SOEN343
SOFTWARE ARCHITECTURE AND DESIGN

Community Service App
(Phase 3)

Team C: ArchiTECH

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Summary of the Project

The project focused on implementing a Community Platform for teenagers and young adults to improve their lifestyle, socialise with their peers and in general, get to know more about their community. The project, as a whole, focused more on the important design activities that are required before coding and implementing such a system. In the first phase, the problem definition was explored in which it was discussed the problem to be solved, the target of our system and the possible solutions. Some important diagrams were also designed such as the Breakdown structure, Context Diagram and Domain Model. These diagrams allowed us to get a clear overview on what the system will look like and how we will plan to implement the different sections of the system.

In the second phase, more diagrams were designed to discuss in more detail the functionality of the features that the system has. At first, the system architecutre was designed in which 3 layers were discussed : the UI layer, the Application layer and, the Foundation and Domain Objects. In each of these layers, all the relevant packages are described. Secondly, 10 use cases diagrams were presented in which they capture 10 unique functionalities of our system. This step allowed us to determine who are the users that are involved in a functionality and what are the methods that they can invoke in order to get a desired service. This step allowed us to generate the use case scenarios for each of the use case diagrams. The use case scenarios helped us get more details on what is the flow of actions for each of the functionalities, which would be really beneficial when implementing our methods, during the coding phase. It also helped us generate the sequence diagrams for each of these 10 functionalities. After drawing these 3 types of diagrams, the class diagram of the system was to be implemented. The diagram encapsulated all of the classes that are going to be used in the system, paired with all the methods that were discussed in the previous sections. Gang of Four patterns were also applied to these class diagrams so that our design ensured good coding and design standards.

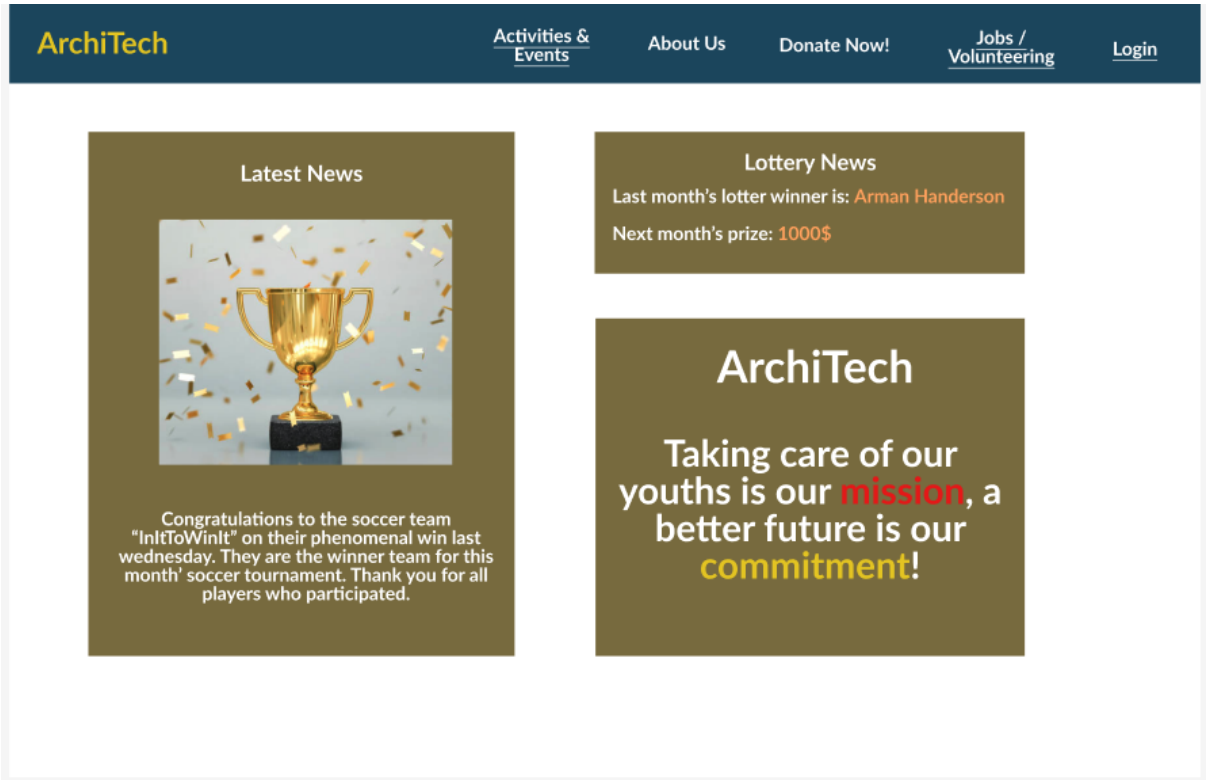
In the third phase, after implementing all the necessary design diagrams, the implementation had to be done. In this phase, the implementation was divided in two sections. The User Interface of our system and the implementation of one sequence

diagram from phase 2. The UI of the system was designed using Figma, which was a mockup of how the system will look like. In a real world situation, if the customer liked the User Interface, then we would proceed to implement the UI using a Front End programming language. The other section of the implementation was to implement one of the sequence diagrams of our choice in phase 2 with a programming language of our choice. A mockup front end was coded in which we tested our implemented methods in order to simulate the sequence diagram and show the flow of events.

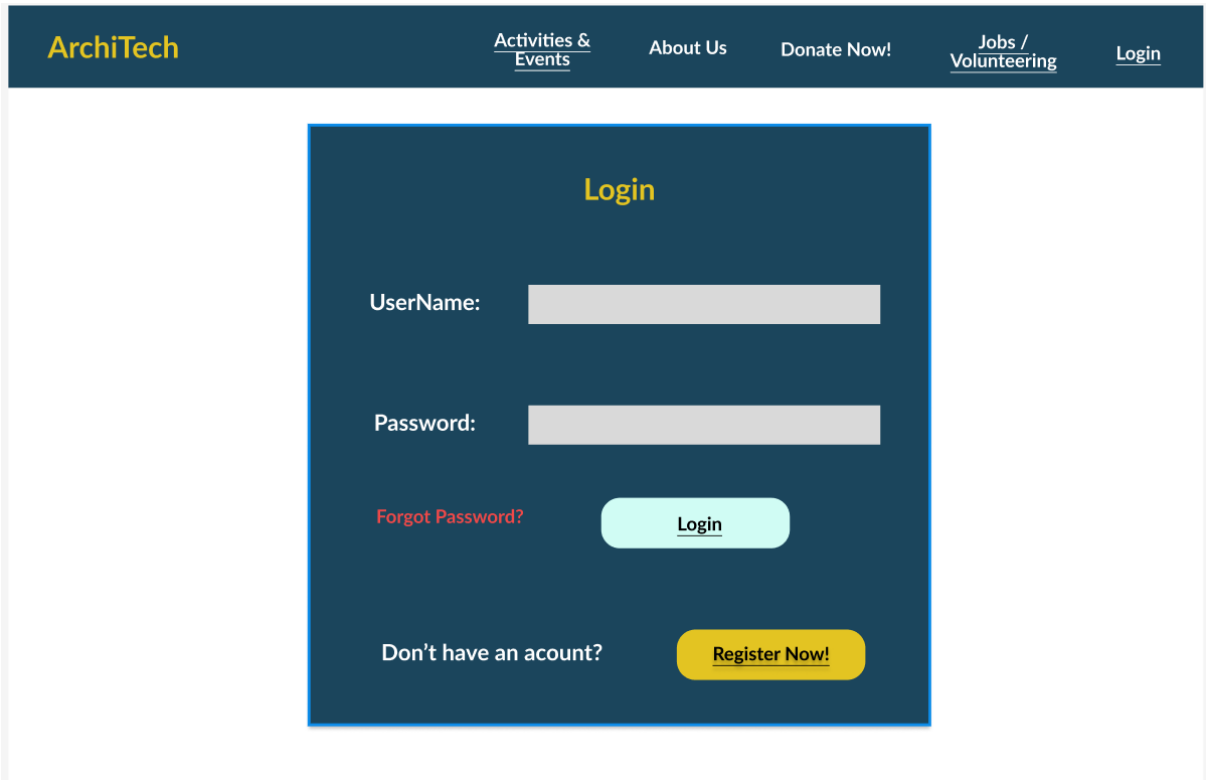
User Interface

The user interface has been implemented using Figma. This UI will serve as a mockup of the interface and will provide a simulation of the system that will be developed. More details of the user interface can be found in the figma link below: https://www.figma.com/file/DOj5WANsXSkGQUsdvXa2Ir/ArchiTech?node-id=26%3A291&t=kgUZDf0ANwZrIUJO-1

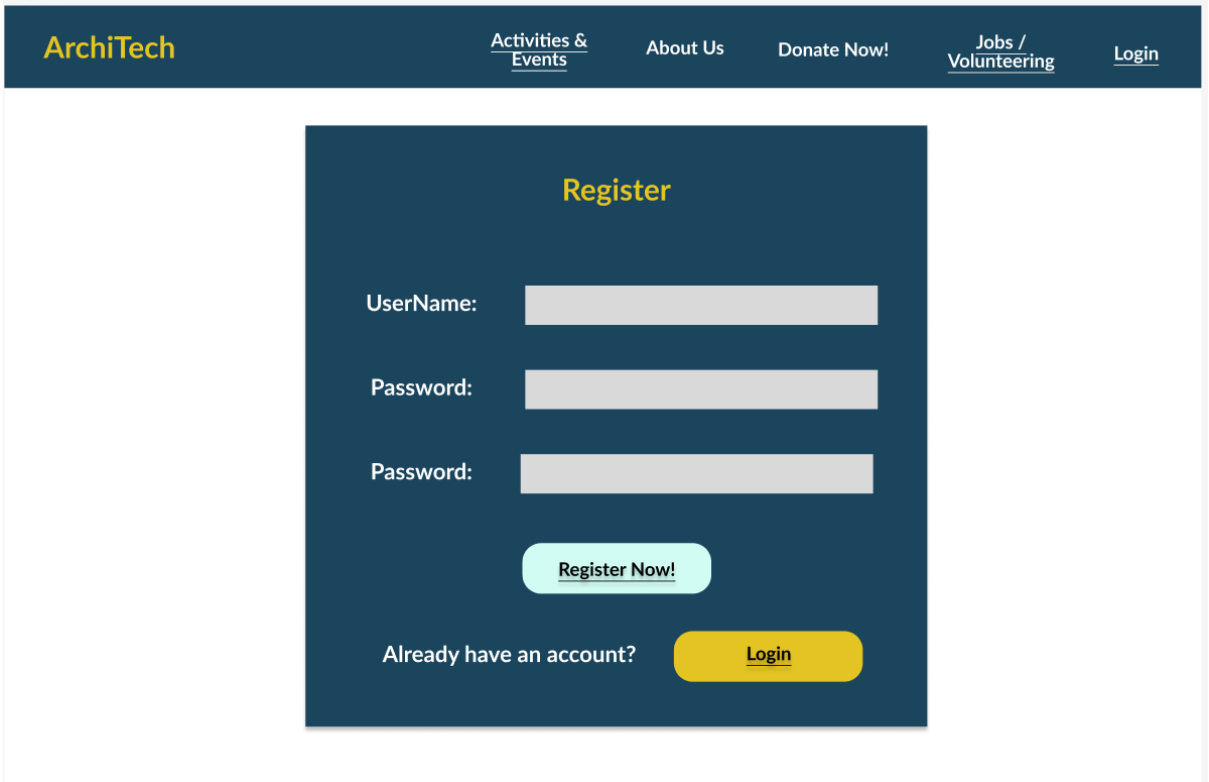
Screenshots of the GUI



The home page of the system from the perspective of guests (users that are not logged in). The users can view all the activities, events, jobs but will not be able to enroll or apply to any of them without an account.

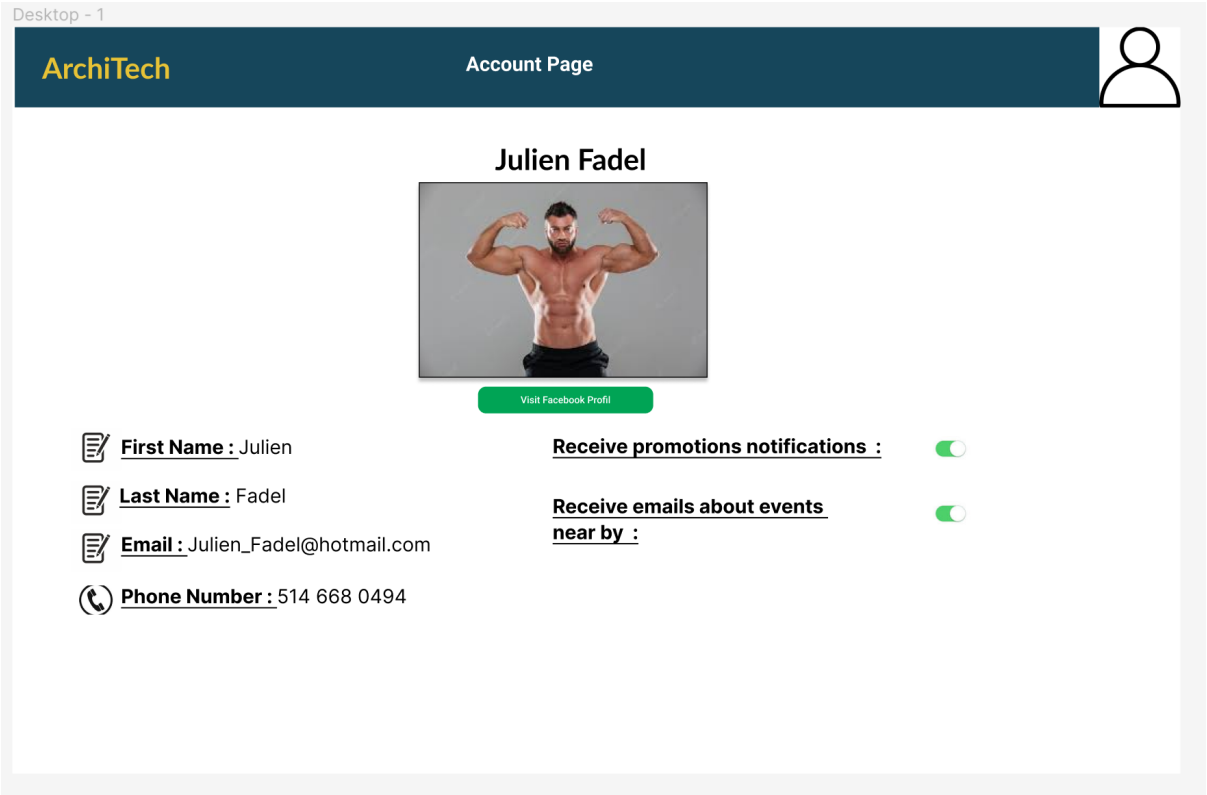


The login page for users to log in to their account.

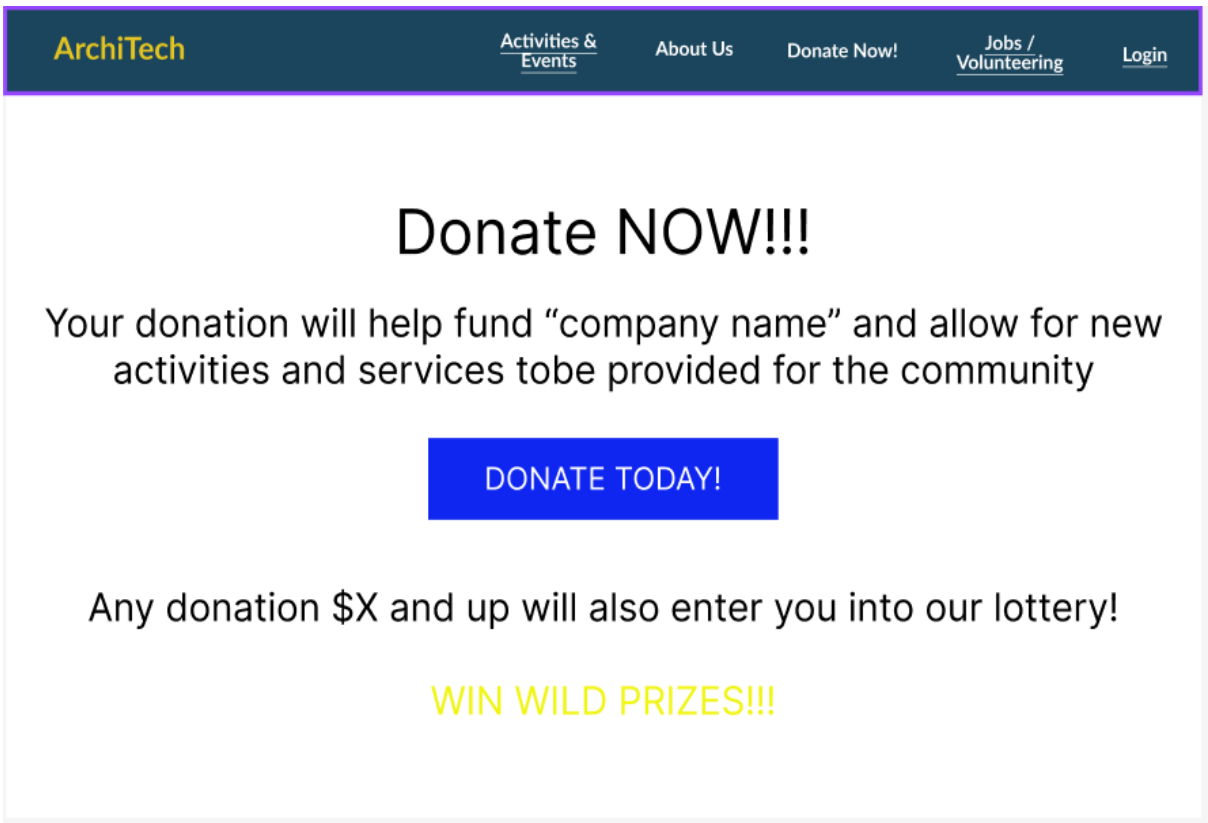


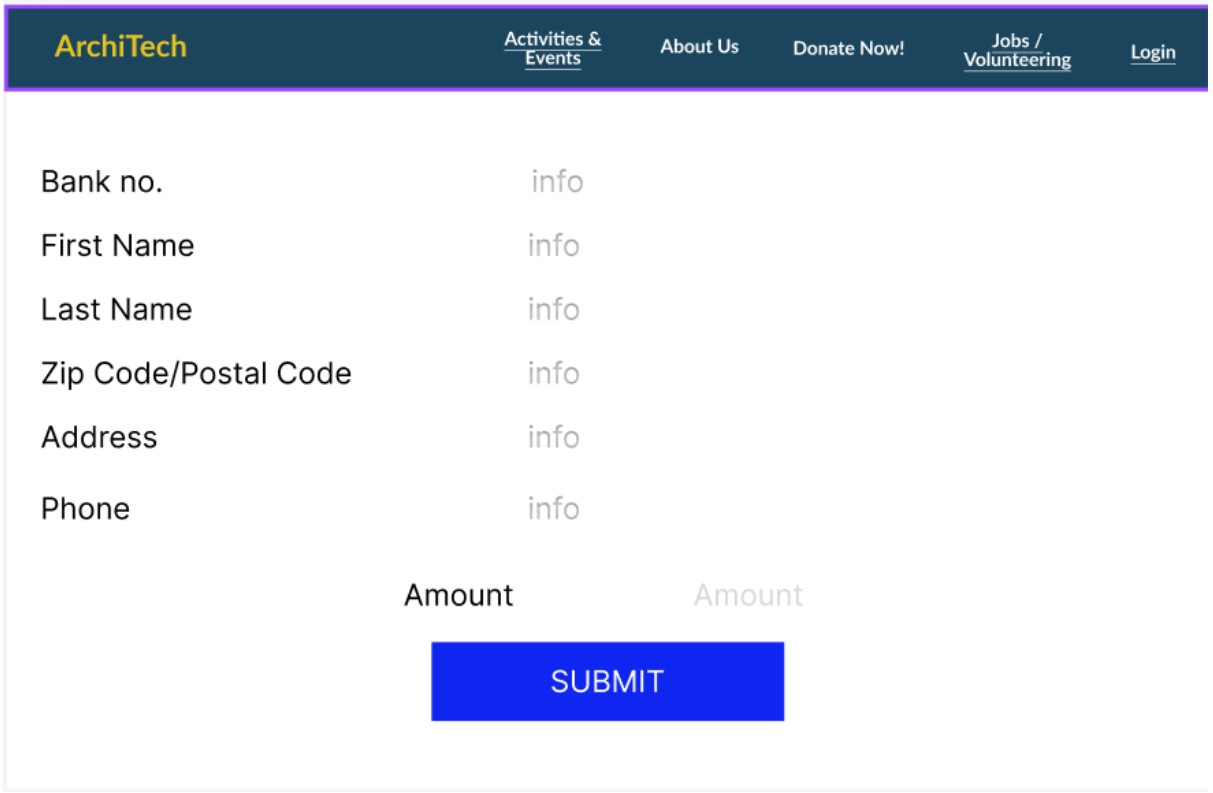
The register page for users to create an account if they do not have one.

The homepage from the perspective of a user that is logged into the system. Once they are logged in, they can register for events and activities and apply for jobs as well.

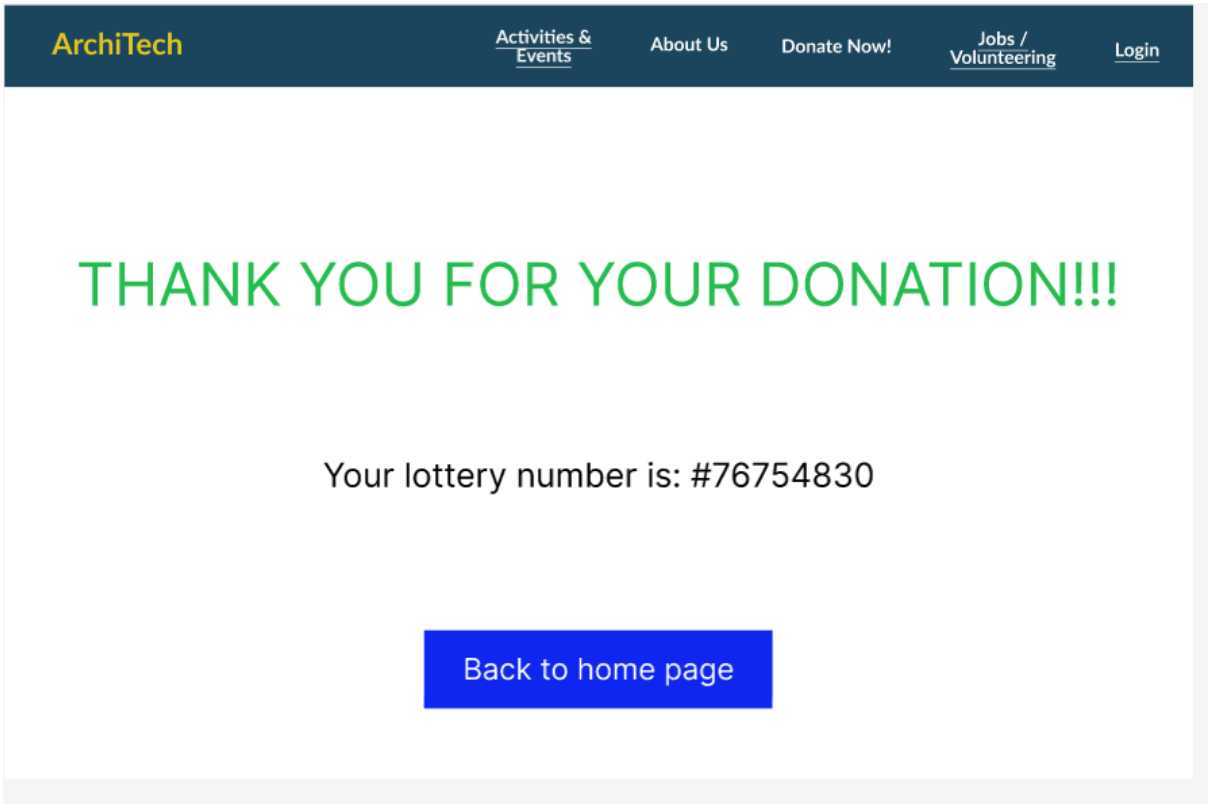


The account details page of a user. Users can see all the details of their account.

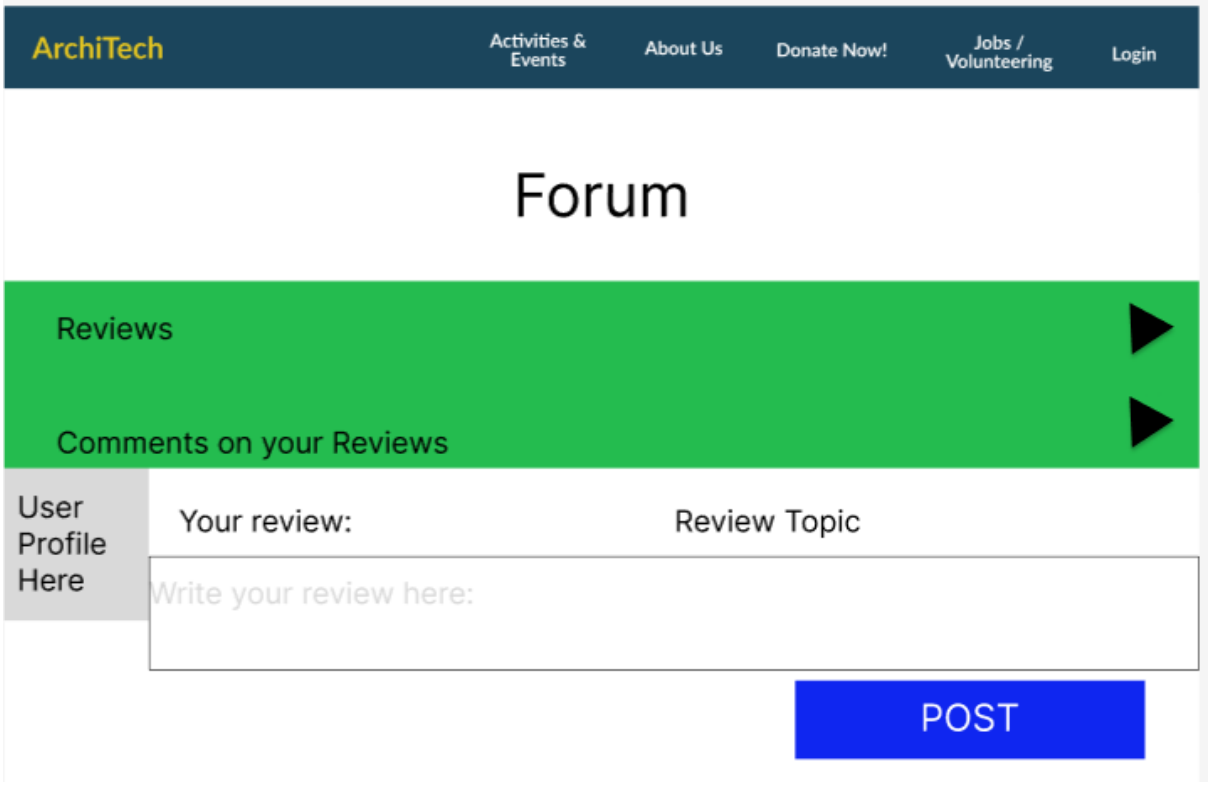


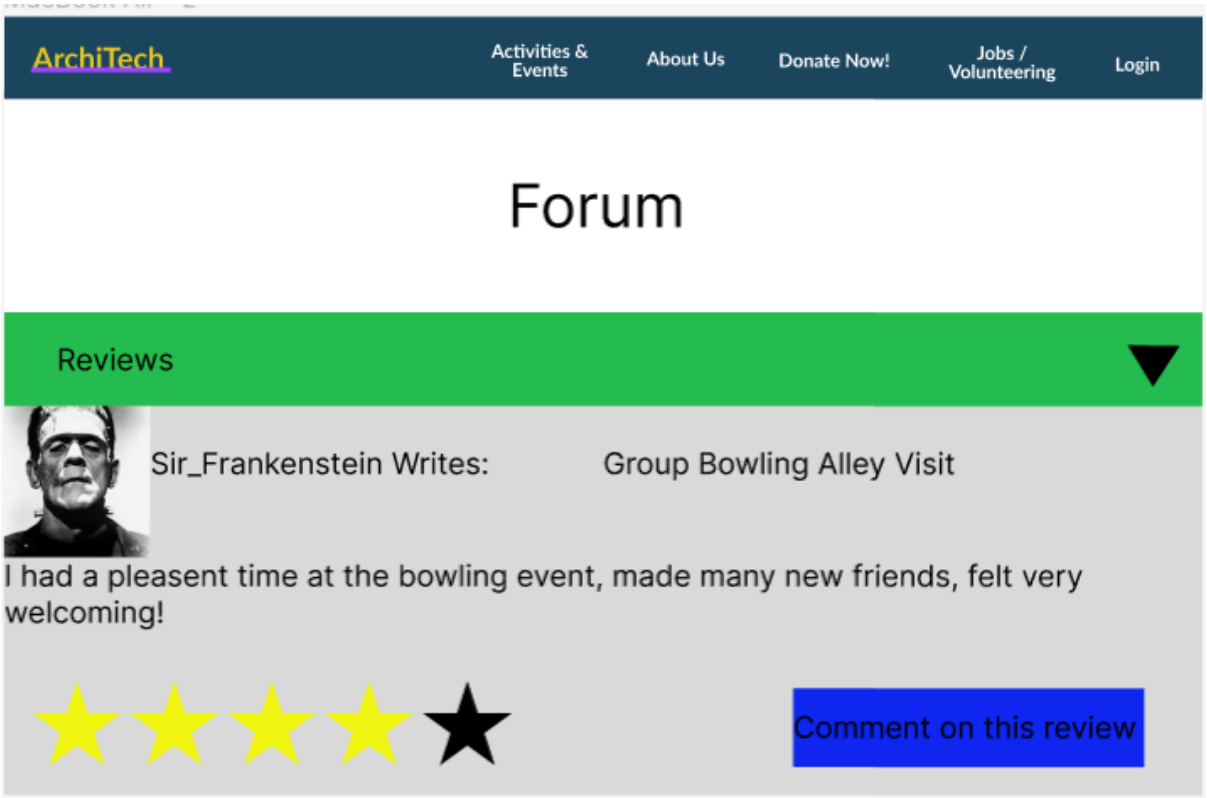


The user can donate to the company and input their information such as the amount they are willing to donate. The donation from the community will be put into improving the quality of the system.

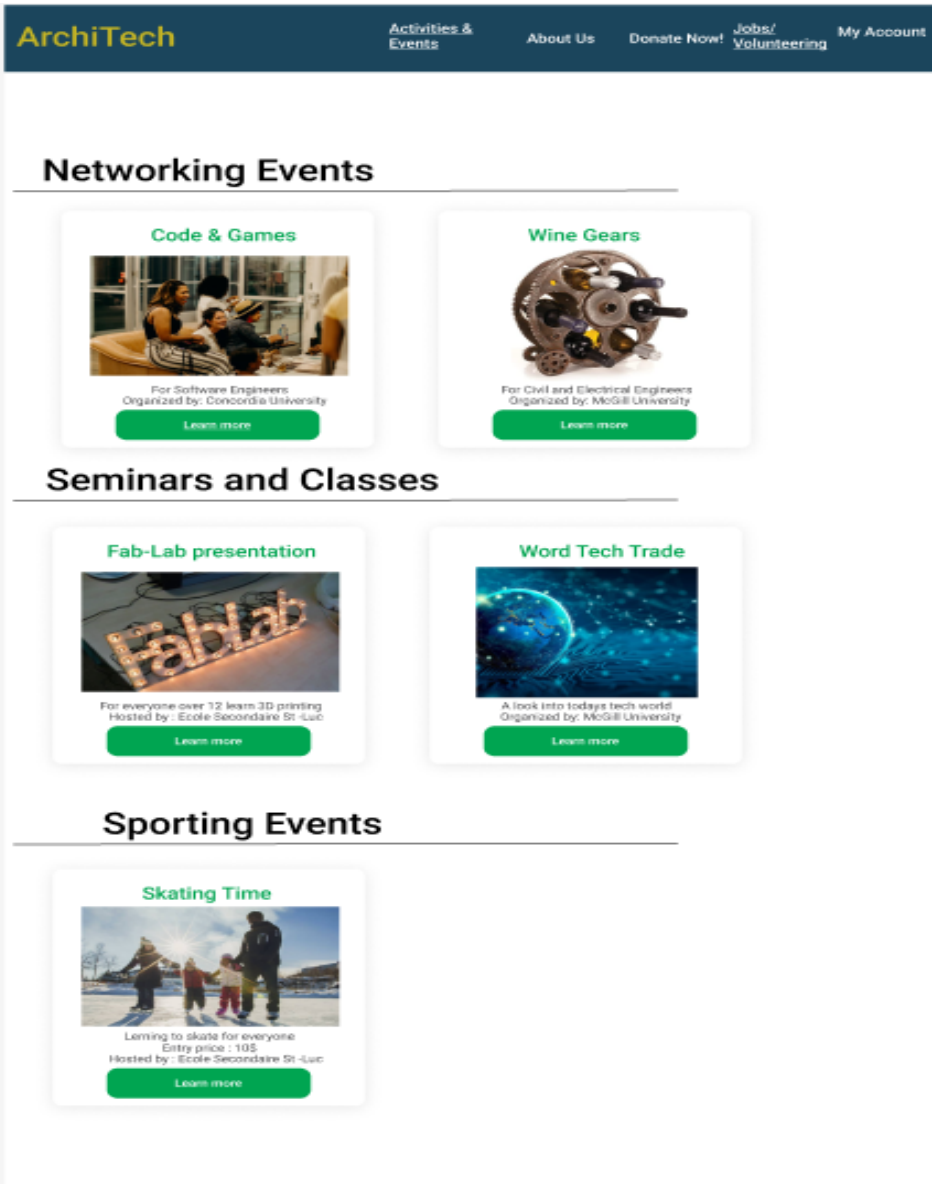


Once they have submitted their donation, the user will be prompted with a confirmation page. They will also be put into a lottery where they can win various prizes.

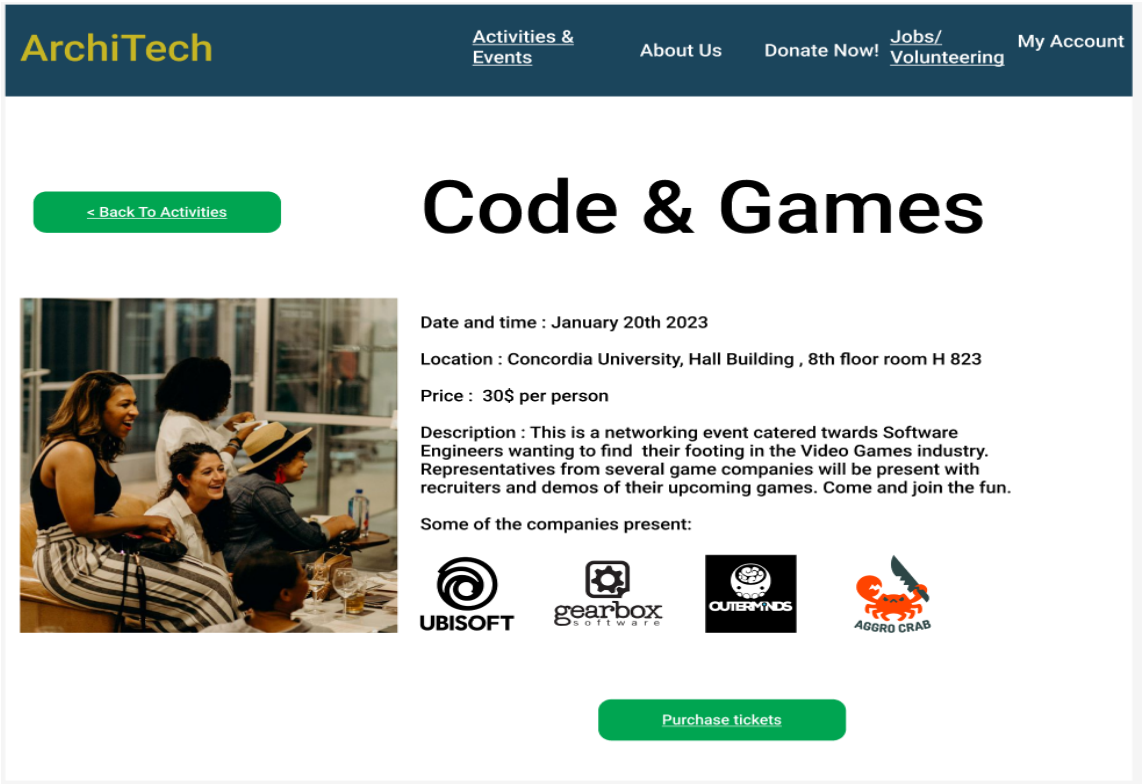




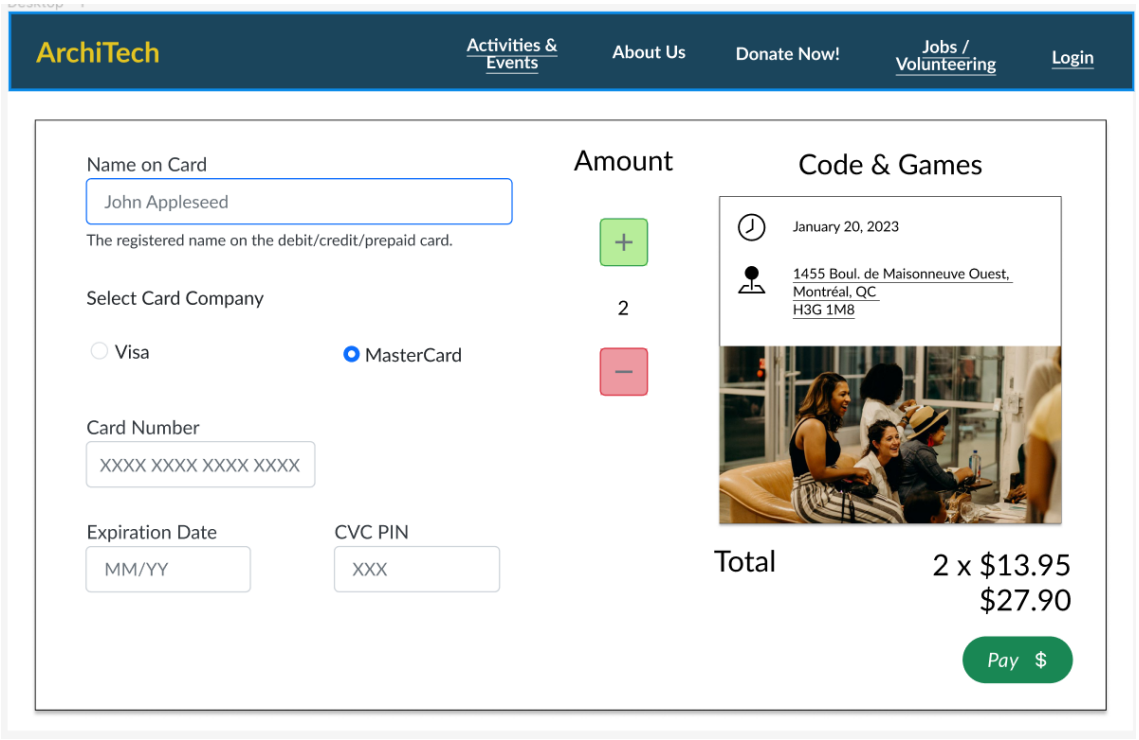
These are the forum page for users to view and post reviews of activities and events on the system.



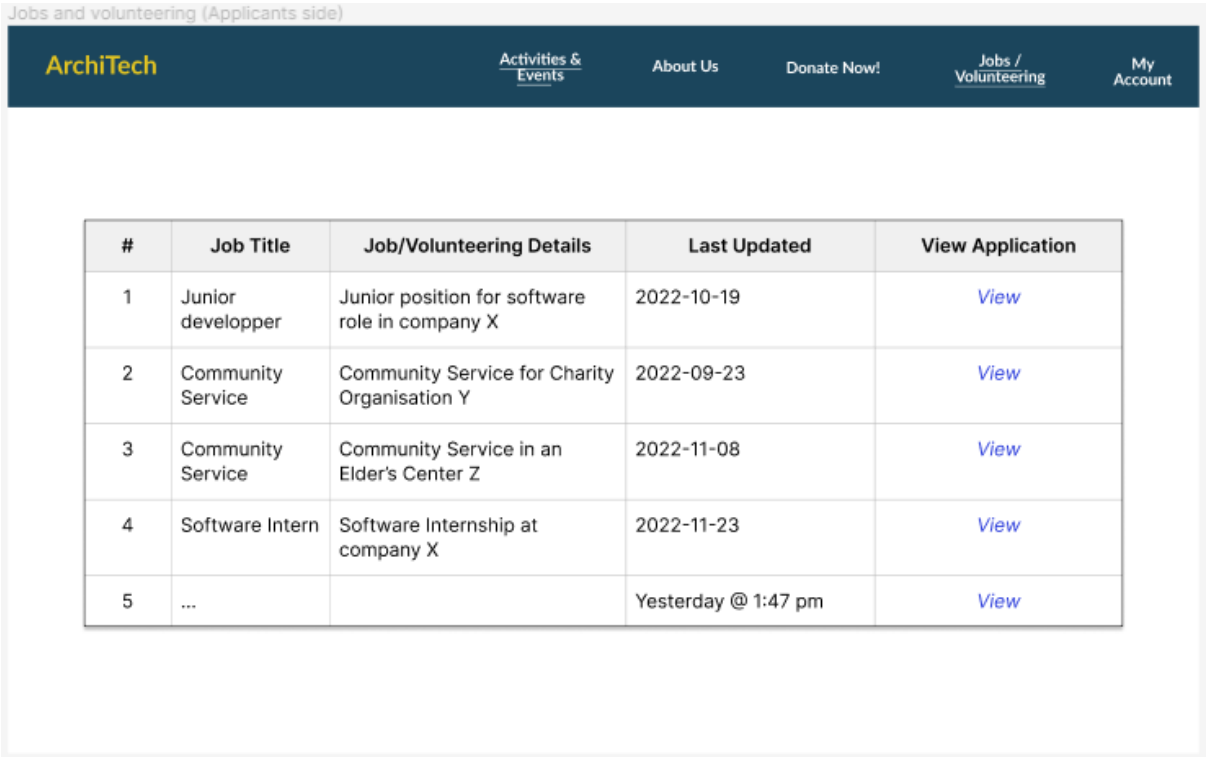
This is the events page, where users can view all types of events in the system. The system has social networking events, seminars and classes and sporting events. Each type of these events have various events that the users can attend and enroll into.



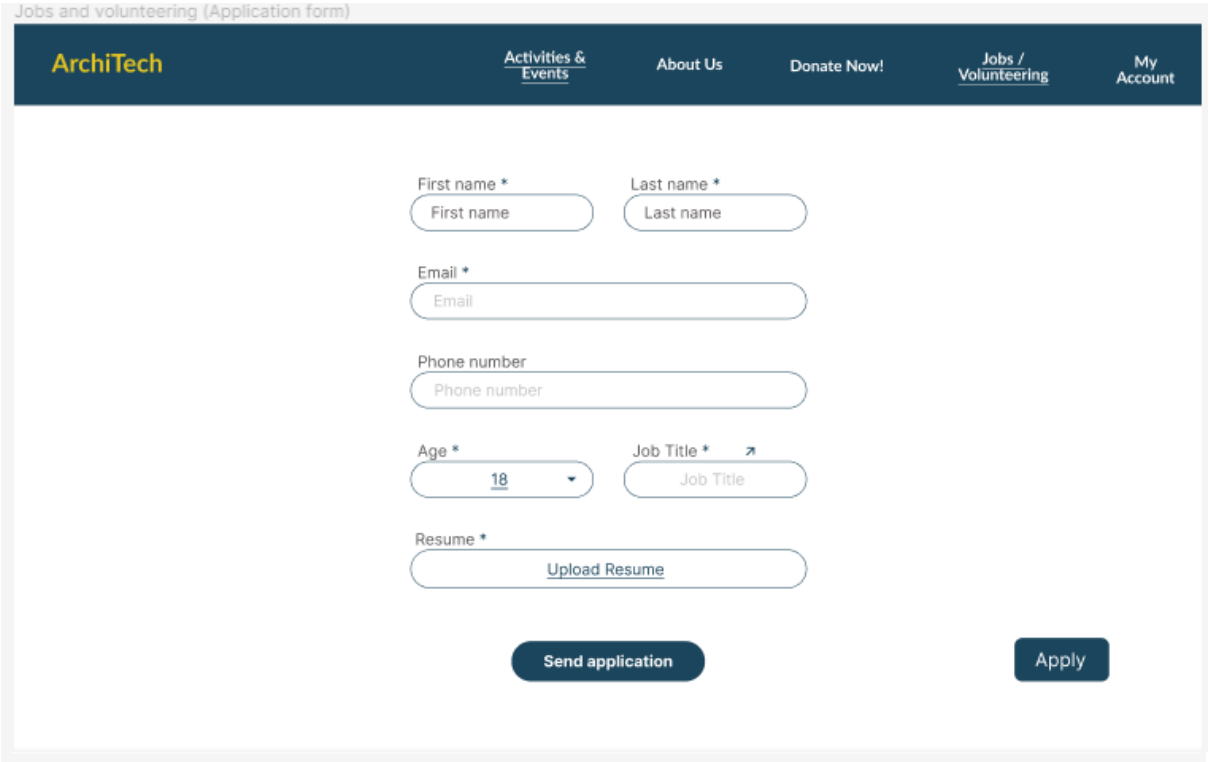
Users can select a certain activity in the system and view the details of it such as date, time, location, price and many other details.



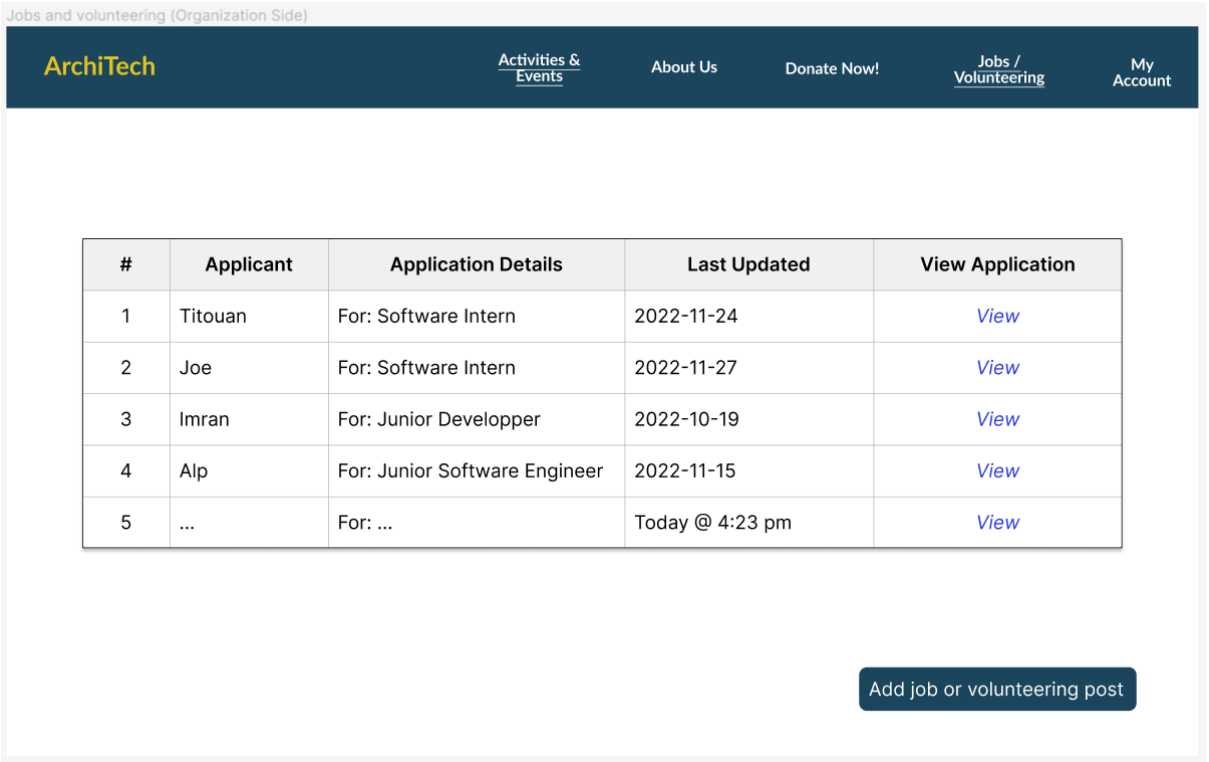
Users can also make a payment for the selected activity (if activity is not free), if they are interested. Although, not all activities on the website are paid as some activities and events are free to attend.



If the user is interested in applying to a job, then the user can navigate through the list of jobs and volunteering positions available in the system. The user can select a job and apply, if interrested.

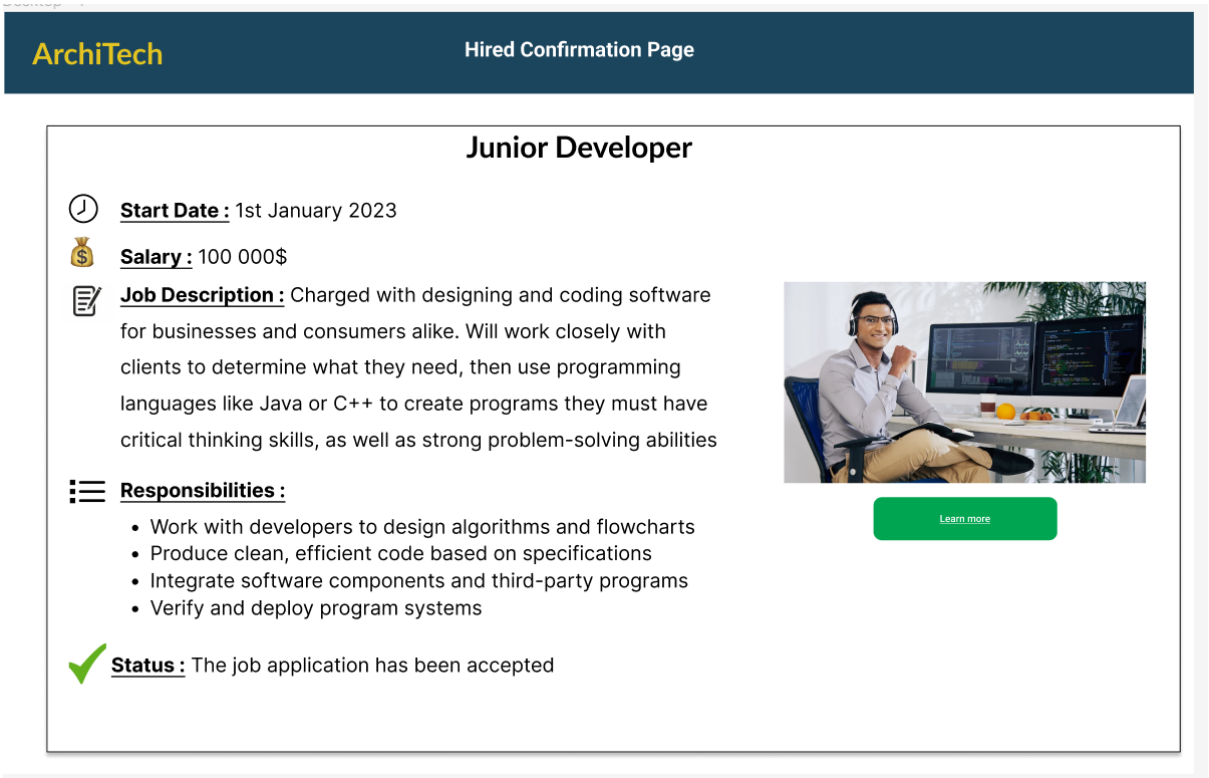


Once the user selects a job that they are interested in, they will be prompted to the job application page where users can add all the necessary details to submit an application.



#	Applicant	Application Details	Last Updated	View Application
1	Titouan	For: Software Intern	2022-11-24	*View*
2	Joe	For: Software Intern	2022-11-27	*View*
3	Imran	For: Junior Developper	2022-10-19	*View*
4	Alp	For: Junior Software Engineer	2022-11-15	*View*
5	...	For: ...	Today @ 4:23 pm	*View*

The employer can then view all the applicants for a particular position and view their infromations.



If a user has been approved for the job, this will be the confirmation page with all the relevant details of the offer.

Methods implementation

For the implementation of the methods, this sequence diagram below was considered.

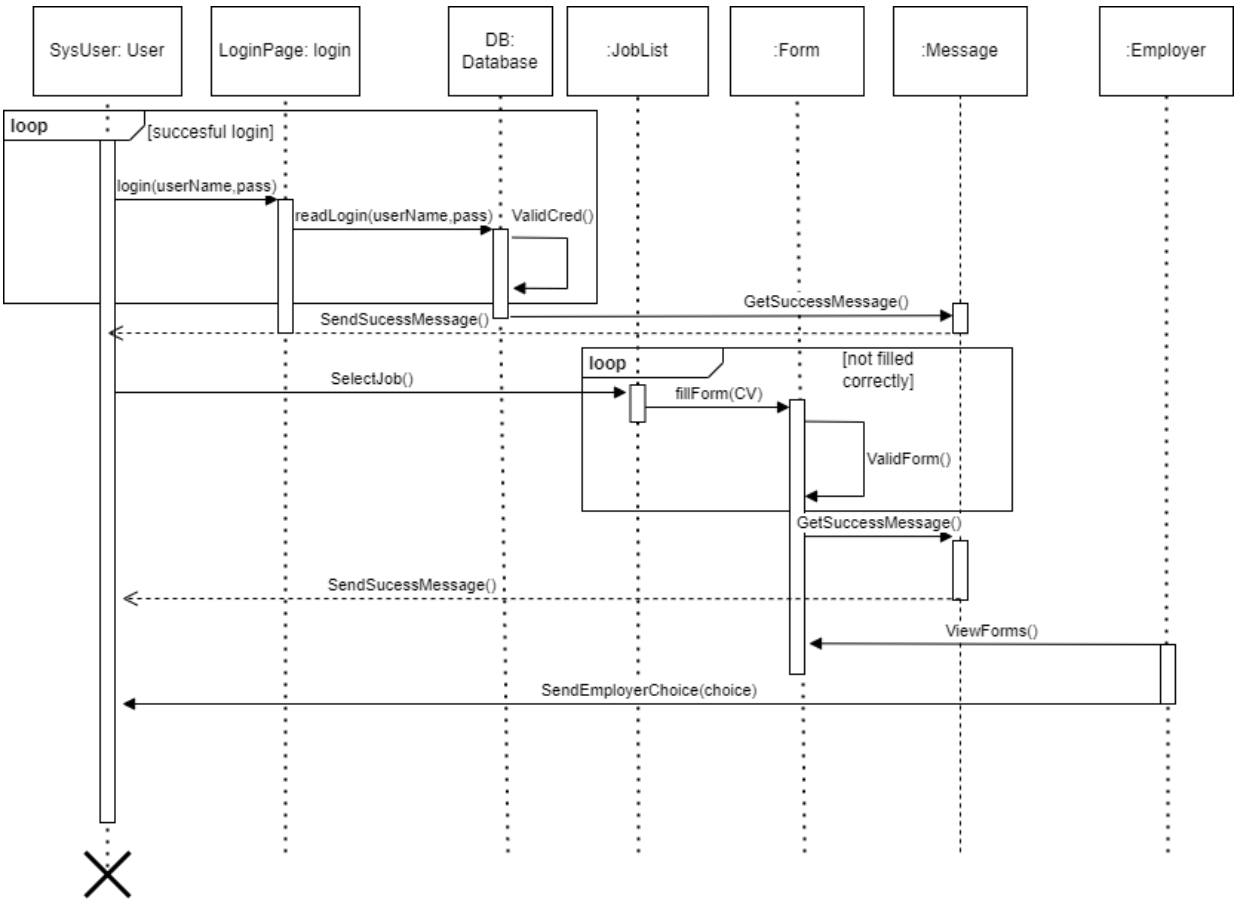


Figure 1 : Sequence Diagram for user applying to job/volunteering position

This sequence diagram discusses a user of the system that wants to apply for a job or volunteering position in the system. First, the users login to their account. After they have been authenticated, the user selects a job or volunteering position from the list of jobs page. Once a specific one has been selected, the user can fill out the job application form with their information and submit it. Once submitted, the employer can login to their account and view all the job applications from users and can approve or deny an application.

First, we've implemented the login method as the following:

```
<!--Javascript function to autenthicate user-->
<script>
    function login() {
        const username = document.getElementById("username").value;
        const password = document.getElementById("password").value;
        if (username === "imran" && password === "soen343") {
          document.getElementById("message").innerHTML = "Welcome back Imran !!!";
          localStorage.setItem("LoggedIn", 1);
        } else if (username === "employer" && password === "soen343") {
          document.getElementById("message").innerHTML = "Welcome back Employer !!!";
          localStorage.setItem("LoggedIn", 2);
        } else if (username === "" || password === "") {
          document.getElementById("message").innerHTML =
            "Login unsucesfull. Please try again";
        } else {
          document.getElementById("message").innerHTML = "Wrong Credentials";
        }
    }

    function logout() {
        document.getElementById("message").innerHTML = "Logged Out";
        localStorage.setItem("LoggedIn", 0);
    }
</script>
```

The login function checks if the inputs for the username and the password are good. If the login fails, we can attempt to login again. There are two possible logins, one for the user and one for the employer. If the login is successful, we get a success message and the user will be able to apply for jobs.

After logging into their account, the user can select a job and navigate to the jobForm to add all of his/her details and upload a resume to the app.

Below is the implementation of the job form where users can add all the necessary details.

```
<form action="jobForm.php" method="post" onsubmit="alert('form submitted succesfully')">
    <h3>Apply Today</h3>
    <div id="message"></div>
    <br/>
        <!--Bootstrap 5.2 login form-->
        <div class="mb-3">
            <u><b>First Name</b></u>
            <input type="text" class="form-control" name="fname" />
        </div>
        <div class="mb-3">
            <u><b>Last Name</b></u>
            <input type="text" class="form-control" name="lname" />
        </div>
        <div class="mb-3">
            <u><b>Email</b></u>
            <input type="email" class="form-control" name="email" />
        </div>
        <div class="mb-3">
            <u><b>Age</b></u>
            <input type="text" class="form-control" name="age" />
        </div>
        <div class="mb-3">
            <u><b>Job Title</b></u>
            <input type="text" class="form-control" name="jobTitle" />
        </div>
        <div class="mb-3">
            <u><b>Resume</b></u>
            <input type="text" class="form-control" name="resume" />
        </div>
        <button type="submit" name="submit" class="btn btn-primary">Submit</button>
```

```php
<!--Function to retrive data from Job Aplication form--!>
<?php

    if(isset($_REQUEST['submit'])){

        $data = "";
        $filename = "../jobForm.json";

        $data = file_get_contents($filename);
        $data_arr = json_decode($data,true);

        $data_arr["jobs"][] = array('fname' => $_REQUEST['fname'],'lname' => $_REQUEST['lname'],'email' => $_REQUEST['email'],'age' => $_REQUEST['age'],
        'jobTitle' => $_REQUEST['jobTitle'],'resume' => $_REQUEST['resume']);

        $newdata = json_encode($data_arr);
        file_put_contents($filename,$newdata);

        header("Location:http://localhost/server/test.html ");
    }
?>
```

Once the user has submitted the application, the function above will take care of taking all the inputs from the user and transferring them to the database. For simplicity, a json file was considered as the database for this mockup implementaion.

Lastly, the viewForm() functionality allows the employer to view all the applications that were submitted for a specific job or volunteering position.

```javascript
//Javascript function to retrieve data from json file
fetch("http://localhost/jobForm.json")
  .then(function (response) {
    return response.json();
  })
  .then(function (jobs) {
    let jobsection = document.getElementById("jobApplications");
    //Iterate over jobs in jobForm.json to get each application
    for (let job of jobs.jobs) {
      jobsection.innerHTML =
        jobsection.innerHTML +
        `
          <tr>
            <td>${job.fname} </td>
            <td>${job.lname}</td>
            <td>${job.email}</td>
            <td>${job.age}</td>
            <td>${job.jobTitle}</td>
            <td>${job.resume}</td>
            <td>
                <button type="submit" name="submit" class="btn btn-primary">Approve</button>
                <button type="submit" name="submit" class="btn btn-danger">Deny</button>
            </td>
          </tr>`;
    }
  });
```

The function fetches the data from the json file and outputs it on the employer's page (a page where employers can view all the applications submitted for their positions). The first name, the last name, the email, the age, the job title that the user applied for and the user's resume is shown on the employer's page. For each application, the employer has the choice to either approve or deny the application.

Members Contribution

Name	Student ID	Percentage Of Work Done (%)	Work Done
Imran Ahmed	40172931	12%	Phase 1: Answered the questions from the Problem Definition 1.1 to 1.4 as a team. Phase 2: Summary, System architecture with Titouan, Use case diagrams 3-4, Use case scenario 3-4, worked on Sequence diagrams as a team. Phase 3: HTML mockup implementation of the system. Method implementation of the sequence diagram with Kunal and Rohan. Summary of the Group report
Daniel Soldera	40168674	11%	Phase1: Breakdown structure of the system layout (with Alp), aided in answering questions given in phase 1 Phase 2: use case diagram and scenario #3, class diagram (with Julien) Phase 3: Front end Forum/Reviews and Donations pages
Ali Alp Erdinc	40172910	11%	Phase1: Breakdown structure of the system layout (diagram with Daniel), helped come up with website idea Phase 2 : use case diagram, use case scenario and sequence diagram number 9 Phase 3: Front end Activities and activity description page Extra: Went to ask team questions to Project Coordinator, Made meeting minutes
Rohan Das	40177213	11%	Phase 1: The advantages and features of our solution in comparison with the existing solutions Phase 2: use case diagrams, use case scenarios, sequence diagrams

			Phase 3: Backend implementation, method implementation for the group report
Kunal H. Shah	40153500	11%	Phase 1: Context diagram of our proposed solution (with Julien). Phase 2: Use case diagrams, Use case scenarios, sequence diagrams. Phase 3: Backend feature implementation(job form), method implementation for the group report.
Titouan Sablé	40179062	11%	Phase 1: Explained the context in which the system will be used, helped come up with ideas for the website Phase 2: Use case diagram and the corresponding use case scenario, worked on system architecture with Imran Phase 3: Front End jobs and volunteering pages for applicants and for organisations to view those applications. Application page with the form to apply to a job or to volunteer.
Joe El-Khoury	40173108	11%	Phase 1: Worked on the domain model with Arsany, helped come up with ideas for the website. Phase 2: Worked on use case 8, its scenario and diagram. Phase 3: Worked on a front-end main page (payment page for people wanting to participate in an event and event registration page that includes the event details)
Arsany Fahmy	40157267	11%	Phase 1: Implementation of the domain model Phase 2: Implementation of one use case diagram as well as one use case scenario and worked on building four sequence diagrams Phase 3: Front End Main page (when logged-in & when not logged-in), Register Page and Login Page
Julien Fadel	40002473	11%	Phase 1: Context diagram of our proposed solution (with Kunal)

			Phase 2: - Use Case diagram and scenario number 10. - The class diagram with Daniel. - Two examples of Gang Of four class diagram Phase 3 : Worked on the front-end, more precisely the hired confirmation page and the account page.
Total	————————	100%	