio Guide.



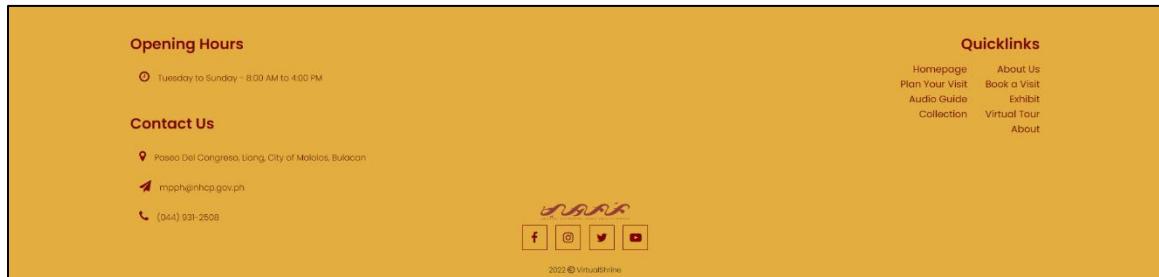
Virtual 360
Check out the virtual 360 tour of the Casa Real Shrine.



Collections
Learn the political history of the Philippines by visiting the collections of Casa Real Shrine.

Footer

This section displays the general information about the museum such as contact information, and social media quick links that can redirect the visitor to the social media accounts of the museum.



Booking Consent Form

This process allows the visitor to read and understand that the booking process will require the visitor to provide sensitive information. This serves as an agreement between the Visitor and the Museum.

The Online Booking Process

This page is where the reservation process is done. The labels with red asterisk(*) means that the information is required, and visitor will not be able to proceed without providing the required information.

The screenshot shows the 'Online Reservation Form' for the Museo ng Kasaysayan ng Pilipinas. At the top, there's a logo and the text 'MUSEO NG KASAYSAYANG PAMPULITIKA NG PILIPINAS'. The form has several input fields: 'Date of Visit*', 'Session*', 'No. of Visitor*', 'First Name*', 'Last Name*', 'Email*', 'Mobile Number*', 'Attach ID*', and 'Name of Company/Agency'. A 'Confirm' button is at the bottom right. A note 'Activate Windows
Go to Settings to activate Windows.' is visible on the right side.

1. Enter the Schedule of the visit

This section in the booking form is where the visitor can provide the booking schedule information they want.

The screenshot shows the 'Date of Visit*' section of the booking form. It features a calendar for November 2022. The date '22' is highlighted in orange. The days of the week are labeled Su, Mo, Tu, We, Th, Fr, Sa. To the left of the calendar is an input field for 'Date of Visit' with a blue border. To the right are dropdown menus for 'Session*' and 'No. of Visitor*'. Below the calendar are fields for 'Last Name*' and 'Mobile Number*'.

1.1. Select a Date

It allows the visitor to select the date of visit. The calendar also automatically disables the dates that have already passed, as well as the dates every Monday because the museum is closed.

A screenshot of a booking form. It has three fields: 'Date of Visit*' with a placeholder 'Date of Visit', 'Session*' with a dropdown menu showing 'Select session' at the top, and 'No. of Visitor*' with an empty input field. The 'Session*' dropdown is open, showing options 'Select session', 'AM', and 'PM'. The 'Session*' field is highlighted with a blue border.

1.2. Select Session

The visitor can select the session of their visit.

A screenshot of a booking form. It has three fields: 'Date of Visit*' with a placeholder 'Date of Visit', 'Session*' with a dropdown menu showing 'Select session' at the top, and 'No. of Visitor*' with an input field containing the number '10'. The 'No. of Visitor*' field is highlighted with a blue border.

1.3. Enter Number of Visitor

This is where the visitor can enter the number of visitors.

2. Enter Visitor/Representative Information

This section of the booking form is where the visitor will enter the required information. The following information is needed for communication, and identity verification process.

Name of Representative

First Name*	Last Name*
<input type="text" value="First Name"/>	<input type="text" value="Last Name"/>
Email*	Mobile Number*
<input type="text" value="Email"/>	<input type="text" value="Mobile Number"/>
Attach ID*	
<input type="button" value="Choose File"/> No file chosen	
Name of Company/Agency (If applicable)	
<input type="text" value="Name of Company/Agency"/>	

2.1 Enter First Name, Last Name, Email, Mobile Number of Visitor

This is where the user will enter some of the information that the booking form asking like First Name, Last Name, Email and Mobile Number

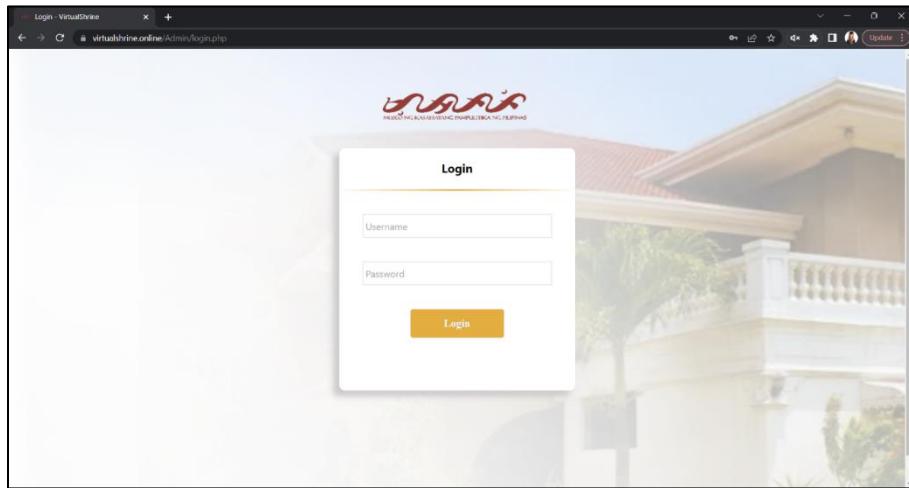
First Name*	Last Name*
<input type="text" value="First Name"/>	<input type="text" value="Last Name"/>
Email*	Mobile Number*
<input type="text" value="Email"/>	<input type="text" value="Mobile Number"/>

2.2 Uploading Valid ID

The Visitor will upload a picture or their valid ID by clicking Choose File.

Attach ID*
<input type="button" value="Choose File"/> No file chosen

The Back Office:



The log in page

The log in page is where the user will use the created account to access the admin page. By entering the correct username and password, if the credentials were incorrect then a prompt will show that they are incorrect.

Booking ID	Name	Date of Visit	Status
2022CRSB_82078_30	Lance Francis Nacional	24 December 2022	Pending
2022CRSB_92545_32	vianra velasquez	14 December 2022	Pending

Dashboard

After successfully logging in, you will be redirected to the dashboard. Here you will see on the main dashboard are the total booking, blog post, user activity, admins, recent bookings, blogs and user admins. On the left side panel are more tools for the website.

The screenshot shows the 'Assistant Admin' page. At the top right, there is a notification icon with '0' and a user profile for 'kristhayne'. On the left, a sidebar menu includes 'Dashboard', 'Users' (which is selected), 'Bookings' (with 3 notifications), 'INTERFACES', 'CMS', 'Categories', 'Report', and 'Archive'. The main content area is titled 'Assistant Admin' and shows a sub-menu 'Dashboard / Users'. Below this is a table titled 'Assistant Admin List' with columns: ID, Name, username, status, and Action. The table contains three entries:

ID	Name	username	status	Action
CRSA_17387_26	Lance Francis Nacional	lance	Active	
CRSA_27335_27	Claude Turner	claud_t	Active	
CRSA_28903_28	Anthony Marcus	anthonM	Active	

Below the table, it says 'Showing 1 to 3 of 3 entries' and has navigation buttons for 'Previous', '1', and 'Next'.

User/Assistant Admin page

On this page, the user can add, edit and archive an employee's account.

The screenshot shows the 'Pending Booking' page. At the top right, there is a notification icon with '0' and a user profile for 'kristhayne'. On the left, a sidebar menu includes 'Dashboard', 'Users', 'Bookings' (with 3 notifications, including 'Pending'), 'INTERFACES', 'CMS', 'Categories', 'Report', and 'Archive'. The main content area is titled 'Pending Booking' and shows a sub-menu 'Dashboard / Pending Booking'. Below this is a table titled 'List of Pending Bookings' with columns: ID, Name, Date of Visit, No. of Visitors, Status, and Action. The table contains three entries:

ID	Name	Date of Visit	No. of Visitors	Status	Action
2022CRSB_82078_30	Lance Francis Nacional	24 December 2022	10	Pending	
2022CRSB_92545_32	vianca velasquez	14 December 2022	2	Pending	
2022CRSB_95164_40	Lance Francis Nacional	31 December 2022	2	Pending	

Booking page:

1.0 Pending Booking

This page is where the list of pending bookings is kept. List shows the information of each pending requests such as ID, Name Date of Visit, No. of Visitors, Status and Action. The user can approve by clicking the approve button, reject by clicking the reject button and view the details by clicking the view details.

The screenshot shows the 'Approved Booking' page. At the top, there's a navigation bar with a logo, a bell icon with a '0' notification, a user profile picture for 'kristhayne', and a dropdown menu. On the left, a sidebar has sections for 'Dashboard', 'Users', 'Bookings' (which is expanded to show 'Pending', 'Approved', 'Rejected', and 'Cancelled'), 'INTERFACES', 'CMS', 'Categories', 'Report', and 'Archive'. The main content area is titled 'Approved Booking' and shows a table titled 'List of Approved Booking'. The table has columns: ID, Name, Date of Visit, No. of Visitors, and Status. It lists several entries, each with a 'View Details' link.

ID	Name	Date of Visit	No. of Visitors	Status
2022CRSB_10843_26	Noel Del Rosario	14 December 2022	1	Approved
2022CRSB_27828_37	Kristine Joy Nacional	24 December 2022	10	Approved
2022CRSB_39454_31	Lance Francis Nacional	30 November 2022	1	Approved
2022CRSB_50294_41	Jhel Ansel Tapang	14 December 2022	5	Approved
2022CRSB_53151_35	Lance Francis Nacional	24 December 2022	10	Approved
2022CRSB_55950_39	Sharvien Claro	22 December 2022	10	Approved
2022CRSB_892CE_77	Ivettina Joy Nacional	31 December 2022	2	Approved

1.2 Approved Booking

This page is where the list of the approved bookings is kept. The user can choose to limit the viewed entries by clicking the drop-down icon on the top left and choose whether to view 10 entries up to 100 entries. The user can view the details as well.

The screenshot shows the 'Rejected Booking' page. The layout is similar to the 'Approved Booking' page, with a sidebar on the left and a main content area on the right. The main content area is titled 'Rejected Booking' and shows a table titled 'List of Rejected Bookings'. The table has columns: ID, Name, Date of Visit, No. of Visitors, and Status. It lists five entries, each with a 'View Details' link. Navigation buttons for 'Previous', '1', and 'Next' are at the bottom.

ID	Name	Date of Visit	No. of Visitors	Status
2022CRSB_49282_24	Lance Francis Nacional	24 December 2022	10	Rejected
2022CRSB_59327_36	Kristine Joy Nacional	24 December 2022	2	Rejected
2022CRSB_62388_25	Kristine Joy Nacional	24 November 2022	10	Rejected
2022CRSB_81943_33	Margy Santos	16 December 2022	10	Rejected

1.3 Rejected Booking

This page is where the list of rejected bookings are kept. Same as the Approved Booking, the user can limit the viewed entry list on the top left and view the details.

Cancelled Booking

Dashboard / Cancelled Booking

List of Cancelled Booking

ID	Name	Date of Visit	No. of Visitors	Status	Action
2022CRSB_34572_29	sharvien claro	06 December 2022	2	Cancelled	View Details
2022CRSB_63171_28	Ma. Gabriela De Castro	03 December 2022	2	Cancelled	View Details

Showing 1 to 2 of 2 entries

Previous 1 Next

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Designed by BootstrapMade

1.4 Cancelled Booking

On this page is where the cancelled bookings are kept. Like the Approved and Rejected Booking pages, the user can limit the viewed entry list on the top left and view the details.

Collection

Dashboard / Gallery Contents

Add Content

ID	Name	Category	Image	Status	Action
CRSCOL_22328_55	Ang Bangang Manunggul	Kaginhawaan (Prosperity)		Active	Edit Archive
CRSCOL_81136_54	Ang Barangay	Kaginhawaan (Prosperity)		Active	Edit Archive
CRSCOL_84814_81	Ang BAYBAYIN	Kaginhawaan (Prosperity)		Active	Edit Archive
CRSCOL_23498_73	Bajo La Campana	Paniniil (Oppression)		Active	Edit Archive

CMS (Content Management System)

1.0 Collection

This section of CMS is where the user can see contents of the gallery. Options for the user to use such as add content by pressing the add content button, on the action tab, the edit button and the archive button, a message will show after successfully archiving a content.

The screenshot shows the 'Edit Content' page of a museum management system. On the left, there's a sidebar with navigation links like Dashboard, Users, Bookings (with 3 notifications), INTERFACES (CMS, Collection, Exhibit Display, Blog, Categories, Report, Archive), and a user profile for 'kristhayne'. The main content area has a title 'Edit Content' with a 'Back' button. It contains fields for 'Gallery list' (dropdown menu), 'Slug (URL)' (manunggul-jar), 'Year' (890-710 B.K.P.), 'Type of Object' (artifact), 'Meta Title' (manunggul jar), 'Meta Description' (Manunggul Jar), 'Meta Keyword' (Manunggul Jar), 'Image' (choose file, No file chosen), and a 'Status' checkbox which is checked. Below this, there are two sections for English and Filipino descriptions. The English section asks for information in English, including Name (English) (The Manunggul Jar), Audio File (English) (choose file, No file chosen), and Description (English) (rich text editor). The English description text is: "Our ancestors had a profound concept of death. For them, the world of the living and the dead were inseparable, the dead being merely on the other side of life. Called nuno, the sacred spirits of departed loved ones, especially of ancestors, were present everywhere, invisible as they watched over the living and able to interfere in the lives of their relatives. The cover of the Manunggul burial jar depicts a rafter accompanying the dead toward the afterlife." The Filipino section asks for information in Filipino, including Name (Filipino) (Ang Bangang Manunggul), Audio File (Filipino) (choose file, No file chosen), and Description (Filipino) (rich text editor). The Filipino description text is: "Malisim ang pagtinipon na ating mas nireno sa pagpapaw. Para sa kanila, magkarustora ang mundo na mas buhay at mas yuma, at mas kabibayaan buhay lamang ana mas yuma. Tinawag silang mas nuno: nasa paligid lamang, hindi makikita ngunit nakabantay at magcarri pa rin makikam sa buhay na kanilang mas."

1.2 Edit Content

The section of the Collection after pressing the edit button, the user can now add the information on their respected text box. Pressing the status box will make the currently editing content active after pressing the update button on bottom. The user can upload images and audio files for each content made.

ID	Name	Category	Image	Status	Action
CRSEXDIS_23233_8	Emilio F. Aguinaldo	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	
CRSEXDIS_31758_9	Carlos P. Garcia	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	
CRSEXDIS_33004_4	Manuel L. Quezon	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	
CRSEXDIS_45688_2	Manuel L. Quezon (second Term)	PANUNUMPA: The Presidents' Oath-taking In Retrospect		Active	

2.0 Exhibit Display

This section of CMS is where the user can view the contents of the exhibit displays. The user has multiple options such as adding displays by pressing the add display button, edit by pressing the edit button (the green on the Action tab) and the archive by pressing the archive button (the red on the Action tab).

ID	Name	Image	Status	Action
CRSBLOG_44663_1	To The Young Women Of Malolos		Active	
CRSBLOG_76828_2	Casa Real Shrine Bulacan		Hidden	
CRSBLOG_99840_3	Sample		Hidden	

3.0 Blog

This section of the CMS is where the user can view the blogs created. With multiple actions the user can do like create blog by pressing the create blog button, editing and archiving blogs by pressing their respective buttons in the action tab.

The screenshot shows the 'Edit Blog' page in a CMS interface. The left sidebar includes 'Dashboard', 'Users', 'Bookings', 'Interfaces' (CMS, Categories, Report, Archive), and 'Exhibit Display'. The main area has fields for 'Name' (To The Young Women Of Malolos), 'Slug (URL)' (theyoung-women-of-malolos), 'Author' (Kristine Joy Nacional), 'Description' (rich text editor with placeholder text about Jose Rizal's legacy), 'Meta Title' (To The Young Women of Malolos), 'Meta Description' (To the Young Women of Malolos), 'Meta Keyword' (To the Young Women of Malolos), and an 'Image' section with a 'Choose File' button. A status checkbox is checked, and an 'Update' button is at the bottom.

3.1 Edit Blog

This section in the edit blog, the user can now put any information necessary on the relevance of the blog the user is planning on creating. The user can also upload images and by clicking the status box, it will make the blog active and show on the website to be seen in public after editing, by pressing the update button.

The screenshot shows the 'Gallery Category' page in a CMS interface. The left sidebar includes 'Dashboard', 'Users', 'Bookings', 'Interfaces' (CMS, Categories, Report, Archive), and 'Exhibit Display'. The main area is titled 'Gallery Category' and shows a table with columns 'ID', 'Name', 'Status', and 'Action'. The table contains three entries:

ID	Name	Status	Action
5	Paniniil (Oppression)	Active	
6	Pagbabagong-Puri (Revolution)	Active	
7	Pagbubuo ng Bayan(Making the Nation)	Active	

Showing 1 to 3 of 3 entries

Categories:

1.0 Gallery Category

This page is where the user can view the gallery category where most of the exhibits are placed and organized in their respective places. The user can add another gallery by pressing the add gallery button, edit and archive a gallery by pressing the buttons on the action tab.

The screenshot shows the 'Exhibits' page. On the left, there's a sidebar with a logo at the top, followed by sections for Dashboard, Users, Bookings (with 3 notifications), CMS, Categories, Report (selected), and Archive. The main content area has a title 'Exhibits' and a breadcrumb 'Dashboard / Exhibit'. It features a table with three entries:

ID	Name	Duration	Status	Action
CRSEXHBT_36716_3	PANUNUMPA: The Presidents' Oath-taking In Retrospect	Sep 28 to Dec 30	Active	
CRSEXHBT_71559_2	Exibits	Nov 30 to Dec 10	Active	
CRSEXHBT_93624_4	Cory Aquino	Feb 24 to Sep 09	Active	

At the bottom, it says 'Showing 1 to 3 of 3 entries' with navigation buttons for Previous, 1, and Next.

2.0 Exhibits

This page is where the user can view the exhibits. The user can add an exhibit by pressing add exhibit button, the user can add the duration of the exhibit to when will it start and when will it end and it will show on the duration tab of the page. The user can also edit and archive exhibits by pressing the buttons on the action tab.

The screenshot shows the 'Activity Report' page. The sidebar is identical to the Exhibits page. The main content area has a title 'Activity Report' and a breadcrumb 'Dashboard / Activity Report'. It features a table with 283 entries:

ID	Name	Action Made	Date Created
277	krishayne	Updated a Gallery Content	November 18 2022
278	krishayne	Updated a Gallery Content	November 18 2022
279	krishayne	Updated a Category	November 18 2022
280	krishayne	Updated a Gallery Content	November 18 2022
281	krishayne	Updated a Gallery Content	November 18 2022
282	krishayne	Updated their profile information	November 18 2022
283	krishayne	Confirmed a Booking	November 20 2022
284	krishayne	Rejected a Booking	November 21 2022
285	krishayne	Rejected a Booking	November 21 2022
286	krishayne	Rejected a Booking	November 21 2022

At the bottom, it says 'Showing 1 to 10 of 283 entries' with navigation buttons for Previous, 1, 2, 3, 4, 5, ..., 29, and Next. There's also a 'Print' button in the top right corner.

Activity Report

The user's current or previous actions are recorded on this page. They are categorized in ID, Name of the user, Action Made by the user and Date Created. The user can also print the activity report by pressing the Print button.

The screenshot shows the VirtualShrine software interface. At the top left is the logo 'VirtualShrine'. On the right, there is a user icon for 'kristhayne' with a blue notification badge showing '0'.

The left sidebar has a tree view under 'INTERFACES' with the following branches:

- Bookings** (with a blue badge showing '3')
- CMS**
- Categories**
- Report**
- Archive** (selected, expanded)
 - Users
 - Collection
 - Exhibit Display** (selected)
 - Blog
 - Gallery Category
 - Exhibits

The main content area is titled 'Archived Exhibit Display' and shows the URL 'Dashboard / Archived Exhibit Display'. It includes a search bar and a table with one entry:

ID	Name	Status	Action
CRSEXDIS_81720_5	Cory Aquino	Archived	Recover

Below the table, it says 'Showing 1 to 1 of 1 entries'. At the bottom, there is a copyright notice: '© Copyright VirtualShrine. All Rights Reserved' and 'Designed by BootstrapMade'.

Archive: User, Collection, Exhibit Display, Blog, Gallery Category and Exhibits

This page contains all the archived content and are organized based on where the content originally created.

Curriculum Vitae

Sharvien Paul M. Claro
 Borol 2nd Balagtas Bulacan
 09062698915
 sharvienpaul.claro.m@bulsu.edu.ph



EDUCATIONAL BACKGROUND:

TERTIARY EDUCATION:	Bulacan State University (Main Campus) Malolos, Bulacan 2019 – Present
HIGHER SECONDARY EDUCATION:	Dr. Yanga's College INC 182 MacArthur Hwy, Bocaue, 3018 Bulacan 2017 – 2019
LOWER SECONDARY EDUCATION:	Balagtas National Agricultural High School Pulong Gubat, Balagtas, 3018 Bulacan, Philippines. 2013 – 2017
PRIMARY:	ABACADA International School Balagtas, Bulacan 2007 – 2013

HONORS AND AWARDS:

HIGHER SECONDARY EDUCATION:

- With Honors

TERTIARY EDUCATION:

- Dean's List

TRAININGS/SEMINARS ATTENDED:

- StackLeague University Series: Bulacan State University Edition (2022)



Carlo Elijah R. Gabutina

#30 Kilowatt, Meralco Village, Lias Marilao Bulacan
09092065191
carloelijah.gabutina.r@bulsu.edu.ph

EDUCATIONAL BACKGROUND:

**TERTIARY
EDUCATION:**

Bulacan State University (Main Campus)
Malolos, Bulacan
2018 – Present

**HIGHER SECONDARY
EDUCATION:**

ACLC College of Meycauayan
MC Mall Building, McArthur Hi-way Banga Meycauayan
2016 – 2018

**LOWER SECONDARY
EDUCATION:**

Barcelona Academy
35, Lias Road, Marilao, 3019 Bulacan
2012 – 2016

PRIMARY:

Barcelona Academy
35, Lias Road, Marilao, 3019 Bulacan
2006 – 2012

TRAININGS/SEMINARS ATTENDED:

- StackLeague University Series: Bulacan State University Edition (2022)

WORK EXPERIENCE:

- Work Immersion
- Assistant to the supervisor in ACLC

Angelo D. Mauricio

164 Agoncillo Street Ana Maria Village Iba Meycauayan Bulacan
09756759366
angelo.mauricio.d@bulsu.edu.ph

**EDUCATIONAL BACKGROUND:****TERTIARY EDUCATION:**

Bulacan State University (Main Campus)
Malolos, Bulacan
2019 – Present

HIGHER SECONDARY EDUCATION:

ACLC College of Meycauayan
MC Mall Building, McArthur Hi-way Banga Meycauayan
2017 – 2019

LOWER SECONDARY EDUCATION:

A.F.G. Bernardino Memorial Trade School
Lias Rd, Lias, Marilao, Bulacan
2013 – 2017

PRIMARY:

Trinitas College
Pantoc Rd, Meycauayan, Bulacan
2007 – 2013

HONORS AND AWARDS:**HIGHER SECONDARY EDUCATION:**

- With Honors (Senior High School)

TERTIARY EDUCATION:

- Dean's List

TRAININGS/SEMINARS ATTENDED:

- IT week seminars
- StackLeague University Series: Bulacan State University Edition (2022)

WORK EXPERIENCE:

- Work Immersion



Kristine Joy S. Nacional

Block 9 Lot 18, Galas Street, Bignay, Valenzuela City

09361685997

kristinejoy.nacional.s@bulsu.edu.ph

EDUCATIONAL BACKGROUND:

**TERTIARY
EDUCATION:**

Bulacan State University (Main Campus)

Malolos, Bulacan

2019 – Present

**HIGHER SECONDARY
EDUCATION:**

ACLC College of Meycauayan

MC Mall Building, McArthur Hi-way Banga Meycauayan

2017 – 2019

**LOWER SECONDARY
EDUCATION:**

Antique National School

Tobias A. Fornier Street, San Jose de Buenavista, Antique

2013 – 2017

PRIMARY:

Malandog Elementary School

Malandog Hamtic Antique

2007 – 2013

HONORS AND AWARDS:

PRIMARY:

- Class Valedictorian (Class 2012 – 2013)

HIGHER SECONDARY EDUCATION:

- With Honors (Grade 11)
- With High Honors (Grade 12)

TERTIARY EDUCATION:

- Dean's List

TRAININGS/SEMINARS ATTENDED:

- StackLeague University Series: Bulacan State University Edition (2022)

WORK EXPERIENCE:

- Special Program of the Employment of Students (SPES) - 2015
- Work Immersion

Rovi Keith Y. Navarro

165 Purok Rosal Caduang Tete Macabebe Pampanga

09612947453

rovikeithn@gmail.com

**EDUCATIONAL BACKGROUND:****TERTIARY EDUCATION:**

Bulacan State University (Main Campus)
Malolos, Bulacan
2019 – Present

HIGHER SECONDARY EDUCATION:

Pampanga Colleges
Poblacion Macabebe Pampanga
2017 – 2019

LOWER SECONDARY EDUCATION:

Caduang Tete High School
Purok Rosal Caduang Tete Macabebe Pampanga
2013 – 2017

PRIMARY:

Caduang Tete Elementary School
Centro Caduang Tete Macabebe Pampanga
2007 – 2013

HONORS AND AWARDS:**HIGHER SECONDARY EDUCATION:**

- With Honors (Senior High School)

TRAININGS/SEMINARS ATTENDED:

- IT week seminars
- StackLeague University Series: Bulacan State University Edition (2022)
- Research seminar in Pampanga Colleges

WORK EXPERIENCE:

- Work Immersion
- Assistance to the Administrator in STI

Jhel Ansel D. Tapang
 05-B Purok 1 Lugam Malolos Bulacan
 09125216212
 jhelansel.tapang.d@bulsu.edu.ph



EDUCATIONAL BACKGROUND:

TERTIARY EDUCATION:	Bulacan State University (Main Campus) Malolos, Bulacan 2019 – Present
HIGHER SECONDARY EDUCATION:	La Consolacion University Philippines Bulihan Malolos Bulacan 2017 – 2019
LOWER SECONDARY EDUCATION:	Dampol 1st National High School Dampol Plaridel Bulacan 2013 – 2017
PRIMARY:	Santisima Trinidad Elementary School Santisima Malolos Bulacan 2007 – 2013

HONORS AND AWARDS:

- HIGHER SECONDARY EDUCATION:**
- With Honors (Junior High School)

TRAININGS/SEMINARS ATTENDED:

- CICT Week
- IT Week Seminar
- StackLeague University Series: Bulacan State University Edition (2022)

WORK EXPERIENCE:

- Work Immersion