PlacePic

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Imagine if a user could travel the world without leaving the comfort of their computer desk at home. This aspect of convenience is what motivated me to develop PlacePic. PlacePic is a virtual online travel journal incorporated into a social media network, which gives the user the ability to instantiate a public or private journal that enables them to interact to the fullest extent with the functionality of PlacePic. With just a username and password provided, anyone can easily create a journal on PlacePic.

A journal on PlacePic is a map and essentially the user’s home page, which allows them to upload pictures along with the place in the world where they took it. Correspondingly, the picture is plotted on that user’s journal which allows them to visually see all their pictures in the journal. A marker represents each picture once plotted and when clicked, an information window opens within the journal displaying that picture and simultaneously zooming in to that location.

Since PlacePic is meant to be a personal travel journal and a social media network, once a user creates a journal they have the access to be able to follow any other user who has a travel journal as public. By simply going to the explore tab it displays all of the public users and by simple pressing on the user you want to follow all of that users journal posts are uploaded to your people map along with any other users that you currently follow. Within the people map there is a feature where all the markers are bundled based on the zoom level of the map, which creates an easy and non-clustered view of the markers. Once the user presses and opens any marker the username is displayed at the top of the information window and below is the picture from that user. My favorite feature, which is a 5 star-rating button, gives the user a more in-depth thought about the picture than just liking or disliking it. This feature of rating appears on users’ pictures will then be displayed on each user’s journal below the picture content in the information window. The user also has full control over their privacy settings and full capability to change their username and password and delete their picture, whenever they feel necessary. This privacy feature is within the privacy tab along with journal, people, and explore.

PlacePic depends primarily on a database since it is a database driven application. The design of the database is mostly dependent on the use of the user’s ID. The user’s ID is given when an account is created; each user ID is unique and with that user ID I can retrieve all the information needed from any table in the database. The functional dependencies are that with the unique user ID, any piece of information needed about that user or associated with that user can be retrieved with their user ID.

There are multiple tables used in the database whose labels are users, pictures, rating, and follow tables, where users include username, password, and user ID as a primary key. The password is an md hash to keep it from being hacked or stolen. The pictures table has the user ID from the user who is going to follow the other user and also incudes the other user’s user ID. Also included is a link to the location where the image is stored (that is also hashed with the date and time to get a unique name with 15 digits), where given the user ID of the user who is currently logged on it allows for easy access to all the pictures of the users who that user follows. In the follows table, the same logic is applied and given the current logged-in user ID, all the people who that user follows are easy to access as well as their information can be displayed on the current logged in users map. Additionally, the rating table implies the same logic and has the current logged in user’s user ID as the primary key and each tuple contains a rating value and the user ID of the user who rated and the picture link of that picture which was rated. This database implementation is in third normal form. There are no constraints on values because everything is mostly dependent on the user id. The ER diagram and the relational model are going to be drawn out on a separate page at the end.

The functions used in PlacePic that are involved directly within the database include, insertions, retrievals, updates, and deletes.

Insertion happens when a new user is created and inserted into the users table where that user gets a unique ID. When that user uploads a picture, the pictures tables is inserted on with the users ID, the location of the picture, and the link to the image. When the user follows another user, the follow tables is inserted on with the current user’s ID and user’s ID that that user wants to follow. When the user rates a picture, that rating table is inserted on with the current user’s ID and the followed user id along with the rating that user gave.

Retrievals occur when the user logs onto their journal. Data is pulled from the database from the pictures table, which uses the user ID to obtain all the pictures from that user and retrieves all the latitude and longitude coordinates to plot the picture on their journal. On the People page, similar logic applies but here it is more advanced because it takes two tables to find out which pictures to display based on the users that user follows. For this, I used a not in command that took a while to create, the logic if to start with all the user IDs that are in the follow table with the current users ID and then retrieve those users’ pictures from the picture table.

Updates occur on the privacy page when the user wants to update their username or password. And basic deletions occur when a user wants to delete a picture. All these functions are implemented with the logic of user ID, the key to all the information for each user.

Implementation of the front end of PlacePic involved three different languages. PHP was used to handle the communication with the database so mostly backend work, HTML and bootstrap which was what I used to implement the front end design of the website, and JavaScript to handle a Google map API that I used for the maps to send in the user’s latitude and longitude values from each picture, and the API posts that picture within a marker on the corresponding location. Along with Google maps API, I also used a library for bundling the markers on a map, which I integrated into the map for better looks of the markers when there are multiple in one area so it wouldn’t look so cluttered. Also I used a reverse geo location function from the Google map API to allow the user to enter any location while uploading a picture and it would return the corresponding latitude and longitude coordinates which is what is stored in the pictures table for the location.

The front end and the backend talk with each other in various ways. Since I used bootstrap to implement most of my front end along with html, I just post the values when they are submitted to access them on which ever page I’m going to be needing them; for example, for logging in the user name and password are posted to a temporary homepage to check if the username and password are correct and if they are, they get redirected to their homepage and if not, than they are redirected to an error page.

My experiences with developing PlacePic have been very useful since this is my first website. Initially, I was very intimidated by the idea of creating a social network because I couldn’t imagine how it was going to be possible to make. But since I have been learning about databases, I successfully solved the issue of storing users data. A challenge at first was with the PHP session variable to keep that user logged into to my website virtually, when in reality, it’s just a directory of webpages. This project really made me understand a lot more about what websites really are and how they are not as complicated as I imagined them to be. Challenges in creating MYSQL statements I think was on the top two of most challenging things I had to deal with but was a very inspiring process when I would finally create the one statement that worked for the situation I needed. For example, I got really stuck on trying to find all the people that a certain user followed and to display all those users pictures. I got stuck on trying to find all the people who that person doesn’t follow too, so I could display them to that user so they could follow them if they wanted too. In the future, I aspire to make PlacePic more appealing to users by adding more graphics and other awesome interactive features.

References:

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