Web Development: How Web Development Can Elevate Local Businesses

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Web Development: How Web Development Can Elevate Local Businesses

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Abstract

Following the recent global pandemic, many smaller, local restaurants found themselves struggling to stay afloat. During this time, many restaurants found a strong online presence to be a vital outreach for connecting to customers. One way to aid many local restaurants in their efforts to expand their customer base and simultaneously drive more potential business was to create a local restaurant review site. To this end, a web application, Cville Eats, was created to create a centralized site where local restaurants could upload information about their websites, and patrons could leave reviews as well as browse reviews and ratings and explore local businesses. The web application used HTML, CSS, Javascript, and PHP to create a dynamic site hosted on Google Cloud Platform. The site allowed users to add their restaurant to the site or to add, delete, modify, or search reviews using a variety of parameters. It also featured restaurants based on the highest rating or recent review in addition to a random generator for people interested in trying new cuisines. This application could provide great value to restaurants that may not have a prominent online presence as well as to the local community by bringing together both restaurant owners to collaborate with each other and potential patrons to inform one another. Future work on the project could include expansion by adding a gallery for each restaurant, where customers could add more than one photo, along with separate logins and controls for restaurant owners and customers.

1. Introduction

Since the beginning of the pandemic in 2020, the United States Census report estimated that restaurants and bars lost an estimated $280 billion in revenue. Public fear about the virus and government mandates and protocols meant that despite their best efforts, restaurants were struggling to bring in enough business. In addition, the industry found itself facing a labor shortage and supply chain issues and needed to find a way to adjust their operations to adapt to all these changes.

Many restaurants found that embracing technology enabled them to counter the damages from the pandemic and to continue to grow. Online ordering, contactless food delivery services, and shifting to a digital work model demonstrate how technology was crucial for restaurants in adapting to consumer demand. In order for the shift to a heavier dependence on technology to be successful, restaurants need to establish a strong online presence and advertise themselves well so that they can put online purchasing methods to use. This is where Cville Eats can aid local restaurants in recovering from the effects of the pandemic.

2. Related Works

Even before the pandemic, businesses recognized the importance of having a strong online presence. For restaurants, this included review sites where user generated content advised potential customers. The process of deciding where to go out to eat has evolved to include browsing through online reviews before coming to a decision. Studies performed in 2017 by Forbes [2] found that 88% of consumers trust online reviews as much as a personal recommendation. Positive online reviews are especially important for restaurants because they can spark an increase in revenue and more customer spending. This highlights the impact that reviews can have for the restaurant industry, and suggests that having a centralized site for reviews can allow for greater exploration and exposure for businesses.

A SpotOn blog (2021) [3], discusses the importance of maintaining a business's full digital presence in order to emphasize that the customer experience is important to their mission. This means restaurants should maintain updated information, engage with customers, and keep tabs on how their business is performing in the eyes of their patrons. A centralized online review site allows restaurants to collect and monitor reviews in one place, see how their business is performing and create goals to improve diners' experiences. It not only gives greater exposure and a heightened online presence, but also gives owners a better picture of the customer experience and how to make improvements to continue to drive in traffic.

3. Project Design
The purpose of this web application was to support multiple users in submitting restaurant reviews and viewing reviews left by others. The web application consists of several key components and features that work together to create a project that gives users a comprehensive and fulfilling experience.

3.1 Review of Design
This web application was designed using HTML, CSS, Javascript, PHP, and Angular and was hosted on Google Cloud Platform. HTML, CSS, and Javascript were used to design the front end of the application that the user interacts with and PHP and Angular were used to handle the database and store user and restaurant information. Once users create an account and log in, they can see all the restaurants available that they can browse through or leave a review for. Users can choose to add restaurants, leave reviews, and edit their own reviews. The application also offers features that allow users to see the highest rated restaurants, their recent reviews, generate suggestions for dining locations, and to filter restaurants based on certain criteria.

3.2 Key Components
This web application was composed of several different components, including the login page, landing page, add restaurant and review features, restaurant list, and random restaurant generator. These components all work together to create a straightforward, comprehensive, and easy to use experience.

3.2.1 Login/Sign Up Page
The first page that users see when they arrive on our web application is the login/sign up page. We designed the application so that you would only be able to use it once you have logged in. The reasoning behind this was so that users can always be able to see their review history and their own restaurants whenever they accessed our app. For those without an account, we have the option to create an account with name, email address, and a high strength password. Once the account is created, the user is taken back to the login page and instructed to sign in.

3.2.2 Landing Page

Once the user has logged in to the application, they are taken to the main/landing page. The top of the page consists of a banner with links back to the landing page, to the restaurant list, to the random generator, and to log out. The landing page consists of: a search bar at the top to search for restaurants based on cuisine type, location, or other criteria; quick links to the top three rated restaurants; and quick links to the user's three most recent reviews.

3.2.3 Restaurant List
When the user clicks on the restaurant list tab, they are taken to an exhaustive list of restaurants in our database. There are filters located at the top of the page to filter cuisine type, price range, location, and to sort by number of reviews and overall rating. For each restaurant entry in the list, a brief overview of the restaurant cuisine type, overall rating, number of reviews, and a picture of the restaurant is given, along with a link to go to the restaurant's menu and a button to leave a review.

3.2.4 Add Restaurant
On the restaurant list page, there is also the option to add a new restaurant. To do so, the user must fill in all the required fields about the restaurant name, cuisine type, location, hours, menu, and etc. Each restaurant is then generated its own page, where basic information about the restaurant is displayed along with all the reviews for a restaurant. These reviews can then be sorted and filtered based on several criteria, such as highest to lowest rating or by most recent date.

3.2.5 Add Review
For each restaurant in the list, there is the option to add a review. Once the user has finished filling out all the required fields for a review, including the rating and comments, it is added to both the user's list of reviews and to the list of reviews for the restaurant.

The number of reviews and overall rating for the restaurant is also adjusted accordingly. The user can view all of their reviews under the "My Reviews" tab and can choose to edit or delete their own reviews.

3.2.6 Random Generator
For those who may feel overwhelmed by the number of options or who are feeling adventurous, there is a random generator that picks three different restaurant options to try.

4. Results
This project allows for local Charlottesville residents to explore their community and support local businesses via the Internet. While the pandemic may have slowed the number of people simply walking into restaurants they see on their way, it has opened the door for restaurants to truly take advantage of the opportunities that the digital age has brought to them. This application has the potential to bring together the Charlottesville community to share information with each other and to really learn about other businesses in the area. Since the application is based in Charlottesville, it brings a more personal touch and a tighter knit community on the platform that will create a more eager and trusting environment.

5. Conclusion
The goal of this project was to aid local businesses in their recovery after the COVID-19 pandemic forced many restaurants to shut down or dramatically restructure their services. We designed Cville Eats to collect and share restaurant reviews from customers so that others in the community would be able to learn more about local restaurants and increase their knowledge and interest through the Internet, and hopefully translate that interest into engagement with businesses. The benefits of a web application like this is that it can foster stronger community bonds while also

reinvigorating local businesses. It has the potential to provide both social and economic support for the community as they recover from unprecedented obstacles.

6. Future Work

The next phase of this project could expand both the technical ability and the community impact of Cville Eats. We could incorporate additional features such as a gallery feature for each restaurant, so that patrons could upload more than one photo per review and give other users a better idea of what to expect from restaurants. We could also give more control to owners over restaurant pages by giving only the people who create pages the control to change information about a page to ensure that each page comes from a trustworthy and reliable source.

Another way we could expand this project could be to partner with local restaurants and feature them on our web application in exchange for a discount code allowing users access through the application. This could help drive business towards restaurants as well as encourage users to use our application. We could also partner with the University of Virginia's sizable student population in Charlottesville and encourage students to use the application to explore the community.

7. Acknowlededements

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