

**[B&B Aggregator and Review Platform]**

[B9IS104 Enterprise Information Systems

&

Msc Information Systems with Computing]

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**Project URL-** <http://iebandb.co/>

## **1.Introduction**

### **1.1 Background and Case Study**

Bed and Breakfast is the backbone of the Irish hospitality sector. One can find B&B accommodation in the areas where there is no hotels or other types of accommodations available (What is a Bed and Breakfast - The Irish B&B Owners Association, 2015). It is estimated that overseas tourist contributes to bulk demand of B&B accommodation estimated around 4 million-night stays in the year 2013 which resulted in generating approximately 1230 euros per B&B owners. The Bed and Breakfast business in Ireland is the most important secondary source of income for most of the families who are running B&B businesses since a long time. The Irish B&B sector due to its small scale characteristic and family managed business has hit hard by hospitality revolution and impact of online booking platforms.('BBI\_Report\_final.pdf', July 2014). There are three major bed and breakfast associations currently operating in Ireland which provide bookings and B&B accommodation facility to the customers namely B&B Ireland, Bed and Breakfast owners associations and Family homes of Ireland. But after the great recession in 2008 a sharp decline has been witnessed with the occupancy levels in B&B industry dropping from 66 percent to mere 60 percent (Chill winds of recession close some hotel doors, 2008). Another major reason for the footfall of the bed and breakfast industry in Ireland is due the paradigm shift in the market in the 2000 by the introduction of disruptive technologies like OTA's online travel booking facilities such as Airbnb, Trivago etc.('BBI\_Report\_final.pdf', 2014).

A classic example of how information systems can be used to reduce the footfall in the bed and breakfast industry is AirBnb. AirBnb provides an online platform for online booking and other management functions of the B&B's. The quality of service is the main reason why AirBnb is worth more than 38 billion dollars. But Airbnb has its own standardization policies and requirement to which all enrolled B&B's registered with them must adhere. Various measures has been taken like collaborative marketing and lowering the cost of online booking by removing the middleman by the current B&B associations in Ireland. Which resulted in the increased revenue and accessibility to many numbers of B&B units under one platform. However, there was no significant progress made due to low user interaction and footfall in the market.

## **2. Approach**

A direct approach of developing an online platform to integrate services is considered for this project. Because of no business intend and non-transactional nature of the project. The project does not require any third-party validations. The developed project will be a web-based application designed to be compatible to run with common Linux servers. The web application might be hosted on any of the hosting servers or the project may be deployed on Microsoft azure.

The web application will include the following third-party integration.

- 1.Weather API for Climatic representation – Open Weather Map
- 2.Oauth 2.0 Authorization- Google authorization services have been used because of its free availability to it service users.

## **3. Methodology**

By creating an online web application aggregating all B&B owners including unregistered B&B units, the platform becomes an aggregator of different business units and associations. This will allow the listing of B&B units under different associations in one platform, increasing the footfall. This increases the ease of browsing for the tourists as they have a detailed listing of all B&B services. Addition of this service intends in maximizing the user footfall.

The QoS (Quality of Service) is a very important factor and requires constant updating. Unlike Airbnb Inc. where common standardization can be enforced, the traditional B&B units have its own hospitality and maintenance standards. To help the tourists decide on the best possible B&B within budget, the platform will have reviews and comments from registered users. Preventing anonymous review posting and comments will ensure the users are genuine and hence the reviews will reflect the corresponding B&B's QoS.

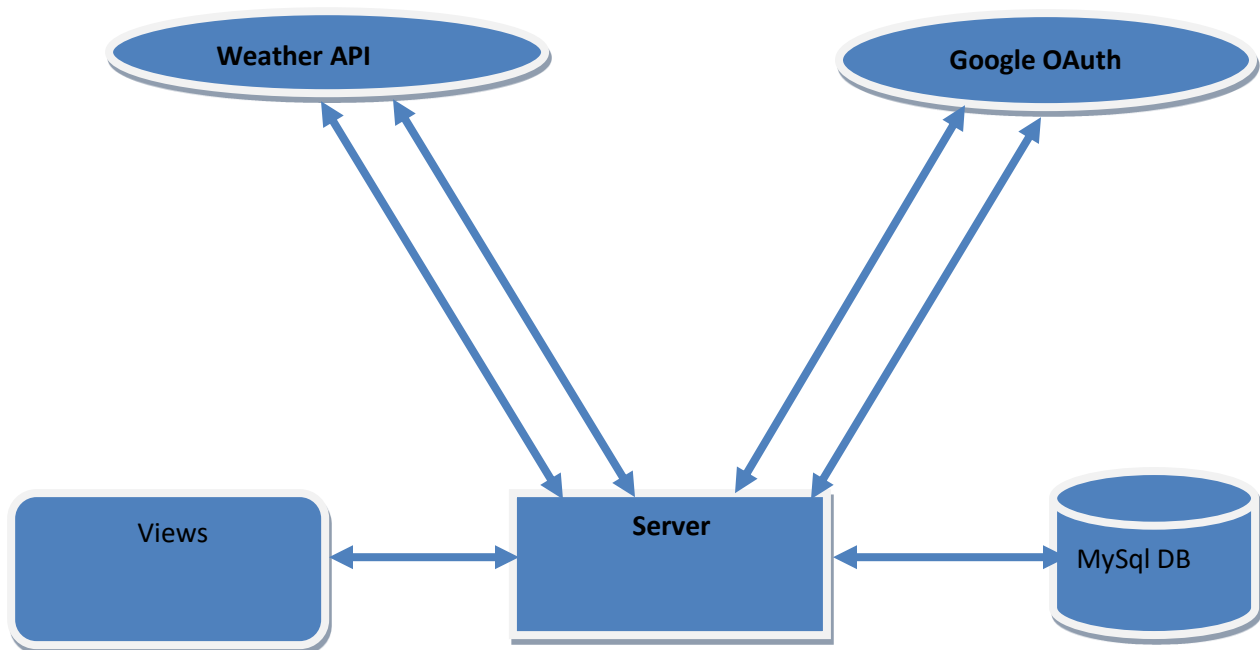
## 4. Development Process

### 4.1 Requirements

Based on the requirement analysis below tasks are defined that determines the needs and condition to implement this project.

1. Development of an Administrative module to add/modify the B&B units in the portal.
2. Providing weather details of different counties in Ireland
3. Enabling Users to drop ratings and comments on individual B&B units.
4. Enabling Users to send queries directly to the B&B owners (SMTP).
5. Enabling anonymous review posting by using google OAuth to uniquely identify each user.

### 4.2 Architectural Design



*Figure 1 Architectural design.*

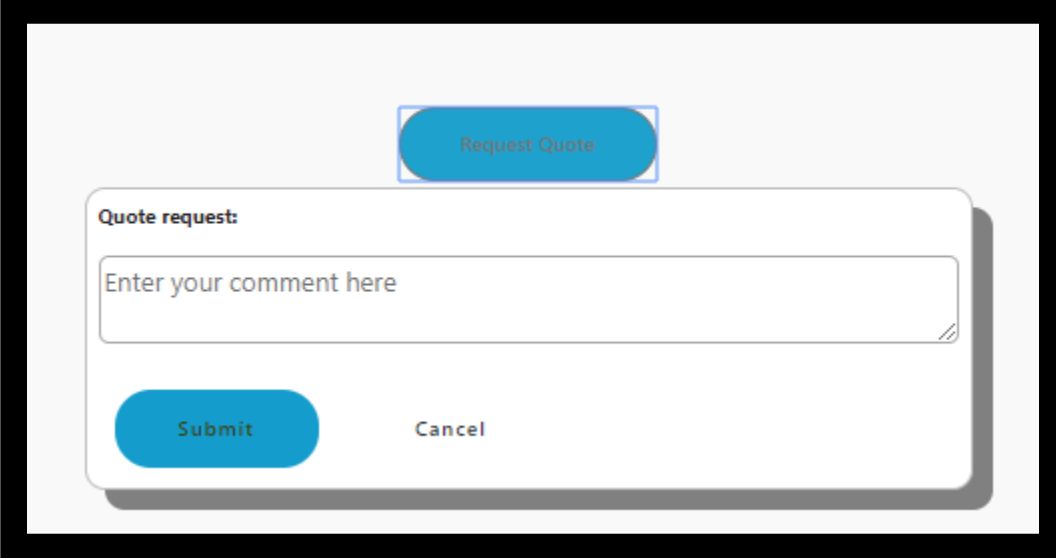
### 4.3 Web API

Weather information of the selected places is added to the project so that users should be aware of the weather conditions of the locations where their B&B is located. Free weather API is used to display the real time weather information provided by Open Weather Map. The user can also filter the B&B's using minimum and maximum temperature as an input to filter the data.

- Open Weather Map -API provider
- <http://api.openweathermap.org/data/2.5/weather>
- API Key: d828bc57d263d11b348eba143fa7c5c8

### 4.4 Web Forms

Web forms have been used to collect the user queries for any individual B&B and based on the email information of individual B&Bs which will be stored in the database. These queries will be emailed directly to the B&B owners or the corresponding person via email SMTP has been used to send email. To avoid anonymous queries posting only registered and logged in users are allowed to send queries and to maintain the integrity of the queries information like (Name, Phone number, Email address) are shared over the email.



***Figure 2:Query Widget***

## 4.5 Database Design

The application has five main tables users table which will store data of all the registered users in the database it will hold user credentials such as ID, username, password, email address and contact details. Bnb table will hold data about all the bnb's registered with the application like B&B details with city ID as the foreign key in the table. Comments table will hold data about the users comments and ratings on the B&B units and Users ID will be the foreign key in the table to identify the reviews. Weather table will store real time weather data received from the Open Weather map API.

### ER diagram

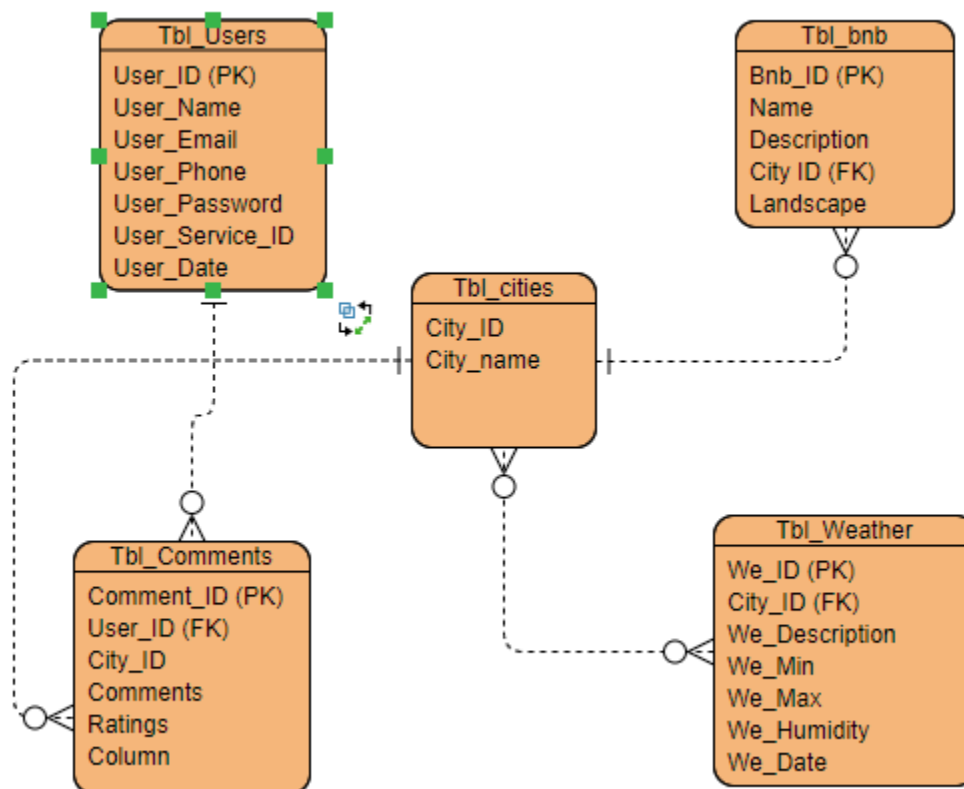


Figure 3:Database Design

#### 4.6 Filtering B&B's by Temperature values

Users can filter B&B's by using minimum and maximum temperature as input fields on the landing page and click search. The function “**fetch\_all\_bnb\_search\_datas**” will display those B&B units which falls under that temperature range using the stored temperature details from weather table in the database. Adding this filter to the application will help users to select B&B accommodation based on the current temperature of the location where the B&B is located. It will very helpful to the users because The climate of Ireland is mild, moist and uncertain with abundant rainfall and a lack of temperature extremes. Ireland's climate is defined as a temperate oceanic climate.

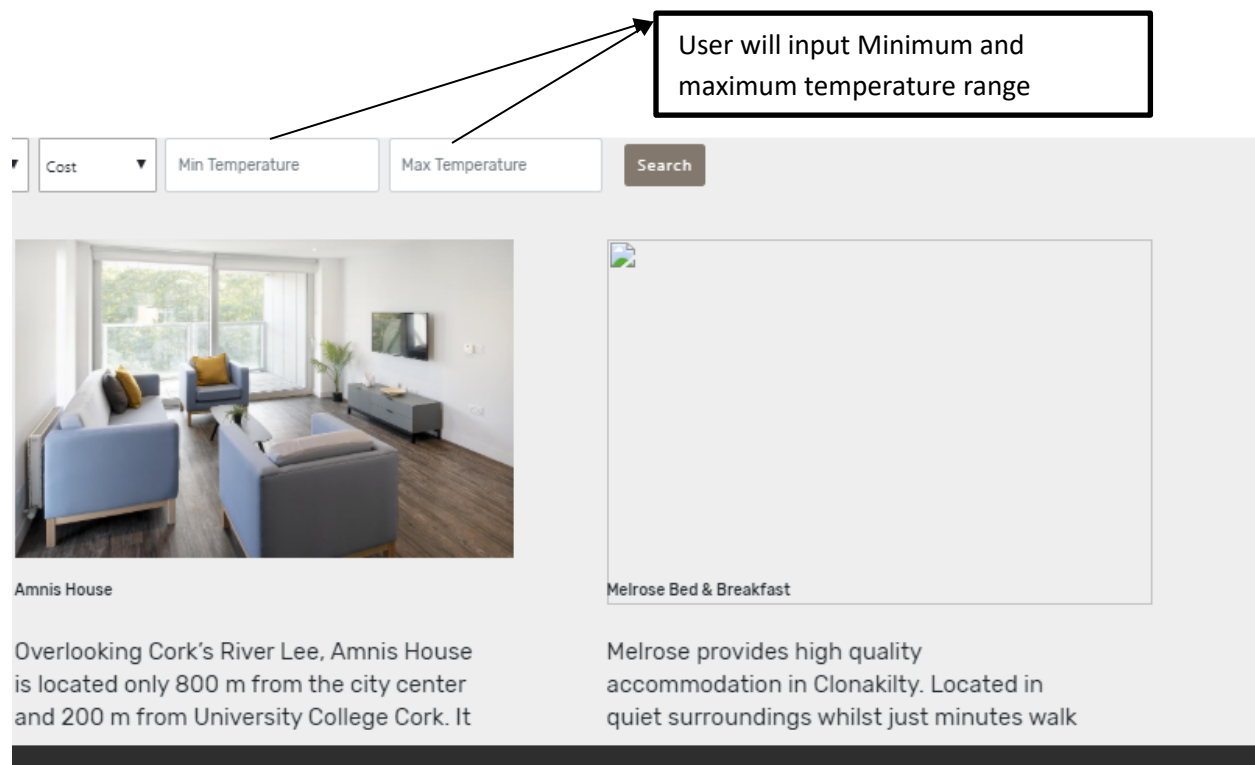


Figure 4: Weather Filter to filter B&B's by Temperature



## 4.7 Admin Dashboard

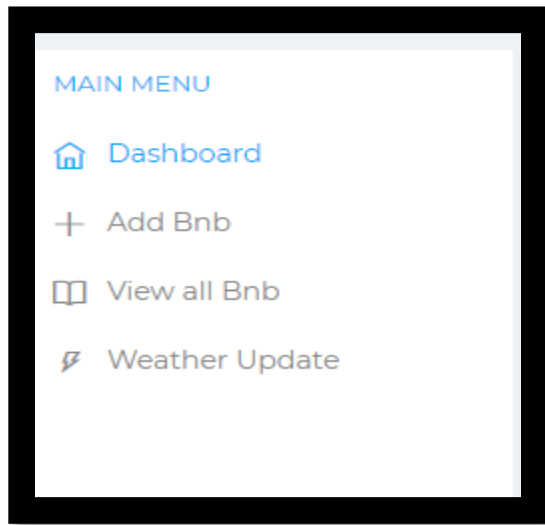
Link-<http://www.iebandb.co/admin/>

Credentials:

Username-Admin

Password-admin

We have also added admin module where admin can login using admin credentials mentioned above. Admin dashboard enables dynamic B&B listing where admin can register, Edit or remove any B&B units.



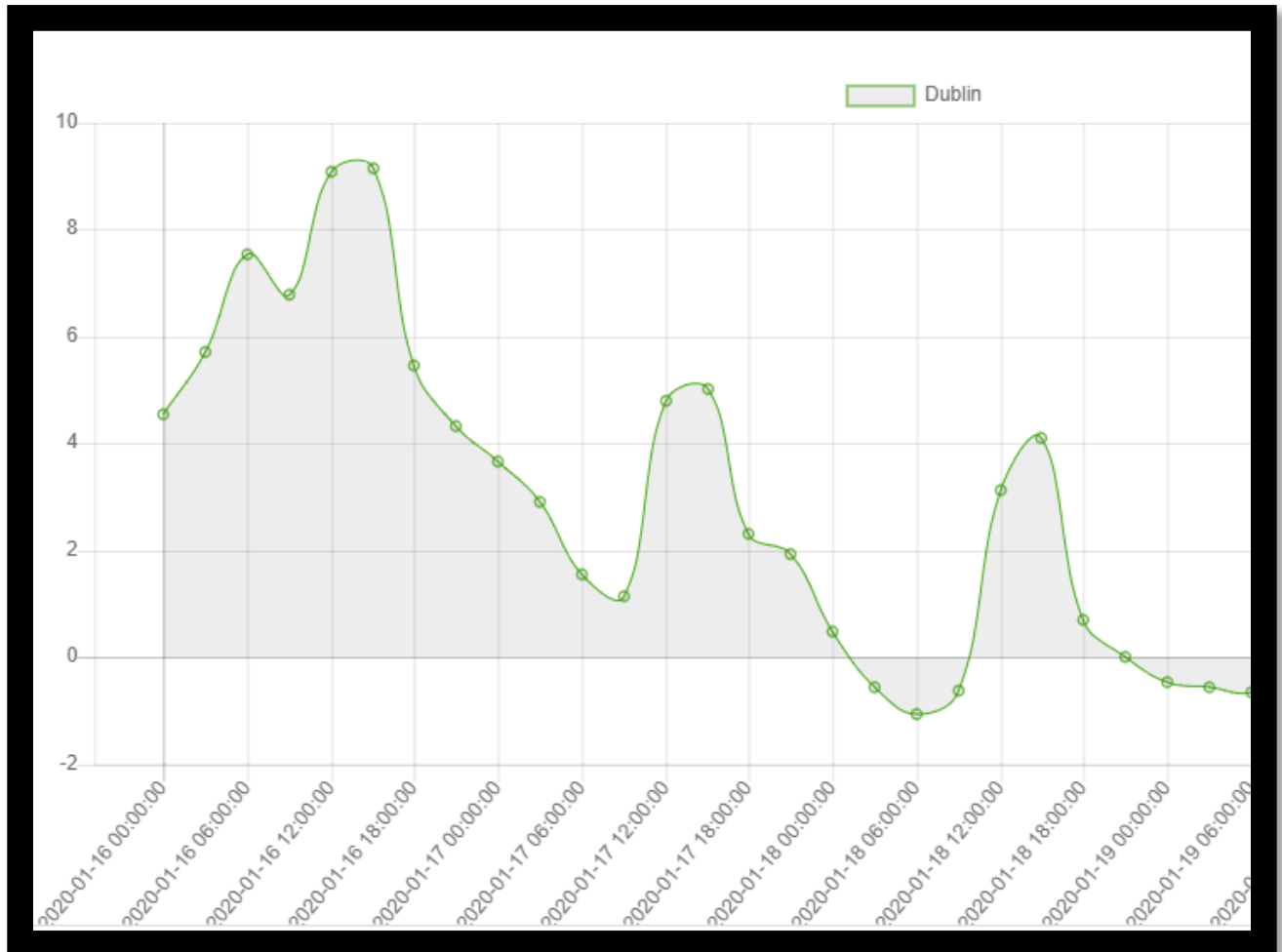
In the admin menu the weather update button [function weather\_update()] will fetch the current weather data and decode the JSON file into an array and stores the details in the database weather table. Below is the

```
{
  "coord": {
    "lon": -6.27,
    "lat": 53.34
  },
  "weather": [
    {
      "id": 803,
      "main": "Clouds",
      "description": "broken clouds",
      "icon": "04d"
    }
  ],
  "base": "stations",
  "main": {
    "temp": 4.4,
    "feels_like": 0.44,
    "temp_min": 3.89,
    "temp_max": 5,
    "pressure": 980,
    "humidity": 93
  }
}
```

**Sample JSON file received from the API provider**

## 4.8 Weather Line Chart

Line Chart Bootstrap template is used to show graph of the current as well as weather forecast for next few days for all the major cities in Ireland.



*Figure 5:Temperature Graph for Dublin City*

Figure shows temperature graph for Dublin with date and time. The free access of API will provide weather data in every 3 hours of interval. If the paid version is used, we will get weather updates every 5 minutes by the API provider.

## 4.9 Registration/Login

1. Registered users can login directly using their credentials (Username and Password). The view section code is stored in the Login\_View.php file inside the views folder and the controller file code is written in the Login.php file inside the controller folder.

(\application\controllers\Login.php)

2. User registration is also handled by the same script in the file Login.php inside the controller folder and the view section is handled by the Signup\_view.php file inside the views folder. The registration also allows users to upload their profile image using FTP protocol.

```
function login_process(){
    $user_name = $this->input->post('user_name');
    $password = md5($this->input->post('password'));

    $resultArr = $this->common->user_login($user_name,$password);

    if(!empty($resultArr)){

        $this->session->set_userdata('user_id',$resultArr[0]->user_id);
        $this->session->set_userdata('user_name',$resultArr[0]->user_name);
        $this->session->set_userdata('user_email',$resultArr[0]->user_email);
        $this->session->set_userdata('logged_in',true);
        redirect(base_url());

    }else{
        $this->session->set_flashdata('login_error', 'Invalid Email or Password');
        redirect(base_url().'login');
    }
}
```

```
function logout(){
    $this->session->unset_userdata('user_id');
    $this->session->unset_userdata('user_name');
    $this->session->unset_userdata('logged_in');
    redirect(base_url());
}

/*This function will display signup form*/
function signup(){
    if($this->session->userdata('logged_in')){
        redirect(base_url().'users');
    }else{
        $this->load->view('header');
        $this->load->view('signup_view');
        $this->load->view('footer');
    }
}

/*Function will add new entry to the tbl_user when user try to register into the system through signup page*/
function user_signup(){
    $name = $this->input->post('val-username');
    $email = $this->input->post('val-email');
    $pass = $this->input->post('val-password');
    $password = md5($this->input->post('val-password'));
    $confirmpassword = md5($this->input->post('val-confirm-password'));
    $blood_group = $this->input->post('val-group');
    $phone = $this->input->post('val-number');
    $createddate = date('Y-m-d H:m:s');
    $type = 2;

    $userdata = array('val' => array('user_name' => $name, 'user_email' => $email, 'user_password' => $password, 'user_phone' => $phone));
    $userid = $this->common->add_user($userdata);
    $config = array(
        'upload_path' => "uploads/",
        'allowed_types' => "gif|jpg|png|jpeg",
        'max_size' => 1024
    );
}
```

## Google Oauth 2.0:

The application also enables users to register/login using google credentials by using Oauth 2.0 protocol for authorization and authentication as per API provider. For initializing purpose Client ID and secret key are obtained from Google API console. This is configured utilizing PHP template given by googleapis GitHub repo (GitHub, 2019) to incorporate google oauth in the application.

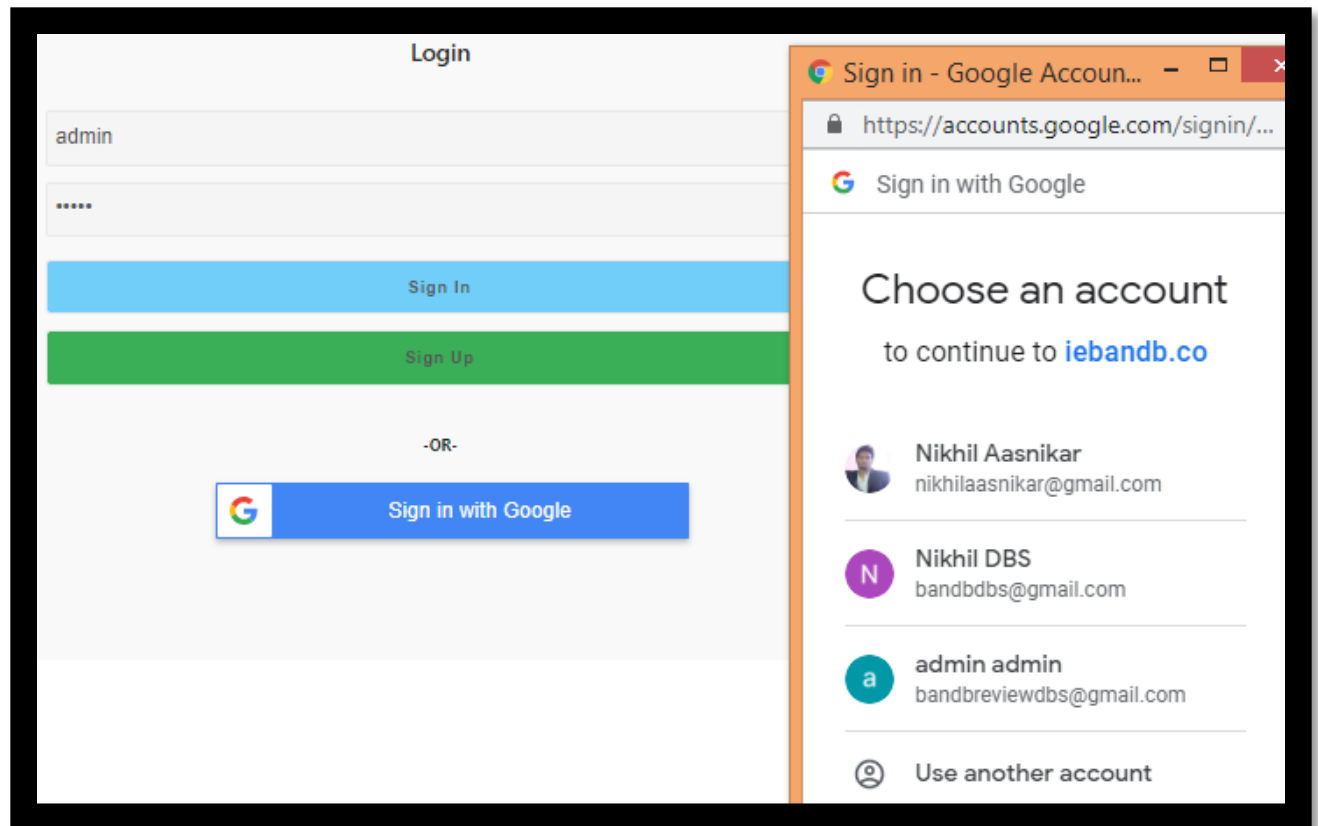
```
else {
    $client_id = '337002711107-mabqo52niqo06b55gmu70mpmu94ts8br.apps.googleusercontent.com';
    $client_secret = 'lDwXHds7Rx4sXuhWYJqk_vMK';
    $redirect_uri = base_url('login');
    $simple_api_key = 'esoteric-code-265111';

    $client = new Google_Client();
    $client->setApplicationName("Googleweblogin");
    $client->setClientId($client_id);
    $client->setClientSecret($client_secret);
    $client->setRedirectUri($redirect_uri);
    $client->setDeveloperKey($simple_api_key);
    $client->addScope("https://www.googleapis.com/auth/userinfo.email");

    $objOAuthService = new Google_Service_Oauth2($client);

    if (isset($_REQUEST['logout'])) {
        unset($_SESSION['access_token']);
        $client->revokeToken();
        redirect(base_url('login')); //redirect user back to page
    }

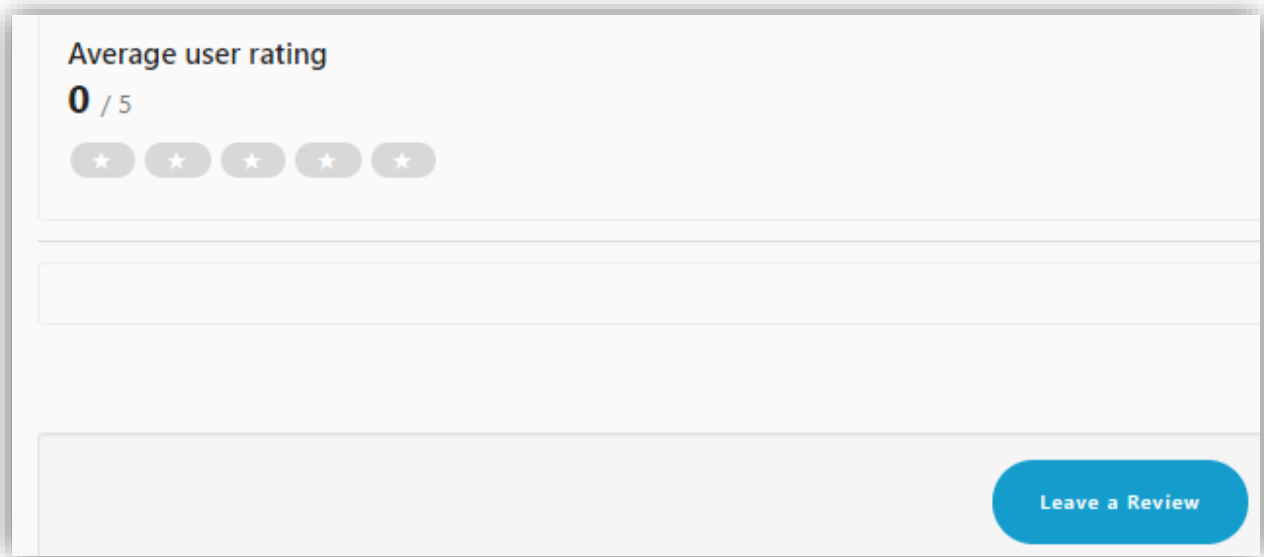
    if (isset($_GET['code'])) {
        $client->authenticate($_GET['code']);
        $_SESSION['access_token'] = $client->getAccessToken();
        redirect(base_url('google_signup'));/*
        header('Location: ' . filter_var($redirect_uri, FILTER_SANITIZE_URL));*/
    }
}
```



*Figure 6:Google Oauth*

## 5. Review and Ratings Widget

The application enables user to send queries directly to the owners. The query sending widget can be accessed in the destination details page which also include comments and rating widget. For sending the query user must be logged in the application to maintain the integrity of the user and input will be collected using a text box. The user details like username/Email will be automatically attached with the mail and sent to the owners because the user is already logged in the application. To achieve this functionality PHP mailer has been used and its files are stored inside the third\_party folder.



*Figure 7: Comments and Ratings Widget*

## 6. Conclusion

The developed application addresses the issue of the footfall in the B&B industry which has been long standing and gained importance after witnessing the high closure rates of traditional un-registered B&B's. The developed application provides an interactive platform where users are free to select from all the list of B&Bs and have a access to unbiased user reviews and comments from the users who have an experience of saying with the B&B's which is being reviewed. Also being a third-party application, the platform will host all the B&B's registered/unregistered and provides users with transparent and unbiased information.

The application can in future host commission-based booking and can include customized packages by including existing service providers along with B&B's. Such an inclusion will

attract higher customer flow through the platform and can then be a sustainable tourism project which promotes traditional B&B's.

**GITHub-**[https://github.com/nikhilaasnikar/EIS-Repeat-CA-Nikhil-Aasnikar-10360623-  
/commits/master](https://github.com/nikhilaasnikar/EIS-Repeat-CA-Nikhil-Aasnikar-10360623-/commits/master)