INFM603
ALUMNI DATA AND ENGAGEMENT TRACKING SYSTEM

TEAM 7

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UNIVERSITY OF MARYLAND

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WE PLEDGE ON OUR HONOR THAT WE HAVE NOT GIVEN OR RECEIEVED ANY UNAUTHORIZED ASSISTANCE ON THIS ASSIGNMENT

Contents

Section 1: Project Requirements

Project requirements are the functionalities, features and tasks that need to be accomplished to create a successful project.

Website project requirements includes three diverse kinds of requirements.

1. Business requirements
2. User requirements
3. System requirements (Functional and Non-functional requirements)

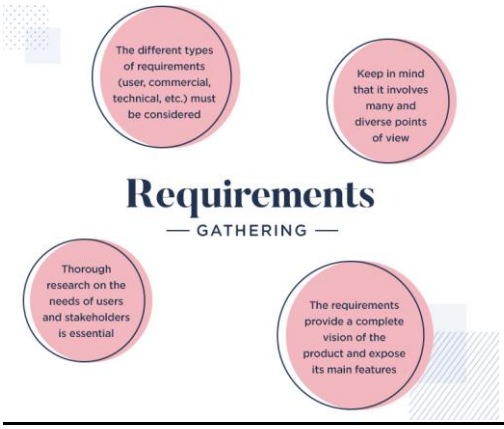


Figure 1: Requirements Gathering Overview

Figure 2: Web Development Life Cycle

1. Business Requirements

Objective

The Master of Information Management (MIM) program needs a system to collect contact information from alumni along with their areas of interest in volunteering. These areas of interest include mentoring, mock interviews, alumni panels and resume review sessions. In addition to providing functionality for the alumni to submit this information, it will also require a web front-end for the faculty to query information on the alumni interest areas and contact information.

Stakeholders

Our primary stakeholder is Professor David Loshin (Senior Lecturer and Faculty Lead for Careers & External Relations (iSchool, UMD)). We will be providing him a system for collecting and retrieving alumni contact and interest information. Ultimately the current MIM students will also benefit greatly, as the interest areas being tracked all relate to ways to assist students with their career search and academic help.

Goals

The primary objective of this system is to build a database of MIM alumni. To collect the data, the system will need to have an easy-to-use web form for the alumni to complete, which will capture contact information, date/times based on their availability and areas

of interest in volunteering. In addition, the system will need to have an equally usable web-based interface for faculty to query the data.

2. User Requirements

Website Requirements

To meet the basic requirements of our website and the web form, we need to be sure to include the following details and functionalities:

- Overview and purpose of the page, in our case, the web form on the page
- A clear idea of who is our target audience. In this case, it is alumni from the MIM program.
- User stories are an effective way to showcase the user experience. We should try to include a quote from an existing alumnus who has been involved in volunteering.
- Set a clear goal for the website. The goal of this website is to collect contact and interest information from current alumni.
- Regarding hosting and ongoing support/maintenance, these pages would be hosted within the current iSchool website (https://ischool.umd.edu/) and maintained within that structure.

Use Scenarios

Scenario #1:

An alumnus would like to become involved with the iSchool MIM program and volunteer to help current students by mentoring them. The alumni would visit the current MIM homepage at https://ischool.umd.edu/. There will be a new option under the “Alumni” drop down menu, “Ways to Volunteer”.

This would navigate to a new webpage, including a webform, where the alumni would enter their current contact information and select “mentoring” from the multi-select field called “Areas of Interest”. They would submit their form data, and the data would be stored in the mySQL database.

Scenario #2
Professor David Loshin wants to host an alumni panel. He needs to query the database of the alumni who have completed the web form, and filter on those who are interested in being on an alumni panel. To do this, he would go to the web-based front end of the database, login as an administrator where the admin will be redirected to the page where he can filter to obtain the correct list. Then he can export that list of email addresses to contact these interested alumni.

3. System (Functional) Requirements

Detailed Requirements

A. The solution must include a web form for alumni to submit the following information: First name, Last name, Major, Focus area, Graduation year, Phone number, Email address, Employer name, Job title, Areas of interest, and Available date and time.
B. The form must allow the alumnus to select more than one area of interest.
C. The form must validate for an accurate format in email address and phone number.
D. The form must enforce that most of the fields are required/mandatory whereas one or two of them would be optional.
E. Areas of interest include Mentoring, Mock Interviews, Alumni Panel, Resume Reviews, and “Other”, with a text field for more information.
F. Data from the form submittal must be saved in the database
G. A faculty member must be able to retrieve contact information for alumni from the database based on areas of interest (permission based).
H. A faculty member must be able to see that an alumnus has offered to be available at a certain time on a certain day.
I. A Faculty member must be able to export a list of alumni email addresses from the database.

Section 2: Implementation Details

We can broadly categorize our website's functionality into two parts.

1. Webform

This page will have the following fields that needs to be filled by the alumni.

Personal Information:
First Name, Last Name, Major, Focus area/Specialization, Graduation Year, Preferred Email, Preferred phone number.

Employer Information:
Organization Name, Job Title.

Areas of interest:
Along with the text field we will also provide a dropdown that has a few general topics for them to choose from such as mock interviews, mentoring, resume review and alumni panel. In the "Other" category, with the text field, we can also provide topic prompts such as Data analytics, Machine Learning, Information Risk management, Product Engineering, Tech Consulting etc for them to talk about. This way the user has the flexibility to enter their own topic of choice or select from a built-in list.

Option to select a tentative date and time based on their availability.

All the information entered will then be stored in a MySQL database.

2. Login Page

This will have a username and password field for authorized UMD staff to login and view the information submitted by all the alumni. It will display the table that is stored in our database and provide an option to filter and select data based on specific criteria (for e.g., displaying all alumni who chose data analytics as the topic to give a talk on)

To achieve the above-mentioned functionalities, we will be using the following tools:

i. **HTML (Hyper Text Markup Language):** This is the language in which most websites are written. HTML is used to create webpages and connect them to each other thereby allowing users to navigate from one document to another. This interconnectivity is the crux of the world wide web.

   To control how our data is processed and presented, HTML uses tags and attributes. Tags allow HTML to mark-up elements of the webpage (for e.g., headings, paragraphs, titles etc) and attributes are used to include additional pieces of information within these elements (for e.g., an image file, link to another website etc.)

HTML will form the skeleton of our website. We will be using it to create the basic design of our Web forms, all the fields that are in it, the login page and the contents that will be displayed in it. The biggest advantage of HTML lies in its user friendliness and ability to seamlessly integrate with the other technologies that we are going to use (CSS, PHP). Any text editor (including notepad) can be used to write HTML, we will be using Visual Studio code since it offers syntax highlighting and error debugging features. We are planning on creating at least three html files one each for the main home page, web forms and the login page.

ii. **CSS (Cascading Style Sheets):** CSS is primarily used to make HTML webpages visually appealing. It describes how HTML elements are presented and is also used to add colour, background, textures etc to the website. CSS also enhances the useability of the website since basic html pages can be quite difficult to go through.
CSS works by using a selector ,which identifies the specific web page element that would be affected (for e.g. selecting body would apply the changes to all the contents in body tag) and property , which specifies what aspect of the selector needs to be changed e.g. colour, font size, margin etc.

We will be primarily using CSS to create the navigation bar, add images, borders, a UMD theme and also control the typography and alignment of the elements in the website. It is important to delineate where we will use HTML vs CSS since failing to do so can create confusion and make it difficult to make changes in the website.
All the content of the website will be added using HTML and only the presentation of that content will be defined by CSS.

While CSS code can be added in line with the HTML code, it is better practice to create a separate .css file and link that into HTML since that would make our code easier to read and modify. CSS can also be written in any text editor, and we will be using Visual Studio code since that is what we are using for HTML.

iii. **PHP (Hypertext Preprocessor):** PHP is a server scripting language that allows web developers to create dynamic content that interacts with databases. PHP is embedded in HTML and is quite intuitive to use.

We will be using PHP to connect to our MySQL database, validate, input all the entries from the form and retrieve data from the database and display it. PHP will also be used to implement the login functionality of the application.

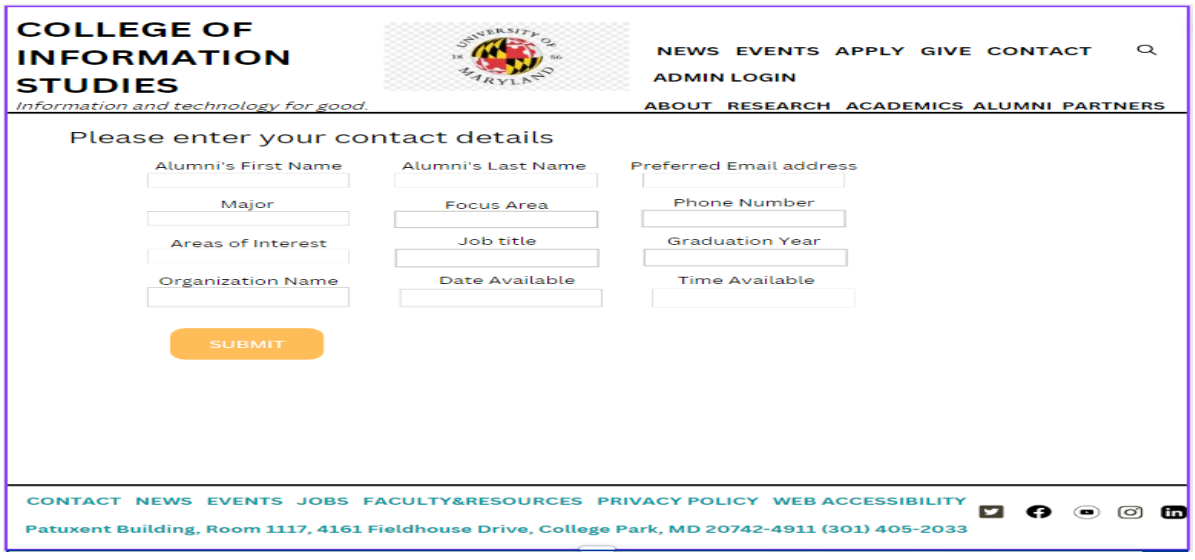
Unlike HTML, PHP is an interpreted server-side language which means that we will have to install a web server in our system to run PHP files (it cannot run on the browser like a client-side application). We will also have to install PHP and MySQL. Instead of installing each of these software separately and configuring them individually, we can install a software package called XAMPP. This suite consists of Apache HTTP server, Maria db (open-source version of MySQL database) and a PHP interpreter. By downloading this one package we can quickly get up and running with our PHP code.

iv. **GitHub:** We also plan on using GitHub as our code repository to maintain and work on our code. Each team member can clone the main repository, work on their individual tasks and after testing their implementation merge the code into the main branch. This tool will help us organize our workflow and keep track of all the code changes.

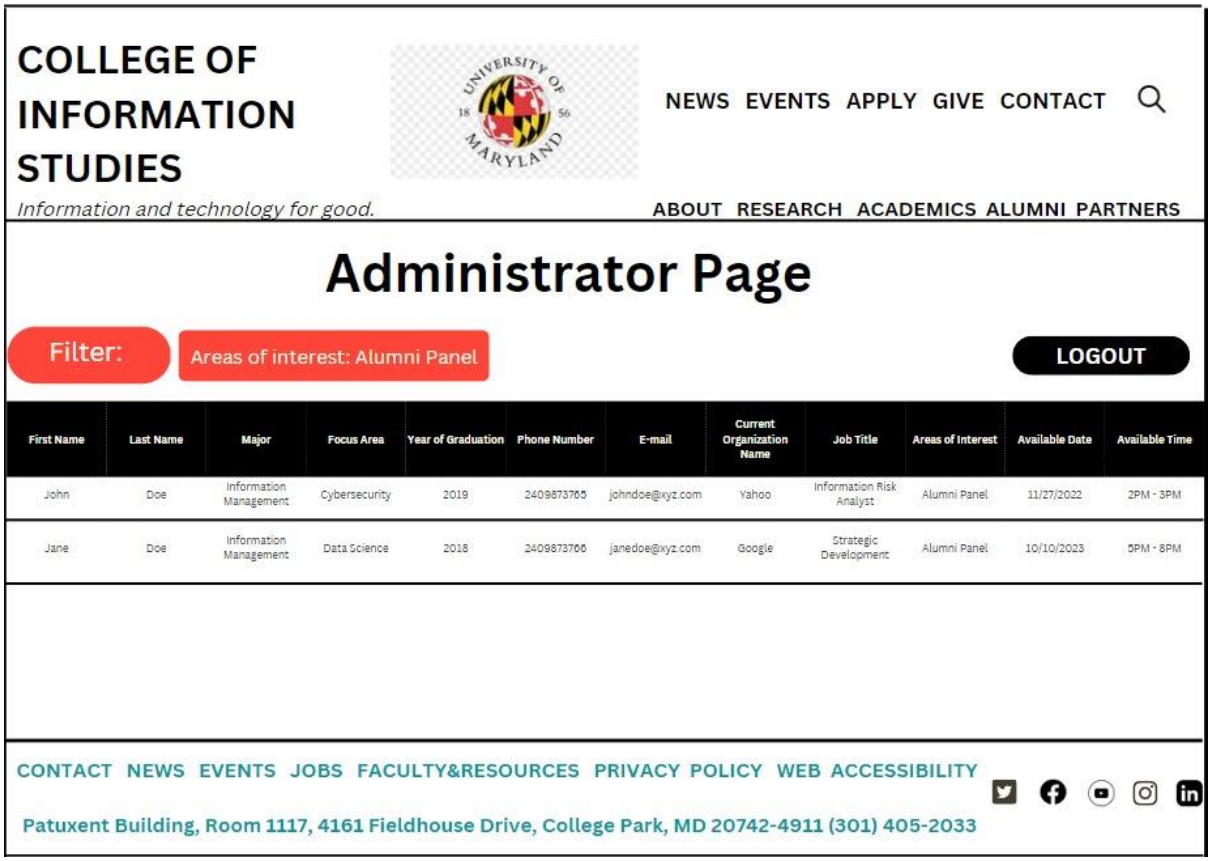
Limitations

1. Due to time constraints, we are unable to build the functionality to keep track of past activities of alumni.
2. Due to scope and bandwidth constraints, we are unable to serve the entire iSchool currently.
3. The website would be currently hosted on a local server.
4. Test implementation and execution will not be automated due to time constraint.

Sample mock-up wireframe



Rough mock-up of the web form.
(The final design may look slightly different than this)



First Name	Last Name	Major	Focus Area	Year of Graduation	Phone Number	E-mail	Current Organization Name	Job Title	Areas of Interest	Available Date	Available Time
John	Doe	Information Management	Cybersecurity	2019	2409873765	johndoe@xyz.com	Yahoo	Information Risk Analyst	Alumni Panel	11/27/2022	2PM - 3PM
Jane	Doe	Information Management	Data Science	2018	2409873766	janedoe@xyz.com	Google	Strategic Development	Alumni Panel	10/10/2023	5PM - 8PM

Rough mock-up of the admin page with data fetched from the database

First Name	Last Name	Major	Focus Area	Year of Graduation	Phone Number	E-mail	Organization Name	Job Title	Areas of interest	Available Date	Available Time
John	Doe	Information Management	Cybersecurity	2019	2409873765	johndoe@xyz.com	Yahoo	Information risk Ananlyst	Alumni Panel	11/27/2022	2PM-3PM
Dwight	S	Information Management	Data Science	2017	2830897365	dshrute@abc.com	Accenture	Business Analyst	Mentoring Session	11/12/2022	4PM-6PM
Angela	Martin	Information Management	Data Science	2017	4567898765	angmartin@abc.com	Facebook	Data Scientist	Mentoring Session	12/12/2022	12PM-1PM
Michael	Scott	Information Management, HCI	Strategic Management	2014	1298345678	mikes@qrt.com	Apple	Information Architect	Resume Review	12/1/2022	11AM-1PM
Jane	Doe	Information Management	Data Science	2017	2409873766	janedoe@xyz.com	Google	Strategic Development	Alumni Panel	10/10/2023	5PM-8PM
Pam	Halpert	Information Management	Information Risk Management	2018	5556787128	pamb@abc.com	Adobe	Data quality Analyst	Resume Review	11/18/2022	2PM-4PM

Rough mock-up of the admin page with data fetched from the database

Section 3: Test plan development, Implementation and Execution

Website testing involves a predominant part of testing our web application for potential bugs and functionality before its release.

Web testing includes different forms of test plans such as functionality, usability, security, compatibility, performance of the website and few more as represented in Figure 1.

Figure 3: Different form of Web testing

Figure 4: Web Testing Process

Considering the timeframe, we will be **manually testing** the proposed requirements excluding few of the processes and the forms of testing.

1. Functionality Testing

Functional testing tests and establishes whether each feature developed and deployed meets the software requirements. All the testing requirements can be tested manually and can be automated.

Due to our time constraint, we are going to check for the quality of the product manually. As mentioned in our updated project proposal, below mentioned are the functionalities to be verified and validated as part of this process.

Webforms testing:

- The input data validity for each field mentioned (first name, last name, major, focus area, graduation year, phone number, email address, employer, job title, areas of interest with dropdown of values, and available date and time.)
- Automated checks for mandatory fields as mentioned in the detailed requirements section and error messages for the same.
- Allowed values for the data fields.
- Invalid input values for the data fields.
- HTML and CSS validation (Aesthetic and cosmetic validation).

- Once a form is submitted, the data in the forms is submitted to a live database.

Links testing:

- Internal links correctness.
- No links leading to the same page.
- MailTo Links used to send emails to site admins.
- No broken links.
- Pages that aren't referenced.
- Outgoing links and anchor links.

Other functionalities as per the requirements:

- All the detailed requirements to be tested.
- Two crucial use case scenarios mentioned in our requirements section.
- Admin (David Loshin) or the designated faculty member must be able to retrieve the information of the alumni from the database based on areas of interest in a separate webpage as a transaction detail as mentioned in our implementation section.

2. Usability Testing

Navigation testing:

- All pages are functional and usable.
- Access to main menu (Home and other pages) from all the pages.

Content testing:

- There are no grammatical errors.
- Content should be informative, understood, structured and logically linked.
- Images are placed properly with proper sizes.

3. Interface Testing

Areas to be tested under Interface testing are: Application, Web and Database Server.

- Application: Test requests are sent correctly to the database and output at the client side is displayed correctly.
- Web Server: Test Web server is handling all application requests without any service denial.
- Database Server: Validation of the relational DB queries.

4. Database Testing

Database is one of the critical components of our web application and must be stress tested. Testing database will include:

- Validation of the responses for queries
- Data Integrity to be maintained while creating, updating, or deleting data in database.
- Test data retrieved from the database is shown accurately in our web application.

5. Compatibility Testing

- Browser Compatibility test: Cross browser website testing in different browser configurations (Google chrome, Microsoft edge, Mozilla Firefox, Safari).
- Platform Compatibility test: Cross platform testing in different OS (Windows, iOS/Mac OS)

6. Performance Testing

Concurrency testing when multiple users login.

7. Security Testing

Testing unauthorized access.

Test Report

Test report is the summary of all the test activities with the final test results. It helps the stakeholders understand the quality and if features are on track.

Test Report

Test Cycle: System Test

EXECUTED	PASSED			130	
	FAILED			0	
	(Total) TESTS EXECUTED (PASSED + FAILED)				130
PENDING					0
IN PROGRESS					0
BLOCKED					0
(Sub-Total) TEST PLANNED (PENDING + IN PROGRESS + BLOCKED + TEST EXECUTED)					130

Functions	Description	% TCs Executed	% TCs Passed	TCs pending	Priority	Remarks
New Customer	Check new Customer is created	100%	100%	0	High	
Edit Customer	Check Customer can be edited	100%	100%	0	High	
New Account	Check New account is added	100%	100%	0	High	
Edit Account	Check Account is edit	100%	100%	0	High	
Delete Account	Verify Account is delete	100%	100%	0	High	
Delete customer	Verify Customer is Deleted	100%	100%	0	High	
Mini Statement	Verify Ministatement is generated	100%	100%	0	High	
Customized Statement	Check Customized Statement is generated	100%	100%	0	High	

Figure 5: Sample Test Report

The above figure portrays a sample test report. As per our proposal, we will be creating a test report post the test cycle with all the requirements and scenarios as listed above.

Section 4: References

- Application used to create mock-up wireframes: Canva (*https://www.canva.com/*)
- HTML and CSS information: *https://html.com/*
- Website requirements complete guide: *https://www.mindspun.com/blog/website-requirements-document-a-complete-guide/*
- Reference images for better understanding:
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