WhereToPics

by

Samuel Brown and Damien Berthenet

Submitted to
the Faculty of the School of Information Technology
in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Science
in Information Technology

Samuel Brown	4/27/2020
Team Member	Date
Damien Berthenet	4/27/2020
Team Member	Date
Abdou Fall	4/27/2020
Abdou Fall, Technical Advisor	Date

University of Cincinnati
College of
Education, Criminal Justice, and Human Services

April 2020

WhereToPics

Prepared by
Samuel Brown and Damien Berthenet

Students of
University of Cincinnati
College of Education, Criminal Justice, and Human Services
School of Information Technology

April 2020

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

API	Application Programming Interface
UI	User Interface
QA	Quality Assurance

ABSTRACT

WhereToPics is a web application built on the foundation and spirit of community with the intention of sharing the best picture locations around the world! Statista.com reported 1.323 billion international tourists as of 2019, compared to 911 million just 10 years ago. Everyone will be able to add their best photograph locations and check to see if there are any other incredible picturesque spots nearby! WhereToPics is unique in that it is the only application that provides precise information about the absolute best places to take pictures. We designed WhereToPics as a website application platform so that everyone can access it from their device via internet connection. The control and monitoring of content will be overseen by elected regulator site managers. WhereToPics will continue to bring people together and reinforce the importance of sharing, interaction, and strong community. Never miss a wonderful opportunity to capture a beautiful memory again!

INTRODUCTION

Problem

As of 2019, there are ~1.323 billion international tourists yearly (Statista, 2019), as compared to 911 million international tourists just 10 years ago. The tourism industry is growing rapidly. For most of us that already have already made road trips or international trips, many questions arise such as, “Where can I find the best place to eat?” or “Where is the best place to sleep?” The answers to these important questions are found via resources such as Airbnb, Booking, or Trip Advisor. Meanwhile, no one is taking care of the questions “Where can I take the best picture, find the best landscape view, or find the best skyline view?” Our application is going to reference where people are going to find the best picturesque locations.

With social media platforms serving as a major part of our society, people want to show where they are travelling by posting beautiful pictures on Instagram, Snapchat, Facebook, etc. Our application, however, will additionally allow people to scroll through our beautiful map interface to find pins near their location or their future location to plan their next trip thanks to the picture guides they will see on the platform. There is no application or community that provides this information, and our application will be focused on where the pictures were taken (Statista, 2019).

Solution

WhereToPics is the solution! WhereToPics will be a comprehensive web application that provides travelers the opportunity to find the best points-of-view close to their relative location. Our aim is to provide precise and detailed picture location information so that users can share with the community and set future picture plans for themselves. The application provides users a unique opportunity to post their pictures to the repository, document spots, as well as capture and share beautiful memories.

Some locations will undoubtedly be in the middle of nowhere, but these unoccupied/previously undefined locations are going to merit some extremely beautiful sights. WhereToPics will enable users to input/locate precise information on the best locations to take photographs, whereas pre-existing social media platforms restrict users to just solely upload a picture with simple and restricted word counts or hashtags e.g. "#cancun" written under it. This allows users to capture valuable memories to remember their experiences as well as sharing pictures and details with a much larger audience. Many new previously unknown places would have the opportunity to be discovered and documented. A strong community is going to be built and endless growth potential is expected through this photography sharing application.

Project Goals / Brief Methodology

Develop a comprehensive picture location web application that all users can access from anywhere in the world! Wherever you are on the planet, you can find a good spot around you just by navigating on the map. WhereToPics eliminates the need to sift through social media and travel website resources. Our web application will help you locate the most incredible landscapes you can imagine. You are going to have access to a community of travelers that list their best spots around the world and documents them with pictures. When it's time for your travelling experience, just log into the application. From there, you will be fed beautiful photographs from the selected spot, that includes geo-location information – without all the hassle.

Overview

The rest of this final report outlines every aspect of the project from start to finish. The following sections are included: project concept/solution, design objectives, methodology/technical approach, technical discussion, testing, budget, project schedule (Gantt Chart / Work Breakdown Structure), problems encountered, and future recommendations.

DISCUSSION

Project Concept / Solution

The WhereToPics application is accessible via a web page. The user just simply needs to sign up to get access to the database and all the resources the community had uploaded. This platform is free to access because the goal was to create relationships, community, and to share. We got this idea from a previous discussion amongst ourselves and some friends about our need and want for a hassle-free way to share and recreate photos within our friend group. We all wanted the opportunity to find unusual and non-listed places to recreate cool photos.

Design Objectives

WhereToPics design objectives includes:

- Spotters will be allowed to upload location spots with pictures
- Photographs will be allowed to add pictures about a specific spot with different angles
- Travelers will be allowed to login on the platform and see the spots on the map
- Every user can be considered as a Spotter, Photographer or a Traveler
- Login with Standard E-mail (Username) and Password
- Visually fluid and easy to navigate UI
- Easy to follow content requirements and standards
- Tips to get started
- Quick start/setup
- Easy upload
- Easy to follow content requirements and standards
- Automatic location finder
- Search bar feature

Some of the initial goals had to be abandoned. The initial goal for automatic location with a simple internet connection feature was abandoned because you can locate someone on a website

only if he is connected to the Wi-Fi (use of the IP to locate). For a quicker location information find, mobile app development for use of phone GPS would be required.

Additionally, we abandoned the “search bar” feature for a map because it felt easier and more fun/engaging to use. The search bar did not make sense in our app to only locate existing location since it is made to locate unusual/non-listed places.

Methodology / Technical Approach

We still met our goals of creating a platform where the community can have access to precisely located spots on the map. And they can easily contribute by just uploading pictures. It is also easy to get the perfect coordinates by using the websites we linked to our form. Clicking on a spot will open Google Maps for you and you will only need to update your actual location to start a navigation to wherever you want to go.

USER PROFILES

User Profile (Basic)

Table 1: The Basic User Profile, consists primarily of travelers, tourists, and photographers. These will be the primary people interested in sharing their photos, precise locations and joining the WhereToPics community. The interface that the basic user will primarily deal with is fluid and easy to navigate and will consist of simple form textboxes, file upload feature, and map API. All other user profiles will inherit the basic user abilities.

APPLICATION: WhereToPics – Picture Location Web Application
POTENTIAL USERS: - Travelers - Tourists - Photographers
SOFTWARE, INTERFACE, AND RELATED EXPERIENCE: Most travelers, tourists and photographers will have had some experience with web applications, photography applications and/or similar social media applications. The basic user will be able to create an account, setup an account, login, upload/access pictures and locations. WhereToPics will require at least basic knowledge of uploading photographs and inputting information into forms on the web application.

EXPERIENCE WITH SIMILAR APPLICATIONS:

- Instagram
- Facebook
- Photobucket
- Photoshop
- Canva

TASK EXPERIENCE:

Users will have prior experience:

- Using a web application from their preferred browser
- Uploading photos
- Filling out forms to put descriptions with photos

FREQUENCY OF USE:

The application will be used daily by the end user. This application will be used as frequently or infrequently as the individual end user desires. The application is built around the basis of community and sharing, so the individual user can decide how involved they want to be. The web application will be accessible by users from devices such as:

- Computers
- Smartphones
- Tablets

KEY PROJECT DESIGN REQUIREMENTS THAT THE PROFILE SUGGESTS:

- Visually fluid and easy to navigate UI
- Tips to get started
- Quick start/setup
- Easy upload

Table 1. Basic User Profile

User Profile (Moderator)

Table 2: The Moderator User Profile, consists primarily of site content moderators for WhereToPics. This role will consist primarily of managing and approving picture/location content on the website. The moderators are responsible for managing content in the context of content requirement and standards. This role will inherit the basic profile abilities and will be inherited by the administrator user profile.

APPLICATION: WhereToPics – Picture location Web Application
POTENTIAL USERS: - Site Content Moderators
SOFTWARE, INTERFACE, AND RELATED EXPERIENCE: Moderators wills have prior experience with web application and content monitoring. These moderators will take on the responsibility to manage the content. Moderators will manage locations and pictures and evaluate the submitted content to ensure that it is in line with the content requirements and standards. Moderators also have all of capabilities of the *basic users*.
EXPERIENCE WITH SIMILAR APPLICATIONS: - Instagram - Photobucket - Canva
TASK EXPERIENCE: Users will have prior experience: - Using a web application from their preferred browser - Monitoring content for various other online platforms - Returning feedback to users

FREQUENCY OF USE:
This will be used by moderators daily to consistently keep up with monitoring of content. The web application will be accessible by moderators from devices such as: - Computers - Smartphones - Tablets
KEY PROJECT DESIGN REQUIREMENTS THAT THE PROFILE SUGGESTS:
- Ability to manage content - Access to database - Easy to follow content requirements and standards -

Table 2. Moderator User Profile

User Profile (Administrator)

Table 3: The Administrator User Profile, consists primarily of site administrators for WhereToPics. This role will consist primarily of managing accounts on the website. The administrators are responsible for managing accounts and various content in the context of content requirement and standards. This role inherits all previous user profile abilities.

APPLICATION: WhereToPics – Photo Web Application
POTENTIAL USERS: - Site Administrators
SOFTWARE, INTERFACE, AND RELATED EXPERIENCE: Administrators will have prior technical experience with web application design, change function, and primarily account management. Managing accounts will require knowledge of user permissions and taking decisive action. These Administrators are responsible for managing all functionality features of accounts which includes, but is not limited to: password management, account changes, ban/unbanning of users not in line with content requirements and standard. Administrators also have all of capabilities of the *moderators* and *basic users*.
EXPERIENCE WITH SIMILAR APPLICATIONS: - Instagram - Photobucket - Canva
TASK EXPERIENCE: Users will have prior experience: - Using a web application from their preferred browser - Account management - Web application moderation

FREQUENCY OF USE:

This will be used by administrators daily to consistently keep up with account management. The web application will be accessible by administrators from devices such as:

- Computers
- Smartphones
- Tablets

KEY PROJECT DESIGN REQUIREMENTS THAT THE PROFILE SUGGESTS:

- Ability to manage content
- Access to database
- Easy to follow content requirements and standards
- Access to the members list to manage accounts

Table 3. Administrator User Profile

USE CASE DIAGRAM

The following diagram, Figure 1: Use Case Diagram, displays the use case for WhereToPics. The diagram depicts all users of WhereToPics along with the corresponding tasks each user will have access to when interacting with the application.

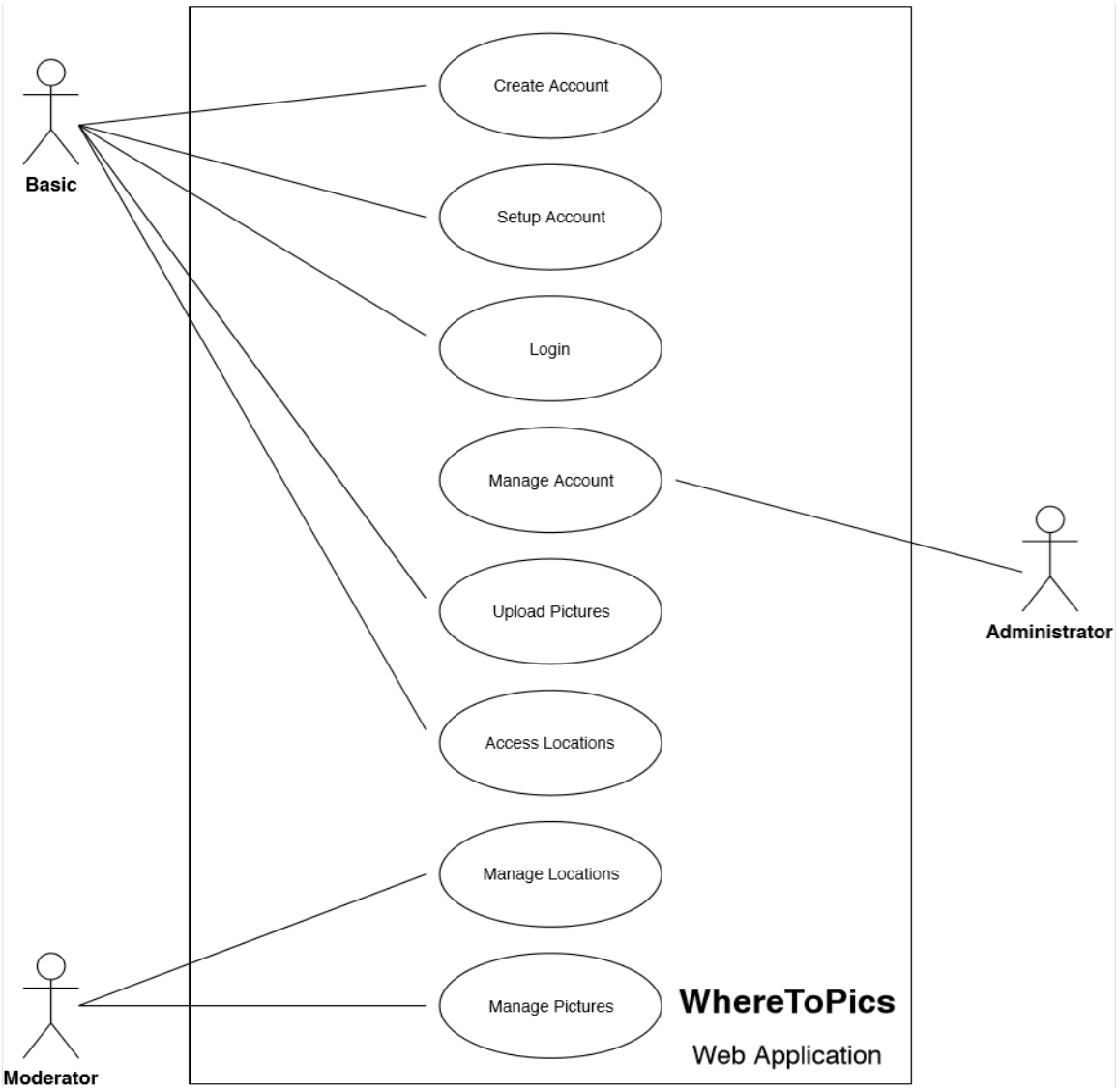


Figure 1. Use Case Diagram

TECHNICAL ELEMENTS

Network

WhereToPics will is hosted by OVH.com. This is a cost-effective solution and is easily scalable. An account was created so all team members could have admin access to the server. We bought the domain name WhereToPics.com.

Application

The application was built using JavaScript, HTML, CSS, PHP and SQL. The front-end project will be using JavaScript and the Bootstrap framework for styling. Data will be transferred via SQL between the map and the database.

Security

The security is handled by several tools. First, we took care of every scenario during the login/register and spot input form we integrated on the website to decrease the associated risks with injections. When a user is created or anytime a password is used, SHA-1 encryption is used and sent out or stored to our database. We are also using an SSL certificate which allows us to encrypt every communication between the website and the database.

Architecture

The success of any application relies heavily on the design of the software used to build the application. Figure 2: Application Architecture displays the software design of the application.

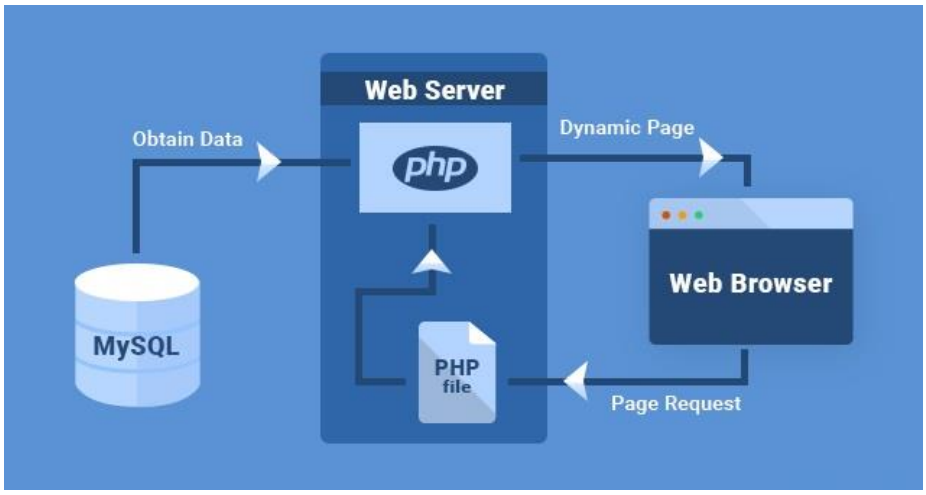


Figure 2. Application Architecture

USER INTERFACE

Home View

The home view will have a simple layout made with a header and footer, along with basic information about the application. The design will be user friendly to attract users and make it easy to navigate. The Home View will be accessible to everyone without logging in. Users will have the ability to create an account from this page. Figure 3: Home View Interface displays the current design of the Home View.

Figure 3. Home View Interface

Favorite Spot List View

The Favorite Spot List View will feature the best spots listed in our database. They will change the same way as the pictures will change, which means if the community make a choice to update them. This page allows users to rapidly access nice pictures and understand the content the platform is offering. Figure 4: Favorite Spots Interface displays the current best spots and Figure 5: Example Fourviere Interface show when you click for more.

Figure 4. Favorite Spots Interface

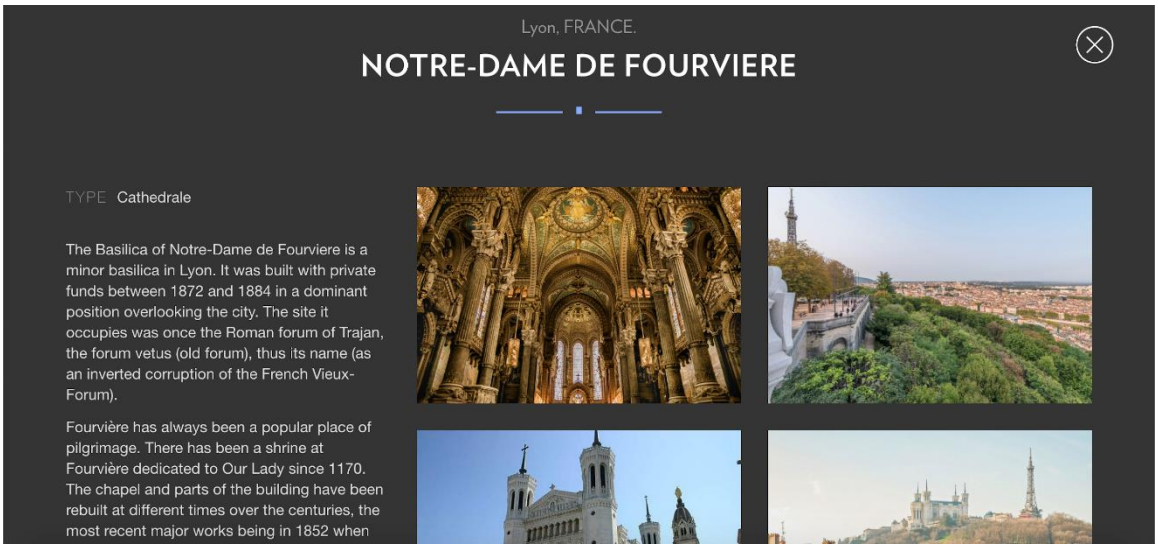


Figure 5. Example Fourviere Interface

Moderator / Admin View

The moderator view is accessible to moderators and administrators of the application. This view only has access to the management and the moderation of the spots/pictures added. Moderators also have access to the list of spots already uploaded and are able to edit them if the coordinates are not right as shown in Figure 6: List of Spot Shown on Map. Figure 7: List of Doubles for the Same Spot shows the Moderator Interface to view duplicate map inputs.

Access to the list of already uploaded spots -- to choose which pictures are the best.

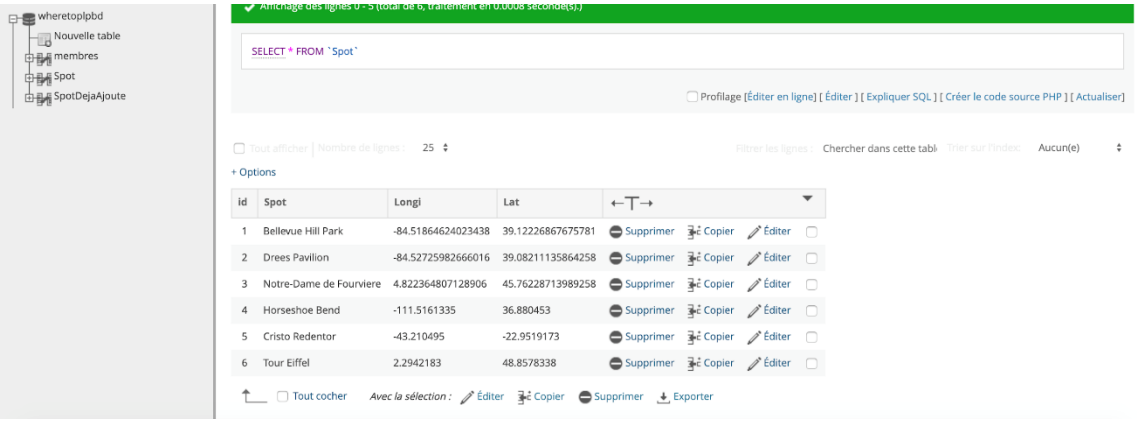


Figure 6. List of Spot Shown on Map

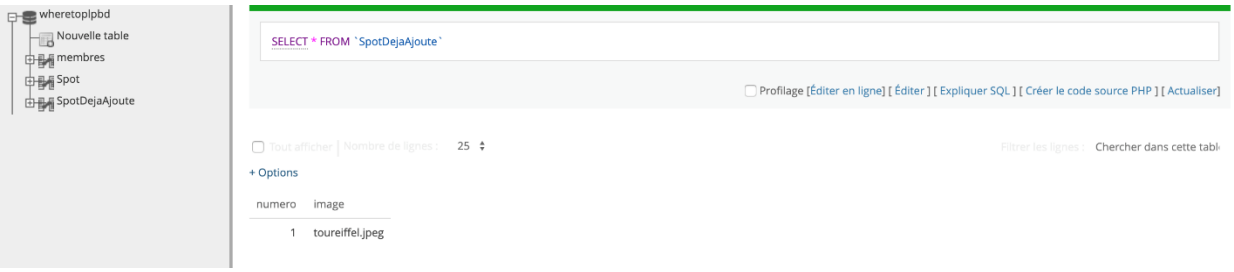
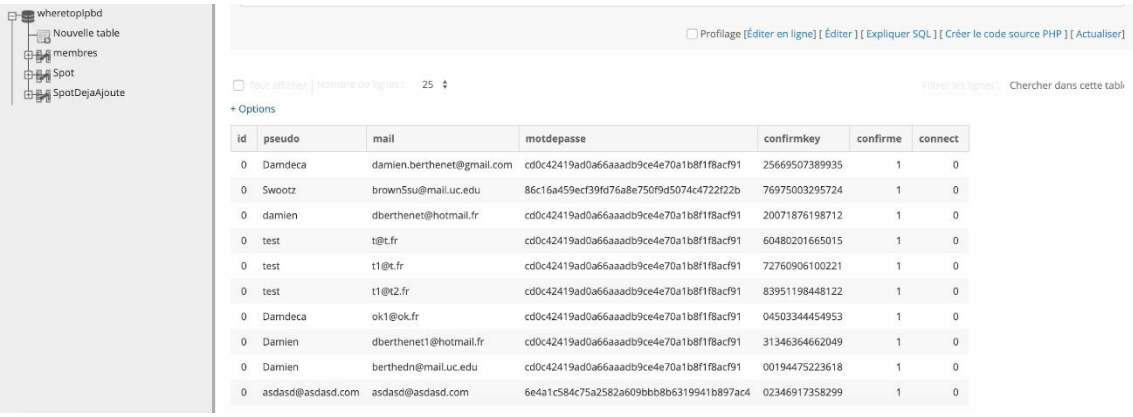


Figure 7. List of Doubles for the Same Spot

Admin Access

Admins have access to the members list to manage accounts, as shown in Figure 8: Users and Credentials List. From here, Admins can view account information and create, update, and delete users.



id	pseudo	mail	motdepasse	confirmkey	confirme	connect
0	Damdeca	damien.berthenet@gmail.com	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	25669507389935	1	0
0	Swootz	brown5su@mail.uc.edu	86c16a459ecf39fd76a8e750f9d5074c4722f22b	76975003295724	1	0
0	damien	dberthenet@hotmail.fr	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	20071876198712	1	0
0	test	t@t.fr	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	60480201665015	1	0
0	test	t1@t.fr	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	72760906100221	1	0
0	test	t1@t2.fr	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	83951198448122	1	0
0	Damdeca	ok1@ok.fr	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	04503344454953	1	0
0	Damien	dberthenet1@hotmail.fr	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	31346364662049	1	0
0	Damien	berthedn@mail.uc.edu	cd0c42419ad0a66aaadb9ce4e70a1b8f1f8acf91	00194475223618	1	0
0	asdasd@asdasd.com	asdasd@asdasd.com	6e4a1c584c75a2582a609bbb8b6319941b897ac4	02346917358299	1	0

Figure 8. Users and Credentials List

TESTING

Overview / Methodology / Plan

Our testing methodology included two major approaches. Within these, we made use of a variety of the common and highly popular Web Application Testing Methods that we have defined as testing sub-categories. The testing strategy for the WhereToPics Web Application included:

1. Manual Quality Assurance Testing
    i. Functionality Testing
    ii. Usability Testing
    iii. Interface Testing
    iv. Database Testing
    v. Compatibility Testing
2. Analytical Buzz Sessions

Objective

The primary objective of testing is to determine the overall quality and reliability of the WhereToPics Web Application. This involves checking the flow from start to finish for all major components of the Web Application. Essentially, we are seeking out bugs and errors, then taking the necessary steps to rectify any issues we come across.

Scope of Testing

Tests were conducted on the totality of the WhereToPics Web Application to identify and resolve issues before the official launch. Our test strategy was to ensure proper inspection and coverage of all the intended major features. This was facilitated by use of pass/fail test cases which are covered in-depth in the Logging Test and Procedures section of this document. Additionally, we held recurring Analytical Buzz Sessions to comb through the intricacies of the Web Application which assisted in making continual changes both in overall functionality and appearance.

Logging Test and Procedures

The following was required to begin application testing:

- Determine requirement steps to cover and test features
- Establish pass/fail conditions
- Create tables to record all test attempts and results

Tests Performed

- Functionality Testing: Used to check that our product meets the intended specifications
- Usability Testing: Used to test the site navigation.
- Interface Testing: Used to test system responsiveness between the different layers including application, web server and database server.
- Database Testing: A test on the database to ensure data integrity and proper functionality.
- Compatibility Testing: Test to ensure our Web Application displays correctly and is accessible across different browsers.

Manual Quality Assurance Test Cases / Results

The following Test Cases explain what we have done to check all the different areas of our application. This is all included under our Manual Quality Assurance Testing category. These test sub-categories will be listed with additional details for each.

Table 4: Manual QA Test Results shows our list verification and validation points (steps) of testing included 27 total line items. Of these, all 27 passed and are functioning as intended or properly validated.

Overall Passed:	27
Overall Failed:	0
Overall Progress:	100%
Overall Result:	100% Pass

Table 4. Manual QA Test Results

Functionality Testing Results

The Functionality Test Case encompassed features that included Site Access, Account Creation, Login, Map, Picture Inputs, and Location Inputs, as shown in Table 5: Functionality Testing Results. This required manual quality assurance verification and testing of a multitude of facets within the functionality of the WhereToPics Web Application.

Test Case	Assignee	Feature	Steps	Status	Notes
Functionality Testing	Sam, Damien	Site Access	1. Verify site is accessible. Open WhereToPics Web Application.	Pass	
	Sam, Damien	Account Creation	1. Verify initial account creation functionality.	Pass	
	Sam, Damien	Login	1. Verify username/password login functionality.	Pass	
	Sam, Damien	Map	1. User access to map with pins.	Pass	
	Sam, Damien	Picture Inputs	1. Verify users can upload pictures.	Pass	
	Sam, Damien	Location Inputs	1. Verify users can input locations.	Pass	

Table 5. Functionality Testing Results

Usability Testing Results

The Usability Test Case solely encompassed the Site Navigation feature, as shown in Table 6: Usability Testing Results. This required manual quality assurance verification and testing of a multitude of facets within the usability of the WhereToPics Web Application that included testing of all our menus, buttons, links, and forms.

Test Case	Assignee	Feature	Steps	Status	Notes
Usability Testing	Sam	Site Navigation	1. Test all menus.	Pass	
			2. Test all buttons.	Pass	
			3. Test all links.	Pass	
			4. Test all forms.	Pass	

Table 6. Usability Testing Results

Interface Testing Results

The Interface Test Case encompassed features that included Home View, Favorite Spot View, HTML and CSS check, Application, Web Server, and Database Server – as shown in Table 7: Interface Testing Results. This required manual quality assurance verification and testing of a multitude of facets within the interface of the WhereToPics Web Application.

Test Case	Assignee	Feature	Steps	Status	Notes
Interface Testing	Damien	Home View	1. Verify Home View Interface properly functioning.	Pass	
		Favorite Spot View	1. Verify Favorite Spot List View Interface properly functioning.	Pass	
		HTML and CSS	1. Checking for syntax errors	Pass	
			2. Verify readable color schemas.	Pass	
		Application	1. Test requests are sent correctly to database and output at client side correctly displayed.	Pass	
		Web Server	1. Test Web Server is handling all application requests without any service denial.	Pass	
		Database Server	1. Ensure queries sent to database give expected results.	Pass	

Table 7. Interface Testing Results

Database Testing Results

The Database Test Case solely encompassed Data Integrity, shown in Table 8: Database Testing Results. This required manual quality assurance verification and testing of a multitude of facets with the Database used for the WhereToPics Web Application. This included verifying the integrity of data was maintained upon creation, update, and deletion. We also ran countless queries and tested to see if we received any errors. An immensely important piece of the Database Testing was validating that the data retrieved from the database was accurately depicted in the WhereToPics Web Application. Our test merited only positive results and this portion of manual quality assurance testing was a huge success, with a pass status for every test.

Test Case	Assignee	Feature	Steps	Status	Notes
Database Testing	Damien	Data Integrity	1. Verify data integrity maintained upon creation.	Pass	
			2. Verify data integrity maintained upon updating.	Pass	
			3. Verify data integrity maintained upon deletion.	Pass	
			4. Test for errors while executing queries.	Pass	
			5. Validate data retrieved from database is accurately depicted in Web Application.	Pass	

Table 8. Database Testing Results

Compatibility Testing Results

The Compatibility Test Case solely encompassed Multi-Browser Accessibility, as shown in Table 9: Compatibility Testing Results. More specifically, ensuring that the WhereToPics Web Application was able to be accessed and viewed through all major browsers including Google Chrome, Firefox, Internet Explorer, Microsoft Edge, and Safari. Manual verification of each merited entirely positive and passing results. The WhereToPics Web Application is viewable from all of these browsers.

Test Case	Assignee	Feature	Steps	Status	Notes
Compatibility Testing	Sam	Multi-Browser Accessibility	1. Validate Google Chrome accessibility.	Pass	
			2. Validate Firefox accessibility.	Pass	
			3. Validate Internet Explorer accessibility.	Pass	
			4. Validate Microsoft Edge accessibility.	Pass	
			5. Validate Safari accessibility.	Pass	

Table 9. Compatibility Testing Results

Analytical Buzz Sessions

Since the very beginning of building the WhereToPics Web Application, our team has closely dedicated time and effort into online meetings we have deemed “Analytical Buzz Sessions.” We have these online meetings at least weekly. We used these sessions to crawl through all of the aspects of the Web Application, which assisted in making continual changes both in overall functionality and appearance.

It is a constant effort in implementation, change, rearrangement, updates, resetting, etc. We have constantly been testing throughout the entire life cycle of this project. We implement features, test their functionality, try to break them, try to get errors thrown, and try to tackle features and issues with endless approaches and efforts.

Original Project Budget

Table 10: Original Project Budget outlines the original budget for this project. The expenses are sorted into two categories: materials and labor. In order to keep the hardware costs down, the backend is hosted using OVH. All frameworks and development tools used to create the application are free and open source. The simulated (i.e., real world) wage cost totaled $18,000 under the assumption that each team member would earn $30 per hour. The originally anticipated cost actual of this project was $0.

Resource	Description	Expected Cost	Actual Cost
Hardware	Our personal computers.	$0	TBD
Software	OVH, Google Maps API, MySQL.	$100	TBD
Labor & Wages	Actual Wage Cost	$0	TBD
	***Simulated Wage Cost	***$18000	TBD
Totals		$100	

Table 10. Original Project Budget

Final Project Budget

Table 11: Final Project Budget outlines the final budget for this project. Most aspects are identical to the original project budget. The expenses are sorted into two categories: materials and labor. In order to keep the hardware costs down, the backend is hosted using OVH. All frameworks and development tools used to create the application are free and open source. The

simulated (i.e., real world) wage cost totaled $18,000 under the assumption that each team member would earn $30 per hour. The actual cost of this project is only $28 per year for OVH hosting services.

Resource	Description	Expected Cost	Actual Cost
Hardware	Our personal computers.	$0	$0
Software	OVH, Google Maps API, MySQL.	$100	$28/year
Labor & Wages	Actual Wage Cost	$0	$0
	***Simulated Wage Cost	***$18000	$0
Totals		$100	$28/year

Table 11. Final Project Budget

GANTT CHART & WBS

The following section encompasses both the Gantt Chart and the Work Breakdown Structure for the WhereToPics project. Figure 9: Project Schedule Gantt Chart portrays the entire timeline for the WhereToPics project from start to finish to illustrate how the project was run. Table 12: Work Breakdown Structure shows the in-depth overview of all tasks included and schedule within the WhereToPics Project. These tasks were both measurable and independent with limits that are clearly defined. This includes sections such as *Project Management and Deliverables, Research, System Design, Environment Set-up, Development and Testing.*

PROJECT SCHEDULE

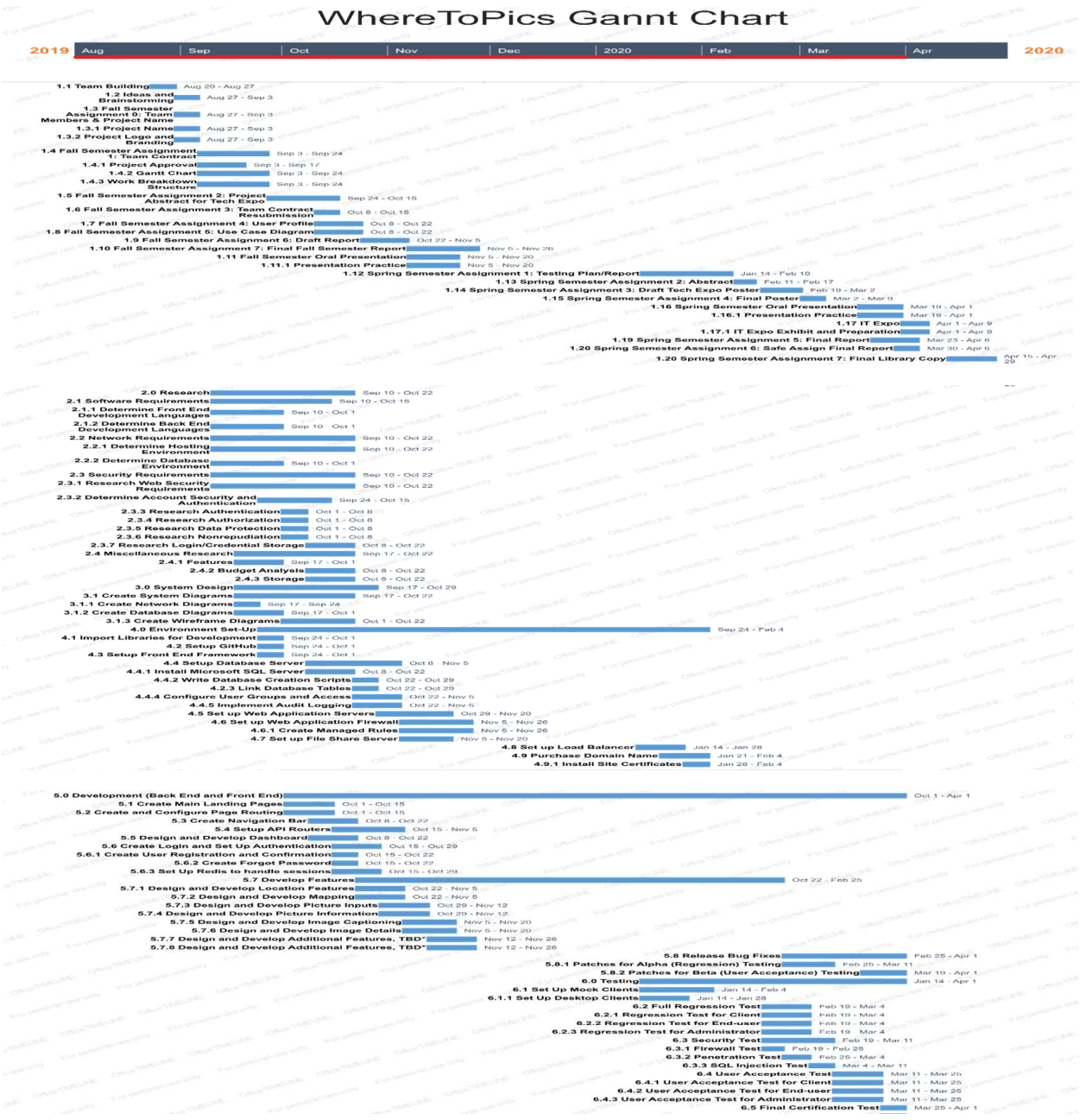


Figure 9. Project Schedule Gantt Chart

WhereToPics WBS			
Task Name	**Duration (Days)**	**Start Date**	**End Date**
1. 0 Project Management and Deliverables	219	8/20/20	4/1/20
1.1 Team Building	7	8/20/19	8/27/19
1.2 Ideas and Brainstorming	7	8/27/19	9/3/19
1.3 Fall Semester Assignment 0: Team Members & Project Name	7	8/27/19	9/3/19
1.3.1 Project Name	7	8/27/19	9/3/19
1.3.2 Project Logo and Branding	7	8/27/19	9/3/19
1.4 Fall Semester Assignment 1: Team Contract	21	9/3/19	9/24/19
1.4.1 Project Approval	14	9/3/19	9/17/19
1.4.2 Gantt Chart	21	9/3/19	9/24/19
1.4.3 Work Breakdown Structure	21	9/3/19	9/24/19
1.5 Fall Semester Assignment 2: Project Abstract for Tech Expo	21	9/24/19	10/15/19
1.6 Fall Semester Assignment 3: Team Contract Resubmission	7	10/8/19	10/15/19
1.7 Fall Semester Assignment 4: User Profile	14	10/8/19	10/22/19
1.8 Fall Semester Assignment 5: Use Case Diagram	14	10/8/19	10/22/19
1.9 Fall Semester Assignment 6: Draft Report	14	10/22/19	11/5/19
1.10 Fall Semester Assignment 7: Final Fall Semester Report	21	11/5/19	11/26/19
1.11 Fall Semester Oral Presentation	14	11/5/19	11/20/19
1.11.1 Presentation Practice	14	11/5/19	11/20/19
1.12 Spring Semester Assignment 1: Testing Plan/Report	28	1/14/20	2/10/20
1.13 Spring Semester Assignment 2: Abstract	7	2/11/20	2/17/20

1.14 Spring Semester Assignment 3: Draft Tech Expo Poster	12	2/19/20	3/2/20
1.15 Spring Semester Assignment 4: Final Poster	7	3/2/20	3/9/20
1.16 Spring Semester Oral Presentation	14	3/19/20	4/1/20
1.16.1 Presentation Practice	14	3/19/20	4/1/20
1.17 IT Expo	7	4/1/20	4/9/20
1.17.1 IT Expo Exhibit and Preparation	7	4/1/20	4/9/20
1.19 Spring Semester Assignment 5: Final Report	14	3/23/20	4/6/20
1.20 Spring Semester Assignment 6: Safe Assign Final Report	7	3/30/20	4/6/20
1.20 Spring Semester Assignment 7: Final Library Copy	14	4/15/20	4/29/20
2.0 Research	42	9/10/19	10/22/19
2.1 Software Requirements	35	9/10/19	10/15/19
2.1.1 Determine Front End Development Languages	7	9/10/19	10/1/19
2.1.2 Determine Back End Development Languages	14	9/10/19	10/1/19
2.2 Network Requirements	42	9/10/19	10/22/19
2.2.1 Determine Hosting Environment	42	9/10/19	10/22/19
2.2.2 Determine Database Environment	21	9/10/19	10/1/19
2.3 Security Requirements	42	9/10/19	10/22/19
2.3.1 Research Web Security Requirements	42	9/10/19	10/22/19
2.3.2 Determine Account Security and Authentication	21	9/24/19	10/15/19
2.3.3 Research Authentication	7	10/1/19	10/8/19
2.3.4 Research Authorization	7	10/1/19	10/8/19
2.3.5 Research Data Protection	7	10/1/19	10/8/19

2.3.6 Research Nonrepudiation	7	10/1/19	10/8/19
2.3.7 Research Login/Credential Storage	14	10/8/19	10/22/19
2.4 Miscellaneous Research	35	9/17/19	10/22/19
2.4.1 Features	14	9/17/19	10/1/19
2.4.2 Budget Analysis	14	10/8/19	10/22/19
2.4.3 Storage	14	10/8/19	10/22/19
3.0 System Design	42	9/17/19	10/29/19
3.1 Create System Diagrams	35	9/17/19	10/22/19
3.1.1 Create Network Diagrams	7	9/17/19	9/24/19
3.1.2 Create Database Diagrams	14	9/17/19	10/1/19
3.1.3 Create Wireframe Diagrams	21	10/1/19	10/22/19
4.0 Environment Set-Up	133	9/24/19	2/4/20
4.1 Import Libraries for Development	7	9/24/19	10/1/19
4.2 Setup GitHub	7	9/24/19	10/1/19
4.3 Setup Front End Framework	7	9/24/19	10/1/19
4.4 Setup Database Server	28	10/8/19	11/5/19
4.4.1 Install Microsoft SQL Server	14	10/8/19	10/22/19
4.4.2 Write Database Creation Scripts	7	10/22/19	10/29/19
4.2.3 Link Database Tables	7	10/22/19	10/29/19
4.4.4 Configure User Groups and Access	14	10/22/19	11/5/19
4.4.5 Implement Audit Logging	14	10/22/19	11/5/19
4.5 Set up Web Application Servers	21	10/29/19	11/20/19
4.6 Set up Web Application Firewall	21	11/5/19	11/26/19
4.6.1 Create Managed Rules	21	11/5/19	11/26/19
4.7 Set up File Share Server	14	11/5/19	11/20/19
4.8 Set up Load Balancer	14	1/14/20	1/28/20

4.9 Purchase Domain Name	14	1/21/20	2/4/20
4.9.1 Install Site Certificates	7	1/28/20	2/4/20
5.0 Development (Back End and Front End)	175	10/1/19	4/1/20
5.1 Create Main Landing Pages	14	10/1/19	10/15/19
5.2 Create and Configure Page Routing	14	10/1/19	10/15/19
5.3 Create Navigation Bar	14	10/8/19	10/22/19
5.4 Setup API Routers	21	10/15/19	11/5/19
5.5 Design and Develop Dashboard	14	10/8/19	10/22/19
5.6 Create Login and Set Up Authentication	14	10/15/19	10/29/19
5.6.1 Create User Registration and Confirmation	7	10/15/19	10/22/19
5.6.2 Create Forgot Password	7	10/15/19	10/22/19
5.7 Develop Features	77	10/22/19	2/25/20
5.7.1 Design and Develop Location Features	14	10/22/19	11/5/19
5.7.2 Design and Develop Mapping	14	10/22/19	11/5/19
5.7.3 Design and Develop Picture Inputs	14	10/29/19	11/12/19
5.7.4 Design and Develop Picture Information	14	10/29/19	11/12/19
5.7.5 Design and Develop Image Captioning	14	11/5/19	11/20/19
5.7.6 Design and Develop Image Details	14	11/5/19	11/20/19
5.7.7 Design and Develop Additional Features, TBD*	14	11/12/19	11/26/19
5.7.8 Design and Develop Additional Features, TBD*	14	11/12/19	11/26/19
5.8 Release Bug Fixes	28	2/25/20	4/1/20
5.8.1 Patches for Alpha (Regression) Testing	14	2/25/20	3/11/20
5.8.2 Patches for Beta (User Acceptance) Testing	14	3/19/20	4/1/20

6.0 Testing	77	1/14/20	4/1/20
6.1 Set Up Mock Clients	21	1/14/20	2/4/20
6.1.1 Set Up Desktop Clients	14	1/14/20	1/28/20
6.2 Full Regression Test	14	2/19/20	3/4/20
6.2.1 Regression Test for Client	14	2/19/20	3/4/20
6.2.2 Regression Test for End-user	14	2/19/20	3/4/20
6.2.3 Regression Test for Administrator	14	2/19/20	3/4/20
6.3 Manual Quality Assurance Test Cases	21	2/19/20	3/11/20
6.3.1 Functionality Testing	7	2/19/20	2/25/20
6.3.2 Usability Testing	7	2/25/20	3/4/20
6.3.3 Interface Testing	7	3/4/20	3/11/20
6.3.3 Database Testing	7	3/4/20	3/11/20
6.3.3 Compatibility Testing	7	3/4/20	3/11/20
6.4 User Acceptance Test	14	3/11/20	3/25/20
6.4.1 User Acceptance Test for Client	14	3/11/20	3/25/20
6.4.2 User Acceptance Test for End-user	14	3/11/20	3/25/20
6.4.3 User Acceptance Test for Administrator	14	3/11/20	3/25/20

Table 12. Work Breakdown Structure

PROBLEMS ENCOUNTERED

The Google Maps API integration was a bit of a difficult and lengthy process. We had little knowledge of making PHP and JavaScript work together. After much effort in research, we went through a huge trial and error phase. A lot of time was put into working through the issue.

We were initially having issues pushing our web application online. We had to make a series of changes to get everything working properly. We eventually figured out how to get everything working after some time. This was facilitated by the decision to use OVH as our hosting service.

There were tons of tedious and time-consuming UI adjustments that needed made and we kept having some issues navigating through it all. This again was a long process of adjusting, updating, recreating, etc.

FUTURE RECOMMENDATIONS

First and foremost, we could improve our code clarity. While everything is functioning properly and features are working as intended, our code is a bit messy and will need some extra cleanup and commenting for the future if anyone outside of the project were to ever need to access anything and make changes. Second, improvements to be made encompassing those involving improved security - as suggested in our post final presentation questioning. This feedback gave us some great insight to some things that we missed and plan to take that information into consideration and apply that knowledge moving forward.

If we had to do it all over again, we would most definitely bring on a third team member to assist with some of the workload. We would search for someone with mobile application development knowledge. Having that extra member would give us the resources to add even more features or possibly even expand into an actual downloadable phone application. If we had more time, we would focus on improving the areas that our advisors said needed work. If we were given a significant portion of time, we would hopefully develop the WhereToPics Web App into a working mobile application as well.

We received a few suggestions for our project. One suggestion we had from others included things such as using phone GPS to calculate coordinates for pictures. Additionally, a suggestion was made to add more security features to the WhereToPics Web Application.

There are currently no future plans for this project.

CONCLUSION

Fall Semester 2019

The process of gathering all the necessary information for the Project Management portion of the course has been lengthy, but highly useful. One of our biggest lessons learned thus far is how important setting yourself up for success is. This came in the form of research, assignments, and building documentation. This documentation helped establish expectations and to get everything organized and make sense to the team. The majority of the paperwork and background work to establish the foundation on which our project rests in complete. The total process for development of our web application for the Fall Semester 2019 has been quite productive and an excellent learning experience. Now that our documentation is nearly complete, we can continually and constantly reference it to keep ourselves accountable.

Our team progressed forward with open communication and honesty. Together, we were able to figure out what we will need to make this project and ourselves successful. At one point, we were struggling to come up with an original logo idea that represents who we are as a team and separates itself in originality. At the current point in time, we believe we will use AWS for hosting purposes – but may look to other options.

The Spring will prove to be a major shift in focus for us. We have the major components of documentation done and well as many of the minor components of our web application. Our team will be hard shifting its focus into more technical aspects of the project and bringing everything together to get the web application fully functional. For us, this means the completion of implementing our hosting service, map API, and MySQL. There will undoubtedly be some tweaking of the UI as well at points.

Spring Semester 2020

Our team learned so much throughout this entire process. We discovered many things we were good at and developed many new skills. We developed many new design and interface skills by asking for tips from designer blogs online. We also learned a ton of information regarding Google API and Google Developer console, which was quite difficult to use. The process of building something from scratch really helped us to identify many areas we need to improve on from a technical standpoint.

The Spring 2020 Semester included a ton of work and merited a ton of success. We developed our login interface from scratch, implemented the Google Map API, and then we pushed our site to the OVH hosting service. Then, we transferred the database from local to online. We created the spot upload, made reworks for location input, made an addition of coordinate input, and completed the testing phase for the app. Additionally, we implemented file size management for uploaded pictures on the back end - this is if compression is needed. With this, we set up proper storage procedures for any spots that were previously uploaded to another table and folder. There was also constant testing wherein we made countless user interface adjustments.

Our professors helped us identify some areas of weakness. We did not rank as well in the "development of new technical aspects category" as we had hoped for. This provided us with recommendations to improve the WhereToPics Web App. From the beginning, we wanted to stay a two-man team to push ourselves and to keep communication simple. Our intention as a two-man team was to work in a manner that was smart and efficient. We believe we still accomplished all of our primary goals. We would personally like to thank Professor Scott and Professor Fall for their insight and feedback throughout the entire project. Their guidance pushed

us to constantly challenge ourselves. We are proud to present this product. We are WhereToPics – Never miss a wonderful opportunity to capture a beautiful memory again!

APPENDIX

Appendix A. Code & Tools

Tools Used:

- https://github.com/berthedn/WTP
- https://cloud.google.com/maps-platform/maps?hl=en
- https://us.ovhcloud.com/solutions/websites

Appendix B. Additional Information

Team Members and Responsibilities:

Project Manager and Security Analyst: Samuel Brown

- Responsible for developing and updating the project plan
- Facilitates project requirements/group discussions and scheduling weekly team meetings
- Publishes meeting notes, bi-weekly updates, and action items for the team
- Responsible for writing drafts of all required assignments
- Submits all assignments for the course
- Completes all security requirements

Business Analyst and Software Developer: Damien Berthenet

- Responsible for developing the front-end software requirements
- Responsible for developing the back-end software requirements
- Responsible for installation and configuration of database
- Responsible for planning and creating testing requirements
- Responsible for gathering feedback and communication with outside parties
- Completes all software development requirements

Appendix C. References

Stipp, H. (2019, October 8). International tourist arrivals worldwide 2018. Retrieved November 10, 2019, from https://www.statista.com/statistics/209334/total-number-of-international-tourist-arrivals/.

Appendix D. Project Poster

WhereToPics

Never miss a wonderful opportunity to capture a beautiful memory again!

University of CINCINNATI

About

WhereToPics is a web application built on the foundation and spirit of community with the intention of sharing the best picture locations around the world! Everyone will be able to add their best photograph locations and check to see if there are any other incredible picturesque spots nearby!

Problem

- No Community based Photography app
- Lack of precision for the location
- No photo guide app

Technologies Used

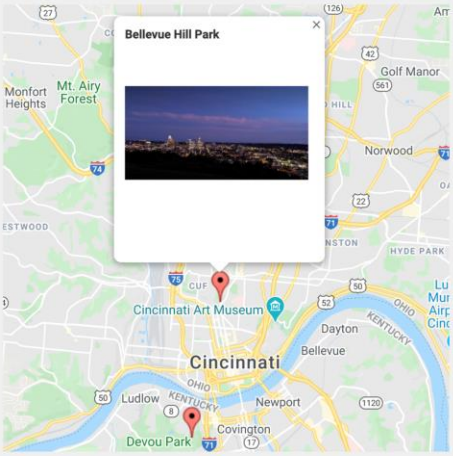
HTML CSS JS php OVH.com MySQL

1
Find A Spot

2
Take A Pic

3
Share It

Solution



University of Cincinnati CECH - School of Information Technology
Damien Berthenet and Samuel Brown - Team 09 - Technical Advisor: Professor Fall