



## **SOEN343 SOFTWARE ARCHITECTURE AND DESIGN**

**Community Service App  
(Phase 3)**

**Team C: ArchiTECH**

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Date: 12/07/2022

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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 architecture 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

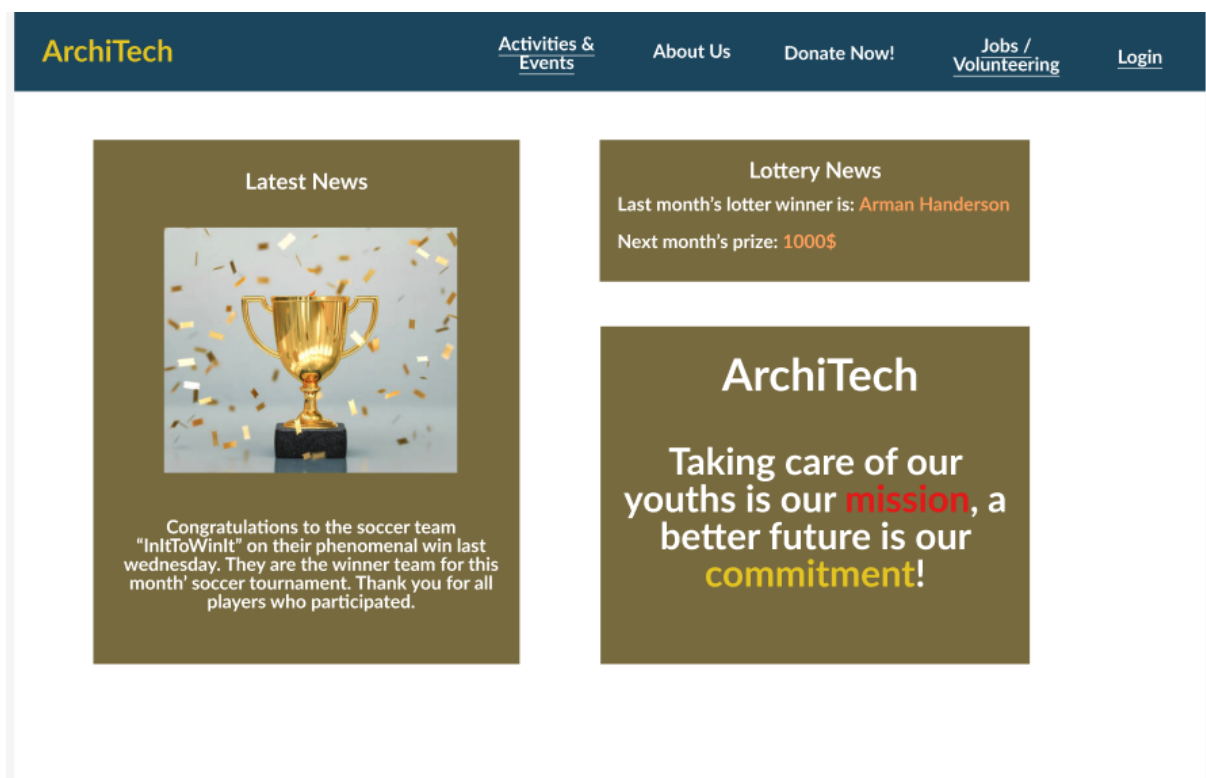
diagram from phase 2. The UI of the system was designed using Figma, which was a mockup of how the system will look like. In a real world situation, if the customer liked the User Interface, then we would proceed to implement the UI using a Front End programming language. The other section of the implementation 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.

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UserName:

Password:

Forgot Password?

Login

Don't have an account?

Register Now!

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

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Register

UserName:

Password:

Password:

Register Now!

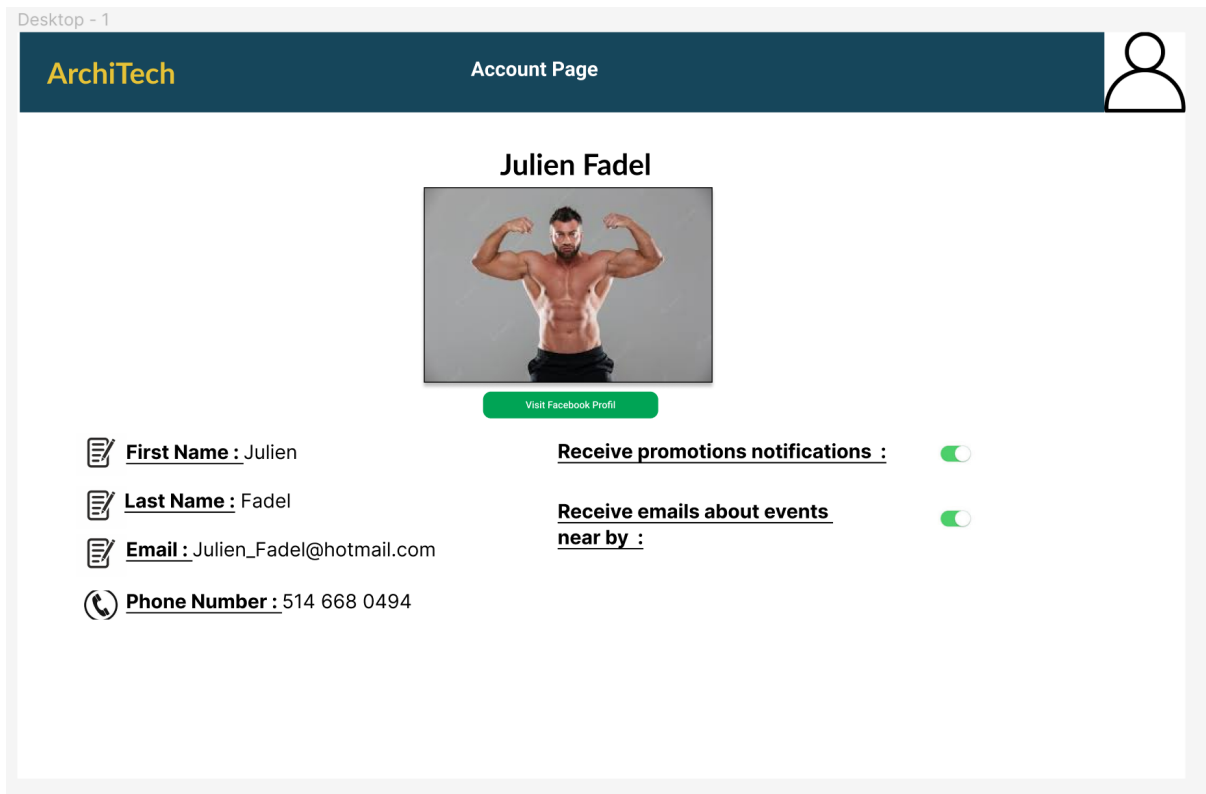
Already have an account?

Login

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.

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# Donate NOW!!!

Your donation will help fund “company name” and allow for new activities and services to be provided for the community

DONATE TODAY!

Any donation \$X and up will also enter you into our lottery!

WIN WILD PRIZES!!!

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Bank no.

info

First Name

info

Last Name

info

Zip Code/Postal Code

info

Address

info

Phone

info

Amount

Amount

SUBMIT

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.



# THANK YOU FOR YOUR DONATION!!!

Your lottery number is: #76754830

[Back to home page](#)

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.

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Forum

Reviews

Comments on your Reviews

User Profile Here

Your review:

Review Topic


Write your review here:

POST

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Forum


Reviews



Sir\_Frankenstein Writes:

Group Bowling Alley Visit

I had a pleasant time at the bowling event, made many new friends, felt very welcoming!




Comment on this review

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

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## Networking Events


### Code & Games



For Software Engineers  
Organized by: Concordia University

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### Wine Gears




For Civil and Electrical Engineers  
Organized by: McGill University

[Learn more](#)

## Seminars and Classes


### Fab-Lab presentation



For everyone over 12 learn 3D printing  
Hosted by : Ecole Secondaire St-Luc

[Learn more](#)

### Word Tech Trade




A look into today's tech world  
Organized by: McGill University

[Learn more](#)

## Sporting Events

### Skating Time



Learning to skate for everyone  
Entry price : 10\$  
Hosted by : Ecole Secondaire St-Luc


[Learn more](#)

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.

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# Code & Games







**Date and time :** January 20th 2023

**Location :** Concordia University, Hall Building , 8th floor room H 823

**Price :** 30\$ per person

**Description :** This is a networking event catered towards Software Engineers wanting to find their footing in the Video Games industry. Representatives from several game companies will be present with recruiters and demos of their upcoming games. Come and join the fun.

**Some of the companies present:**

Purchase tickets

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.

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Name on Card

The registered name on the debit/credit/prepaid card.

Select Card Company

☐ Visa
☒ MasterCard

Card Number

Expiration Date

CVC PIN

Amount


+
-

2

Code & Games

January 20, 2023

1455 Boul. de Maisonneuve Ouest,  
Montréal, QC  
H3G 1M8



Total
2 x \$13.95  
\$27.90

Pay \$

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.

Jobs and volunteering (Applicants side)

ArchiTech	<a href="#">Activities &amp; Events</a>	<a href="#">About Us</a>	<a href="#">Donate Now!</a>	<a href="#">Jobs / Volunteering</a>	<a href="#">My Account</a>
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#	Job Title	Job/Volunteering Details	Last Updated	View Application
1	Junior developper	Junior position for software role in company X	2022-10-19	<a href="#">View</a>
2	Community Service	Community Service for Charity Organisation Y	2022-09-23	<a href="#">View</a>
3	Community Service	Community Service in an Elder's Center Z	2022-11-08	<a href="#">View</a>
4	Software Intern	Software Internship at company X	2022-11-23	<a href="#">View</a>
5	...		Yesterday @ 1:47 pm	<a href="#">View</a>

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.

Jobs and volunteering (Application form)

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First name \*  Last name \*

Email \*

Phone number

Age \*  Job Title \*

Resume \*

[Send application](#) [Apply](#)

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.

Jobs and volunteering (Organization Side)

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

[Add job or volunteering post](#)

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

## Junior Developer



**Start Date :** 1st January 2023



**Salary :** 100 000\$



**Job Description :** Charged with designing and coding software for businesses and consumers alike. Will work closely with clients to determine what they need, then use programming languages like Java or C++ to create programs they must have critical thinking skills, as well as strong problem-solving abilities



**Responsibilities :**

- Work with developers to design algorithms and flowcharts
- Produce clean, efficient code based on specifications
- Integrate software components and third-party programs
- Verify and deploy program systems



**Status :** The job application has been accepted

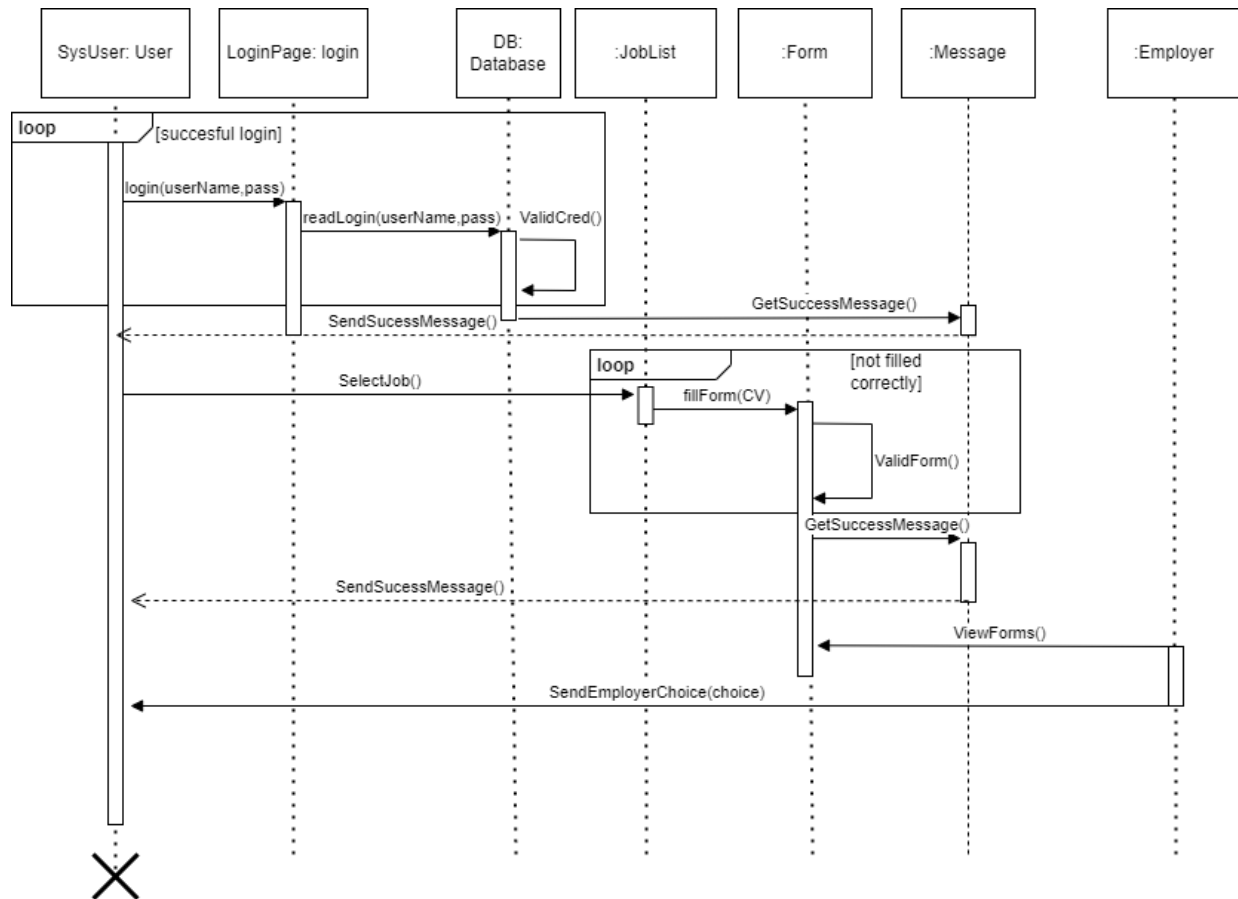


[Learn more](#)

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 authenticate 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>
```

```

<!--Function to retrieve data from Job Application 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 implementation.

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

```

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

			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)

			<p>Phase 2:</p> <ul style="list-style-type: none"> <li>- Use Case diagram and scenario number 10.</li> <li>- The class diagram with Daniel.</li> <li>- Two examples of Gang Of four class diagram</li> </ul> <p>Phase 3 : Worked on the front-end, more precisely the hired confirmation page and the account page.</p>
<b>Total</b>	_____	100%	