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# **BETTER REVIEWS**

By

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GRADUATE CAPSTONE SEMINAR PROJECT

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For the Degree of Master of Science,

With a Major in Computer Science



Governors State University  
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2021

## **ABSTRACT**

Better reviews help the customer and business owners to understand customer opinions on the business. Better Reviews manages three different kinds of user's like Business owner, Reviewer and Admin. Better Reviews is a website where users can find and provide reviews and feedback on any local businesses. Better Reviews websites useful for customers as well business. Customers can search for business by category, rating and location. As a business owner, user can subscribe for alerts means as soon as customer posts the review, website will send the notification to the business owner. Business owner must register their business into the Better Reviews website. Customer must create an account to post the reviews against the business. However, any user can see the reviews of any business without logged in to the system. Admin is for monitoring and managing the application.

This is a website which provides reviews about a product, place (hotels, food courts), stores, movie halls, and other local businesses which helps the users to choose according to their interests. It also helps the business owners to review the feedback from customers and improve their businesses.

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## ***1 Project Description***

Better Reviews use for any users who wants to find the service in their location. User can see the business reviews and choose the best one which they comfortable in terms of service quality and cost. Better Reviews also helps the business owners to understand customer needs or requirements, and can change the service to serve the customer in better way. Business owner can take necessary actions based on user reviews.

### ***1.1 Competitive Information***

There are too many applications are existed in the market to help users and business to fulfill their requirements like yelp, Glassdoor etc. There are few paid service providers. However, Better Reviews is free to use for all kind of businesses and customers. It's more secure and reliable web application when it comes to keep user information very confidential.

### ***1.2 Relationship to Other Applications/Projects***

Better Reviews is independent application. It doesn't have any relationship or dependency on any other projects/applications.

### ***1.3 Assumptions and Dependencies***

These are the assumptions which are made for the safe functioning and implementation of the project.

- We primarily designed our project to be user-friendly with good user navigation.
- Proper authentication is used in the project to ensure no intruders can access the sensitive data.

### ***1.4 Future Enhancements***

It's really difficult for user or business to remember multiple accounts password. So single sign on functionality can be implemented in Better Reviews. This means users can use their Gmail, Facebook or Microsoft account to login into the application.

### ***1.5 Definitions and Acronyms***

BR – Better Reviews

User/Customer – Who can write the reviews against any business

Business Owner – Who can have one or more business in the system

Admin – Who will have full control over the application.

## ***2 Project Technical Description***

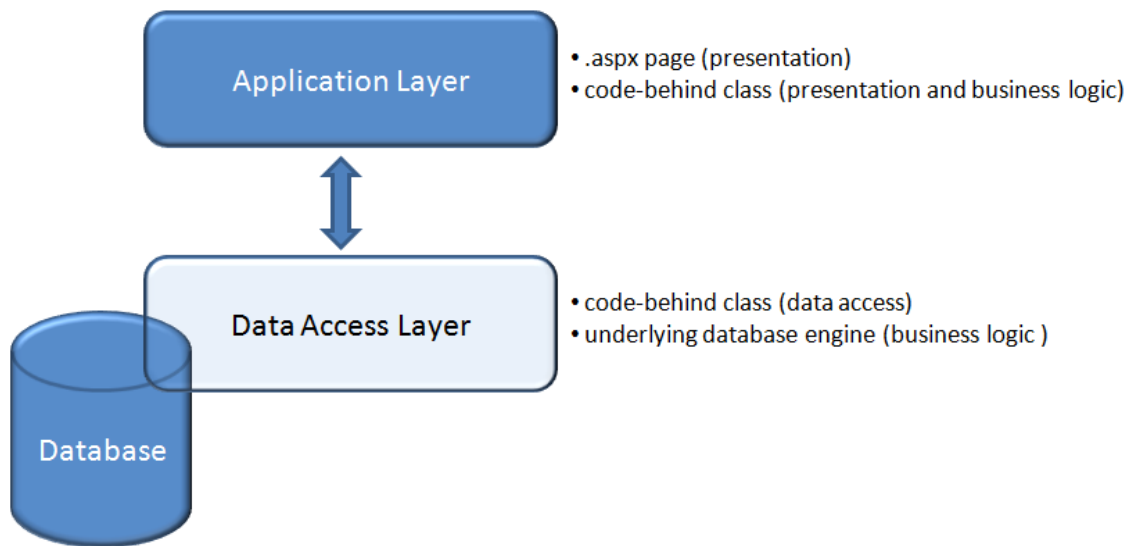
Visual Studio 2019 Community version and MS SQL Express is used to develop the web application where C# .Net is used to connect with database and perform business logics. Asp.net web forms are used to design the user interface. Java script and JQuery used for performing some client side operation. CSS used for define the html elements styles.

### ***2.1 Application Architecture***

Application Layer – It contains the user interface and user actions like Button click, Data grid loading etc.

Data access Layer – It contains the logic to connect the application with database using ADO.net framework.

Database – It contains table schemas, data, stored procedures etc.



*Figure 1 Application Architecture*

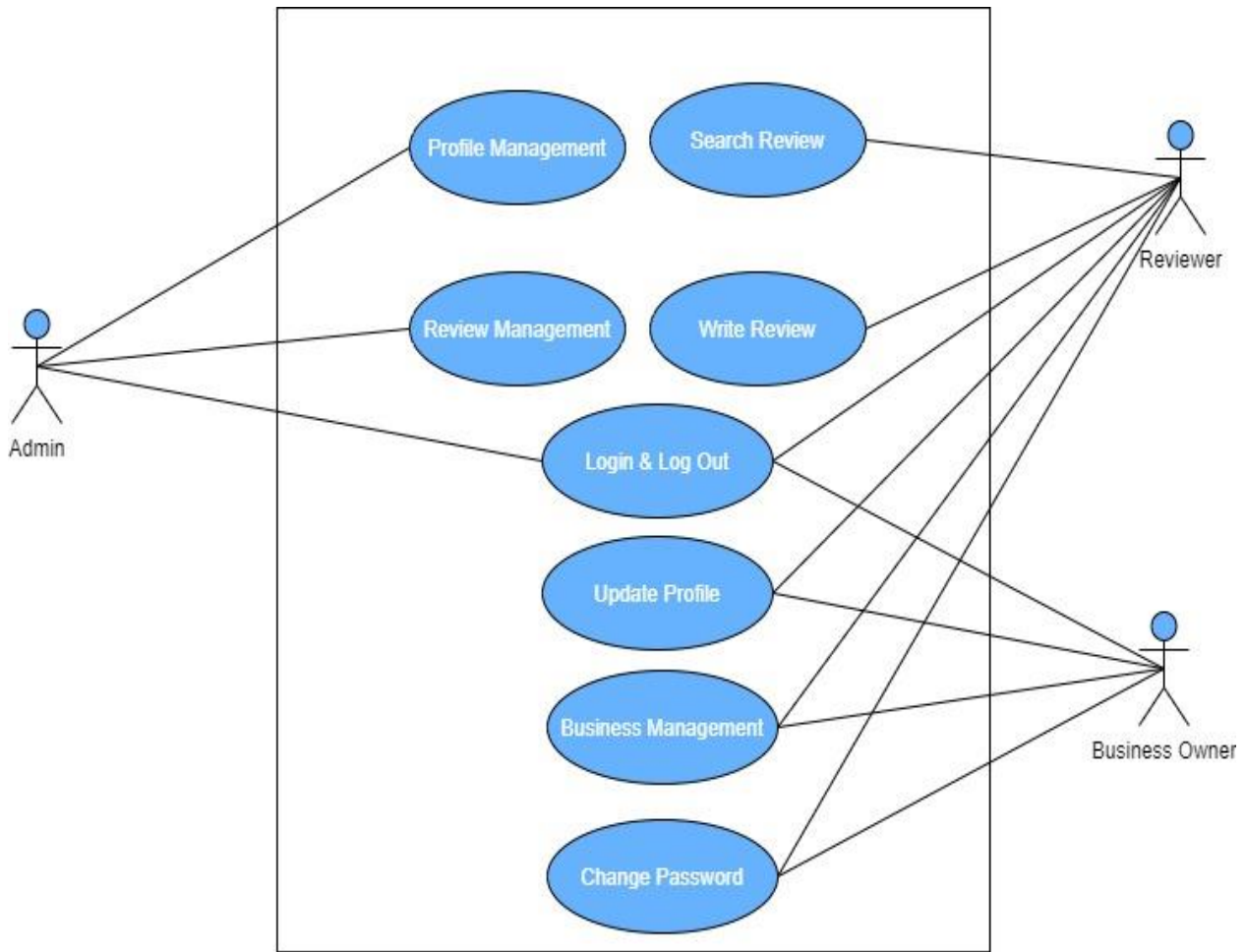
## 2.2 *Application Information flows*

BR has three types of users

- Admin
- Reviewer
- Business Owner

### 2.2.1 Use Case Diagram

Use case diagram is a graphic depiction of the interactions among the elements of Better Reviews. It represents the methodology used in system analysis to identify, clarify, and organize system requirements of Better Reviews. The main actors are: Admin, Reviewer, Business Owner, who perform the different type of use cases such as Manage Profiles/Reviews, Search Reviews, Login etc.,. Major elements of the UML use case diagram of Better Reviews are as shown on the below picture.



*Figure 2 Use case Diagram*

### 2.2.2 Sequence Diagram

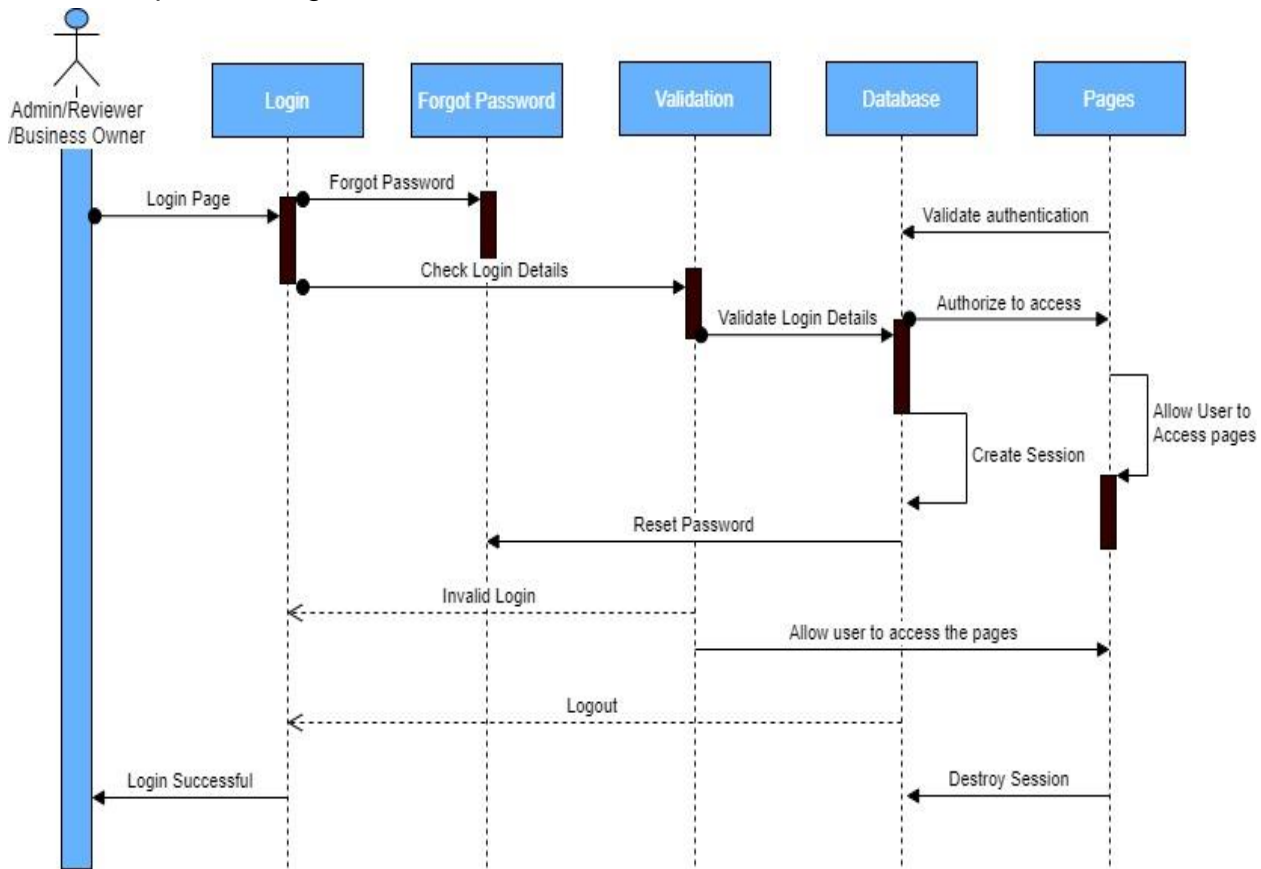


Figure 3 Sequence Diagram

### 2.3 Interactions with other Projects (if Any)

BR application doesn't interact with any other projects.

### 2.4 Interactions with other Applications

As the primary functionality of the application is to write reviews against the business and find the services. Apart from this the application does not need any information from any other resources where all the data that is needed by the application will be gathered during the creation of the user or a business.

### 2.5 Capabilities

The below are the few actions that can be performed by the Admin/Business Owner/Reviewer.

Action	Admin	Business Owner	Reviewer
Manage Business	Yes	Yes	No
Manage Reviews	Yes	No	No
Write Review	No	No	Yes
Manage Users	Yes	No	No
Search Business	Yes	Yes	Yes

### 2.6 Risk Assessment and Management

The main risk is to secure user personnel information and storing the user login credentials. User login credentials are not saving in plain text instead we are using hashing algorithms which uses password hash and salt values to validate the user passwords.



### 3 *Project Requirements*

#### 3.1 *Identification of Requirements*

The following format is an example:

##### <BR-1 User-Registration-0001>

###### **BR allows user to register them self as Business Owner/Reviewer**

BR allows user to register as a Business Owner or a Reviewer. While registration, user has to enter mandatory personnel information, which will be saved into the database for further transactions.

##### <BR-1 User-Login-0002>

###### **BR allows login the user as Admin/Business Owner/Reviewer**

BR allows user to login into the application as an Admin, an Artist or a Customer. While logging in, system will validate the user credentials and access roles. Application will display the menu items with respect to logged in user role.

##### <BR-1 Add-Business-0003>

###### **BR allows business owner to Add business**

BR allows business owner add his/her own businesses. While adding the business, business owner to provide the business category, location, logo, and business details.

##### <BR-1 Add-Business-0004>

###### **BR allows business owner to Add business**

BR allows business owner add his/her own businesses. While adding the business, business owner to provide the business category, location, logo, and business details.

##### <BR-1 Home-page-0005>

###### **BR displays the home page with list of businesses**

BR displays the list of business with business details and ratings on the home page. Any user able to see the business details with list of reviews.

##### <BR-1 Write-Review-0006>

###### **BR allows reviewer to write the review**

BR allows reviewer to write review against any business. Reviewer should login into the system to write a review. Reviewer has to enter the review title, description and rating. BR allows reviewer to upload the images.

##### <BR-1 Business-List-0007>

###### **BR allows Admin/Business owner to access the business list**

BR allows Admin/Business owner to access the business list. BR displays the list of business for Admin and Business owner. Admin able to see all business which were added to system. Business owner able to see all his/her own business which were added to system.

### <BR-1 Reviewers-List-0008>

#### **BR allows Admin to access the reviewers list**

BR allows Admin to access the reviewer list. BR displays the list of reviewers for Admin only. Admin able to see all reviewers which were added to system.

### <BR-1 Review-Management-0009>

#### **BR allows Admin to access the review management**

BR allows Admin to access the review management page. Admin can update review description, rating. Admin can also activate or deactivate the review. Admin can also delete the any review.

### <BR-1 Admin-0010>

#### **BR allows Admin to access the admin page**

BR allows Admin to access the admin page. Admin page allows the admin to change the status of the reviewer or business owner.

### <BR-1 Review-History-0011>

#### **BR allows reviewer to access the review history page**

BR allows reviewer to access the review history page. Review history page displays the list reviews given by respective reviewer.

### **3.2 Operations, Administration, Maintenance and Provisioning (OAM&P)**

BR application can be accessible by three user roles i.e. Admin, Business owner, and Reviewer. All user roles have Login, Log out functions. Admin user has full control over the application. Reviewer user has mainly manage his/her reviews, write reviews, and search business functionalities.

### **3.3 Security and Fraud Prevention**

Users login credentials hashed and stored into the database. Website allows only authorized users into the application. BR application server and database has securely stored in sever and maintained by network administrators. These servers can be accessible by only network administrators.

### **3.4 Release and Transition Plan**

As present the application is not online and can be accessed only within the local system. In future the application will be made online by which everyone will be able to access the application irrespective of the geological location.

## **4 Project Design Description**

### **4.1 Database Design**

The below is the database design diagram that contains the list of tables that have been used in the web application and the relationships that are present between them.

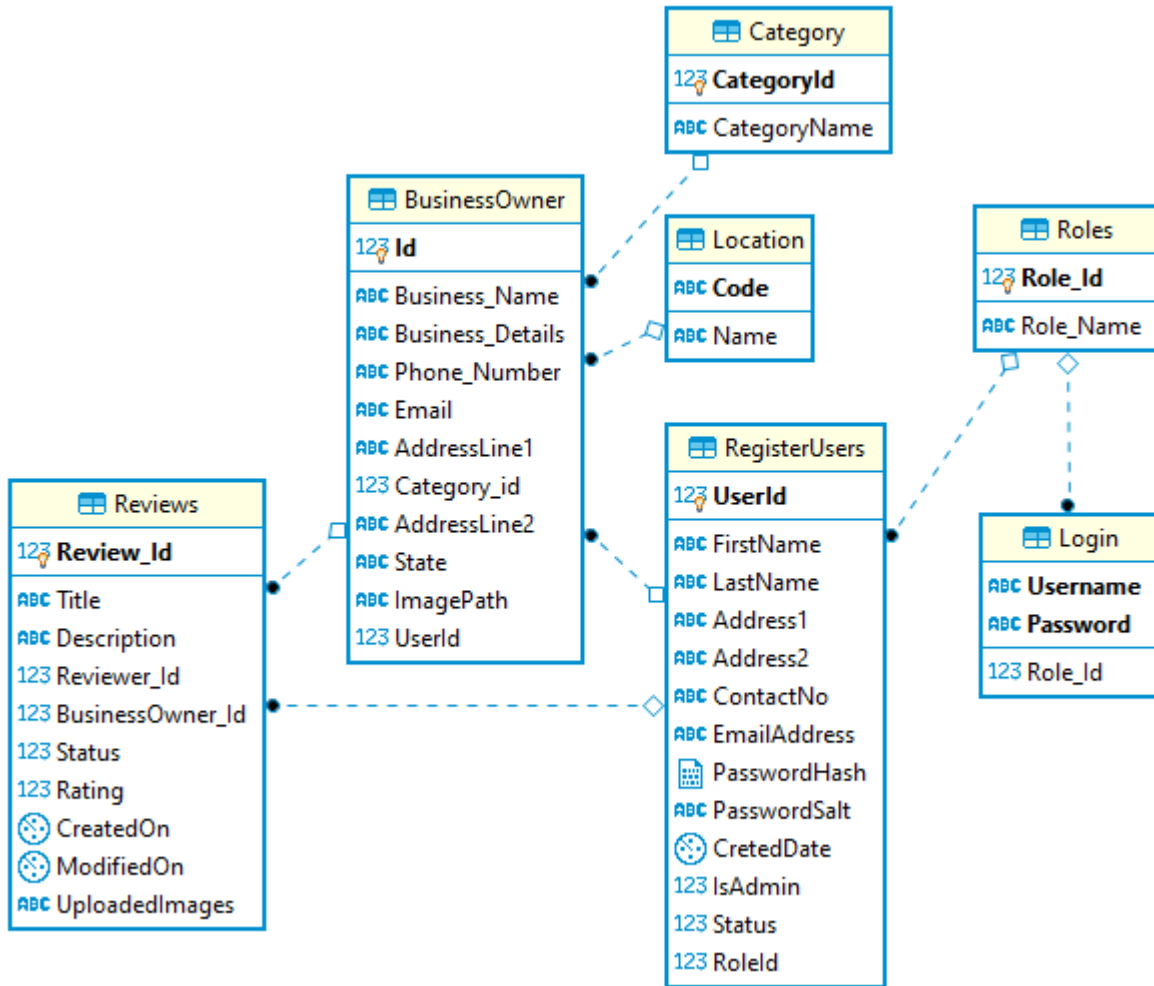


Figure 4 Database Diagram



- Business owner can add business, manage own businesses

## 6.1.2 Requirements

### 6.1.2.1 Functional Requirements

- User searches for the business using location, rating and business name
- By default, Home displays the list of business with details, rating.
- Each business will name, details, rating, location and business logo.
- There are few search parameters like business category, location, rating to filter out the result by the user.
- Category - On top of the results, system displays the business categories dropdown. User can select any specific category to filter out the result.
- Standard search allows the user to search for the business using business name and location.
- Reviewer – On top of the results, system displays the write review button. Reviewer click on button to write the reviews.
- Three user roles are defined in the system. Those are Business owner, Reviewer and Admin.
- Admin serves as an administrator of the website and can manage reviewers, business owners, and reviews.
- On successful registration, user can log in to the website. In order to login into the website, user should provide the valid username (Email) and password in the login page.
- System validates the user credentials, checks the roles of access, and displays the modules with respect to the user role.
- Business owner can add one or more business into the system.

### 6.1.2.2 Nonfunctional requirements

- **Performance** - BR website based on web and must be run from the web server. Initial load time will be depending on the internet connection strength and also dependent upon the hardware components of the user.
- **Scalability** - The system should be able to scale up to 500 concurrent users (if there is a need in the future) by installing additional hardware components.
- **Reliability & Availability** - BR website shall have an ISP with 99.99% uptime availability through their network services.
- **Security** - Client user's web browsers shall never display their password. It shall always be echoed special characters representing typed characters. The back-end database shall only store the hashed version of the user's password. The product back-end servers shall only be accessible to authenticated administrators. A secure server will be required to ensure confidentiality of customer's personnel information and other details.
- **Portability** - The system should be portable to various operating environments with minimal downtime.
- **Integrity** – The BR database shall be backed up once per a week to prevent data loss.
- **Manageability** - The system should be maintained by IT experts and should be allow them to troubleshoot if any problems arise.

## 7 Acknowledgements

This Project is created and developed with our own knowledge and documented by ourselves. I really appreciate our Professor **Chen, Xin** who helped us in completing this whole project.

## 8 References



CPSC 8985 FA20 -  
Project Guide.pdf

For Visual Studio tool download

<https://visualstudio.microsoft.com/downloads/>

For code Development

<https://docs.microsoft.com/en-us/>

<https://www.c-sharpcorner.com/>

<https://forums.asp.net/>

<https://www.codeproject.com/> & <https://stackoverflow.com/>

## 9 Appendices

### 9.1 Home

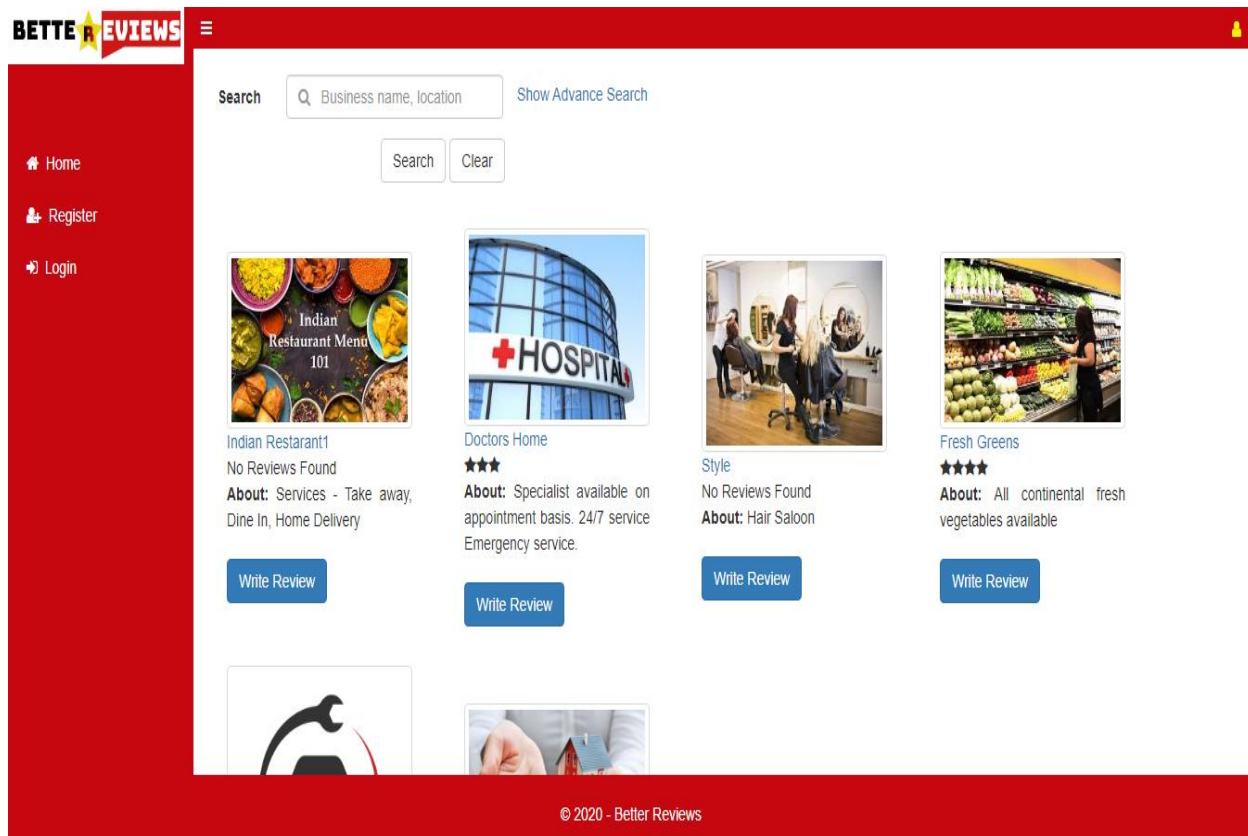


Figure 6 Home

## 9.2 Register

The screenshot shows the 'Register' page of the BETTER REVIEWS system. The page has a red header with the logo and a navigation menu on the left. The main content area contains a registration form with the following fields: First Name, Last Name, Email (Username) (pre-filled with 'business2@gmail.com'), Password (masked with dots), Confirm password, Contact No, Address Line 1, Address Line 2, and Role (a dropdown menu currently showing 'Business'). A 'Register' button is located at the bottom of the form. The footer contains the copyright notice '© 2020 - Better Reviews'.

Register

First Name

Last Name

Email (Username)

Password

Confirm password

Contact No

Address Line 1

Address Line 2

Role

© 2020 - Better Reviews

*Figure 7 Register*

## 9.3 Login

The screenshot shows the 'Login' page of the BETTER REVIEWS system. The page has a red header with the logo and a navigation menu on the left. The main content area contains a login form with the following fields: Email and Password. A 'Login' button is located below the password field. The footer contains the copyright notice '© 2020 - Better Reviews'.

Login

Email

Password

© 2020 - Better Reviews

*Figure 8 Login*

## 9.4 Admin

The screenshot shows the Admin interface for BETTER REVIEWS. The top navigation bar includes the logo and the user email 'admin@betterreviews.com'. A left sidebar contains navigation links: Home, Admin, Reviewers List, Business List, Review Management, and Logout. The main content area displays a table with the following data:

Customer Name	Email	Contact No	Created Date	Is Active	Select All
One1 Reviewer	reviewer1@gmail.com	999999999	09-27-2020	True	<input type="checkbox"/>
One Business	business1@gmail.com	999999999	09-27-2020	True	<input type="checkbox"/>
Two Reviewer	reviewerone@gmail.com	999999999	09-27-2020	True	<input type="checkbox"/>
Two Business	business2@gmail.com	999999999	09-27-2020	True	<input type="checkbox"/>
user business	business@gmail.com	999999999	09-27-2020	True	<input type="checkbox"/>
user Reviewer	reviewer@gmail.com	999999	09-27-2020	True	<input type="checkbox"/>

Below the table are two buttons: 'Activate' and 'De-Activate'. The footer contains the copyright notice '© 2020 - Better Reviews'.

Figure 9 Admin

## 9.5 My Profile

The screenshot shows the My Profile interface for BETTER REVIEWS. The top navigation bar includes the logo and the user email 'business2@gmail.com'. A left sidebar contains navigation links: Home, My Profile, Add Business, Business Reviews, and Logout. The main content area is titled 'Profile' and contains a form with the following fields:

- First Name: Business
- Last Name: Two
- Email: business2@gmail.com
- Contact No: 999999999
- Address Line 1: usa
- Address Line 2: usa

A 'Save' button is located at the bottom of the form. The footer contains the copyright notice '© 2020 - Better Reviews'.

Figure 10 My Profile



## 9.6 Add Business

**BETTER REVIEWS** business2@gmail.com

Home  
My Profile  
+ Add Business  
Business Reviews  
Logout

### Add Business

Business Name

Category

Email

Contact No

Address Line 1

Address Line 2

State

About Business

Business Logo  No file chosen

© 2020 - Better Reviews


Figure 11 Add Business

## 9.7 Business Details

**BETTER REVIEWS** 🔔

Home  
Register  
Login

### Fresh Greens



**Description:**  
All continental fresh vegetables available  
★★★★

**Comments**

Title: **Fresh vegetable available**  
Fresh vegetables with lowest prices available. Need to replace with fresh items.  
Post By: **userReviewer** Created Date: **05-Nov-20 8:13:26 AM**  
Rating: **Good**

© 2020 - Better Reviews

Figure 12 Business Details

## 9.8 Business Reviews

	Name	Details	Address Line 1	Address Line 2	State	Email	Phone No	Category	
Delete	Fresh Greens	All continental fresh vegetables available	USA	USA	Washington	freshgreens@gmail.com	999999999	Grocery Store	Edit
Delete	Zoom Car Service	Car service, bike service.	USA	USA	Washington	zoomcarservice@gmail.com	999999999	Auto Service	Edit
Delete	Get Home	Buy/Sell/Rent/Lease a residential or commercial properties	USA	USA	New York	gethome@gmail.com	999999999	Real Estate	Edit

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Figure 13 Business Reviews

## 9.9 Reviewers List

	User Id	First Name	Last Name	Address 1	Address 2	Contact No	Email Address	Status	
Delete	2	Reviewer	One1	usa	usa	999999999	reviewer1@gmail.com	Active	Edit
Delete	4	Reviewer	Two	USA	USA	999999999	reviewerone@gmail.com	Active	Edit
Delete	7	Reviewer	user	usa	usa	999999	reviewer@gmail.com	Active	Edit

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Figure 14 Reviewers List

## 9.10 Business List

**BETTER REVIEWS**
admin@betterreviews.com

- [Home](#)
- [Admin](#)
- [Reviewers List](#)
- [Business List](#)
- [Review Management](#)
- [Logout](#)

	Name	Details	Address Line 1	Address Line 2	State	Email	Phone No	Category	
Delete	<a href="#">Indian Restarant</a>	Services - Take away, Dine In, Home Delivery	AddressLine-1	AddressLine-1	Georgia	customersuppor@jr.com	999999991	Restaurant	<input type="button" value="Edit"/>
Delete	<a href="#">Doctors Home</a>	Specialist available on appointment basis. 24/7 service Emergency service.	USA	USA	Florida	doctorehome@gmail.com	999999999	Doctor	<input type="button" value="Edit"/>
Delete	<a href="#">Style</a>	Hair Saloon	USA	USA	Washington	style@gmail.com	999999999	Salon	<input type="button" value="Edit"/>
Delete	<a href="#">Fresh Greens</a>	All continental fresh vegetables available	USA	USA	Washington	freshgreens@gmail.com	999999999	Grocery Store	<input type="button" value="Edit"/>
Delete	<a href="#">Zoom Car Service</a>	Car service, bike service.	USA	USA	Washington	zoomcarservice@gmail.com	999999999	Auto Service	<input type="button" value="Edit"/>
Delete	<a href="#">Get Home</a>	Buy/Sell/Rent/Lease a residential or commercial properties	USA	USA	New York	gethome@gmail.com	999999999	Real Estate	<input type="button" value="Edit"/>

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Figure 15 Business List

## 9.11 Review Management

**BETTER REVIEWS**
admin@betterreviews.com


- [Home](#)
- [Admin](#)
- [Reviewers List](#)
- [Business List](#)
- [Review Management](#)
- [Logout](#)

	Business Name	Review Title	Comments	Rating	Reviewed By	Created Date	Status	
Delete	<a href="#">Doctors Home</a>	Awesome	I consulted doctor for fever. Doctor suggested to use couple of medicines. Clean Environment	Average	reviewer1@gmail.com	11-02-2020	Active	<a href="#">Edit</a>
Delete	<a href="#">Fresh Greens</a>	Fresh vegetable available	Fresh vegetables with lowest prices available. Need to replace with fresh items.	Good	reviewer@gmail.com	11-05-2020	Active	<a href="#">Edit</a>
Delete	<a href="#">Zoom Car Service</a>	Nice Car Service	Affordable car service. Quick wash is available	Excellent	reviewer@gmail.com	11-11-2020	Active	<a href="#">Edit</a>
Delete	<a href="#">Zoom Car Service</a>	Professional Service	Very Professional Approach with Reasonable Rates.. Body paint work they do excellent job.	Good	reviewer1@gmail.com	11-13-2020	Active	<a href="#">Edit</a>
Delete	<a href="#">Zoom Car Service</a>	Professional Service	Very Professional Approach with Reasonable Rates.. Body paint work they do excellent job.	Excellent	reviewer1@gmail.com	11-13-2020	Active	<a href="#">Edit</a>
Delete	<a href="#">Zoom Car Service</a>	Affordable Service	Friendly owner good service	Excellent	reviewer1@gmail.com	11-13-2020	Active	<a href="#">Edit</a>

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Figure 16 Review Management

## 9.12 Write Review

**BETTER REVIEWS**  reviewer1@gmail.com

[Home](#)  
[My Profile](#)  
[Reviews History](#)  
[Logout](#)

### Fresh Greens

Title

Review Comments

Rating

Upload Images  No file chosen

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*Figure 17 Write Review*