Development of web applications for tourist attractions and OTOP in Plai Bang, Bang Kruai, Nonthaburi

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Abstract—The purpose of this research is to develop a web application, promote tourism business, promote the OTOP business, and study satisfaction in Plai Bang, Bang Kruai, Nonthaburi. The information contained in the web application is collected at Plai Bang, Bang Kruai, Nonthaburi. The content contains tourist attraction information, restaurant information, accommodation information, and OTOP information in Plai Bang Municipality. It is used system development tools as follows 1) Visual Studio Code 2) Xampp, the language used in system development is as follow 1) PHP Hypertext Preprocessor 2) SQL, The database manager used in system development is as follow 1) phpMyAdmin. According to the survey of the area within Plai Bang Municipality, visitors to the web application for tourist attractions and OTOP had 20 satisfaction assessment respondents. The statistics used in the data analysis were percentage and arithmetic mean. Analysis of the data showed the development of tourist attraction web applications in Plai Bang, Bang Kruai, Nonthaburi. Overall satisfaction with an average of 4.34 and a standard deviation (S.D.) of 0.45 indicates a very high level of satisfaction. It can be concluded that the development of web applications for tourist attractions, and OTOP is beneficial to tourists and can be used effectively.

Keywords: tourist attractions, web applications, Plai Bang

I. INTRODUCTION

A. Background and significance of the problem

Humans are constantly learning both in the classroom and outside the classroom Tourism is another way of learning. In addition, tourism is an activity that most people do in their spare time to create a feeling of relaxation, and fun and also to build good relationships with family or friends. There are many interesting tourist attractions in Thailand and Plai Bang Subdistrict Municipality is another place worth trying to visit and experience the atmosphere.

Because the organizers have seen the problems that arise in the tourism economy in Plai Bang and are interested in finding a solution to Stimulates the economy in the district by developing a tourism and OTOP web application in Plai Bang Subdistrict Municipality that attracts the attention of the visitors The content is about the tourist attractions that exist within the sub-district. and provide knowledge about PlaiBang It is another channel for interested people to visit at any time.

B. Research purpose

The purpose of this research is to promote tourism business, educate tourist attractions, and develop web applications to satisfy visitors to tourist site applications in Plai Bang Municipality. and Promote OTOP distribution business in Plai Bang Municipality.

C. Scope of the research

1) *Admin Section*
   a) Manage to add, delete, and edit tourist attractions and restaurant information.
   b) Manage to add, delete, and edit member information.
   c) Manage to add, delete, and edit type of tourist attraction and subdistrict.
   d) Find the following information about tourist attractions, restaurants, types of tourist attractions, and subdistricts.

2) *User Section*
   a) Find information on tourist attractions in Plai Bang, Bang Kruai, Nonthaburi with the temple and non-temple classification.
   b) Find information on accommodations in Plai Bang, Bang Kruai, Nonthaburi.
   c) Find information on OTOP in Plai Bang, Bang Kruai, Nonthaburi such as Mulberry tea, chan rohng honey, and wax balm, etc.
   d) Find information on restaurant in Plai Bang, Bang Kruai, Nonthaburi.

3) *Member Section*
   a) Find information on tourist attractions in Plai Bang, Bang Kruai, Nonthaburi with the temple and non-temple classification.
   b) Find information on accommodations in Plai Bang, Bang Kruai, Nonthaburi.
   c) Find information on OTOP in Plai Bang, Bang Kruai, Nonthaburi such as Mulberry tea, chan rohng honey, and wax balm, etc.

d) Visit restaurant in Plai Bang, Bang Kruai, Nonthaburi.
e) Rate and comment on tourist attractions of interest
f) Manage edit personal information.

D. Expected benefits

1) Get satisfaction from visitors to the web application, tourist attractions, and OTOP, Plai Bang Municipality.
2) Promoting tourism business in Plai Bang Municipality.

II. THEORY AND RELATED RESEARCH

Development of web applications for tourist attractions and OTOP in Plai Bang, Bang Kruai, Nonthaburi In this preparation, the information and relevant theories of the research must be studied in detail as follows.

A. Software used to develop the system

1) Visual Studio Code

VS Code or Visual Studio Code from Microsoft is an Editor-type program used to edit small but high-performance code. Ideal for developers who want to use multiple platforms, support both Windows, macOS, and Linux, support multiple languages including built-in JavaScript, TypeScript, and Node.js and can be easily connected to Git. Can be easily operated, simple, simple There are many tools and extensions to choose from. Enables other languages including C++, C#, Java, Python, PHP, or Go. Themes can be modified [1]

2) Xampp

Xampp is an Apache web server program to simulate a web server for testing. Scripts or websites on our device without having to connect to the internet and without any cost Easy to install and use, Xampp comes with PHP, a popular web application development language, MySQL database, Apache as a web server, Perl, and also comes with OpenSSL, phpMyadmin (a database management system developed by PHP to connect to the database It supports MySQL and SQLite databases. Xampp is available as a Zip, tar, 7z, or exe file. Xampp is licensed by the GNU General Public License, but sometimes there may be a change in copyright. Therefore, the program should be monitored and examined as well. [2]

B. Languages used to develop the system

1) PHP Hypertext Preprocessor language

PHP Hypertext Preprocessor stands for "Personal Home Page Tool" (currently adds a new acronym in total with the abbreviation PHP: PHP Hypertext Preprocessor). Examples of script languages are JavaScript, Perl, etc. Unlike other script languages, PHP was developed and designed to be used to create HTML documents, which can be inserted or edited automatically, so it is said that PHP is a language called server-side or HTML-embedded scripting language. PHP is an important tool that allows us to create dynamic web pages more efficiently and with more features. [3]

2) SQL language

SQL stands for a structured query language, a programming language to specifically manage databases, as a standard language on an open system. Different database systems have the same results, allowing us to choose from any type of database without adhering to a particular database. SQL is also the name of a database program. It's not complicated. High-performance tasks can be performed using only a few commands. SQL programs are therefore suitable for use with relational database systems. Currently, there is database management system (DBMS) software that supports the use of SQL statements such as DB2, MS-SQL, and MS-Access [4]

C. Database management system used to develop the system

phpMyAdmin is a program developed using PHP language to manage MySQL databases instead of command keys because if we are going to use a MySQL database, it is sometimes difficult and difficult to use, so there are tools to manage MySQL databases to make it easier and more efficient to manage MySQL DBMS.[5]

D. Related Research

Pennapa Chumpolpong, Pansak (2017: abstract) Development of websites to promote tourism in Lopburi Province This research is aimed at exploring Collect data, analyzing, designing structures, and developing tourism promotion websites in Mueang District, Lopburi Province, collecting information, and exploring the overall tourist attractions in Mueang District, Lopburi Province, consisting of 24 sub-districts, which are divided into tourist attractions, restaurants, etc. Beverage Shop Hotel/Accommodation Travel Activities, Festivals, Tourism Traditions With information to determine the requirements of the system, the data structure is defined within the website. Define data inheritance, website mapping, and page layout. Pages have a website management system, which within the website https://www.lopburitour.net/ interacts with tourists (Interactive), has content designs, website designs can be displayed appropriately on different devices, and are compatible with responsive web design resolutions. Convenient to automatically support display on different devices. [6]

Sumana Busbok, Pawannapas Sri-Songmuang, Manat Rattanathirakul and Wasa Promsilp(2019: abstract) Development of websites and multimedia to disseminate tourist attractions by Bang Pa-In Community Ayutthaya Province This research aims to develop websites and multimedia media to disseminate tourist attraction information by the community, Bang Pa-In District, Ayutthaya province, to find the quality and satisfaction of

tourists towards websites and multimedia media to disseminate information about tourist attractions by the community. Bang Pa-In District, Ayutthaya Province The samples used in this research included a group of 5 content and information technology experts, and tourists visiting Ayutthaya province. The tools used to collect data include website quality assessments and multimedia to disseminate tourist attractions by the community, Bang Pa-In District, Ayutthaya Province. And website satisfaction assessment form and multimedia to disseminate tourist attraction information to the community, Bang Pa-In District, Ayutthaya Province. Statistics used to analyze data include average and standard deviation. The results showed the quality of websites and multimedia materials to disseminate tourist attractions by the community, Bang Pa-In District, Ayutthaya Province. The content side is at a very quality level. The average is 4.49, the standard deviation is 0.02 in information technology, it is very quality. The average is 4.37 standard deviations of 0.11, and tourists are very satisfied with the development of websites and multimedia. The average is 4.49, the standard deviation is 0.03. [7]

III. RESEARCH METHODOLOGY

In research on the Development of web applications for tourist attractions and OTOP in Plai Bang, Bang Kruai, Nonthaburi The research the purpose is as follows promote tourism business, educate tourist attractions, and develop web applications to satisfy visitors to tourist site applications in Plai Bang Municipality and Promote OTOP distribution business in Plai Bang Municipality. The details on how to conduct the research are as follows

A. Research Tools

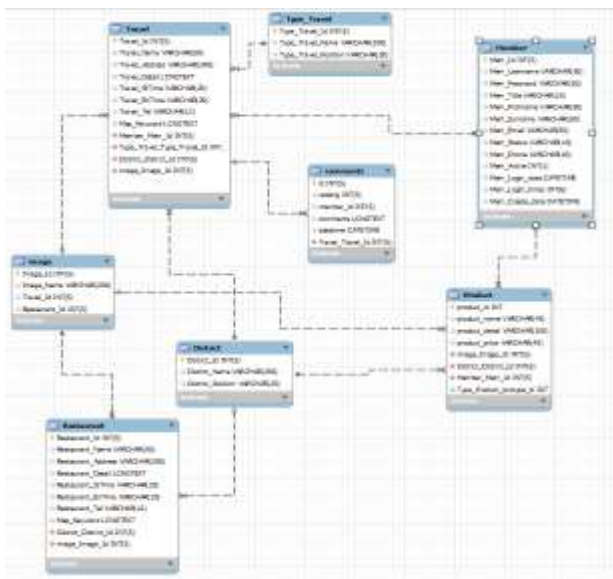#### 1) Entity Relationship Diagram Model

Figure 1. Model Development of tourist attraction web application in Plai Bang, Bang Kruai, Nonthaburi.

From Figure 1 This model is made to describe the working structure, data storage, and communication of web applications.

   a)   *The Travel Table*
It is a table that stores information about tourist attractions such as names, addresses, details, start times, end times, telephone, and maps of tourist attractions.

   b)   *The Type Travel Table*
It is a table that stores information on types of tourist attractions such as temples and other locations.

   c)   *The Member Table*
It is a table that stores information about members who subscribe to the website, information, name, username, password, title, email address, and telephone number.

   d)   *The Restaurant Table*
It is a table that stores information about restaurants such as names, addresses, details, start times, end times, telephone, and maps of restaurants.

   e)   *The image Table*
It is a table that stores all the photos on the website, such as pictures of places to visit, and restaurant pictures.

   f)   *The District Table*
It is a table that stores subdivision information of tourist attractions and OTOP such as Plai Bang, Bang Khu Wiang, and Maha Sawat.

   g)   *The Product Table*
It is a table that stores OTOP product information such as name, details, price, and image of OTOP products.

   h)   *The comments Table*
It is a table that stores the points and comments of members.

B. Statistics used in data analysis

1) General data analysis

Analyze respondents' general data on satisfaction assessments, namely percentage and frequency distribution, to show respondents' personal information to satisfaction assessments. Using the percentage formula:

$$P = \frac{f}{n} \times 100$$

Where: P   =   Percentage
f   =   Frequency to convert to percentage
n   =   Number of all data

2) Mean has the following formula:

$$\overline{X} = \frac{\sum x}{n}$$

Where: $\overline{X}$ =   Mean value of the data set
$\sum x$ =   Sum of all data
n   =   Number of all data

3) Standard deviation has the following formula:

$$S.D. = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$$

Where: S.D.   =   Standard deviation
x   =   Data value in the data set
$\overline{X}$ =   Mean value of the data set
n   =   Number of all data

IV. RESEARCH RESULT

From the operation of Development of web applications for tourist attractions and OTOP in Plai Bang, Bang Kruai, Nonthaburi. Which has research results as follows

A. Research results in an illustration

Figure 2. Homepage of tourist Attractions and OTOP Web Application in Plai Bang, Bang Kruai, Nonthaburi.

Figure 2 This page is the homepage of the website showing the recommended tourist destinations in Plai Bang Municipality.

Figure 3. Plai Bang Subdistrict Municipality Map

From Figure 3 Red Zone is the mean Bang Khu Wiang District, Yellow Zone is the mean Plai Bang District, Green Zone is the mean Maha Sawat District.

Figure 4. Tourist attractions page.

From Figure 4 This page shows all the tourist attractions in Plai Bang Municipality and has the function of selecting a district or selecting a type of tourist attraction.

Figure 5. The details of tourist attractions.

Figure 5 This page shows you the full details of selected tourist attractions such as tourist attraction history, opening and closing times, phone numbers, directions to tourist attractions, and recommended restaurants in Plai Bang Municipality.

Figure 6. Rating page and comments on tourist attractions.

From Figure 6 This section is for members who subscribe to the website only. To be able to rate and comment. For regular users, this section will not be available, but it can be viewed in other members' scores and comments.

Figure 7. The details of restaurants.

Figure 7 This page shows you the full details of selected restaurants. such as opening and closing times, phone numbers, and directions to restaurants.

Figure 8. OTOP products page.

Figure 8 This page shows all the OTOP products in Plai Bang Municipality.

Figure 9. Manage Members

From figure 9 This page contains only administrators who can access add, delete, edit, and members.

Figure 10. Manage Edit personal information.

From figure 10 This page is for members who want to edit personal information such as first-last name, phone number, email, etc.

Figure 11. Manage tourist attractions information.

From figure 11 This page contains only administrators who can access add, delete, and edit, tourist attractions such as editing names, and addresses, deleting closed tourist attractions or adding new tourist attractions.
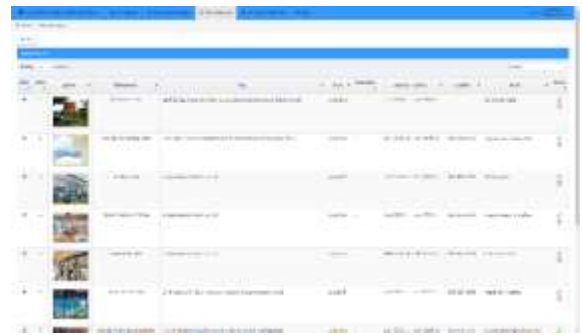

Figure 12. Manage restaurant information.

From figure 12 This page contains only administrators who can access add, delete, and edit, restaurants such as editing names, and addresses, deleting closed restaurants or adding new restaurants.

Figure 13. Manage type of tourist attractions information.

From figure 13 This page contains only administrators who can access add, delete, edit, and type of tourist attractions.

Figure 14. Manage sub-district information.

From figure 14 This page contains only administrators who can access add, delete, edit, and sub-district.

Figure 15. Manage OTOP product information.

From figure 15 This page contains only administrators who can access add, delete, and edit, OTOP products such as editing names, price, deleting OTOP products, or adding new OTOP products.

B. Satisfaction Assessment Results

Satisfaction Assessment form of Development of web applications for tourist attractions and OTOP in Plai Bang, Bang Kruai, Nonthaburi.

TABLE I.   The number and percentage of respondents to the satisfaction assessment by gender.

Sex	Number (persons)	Percent
Male	4	20
Female	16	80
Total	20	100

TABLE II.   The number and percentage of respondents to the satisfaction assessment by age

Age	Number (persons)	Percent
Less than 20 years old	7	35
20-29 years old	13	65
Total	20	100

TABLE III.   The number and percentage of respondents to the professional satisfaction assessment.

Occupation	Number (persons)	Percent
Students	16	80
Private Business	2	10
Other	2	10
Total	20	100

TABLE IV.   Evaluation of respondent satisfaction data analysis

List	Mean	S.D.	Satisfaction level
1. Content			
1.1 The amount of content is appropriate for each web page.	4.25	0.64	Good
1.2 The information is clear and accurate.	4.25	0.85	Good
1.3 The information is up-to-date and up-to-date.	4.40	0.60	Good
1.4 Illustrations and content are consistent.	4.35	0.67	Good
Total content.	4.31	0.61	Good

List	Mean	S.D.	Satisfaction level
2. Presentation Format			
2.1 The website is beautiful, appropriate, and interesting.	4.35	0.75	Good
2.2 The news on the website is appropriate and interesting.	4.25	0.72	Good
2.3 Font Style, Size, and Color Easy to read, beautiful and appropriate	4.20	0.70	Good
2.4 Suitability of the placement of sections	4.35	0.67	Good
Total presentation format.	4.29	0.56	Good
3. Application			
3.1 The system is convenient to use.	4.30	0.57	Good
3.2 Sufficient detailed information to use	4.45	0.51	Good
3.3 Can be a source of knowledge	4.50	0.61	Good
Total usage.	4.42	0.43	Good
Total	4.34	0.45	Good

V.   SUMMARY OF OPERATING RESULTS

In research on the Development of web applications for tourist attractions and OTOP in Plai Bang, Bang Kruai, Nonthaburi. The results of the research were summarized as follows.

A. Summary of operating results

From the Development of web applications for tourist attractions and OTOP in Plai Bang, Bang Kruai, Nonthaburi It was found that the web application can be used by the research of Pennapa Jumpolpong, Panak. (2017: abstract) Development of websites to promote tourism in Lopburi province and research by Sumana Busbok, Pawannapasat Sri Songmuang, Manat Rattanathirakul, and Wasa Promsilp (2019: abstract) Development of websites and multimedia to disseminate tourist attractions by Bang Pa-In Community Ayutthaya Province.

B. Problems and obstacles

1) The database research from the community is hard to manage.
2) The design of system elements is complex. Therefore, it will take time to study more.

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