Small Business Hub

Advanced Web Development 2021-1

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Project Title: Small Business Hub

Group Number: 2

Table of Content

Customer Statement Requirements

Project Statement

COVID-19 has taken a devastating toll on Belize and its people. The most prominent of which is the number of fatalities which has reached upwards of 300 and has led to thousands of positive cases. The full extent of damage sustained either directly or indirectly due to this virus is slowly emerging. However, what is certain is that it has diminished the quality of life for everyone and also placed a significant strain on the businesses as they must contend with the new regulations. In effect, as cases increase, businesses suffer detrimentally, which eventually gets to a point where it becomes unmanageable and thus leads to businesses closing.

COVID-19 will always be with us. It is therefore imperative that we learn how to live with it and minimize its casualties. Moreover, one of the most effective ways of achieving this is by allowing business to blossom regardless of COVID-19's effects. To effectively accomplish this, one must use technology. In particular, a system/app must be developed to act as a hub for small businesses all over Belize. The application should provide in-depth information and recommendation of businesses with zero cost. Also, it should display pictures of businesses' products, contact information, and website links. In conclusion, the system would allow businesses countrywide to triumph by having a stable influx of customers.

System Requirements

Functional Requirements

ID	Requirement
REQ1	The system shall allow creation, reading, updating, and deleting of user and business records.
REQ2	The system shall generate automatic general users.
REQ3	The system shall provide an interface whereby users can provide login credentials in order to log in and log out.
REQ4	The system shall provide a search feature to find products they are interested in by product name or business name.
REQ5	The system shall allow users to view terms and conditions during the registration process.
REQ6	The system shall provide users the option to cancel any task/process

	initiated at any given time.
REQ7	The system shall provide help in the form of instructions and meaningful error messages when filling out the required form.
REQ8	The system shall allow businesses to create posts.
REQ9	The system shall allow posts to have searchable tags.
REQ10	The system shall allow general users to provide feedback through likes.
REQ11	The system shall provide businesses with a report of engagement.

Non-Functional Requirements

ID	Requirement
NONREQ1	The system's user interface should display text and graphics that it is readable by any person with average eyesight.
NONREQ2	The system should be up and running 24/7.

NONREQ3	The system should be sufficiently intuitive to allow new users to learn basic operations within one day of use.
NONREQ4	The system should not allow unauthorized user access.
NONREQ5	The system should enable multiple simultaneous users, each with his/her own exclusive authentication.
NONREQ6	The system should be role-based in order for a user to gain access to various features/functionality.
NONREQ7	The system should provide an interface whereby users can authenticate and login into the system.
NONREQ8	The system should respond to user queries within a reasonable amount of time.
NONREQ9	The system should validate all inputs entered that may allow users to update or modify records within the database,

	in order to reduce the possibility of SQL injection.
NONREQ10	The system should reject inputs that fail to meet acceptable parameters.

Functional Requirement Specifications

Stakeholders

The system is designed for use by businesses, specifically Belizean owned businesses.

Businesses will be able to use the system to enhance their social media presence, engagement,

and sales.

Actors and Goals

General User– has the ability to like/save posts, search, and view business profiles.

form. (Initiating & Participating Actor)

Business- has the ability to post images, edit posts, and edit their profile information.

Use Cases

1. UC - 1 : Register

   -An individual registers an account of either type business or general user.

   Functional Requirements

   1. REQ1

   2. REQ3

   3. REQ5

   4. REQ7

   Non-Functional Requirements

   5. NONREQ1

   6. NONREQ4

   7. NONREQ5

   8. NONREQ7

2. UC - 2 : Login

    - Registered general users or businesses are allowed to login to the web-application

      using mysql as the backend database connection for validation.

      Functional Requirements

        1. REQ1

        2. REQ3

        3. REQ5

        4. REQ7

      Non-Functional Requirements

        1. NONREQ1

        2. NONREQ4

        3. NONREQ5

        4. NONREQ7

3. UC - 3 : Update Profile

    - User's personal information is updated, this includes personal information such as

      first name, last name etc.

      Functional Requirements

        1. REQ1

        2. REQ6

        3. REQ7

      Non-Functional Requirements

        1. NONREQ1

        2. NONREQ6

4. UC - 4 : Create Post

    - Business users are able to create posts which consist of a caption, image, and associated tags.

    Functional Requirements

        1. REQ8

        2. REQ9

    Non-Functional Requirements

        1. NONREQ3

        2. NONREQ6

        3. NONREQ9

        4. NONREQ10

5. UC -5 : Generate Search

    - General users are able to query the system for business profiles, categories, and tags.

    Functional Requirements

        1. REQ4

        2. REQ9

    Non-Functional Requirements

        1. NONREQ1

        2. NONREQ6

        3. NONREQ8

        4. NONREQ10

6. UC - 6 : Like Post

   - General users are able to like or dislike any post made by a business user.

   Functional Requirements

   1. REQ4

   2. REQ9

   3. REQ10

   Non-Functional Requirements

   1. NONREQ2

   2. NONREQ3

   3. NONREQ4

7. UC - 7 : Generate Report

   - Business users are able to generate a report based on data retrieved from the

   database. This report will contain the number of likes posts have received over the

   past 7 days. Therefore, notifying them of their engagement.

   Functional Requirements

   1. REQ1

   2. REQ8

   3. REQ10

   4. REQ11

   Non-Functional Requirements

   1. NONREQ1

   2. NONREQ3

   3. NONREQ8

8. UC - 8 : Forgot Password

   - System should allow businesses or general users to reset their account
   passwords.

   Functional Requirements

   1. REQ1

   2. REQ6

   3. REQ7

   Non-Functional Requirements

   1. NONREQ4

   2. NONREQ5

   3. NONREQ8

   4. NONREQ10

Tools Used

1. Figma (Wireframes)

2. VS Code (IDE)

3. Bootstrap (Styling)

4. Tailwind (Styling)

5. Docker (Distribution)

6. Github (Version Control)

7. FPDF (Reporting)

8. XAMPP (Development)

9. Stack Overflow (Troubleshooting)

10. PhpMyAdmin (Database Management)

11. HTML (Displaying Content)

12. CSS (Styling Content)

13. Javascript (Client Side Programming)

14. JQuery (JS addon)

15. SQL (Database)

16. PHP (Server Side Programming)

How are Object Oriented Programming Techniques integrated into your project?

The primary OOP technique we use is encapsulation. This can be seen from the models we use to simulate the database inside our application.
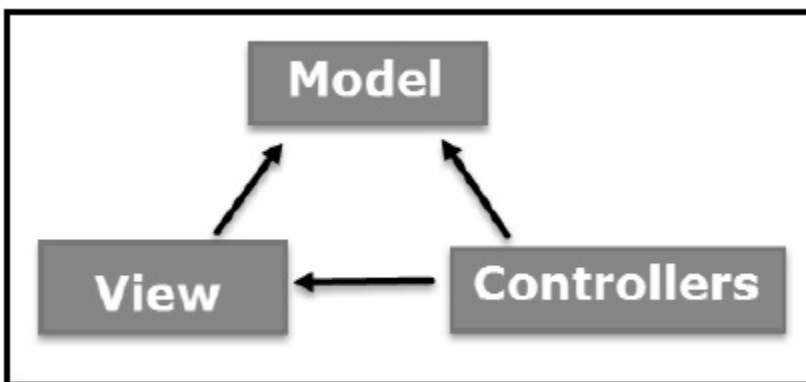
Though we did not incorporate a complete MVC framework, we still use the advantages that models provide. For example, all elements of our database have their own model. As a result, all updates to that table are done through their respective model. The data is sent from our views ,which act as both view and controller, through public methods to affect the database.

These models also act as classes and objects, being able to hold the data from a table (or multiple tables) in order to make programming cleaner and easier. We also gain all the other

benefits of using classes and objects. The use of classes and objects also supports our use of the encapsulation technique as they encapsulate the logic relevant to their purpose.
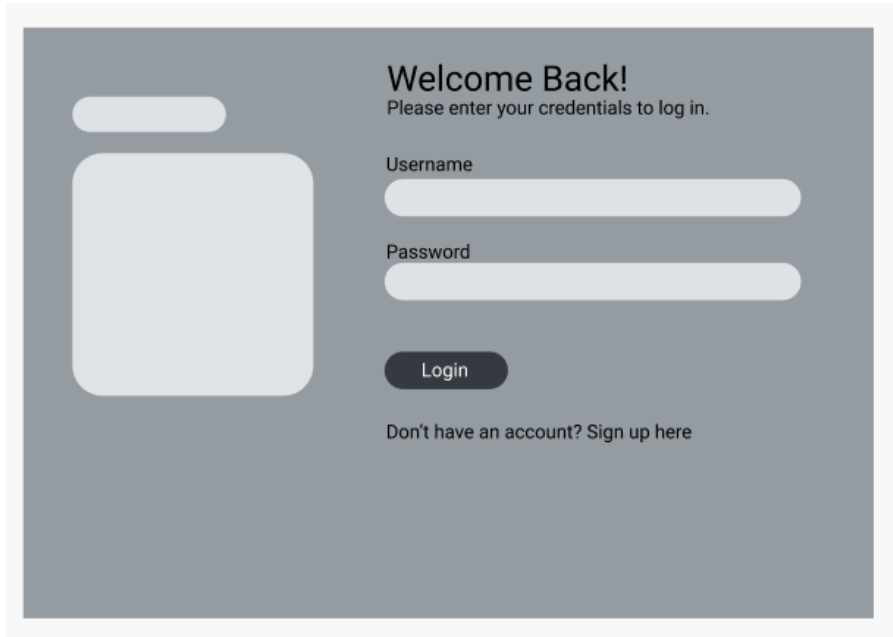
PHP also follows one aspect of abstraction. This is because the purpose of abstraction is to show the user only what they need to see. Since php is a server-side programming language, any php applications we make are not sent to the user, only the outcomes of these applications are shown to the user.

We did not implement any other features such as polymorphism or inheritance.

User Interface Specification

Wireframes

1.1 Login Page

1.2 Signup Page

1.3 Personal Form

1	2	3
PERSONAL DETAILS	INTERESTS	PROFILE SETUP

PERSONAL DETAILS

Tell us something more about you

First Name:

Enter First Name

First Name:

Enter Last Name

First Name:

Male ○ Female ○ Other ○

First Name:

Enter your email

First Name:

mm/dd/yy

Next

INTERESTS

Tell us what you're into

Category	Category
Category	Category
Category	Category

Previous   Next

1.4 General User Search Page

Filters

Business

Tags

Categories

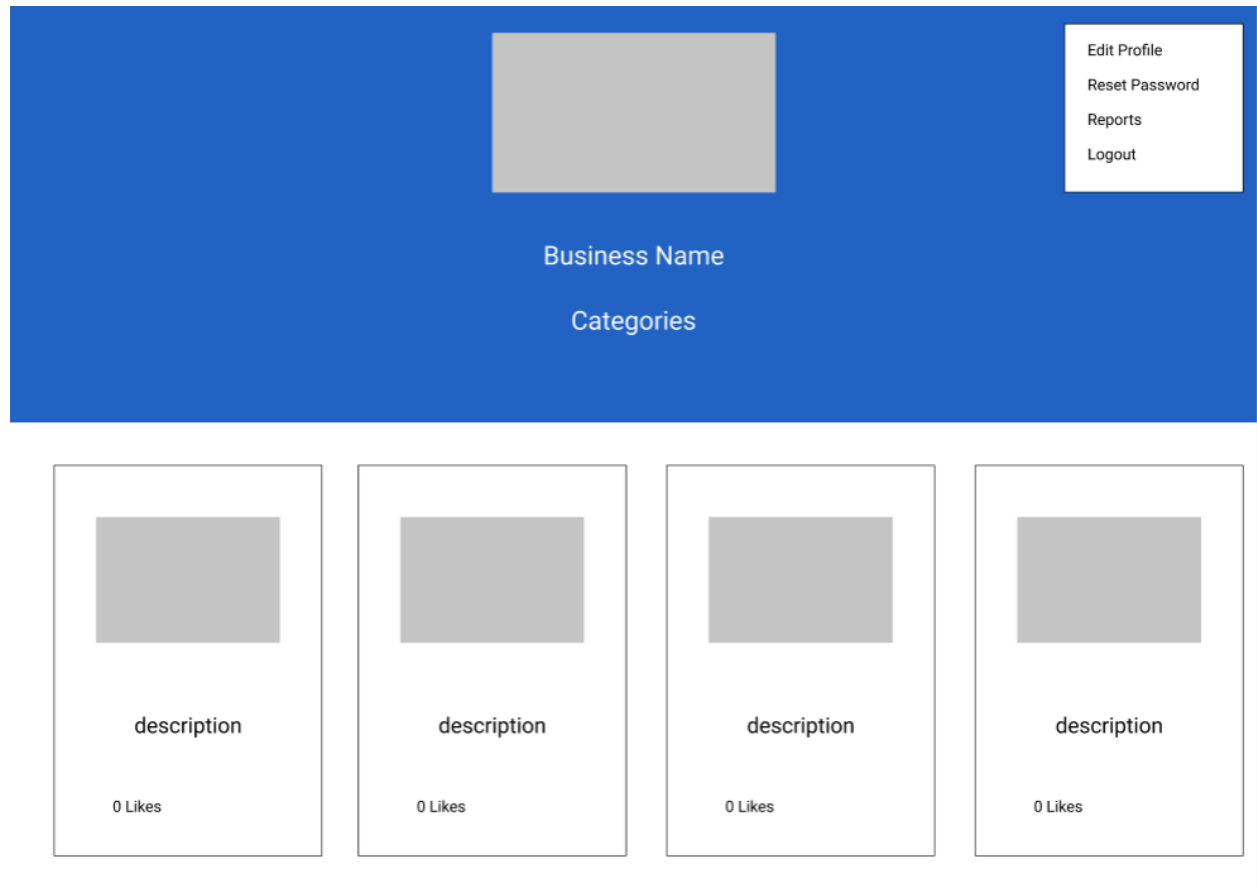| business name address | business name address | business name address | business name address | business name address |
| business name address | business name address | business name address | business name address | business name address |
| business name address | business name address | business name address | business name address | business name address |

1.5 Business User Home Page

Business Name

Categories

Edit Profile
Reset Password
Reports
Logout

| description | description | description | description |
| 0 Likes | 0 Likes | 0 Likes | 0 Likes |

1.6 Business User Post Page

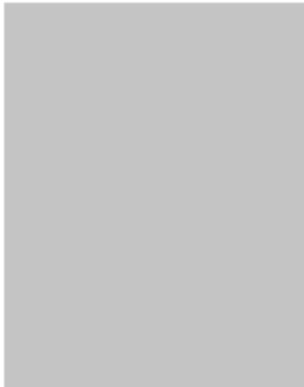# Create a new post

What's on your mind

```



```

Choose a file

Tags eg. #cooking #food #seafood #gourmet

```

```

Upload

1.7 Edit Profile

Edit Profile

Business Name

Address

Address Number

District

Town/City

Phone Number

Facebook

Instagram

Twitter

Website

Email

Business Description

Save

cancel

1.8 Reset Password

Reset Password

Please fill out this form to reset your password

New Password

Confirm Password

Submit
**Cancel**

Preliminary Design

Designing is a long and tedious process. The Small Business Hub underwent many alterations. Below are images of the preliminary design.

1.1 Login Page

The login page allows users to login to the system, Small Business Hub, with their credentials. If a user does not have an account, it provides a link to the sign up page.

Final Design Alteration: Minimal alterations were done for the final design of the login page.
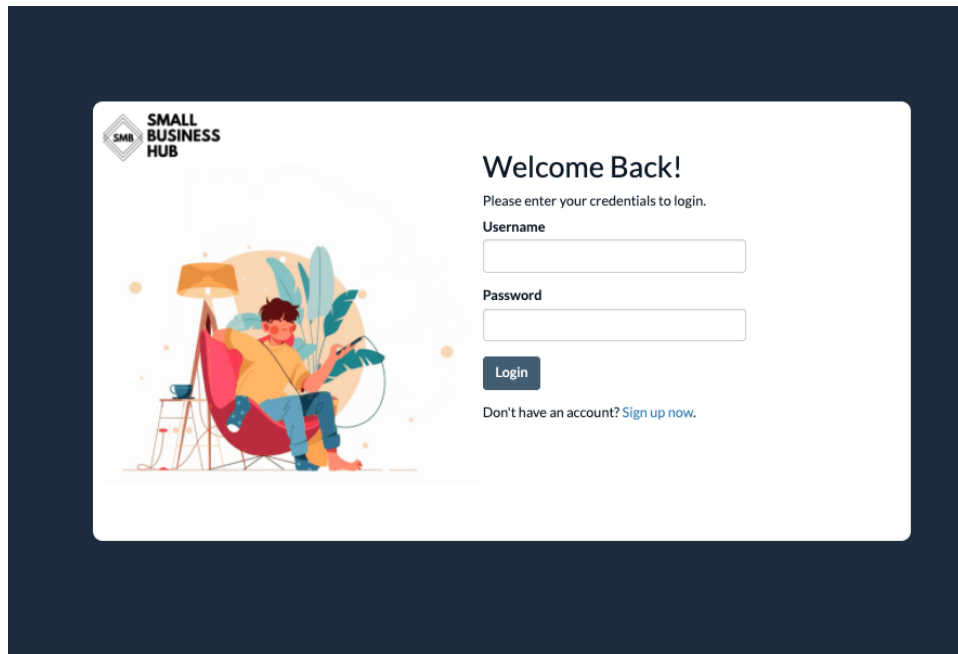
1.2 Sign up Page

The sign up page allows any individual to create an account. There are two types of accounts a user can create. Firstly, a general user account. A general user account allows for the navigation of posts, searching, updating your personal profile, and liking or disliking a post. The sign up page allows real-time validation.

Final Design Alteration: Minimal alterations were done for the final design of the sign up page.

1.3 Profile Form for General User & Business User

The profile form and general user form is presented to the respective user when they first log in after newly creating an account. The profile form allows the user to fill out their personal information, likes, and enter a profile picture.

Final Design Alteration: Minimal alterations were done for the final design of the profile form.

PERSONAL DETAILS

Tell us something more about your business

Business Name:

Enter Name of Business

Email:

Enter your email

Phone Number:

Enter your phone number

Address Details

Address Street:

Street Name

Address Number:

Street Number

---

1 BUSINESS DETAILS — 2 CATEGORY — 3 PROFILE SETUP

CATEGORY

Tell us the type of business you own

♥ Health

♪ Entertainment

👕 Clothing

📖 Crafts

⊕ Hobbies

🖥 Electronics

---

1 BUSINESS DETAILS — 2 CATEGORY — 3 PROFILE SETUP

PROFILE SETUP

Write Your Business Bio

Choose Your Business Profile Picture

No file chosen, yet!

Choose file

Previous   Save

1.4 General User Home Page

The general user home page up page allows a general user to see their personal information. Also, it presents the user with the ability to edit their profile, reset their password, and logout.

Final Design Alteration: UI alterations were done for the final design of the general user homepage. These alterations consist of restructurizing the user interface for better usability and attractiveness.
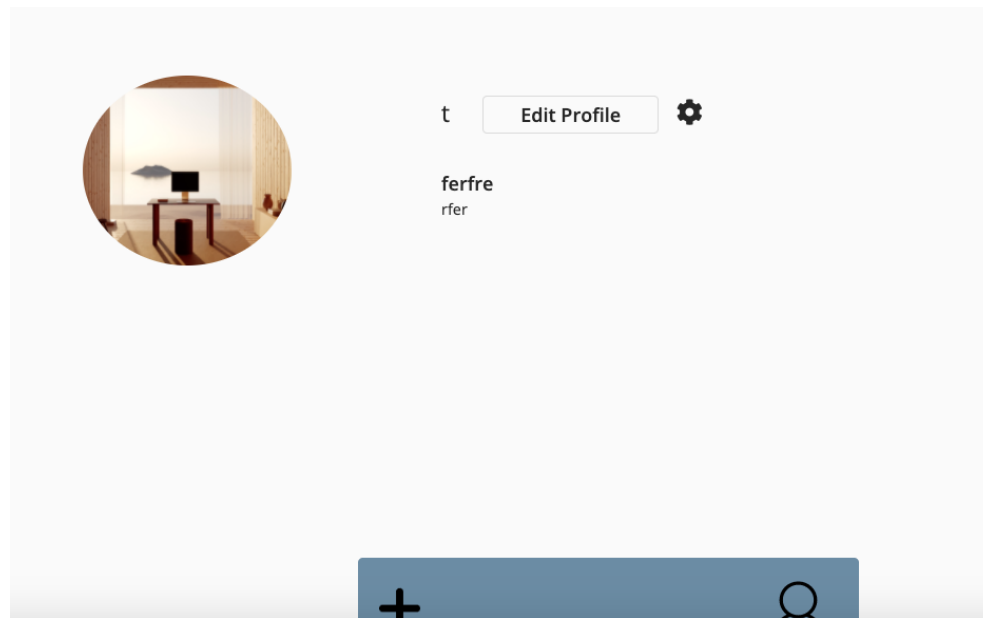
1.5 General User Search Page

The general user search page up page allows a general user to search through tags, business profiles, and categories.

Final Design Alteration: UI alterations were done for the final design of the general user search page. These alterations consist of restructurizing the user interface for better usability and attractiveness. For example, filters were added on the left-hand side.

Search Page

Search

Results
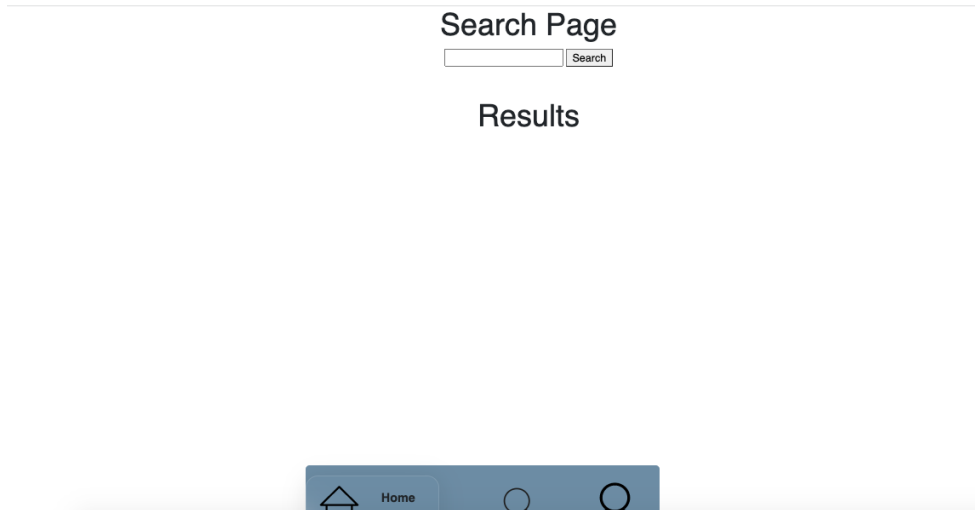
1.6 Business User Home Page

The business user home page up page allows a business user to see their personal information

and all the posts they've made. Also, it presents the user with the ability to edit their profile, reset

their password, and logout.
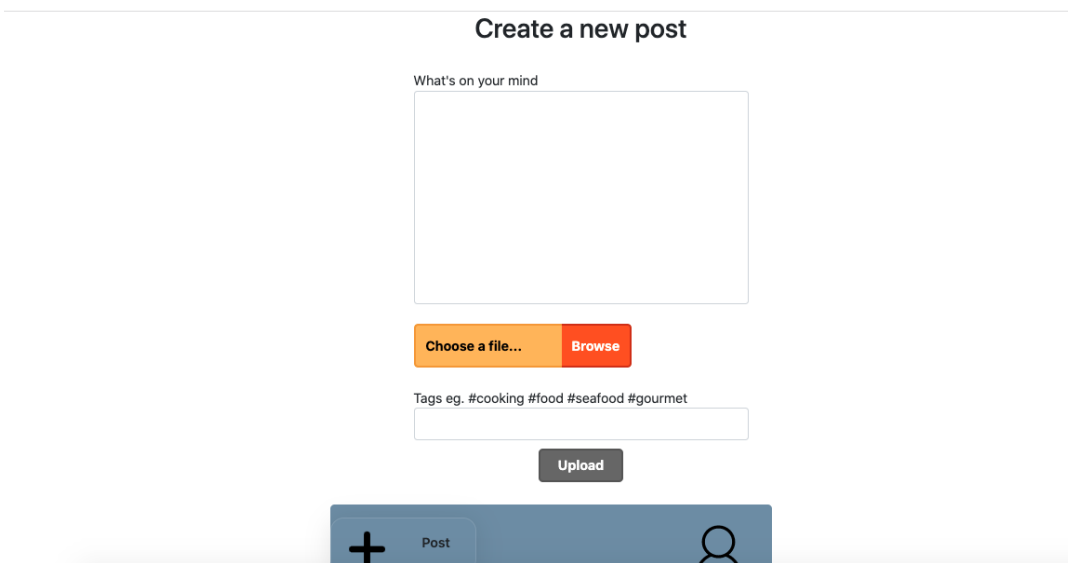
Final Design Alteration: UI alterations were done for the final design of the business user

homepage. These alterations consist of restructurizing the user interface for better usability and

attractiveness.
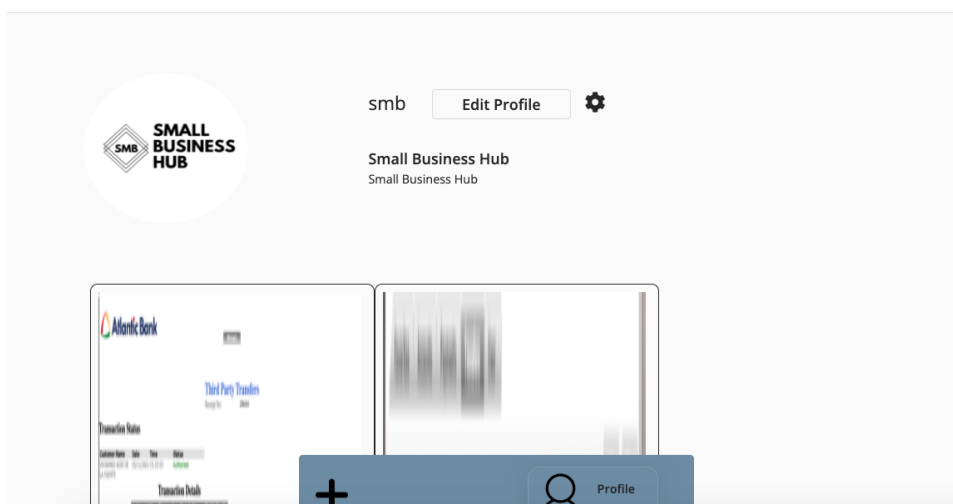
1.7 Business User Post Page

The business user post page allows a business user to create a new post. When creating a new post, users have the ability to write a caption, upload a picture, and add tags.

Final Design Alteration: Minimal alterations were done for the final design of the profile form.

Finalized Design

Code

The Small Business Hub full source code can be found on github in the following link:

https://github.com/AMoDevv/SmallBusinessHub. Nonetheless, below are snippets of

commented code.

Login.php

```php
<?php
// This is the login page to log in users

// Check if the user is already logged in, if yes then redirect him to welcome page
if(isset($_SESSION["loggedin"]) && $_SESSION["loggedin"] === true){
    header("location: profile.php");
    exit;
}
// Include config file
require_once "config.php";
// Define variables and initialize with empty values
$username = $password = "";
$username_err = $password_err = "";
// Processing form data when form is submitted
if($_SERVER["REQUEST_METHOD"] == "POST"){
    // Check if username is empty
    if(empty(trim($_POST["username"]))){
        $username_err = "Please enter username.";
    } else{
        $username = trim($_POST["username"]);
    }

    // Check if password is empty
    if(empty(trim($_POST["password"]))){
        $password_err = "Please enter your password.";
    } else{
        $password = trim($_POST["password"]);
    }

    // Validate credentials
```

```php
    if(empty($username_err) && empty($password_err)){
        // Prepare a select statement
        $sql = "SELECT account_id, username, password FROM account WHERE username = ?";

        if($stmt = $mysqli->prepare($sql)){
            // Bind variables to the prepared statement as parameters
            $stmt->bind_param("s", $param_username);

            // Set parameters
            $param_username = $username;

            // Attempt to execute the prepared statement
            if($stmt->execute()){
                // Store result
                $stmt->store_result();

                // Check if username exists, if yes then verify password
                if($stmt->num_rows == 1){
                    // Bind result variables
                    $stmt->bind_result($account_id, $username, $hashed_password);
                    if($stmt->fetch()){
                        if(password_verify($password, $hashed_password)){
                            // Password is correct, so start a new session
                            session_start();

                            // Store data in session variables
                            $_SESSION["loggedin"] = true;
                            $_SESSION["account_id"] = $account_id;
                            $_SESSION["username"] = $username;
                            $_SESSION["profile_completed"] = false;

                            //determine the type of account the currently logged in
user has - business or general
                            $sql = "SELECT account_type_id FROM account WHERE
account_id = $account_id";
                            $result = $mysqli->query($sql);
                            if ($result->num_rows > 0) {
                                $row = $result->fetch_assoc();
                                $_SESSION["account_type"] =
$row["account_type_id"];//save account type in session array
```

```php
                                    if ($row["account_type_id"] == 1) //this is a
general user
                                    {
                                        $sql = "SELECT first_name FROM
general_user_information WHERE account_id =$account_id"; //attempt to get qrCodeId if
profile exists
                                        $result = $mysqli->query($sql);

                                        if ($result->num_rows > 0) { //if 1 record comes
back, user profile exists
                                            $row = $result->fetch_assoc();

                                            // user profile was previously created so
proceed to home page
                                            $_SESSION["profile_completed"] = true;//keep
track whether a profile has been created
                                            header("location: search.php");
                                        } else { //user profile has not yet been created
so redirect to new user page
                                            header("location: user-form.php");
                                        }
                                    } elseif ($row["account_type_id"] == 2) //this is a
business user
                                    {
                                        $sql = "SELECT business_name FROM
business_information WHERE account_id =$account_id";
                                        $businessIDQuery = $mysqli->query("SELECT
business_id FROM business_information WHERE account_id = $account_id");
                                        $businessID =
mysqli_fetch_assoc($businessIDQuery)["business_id"];
                                        $result = $mysqli->query($sql);

                                        if ($result->num_rows > 0) {
                                            // user profile was previously created so
proceed to home page
                                            $_SESSION["profile_completed"] = true;//keep
track whether a profile has been created
                                            $_SESSION["business_id"] = $businessID;
//store business_id since account is a business
                                            header("location: profile.php");
                                        } else { //user profile has not yet been created
so redirect to new business page
```

```php
                                    header("location: business-form.php");
                                }
                            }
                        }
                    }else{
                        // Display an error message if password is not valid
                        $password_err = "The password you entered was not valid.";
                    }
                }


            } else{
                // Display an error message if username doesn't exist
                $username_err = "No account found with that username.";
            }
        } else{
            echo "Oops! Something went wrong. Please try again later.";
        }
    }


    // Close statement
    $stmt->close();

    }


    // Close connection
    $mysqli->close();
}
?>
<!-- Begins the html -->
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Small Business Hub</title>
    <link rel="preconnect" href="https://fonts.googleapis.com">
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
    <link
href="https://fonts.googleapis.com/css2?family=Lato:ital,wght@0,400;0,700;1,400&family
=Roboto&display=swap" rel="stylesheet">
    <link rel="icon" type="image/png" href="images/favicon.ico">
```

```html
    <link href="https://unpkg.com/tailwindcss@^2/dist/tailwind.min.css"
rel="stylesheet">
</head>
<body>


<div class=" selection:text-white justify-center">
 <div class="min-h-screen min-w-screen bg-blue-900 flex justify-center items-center">
   <div class="p-8 flex-1">
     <div class="w-1/2 bg-white p-10 rounded-3xl mx-auto overflow-hidden shadow-xl
grid grid-cols-1 lg:grid-cols-2 gap-4">
        <!-- GIF Image -->
      <div class="">
        <div class="grid-item col-span-1">
           <div id="logo">
               <img src="images/logo.png" class="justify-self-auto" width="150px">
           </div>
        </div>
        <div class="grid-item col-span-1">


           <div id="login-gif">
               <img src= "images/login.gif"  width="350px"height= "300px">
           </div>
        </div>
    </div>
  </div>
  <!-- Form -->
      <div class="grid-item px-10 pt-4 pb-8 bg-white rounded-tr-4xl">
       <h2 class="text-2xl font-semibold text-gray-900">Welcome Back!</h2>
       <p>Please enter your credentials to login.</p>
        <form action="<?php echo htmlspecialchars($_SERVER["PHP_SELF"]); ?>"
method="post">
             <div class="form-group <?php echo (!empty($username_err)) ? 'has-error'
: ''; ?>">
                 <label class="font-bold">Username</label>
                 <input type="text" name="username" class="form-control peer h-10
w-full border-b-2 border-gray-300 text-gray-900 placeholder-transparent
focus:outline-none focus:border-blue-600" value="<?php echo $username; ?>">
                 <span class="help-block text-red-500"><?php echo $username_err;
?></span>
             </div>
             <div class="form-group <?php echo (!empty($password_err)) ? 'has-error'
: ''; ?>">
                 <label class="font-bold">Password</label>
```

```html
                    <input type="password" name="password" class="form-control peer
h-10 w-full border-b-2 border-gray-300 text-gray-900 placeholder-transparent
focus:outline-none focus:border-blue-600">
                    <span class="help-block text-red-500"><?php echo $password_err;
?></span>
                </div>
                <div class="form-group">
                    <input type="submit" class="btn btn-primary mt-20 px-4 py-2 rounded
bg-blue-500 hover:bg-blue-400 text-white font-semibold text-center block w-full
focus:outline-none focus:ring focus:ring-offset-2 focus:ring-blue-500
focus:ring-opacity-80 cursor-pointer" value="Login">
                </div>
                <p class="">Don't have an account? <a href="register.php"
class="text-blue-600 hover:underline focus:outline-none focus:ring-2
focus:ring-blue-500">Sign up now</a>.</p>
            </form>
        </div>

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

</div>

</body>
</html>
```

Business-form.php

Testing

Acceptance Testing

Aide De La Fuente
Role: Business User

Background: Mrs. De La Fuente is an eager business owner who is constantly looking to improve her business. Currently, she has come to the realization that social media can help a business attract more customers, increase market reach, get customer feedback and build customer loyalty.

Feedback: "The application has great potential. I loved the innovative idea and I can see how it can be beneficial for any business user. However, I believe the user interface needs some work in regards to usability."

Franco Tun
Role: Business User

Background: Mr. Abrahams is a well established business owner with over 20 years of experience in sales and the tourism industry. Due to COVID-19, there has been a huge loss in customers, business revenue, and product availability.

Feedback: "Wow, I was amazed when using the application. It is a great application but no one or nothing is perfect - there is always room for improvement. Perhaps improving the UI design of the profile pages."

John Garcia
Role: General User

Background: Mr. Garcia is an avid shopper. Since the beginning of the pandemic he has seen numerous businesses close down. This has instilled fear to pursue his dream - opening a business.

Feedback: "I am so happy to see technology being used to benefit

Belize. I love this idea and I see so much potential in it. Perhaps there can be subscriptions. Each subscription provides certain benefits to the user."

Laisha Lopez
Role: General User

Background: Ms. Lopez loves to support Belizean owned businesses. She believes in empowering businesses and supporting them. Also, she hopes to see businesses take COVID-19 as an opportunity to restructure their businesses to work with technology.

Feedback: "Such a nice web-app. It reminds me of Pinterest. I enjoyed how easy it was to use. The only suggestion I have is for a home page to be developed in which you are given suggestions."

Deployment

Getting to know The Small Business Hub

COVID-19 has had a devastating impact on the world. In specific, COVID-19 has driven numerous businesses to temporarily close. The Small Business Hub aims to fix this issue through digital transformation. The Small Business Hub is a web-app that allows all Belizean businesses to advertise their products.

Features

Liking & Disliking Posts - Registered general users are able to search for business profiles and view all their posts. Also, they are able to like or dislike any post.

Generating Reports - Registered business users have the ability to generate reports. These reports show their engagement over the past 7 days.

Creating Posts - Registered business users have the ability to create posts. When creating a post, users have the ability to caption their post. Also, add pictures and tags.

Getting Started

Business User

An individual has the ability to create a business user account via the Signup page. The user then proceeds to login with her/his identials. Upon logging in, the user is prompted to fill a one-time form. When the user fills out the form, they are redirected to the home page. In the home page, the business user has the ability to view all their posts, their bio, edit their profile, reset their profile, post images, and logout. Also, they have a navigation bar in which they can view all these options.

General User

An individual has the ability to create a general user account via the Signup page. The user then proceeds to login with her/his identials. Upon logging in, the user is prompted to fill a one-time form. When the user fills out the form, they are redirected to the search page. In the search page, the user has the ability to search for business profiles, tags, and categories. Also, they're able to like or dislike an image. The user also has the ability to edit their profile, reset their password, and logout.

Deploying the System

How to run the code:

1. Install xampp.

2. Download folder, smallbusiness hub, on github and place it within the folder, htdocs, found within your xampp folder.

3. Open the xampp control panel and click 'Config' next to the module, MySQL.

4. Select the option, 'my.cnf' or 'my.ini' & ensure that your settings are configured as below. max_allowed_packet to: max_allowed_packet=4M; After having done this, please restart your server

5. Start the modules, Apache and MySQL.

6. Download the file smallbusinesshub.sql and upload it to phpmyadmin.

7. Open your browser and type in localhost/smallbusinesshub/login.php

8. Log in with an existing account or create a new one.

Contact Information

If you have any questions, please feel free to contact the development team.

Alain Morris - alainmorris90@gmail.com

Viviannie De La Fuente - viviannie_29@hotmail.com

Bidair Gonzalez - bidair13@gmail.com

Pablo Cauich II - pablocawichii@gmail.com

History of Work

Gantt Chart

Breakdown of Responsibilities

Front-end - Bidiar Gonzalez

Backend - Viviannie De La Fuente, Alain Morris, Pablo Cawich

References

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Appendix

ER Diagram