Information Systems Consulting Project

Revamping the Consulting Projects Website

Final Report

Organization

Carnegie Mellon University

Information Systems Department

Client

Professor Julia Poepping

Team

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Community Partner Background

About the Organization

Carnegie Mellon University (CMU) was established in 1900 in Pittsburgh, U.S.A., and is home to the renowned Information Systems (IS) program, which ranks number one globally according to US News 2024. The Information Systems department focuses on integrating technology with business to meet the ever-evolving needs of businesses and society. CMU's IS program is respected for its blend of theoretical foundations and practical applications, which are particularly evident in its unique Capstone Consulting Project course. In this course, taken by third-year students, teams work with real-world clients to identify opportunities and develop solutions to technical or business problems, showcasing CMU's unwavering commitment to applying innovative technology solutions in organizational contexts. CMU now has three campuses with CMU-Africa catering to postgraduate degrees in Engineering and Information Technology, and CMU-Qatar catering to undergraduate degrees in Biological Sciences, Information Technology and Business. The Pittsburgh campus has around 14,000 students with 1483 academic staff members while the Qatar campus has around 450 students with 64 academic staff members and 90 administrative staff members. CMU has an endowment of 3.1 billion U.S. dollars as of 2023.

Mission Statement:

> *"The Carnegie Mellon Information Systems Program aims to educate men and women to lead change at the interfaces of technological, organizational, and societal systems."*

Research and Innovation:

CMU's Information Systems program teaches at the intersection of people, process, and technology. The program encourages and motivates innovation as well as entrepreneurship, translating research and development into practical applications through active engagement with real-world organizations. To introduce students to real work institutions, one major challenge is to attract Community Partners (CPs) to partner with CMU for specific project-based courses. An improved website could allow CMU to seamlessly streamline the marketing and application process for CPs.

Program Structure:

The project focuses on the undergraduate Information Systems program at CMU. CMU's IS program is a joint degree program between the Heinz College of Information Systems and Dietrich College of Humanities and Social Sciences. It has a comprehensive curriculum that draws from CMU's leadership in computer science, human-centered design, business management, and software engineering, culminating in the Capstone Consulting Project. Outlined below are some fundamental IS courses.

Course	Description
67-100	Information Systems First Year Colloquium
67-250	The Information Systems Milieux
67-262	Database Design & Development
67-272	Application Design & Development
67-373	Information Systems Capstone Consulting Project (with external client)

The Capstone Consulting Project:

One of the unique features of CMU's IS program is the Capstone Consulting Project, which is undertaken by third-year students. This course allows student teams to work directly with real-world clients, identifying opportunities and developing solutions to technical or business problems. CMU's IS Projects website is the primary tool used to convey important information regarding the Capstone Project to both students and industry partners. This project emphasizes CMU's commitment to applying innovative technology solutions in the industry and serves as the crucial bridge between theoretical learning and practical applications.

Role in the Community:

Through the Capstone Consulting Project, faculty and students engage with local businesses, government, as well as cultural institutions, contributing to Pittsburgh's and Qatar's economic and technological vibrancy.

Staff

The Capstone Consulting Project at CMU's Information Systems Program is led by department chairs Professor Joe Mertz on the Pittsburgh campus and Professor Daniel Phelps on the Qatar campus. Their leadership is crucial in guiding the project, as they both bring in a wealth of experience in Information Systems to their roles as mentors. In addition to this faculty leadership, staff members, especially teaching assistants (TAs), are also essential in managing the logistics and administrative aspects that ensure the smooth operations and resource allocation for the project. This collaborative effort between the faculty and staff provides students with the right environment and resources to innovate and make real-world impact. Communication for the Consulting Project between the two campuses is primarily done through email (using CMU Andrew IDs), channels like Slack, and project management applications like Trello. As CMU's IS department is already tech-savvy as a client, not much training is needed as faculty members are well-read and comfortable using technological solutions. The points of contact for this project would be Professor Julia Poepping for the Pittsburgh campus and Professor Mohammed Aazam for the Qatar campus.

Communication

The effectiveness of the Capstone Consulting Project relies heavily on the communication strategy used to maintain community partnerships and foster professional networks. Professor Julia Poepping, the Associate Director for Partnership Development at CMU, oversees the selection and management of community partners for the Capstone Project. Internal communication is done using Andrew emails, channels like Slack, and project management applications like Trello, used at the Qatar campus. The main tool used to communicate with external clients and manage the applications for community partners is the IS Projects website. The website's outlook has not been updated since 2015 when it was created by a student team although the projects are added after every semester. Clients use the website to access information about the courses and to apply to become a community partner to the IS program. Applications that are received are stored using an Airtable database with access granted only by Professor Julia Poepping (Associate Director of Partnership Development). The website does not cater to the Qatar campus, but once this project is completed, the applications in the Airtable database will be accessed by Lubna Barghouti (Director of Experiential Learning). Hence, while the

website has some basic information about the courses and the application form, it does not communicate well enough about the partnership process throughout the semester or the application cycle, disrupting interaction, especially with clients who may not be familiar with CMU. In addition, despite the Qatar campus having the Capstone Consulting Project, the website does not afford local clients effective communication or the information they need for projects in Doha because the information on the website only features projects and applications for the Pittsburgh campus. Since streamlining the process for client applications between the two campuses is a client objective, the project will focus on ensuring communication is done through the same channels for both campuses. This means that the same Airtable database will be used for the Qatar website and communication with clients will be through the emails mentioned on the website.

Information Management

Fundamental information relating to the Capstone Project includes information about past project teams, deliverables, and clients. This is currently maintained in Excel spreadsheets by the IS department, which is then uploaded to the website that features Capstone projects done for each semester in Pittsburgh. There are no shortcomings in the way information is managed. Rather, this project focuses on how information is presented on the website and what information can be added to make the website more informative for potential clients. The website for community partners has not been implemented for the Qatar campus. Other relevant information for the Capstone Project includes the list of applicants for community partnerships which is accessed through the Airtable database when a client completes the application form featured on the website.

Technology Infrastructure, Management & Planning

The technology infrastructure, management, and planning are not key aspects of what is consulted for the client. This is mainly because the IS Department already has a working solution, the Projects website which is functioning well. The pain point lies rather in the way information is presented and what is presented on the website. Both CMU's Pittsburgh and the Doha campuses house their own IT department that supports educational, administrative, and research activities. Currently, the technology for the Capstone Project website is managed and maintained jointly by the IS department and the IS faculty. The Capstone Project website was developed by a student team in 2015. The code is hosted on GitHub

and maintained by the Information Systems department. The website functions all year round and applications are accepted and reviewed using the Airtable database throughout the year. While the IS faculty and staff may refer to the website, the website is more for external clients wishing to get a glimpse of the department. Since data is more informative, there is not much to worry about technology infrastructure being secure since the Airtable database is embedded in the website.

Business Systems

The organization's business systems are not relevant to our current project of redesigning the IS Projects website. However, we need to keep in consideration the incurred costs for the development and maintenance of the website as it would have to be reflected in the relevant business systems at CMU.

Community Partner Project Description

Project Opportunity

The Carnegie Mellon University (CMU) Information Systems Department has been leveraging the IS Projects website to attract community partners for its Capstone Project. The website serves as a key platform for showcasing past projects and facilitating partner registration. Despite its crucial role, the website, last designed in 2015, exhibits significant deficiencies including an outdated user interface and a lack of representation for CMU's Qatar campus. These limitations not only pose navigational challenges but also risk potential partnerships by failing to adequately represent the diversity and scope of CMU's global operations.

Problem

The website's outdated and unintuitive interface complicates the user experience, making it difficult for first-time visitors to navigate and access essential information about the Capstone projects. Furthermore, the absence of dedicated content for the Qatar campus on the website potentially alienates a portion of the community partners and students who are integral to the program's success.

Importance

Updating the website’s design and incorporating a dedicated section for projects at CMU's Qatar campus is essential for providing accurate and important information to potential community partners. A revamped website will ensure that it reflects the IS department’s commitment to fostering innovation and technological advancement as well as give a positive impression of the Capstone Project to potential community partners. This will streamline the communication and information management processes for the Capstone Project, enabling global community partners to easily access insights about partnerships with CMU while maintaining existing client relationships.

Value Proposition

In alignment with the Carnegie Mellon University Information Systems Program's mission to educate individuals to lead change across technological, organizational, and societal interfaces, our proposed solution entails a comprehensive redesign of the website. This initiative addresses existing challenges and aims to develop a more engaging platform for community partners.

By incorporating a dedicated section for the Qatar campus, the IS Department ensures consistency across all campuses while expanding the scope for global collaboration. This strategic enhancement broadens the potential partner pool, reinforcing the program's commitment to cultivating leaders adept at navigating diverse systems.

The redesigned website will offer a seamless and enriching experience for community partners, enabling them to envision possibilities for projects to work effectively with student teams worldwide.

Ultimately, this redesign's value lies in its capacity to attract and retain community partners, thus supporting CMU's broader mission. By presenting a more inclusive and dynamic showcase of the Capstone Project's achievements, we are actively contributing to the educational aim of preparing future leaders to manage the complex interplay of technology, organization, and society.

Project Vision

Our project aims for a comprehensive revitalization of the Carnegie Mellon University Information Systems Program website. Our goal is to substantially enhance both the visual and cognitive appeal of the site by updating its design and content to make it more dynamic and engaging. We plan to transform the existing platform into a user-friendly and interactive interface, while also introducing a dedicated section for the Capstone Project at the Qatar campus. This effort is particularly focused on showcasing the projects and initiatives from the Qatar campus, addressing previous limitations of the platform, and thereby fostering enhanced cross-border collaboration and elevating stakeholder engagement.

Problem & Opportunity

The existing website suffers from a non-intuitive user interface that complicates effective communication with potential community partners. Our redesign aims to rectify this by providing a more intuitive and accessible digital representation, showcasing the diverse and innovative projects from both the Pittsburgh and Qatar campuses. This enhancement is designed to facilitate global collaboration and attract a broader spectrum of community partners.

Stakeholders & Users

The primary target users of the redesigned website are potential community partners interested in the Capstone Project. Additional key stakeholders include CMU faculty, departmental staff, and students. Faculty and staff will utilize the new website for project supervision, tracking applications, and administrative tasks, while students will primarily use the platform to showcase their work and view past projects for inspiration and guidance on their current projects.

Value & Benefits

The redesigned website will serve as a central hub for community partners, significantly enhancing the department's ability to communicate and collaborate on projects. By providing detailed information, real-time updates, and transparent communication channels, the new platform will improve collaboration efficiency, reduce misunderstandings, and strengthen the sense of community among faculty, staff, and students. This strategic update will ensure that the website not only meets the current needs of its users but also adapts to future challenges and opportunities.

Development Strategy

In developing the new website, our team conducted a thorough evaluation of various design and development strategies, ultimately selecting HTML and CSS for a complete overhaul. This choice was driven by the need for full control over design, layout, and customization, allowing us to tailor the website to the specific needs of CMU's diverse user base. This approach ensures a lightweight, fast, and highly customizable platform, providing the autonomy necessary to maintain and update the website as needed without reliance on external platforms.

This comprehensive strategy aligns with our overarching goal to create a platform that not only serves the immediate needs of the CMU community but also sets a foundation for continuous growth and improvement.

Project Outcomes

Enhanced use of HTML/CSS with Bootstrap for Responsive Design

In our initiative to enhance the website's responsiveness, we integrated Bootstrap, leveraging its grid system and responsive classes to ensure that the site adapts fluidly across a variety of devices. This integration has significantly improved the website's layout and accessibility, making it more user-friendly across desktops, tablets, and mobile phones. The effectiveness of these enhancements is documented through before-and-after screenshots, which demonstrate marked improvements in responsiveness and are included in Appendix A of our report. Additionally, we have updated our responsive design standards and style guides to reflect these changes, with detailed documentation provided in Appendix B. To ensure these updates met our user's needs, we conducted several user testing sessions. These sessions were crucial in gathering valuable feedback on the website's usability on different devices, particularly focusing on enhancing accessibility and navigation, which helped refine our implementation further.

Implementation of a JSON-Based Project Management System with JavaScript

To modernize our project management capabilities, we implemented a JSON-based system managed through JavaScript. This system replaced the outdated static HTML content management, introducing a dynamic and efficient way to handle data

updates and user interactions on the site. By utilizing JavaScript to parse JSON data, we enabled real-time content updates and enriched the interactive experience on the website. A key feature developed using JavaScript was the enhanced filtering capabilities, which allow users to filter projects based on specific attributes like Sustainable Development Goals (SDGs) and implemented technologies. This functionality is detailed through code snippets included in Appendix C, illustrating the JavaScript parsing and data handling logic. The entire development process, from scripting in JavaScript to integrating with HTML/CSS, is thoroughly documented in Appendix D. To evaluate the effectiveness of these new features, we conducted rigorous user testing, the results of which underscore the functionality and performance enhancements brought about by this integration. These tests confirmed the system's capability to generate content dynamically and apply filters accurately, improving the user's engagement with the website's content.

CSS and Bootstrap Configuration

In our project, emphasis was placed on the customization of CSS and the integration of the Bootstrap framework to enhance the website's responsiveness and aesthetic appeal. We meticulously documented all CSS customizations and Bootstrap component integrations to ensure consistency and maintainability of the website's design. To empower the members responsible for maintenance within the IS Department, with the necessary skills to utilize these technologies effectively, we developed comprehensive training materials. These resources are detailed in Appendix E and were designed to facilitate a deep understanding of responsive design principles and their application using CSS and Bootstrap.

Addition of New Pages

Transitioning from static HTML to dynamic content management enhanced our website's functionality. This shift involved adopting JSON for data management, coupled with JavaScript to dynamically render this content on web pages. This method allows for real-time updates and significantly improves the site's interactivity. We have thoroughly documented the process of managing content updates through JSON files and the corresponding rendering on the website, providing a clear roadmap for current and future developers.

Learn More Page:

Video Introduction: We introduced a new video featuring speeches from each faculty member in the IS Department, describing the benefits and experiences of being a community partner. This addition was aimed at enhancing user experience by making the page more interactive and engaging while reducing the amount of text.
Accessibility Considerations: Accompanying the video, we included a script to ensure accessibility for users who may need text-based content.
Data Dashboard: The page also features a mini data dashboard that presents statistics on the impact of the projects on the community.
Charts: Two charts were added to visually represent the proportion of projects associated with specific Sustainable Development Goals (SDGs) and technologies.

67-373 Page:

Course Description: This page provides a brief overview of the 67-373 course, outlining its objectives and what community partners can expect. It emphasizes the benefits of partnering, such as receiving comprehensive consulting services and a full software implementation or solution.

67-240 Page:

Course Description: Similar to the 67-373 page, this page details the 67-240 course and its objectives. It explains the nature of the projects undertaken by students, which typically involve consulting and the delivery of wireframe designs or high-fidelity prototypes for community partners.
These additions are designed to inform prospective community partners about the opportunities available, offering detailed insights into the courses and showcasing the tangible benefits and impacts of collaboration. Each new page is strategically developed to not only inform but also engage visitors, thereby enhancing user experience and promoting deeper engagement with the website.

Capacity Building and New Understanding by Staff

As an integral part of our consulting project for Carnegie Mellon University's Information Systems Department, comprehensive training sessions will be conducted to enhance the technical capabilities of the department's maintenance team. This training focused on three critical areas: JSON file management, JavaScript for web content generation, and Bootstrap for advanced styling. The aim was to

equip the staff with the necessary skills to independently manage and update the website's newly implemented systems. The training sessions will look as follows:

JSON File Management:
Objective: Empower staff to manage dynamic content, ensuring they can handle real-time updates efficiently.
Content: The training included an introduction to JSON syntax, practical exercises on file updates, and protocols for maintaining data security and integrity.
Outcome: Staff are now proficient in managing JSON files, which is crucial for updating the content on the website without dependency on external support.

JavaScript for Web Content Generation:
Objective: Enable staff to create and manage interactive features on the website.
Content: Comprehensive instruction on JavaScript fundamentals, interactive exercises on script modification and creation, and troubleshooting common scripting issues.
Outcome: The training significantly enhanced the staff's ability to handle complex web interactions, fostering a deeper understanding of web development dynamics.

Bootstrap for Advanced Styling:
Objective: Master the use of Bootstrap to improve the website's responsiveness and visual appeal.
Content: Techniques for customizing Bootstrap components, applying responsive design principles, and integrating Bootstrap with custom CSS.
Outcome: Staff gained expertise in responsive web design, enabling them to effectively tailor the website's design to ensure optimal user experience across various devices.

All training materials have been meticulously documented and are included in Appendix E of the report. These resources are designed to be an ongoing reference for the IS Department staff, ensuring they can revisit the materials as needed to refresh their skills or train new team members.

Scheduled Training Sessions
Upon request from the client, we have scheduled catch-up training sessions during the summer with the hired student who will be assisting with adding all the projects

to the revamped website. These sessions are intended to reinforce the skills learned, address any new challenges that have arisen, and ensure that the team remains current with the latest web technologies used for the website. This proactive approach aligns with our commitment to the long-term success and sustainability of the project.

Impact and Sustainability

The training will increase the student assistant's operational capacity and technical independence. By investing in skill development, we ensure that the maintenance team within the IS Department is well-prepared to manage their web platform effectively and adapt to future technological advancements. This strategic approach not only enhances the immediate functionality of the website but also secures its ongoing relevance and effectiveness, providing a robust foundation for continuous improvement and innovation.

Top-Level Outcomes

Improved Operational Efficiency and Enhanced User Engagement

One of the most significant achievements of this project has been the notable improvement in operational efficiency, facilitated by the integration of advanced web technologies such as JSON and JavaScript. This has led to a streamlined process for content updates and management, potentially reducing the time and effort required by staff to make changes to the website. The ability to manage content dynamically has not only saved time but also allowed for the immediate reflection of updates, keeping the website's information current and relevant.

In terms of user engagement, the redesigned website now features more interactive elements, such as dynamic charts and responsive design adjustments that have substantially improved the user experience. These enhancements have been reflected in our think-aloud protocols, which demonstrated increased user engagement and better website navigation.

Introduction of New Web Pages and Content

The addition of three key new pages—Learn More, 67-373, and 67-240—has enriched the website's content offering and provided valuable information tailored to prospective community partners and students:

The Learn More page features a professionally produced video that explains the benefits of partnering with the IS Department, supported by data visualizations that highlight the impact of these partnerships. This page effectively communicates the value of collaboration and will be instrumental in attracting new community partners.

The 67-373 and 67-240 pages offer detailed descriptions of the respective courses, clarifying what community partners can expect when they engage with these programs. By outlining the specific outcomes and benefits of participation, these pages have helped set clear expectations and foster productive partnerships.

Capacity Building Through Comprehensive Training

The extensive training material provided to the IS Department on JSON, JavaScript, and Bootstrap not only enhance their technical skills but also empower them to take full ownership of the website's maintenance and future development. This empowerment is a critical outcome, as it ensures the sustainability of the website enhancements and the department’s continued ability to adapt to new technologies even as student assistants hired for maintenance changes.

Unachieved Outcomes

Despite the significant achievements in enhancing the website's functionality and user engagement, there were notable areas where the project did not meet its planned objectives:

Incomplete Integration of Project Entries:
The ambitious goal to include all 200 projects in the JSON file was not fully realized within the project's timeline. This incomplete integration has temporarily limited the website’s capacity to showcase the full breadth of projects undertaken by the Information Systems Consulting Project capstone course. The delay in adding all projects to the dynamic content management system has hindered the ability to

provide a comprehensive view of the department's contributions and impacts, which is crucial for transparency and for attracting future community partners and student engagement.

Limited Faculty Participation in the "Learn More" Video:
The "Learn More" video, intended to feature a diverse group of faculty members sharing insights and benefits of engaging with the IS Department, fell short of its goal due to limited faculty participation. Despite efforts to include a wide range of voices, only Professors Julia Poepping and Mohammad Aazam were able to contribute, resulting in a video that may not fully represent the diverse perspectives and comprehensive expertise available within the department. This outcome has affected the video's effectiveness in conveying the collaborative nature of the department and the varied opportunities it offers to community partners.
These unachieved outcomes underscore the challenges encountered in coordinating large-scale content integration and in securing broad participation within a diverse academic setting. Addressing these issues moving forward will involve strategizing more effective ways to manage project data integration and enhancing communication and scheduling efforts to ensure broader faculty involvement in key promotional activities.

Sustainability Concerns

Scalability of Content Management:
The current JSON-based dynamic content management system, while effective, requires regular updates and maintenance to ensure that all new projects and changes are accurately reflected on the website. As the volume of content grows, the system may need to be scaled or upgraded to handle increased data loads and complexity. There is a concern that the existing infrastructure may not suffice as the department's activities and digital assets continue to expand.

Faculty Engagement and Content Diversification:
The limited participation of faculty in the "Learn More" video highlights a broader issue of engaging busy faculty members in ongoing web content creation and updates. Sustaining a diverse and inclusive representation on the website necessitates continued efforts to engage a broad spectrum of the department's faculty, which can be challenging due to their varying schedules and commitments.

Technical Maintenance and Update Cycles:
Regular maintenance and updates are critical to keeping the website secure and functional. This includes updating the underlying frameworks and libraries (such as Bootstrap and jQuery) to their latest versions to protect against security vulnerabilities and ensure compatibility with modern browsers and devices. There is a risk associated with potentially deferred maintenance cycles due to budget constraints or shifts in departmental priorities, which could compromise the website's functionality and security.

Recommendations

Implement Regular Training Sessions
Objective: Conduct bi-annual training workshops aimed at keeping staff, particularly student assistants, updated on the latest technologies used in the website's infrastructure such as JSON, JavaScript, and Bootstrap.

Justification: Regularly scheduled training sessions are essential for maintaining the website's functionality and security, helping to prevent technical debt and reducing the reliance on external technical support. This approach is expected to lead to significant cost savings over time. Utilizing online learning platforms like Udemy or LinkedIn Learning will ensure that the content is comprehensive and up-to-date, making it easily accessible to all staff members. Implementing on-the-job training specifically for newly hired student assistants is crucial, as it will ensure they are quickly brought up to speed with the specific technologies and practices used by the department. This is particularly important since other staff, such as faculty members, may already be familiar with basic HTML/CSS but might not be up-to-date with more advanced or specific applications like JSON and JavaScript.

Schedule Training Sessions: Organize the initial set of training sessions to take place within the next quarter. These sessions should cover foundational and advanced topics in web development that are relevant to the department's operations.
Subscription to Learning Platforms: Subscribe to renowned online platforms that offer courses in JSON, JavaScript, Bootstrap, and other relevant technologies. These

platforms provide a wealth of resources that can be tailored to the varying skill levels of staff and student assistants.

On-the-Job Training for Student Assistants: Implement a structured on-the-job training program for new student assistants. This training will integrate practical, hands-on learning experiences with the theoretical knowledge obtained from online courses. It will focus on real-world tasks and projects that the assistants will handle during their tenure, thus enhancing learning outcomes and operational efficiency. Knowledge Sharing Roles: Assign roles for internal knowledge sharing among the staff to enhance peer learning. This can include peer-led workshops, regular show-and-tell sessions where team members share tips, tricks, and insights, and a mentorship program where more experienced staff guide newer members or student assistants.

Enhance Accessibility and Inclusion with AccessiBe

Objective: Integrate AccessiBe to ensure that the website is fully compliant with the Americans with Disabilities Act (ADA) and accessible to all users, including those with disabilities.

Justification: This integration will not only broaden the website's audience but also enhance the university's commitment to inclusivity. AccessiBe's AI-driven process can significantly automate the compliance process, scanning and adjusting website elements to meet accessibility standards without extensive manual oversight. Implementation Steps: Partner with AccessiBe and integrate their solution into the website. Conduct initial testing in a controlled environment before going live to ensure all interactive elements are fully accessible. Regular audits and adjustments by AccessiBe will maintain compliance with the latest accessibility standards, making this a cost-effective solution.

Implement Advanced Data Handling and Interactive Features with Server-Side Technologies

Objective: Integrate server-side scripting and database management to provide advanced data interaction and personalized user experiences.

Justification: Adopting server-side technologies such as PHP, Node.js, or Python, along with robust databases like MySQL or PostgreSQL, will allow for real-time data processing, personalized user dashboards, and more complex user interactions. This will improve the website's functionality and scalability, meeting the department's expanding needs and enhancing user engagement.
Implementation Steps: Evaluate and select appropriate server-side technologies that align with existing IT infrastructure and staff expertise. Design and develop initial server-side applications focusing on areas requiring complex data interactions. Invest in training programs for staff to manage and develop applications using the new technologies.

About the Team

Our project team consists of three dedicated Information Systems students at Carnegie Mellon University, each bringing unique skills and responsibilities to the project aimed at revamping the IS Department's website. Here's a brief overview of each team member and their contributions:

Fatima Johar

Role: Project Manager
Contributions: Fatima is a senior studying Information Systems, leading the project management efforts for the team. She is responsible for creating agendas for all meetings, ensuring they are sent in advance to the team's faculty advisor. Fatima meticulously tracks action items for each team member and compiles weekly sprint reports. Her organizational skills keep the project on track and ensure that all team members are aligned with their tasks and deadlines.

Al Dana Al-Naemi

Role: Client Relationship Manager
Contributions: Al Dana, a junior studying Information Systems, handles all aspects of client relationship and communication. She schedules weekly meetings with the client, prepares and sends meeting agendas beforehand, and coordinates logistics for client formative evaluations. Her role is crucial in maintaining a clear and

consistent line of communication between the team and the client, ensuring that the project aligns with client expectations and needs.

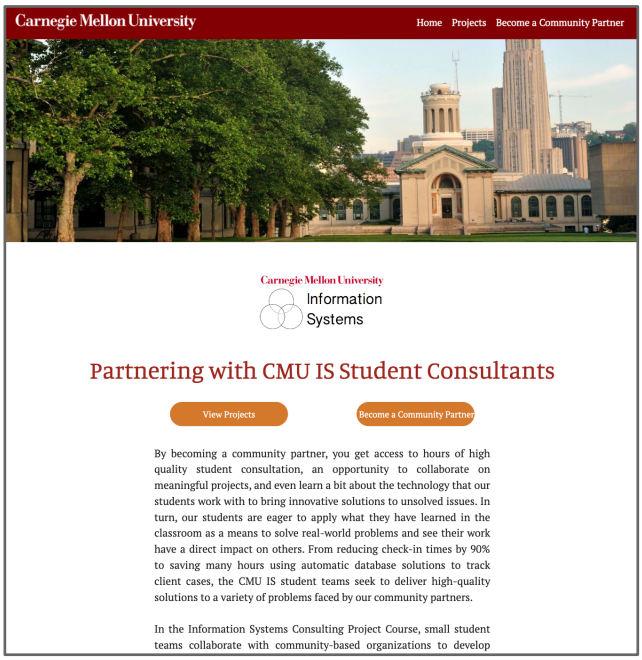
May Thu Khin

Role: Quality Assurance and Client Transition
Contributions: Also, a junior studying Information Systems, May handles the Quality Assurance and Client Transition aspects of the project. She led the backend development, focusing on creating a responsive design using Bootstrap 5 and integrating an Airtable database for project management. May establishes coding standards, reviews all pull requests, and ensures the master code repository is flawlessly maintained. Her work in transitioning the project to the client involves coordinating deployment plans and training for sustainability. May's elevator speech highlights her leadership in backend development and her aspiration to contribute to Myanmar's digital transformation.

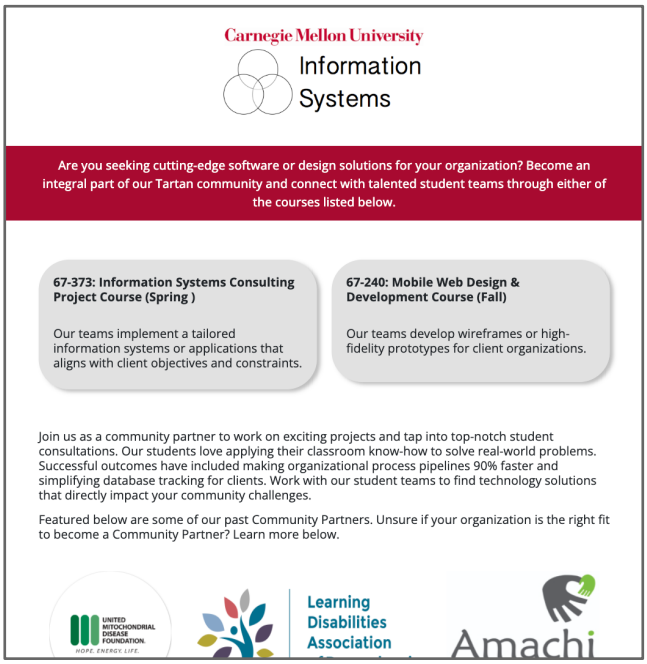
Each team member played a vital role in the success of the project, with their responsibilities intertwined to ensure seamless project execution. Fatima’s project management supported Al Dana’s client interactions by keeping the project on schedule and well-documented, which in turn facilitated May’s role in ensuring the technical robustness and readiness for client transition. Together, we focused on delivering a high-quality and sustainable web solution for the IS Department.

Appendix A

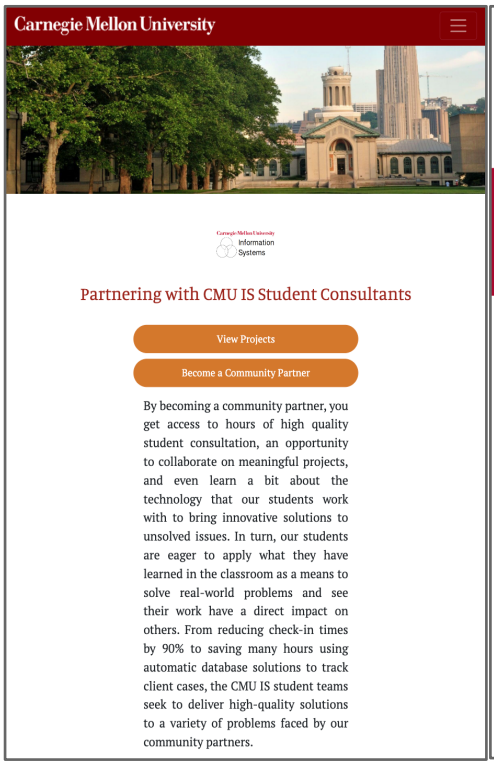
Home Page (before):

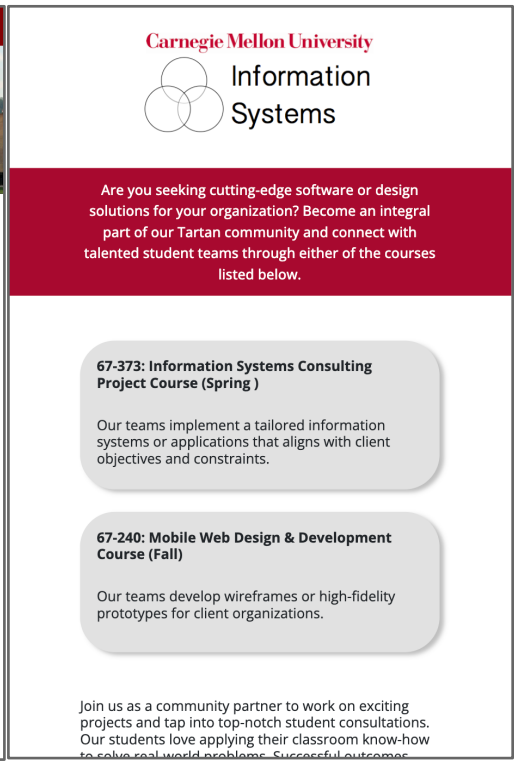


Home Page (after):



Showcasing overview after device screen is adjusted: elements were readjusted and formatted in proportion with Bootstrap.





Showcasing progressive responsiveness as the device screen gets narrower:

From 2013 to 2023, our impactful collaborations with 140 Community Partners, involving 220 project teams, have generated a total contribution of 137,500 hours to our communities. With each project, students invest 540 hours, guided by 90 hours of faculty advising. Notably, 35% of our partners return, and 8 have partnered with us over 4 times, emphasizing the sustained success and trust in our collaborative initiatives. Together, our collaborative efforts are contributing to a sustained positive influence within the communities we serve.

Our student teams have effectively collaborated with several organizations from startups to government institutions.

140 Community Partners

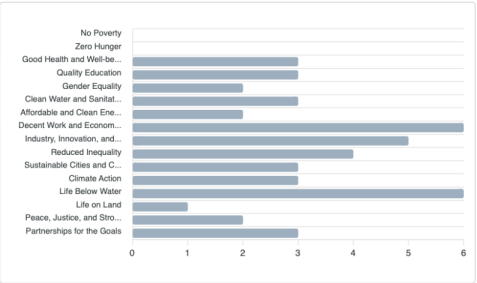
540 student hours

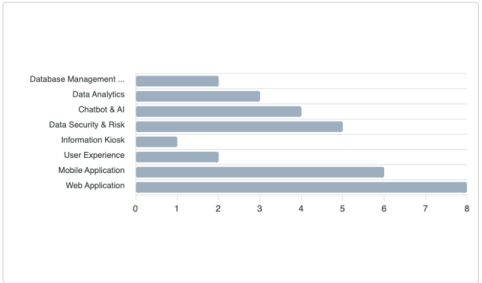
137,500 hours for the community

220 project teams

90 hours of faculty advising

Carnegie Mellon University students have applied a range of technologies to address diverse Sustainable Development Goals, showcasing their commitment to sustainability across various sectors.





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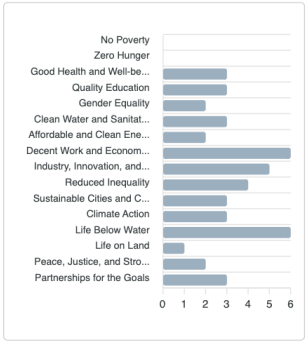
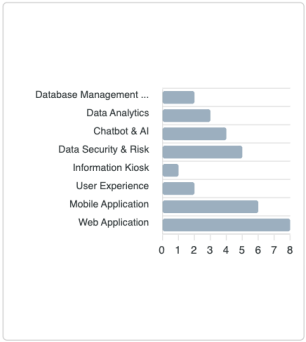
90 hours of faculty advising

Carnegie Mellon University students have applied a range of technologies to address diverse Sustainable Development Goals, showcasing their commitment to sustainability across various sectors.



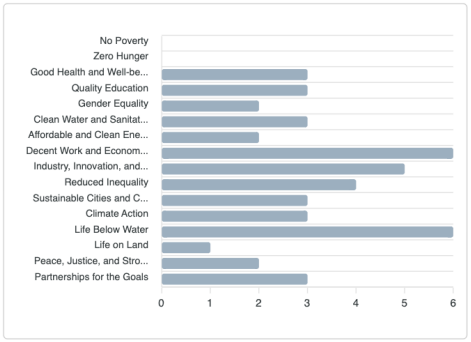


137,500 hours for the community

220 project teams

90 hours of faculty advising

Carnegie Mellon University students have applied a range of technologies to address diverse Sustainable Development Goals, showcasing their commitment to sustainability across various sectors.



Appendix B

Documentation of Updated Responsive Design Standards and Style Guides

Appendix C

This is an example of how a project is stored as a JSON object.

```
{
  "id": 1,
  "partner": "412Connect",
  "year": "2023",
  "course": ["67-373"],
  "representatives": ["Sera Linardi", "Ivy Chang", "Leo Jung"],
  "students": ["Danagul Azimzhanova", "Jacky He", "Kevin Lin", "Eric Rohrer"],
  "desc": "412Connect aims to showcase organizations from marginalized communities to local university students
  "logo": "assets/img/project_logos/spring2023/412Connect.png",
  "pdf": "assets/img/project_pdfs/spring2023/412Connect.pdf",
  "sdg": ["equality", "qualityeducation"],
  "tech": ["api", "technologystrategy", "userexperience", "webapp"]
},
```

This code snippet uses jQuery to fetch a JSON file of projects from a server and defines a function to filter these projects by specific Sustainable Development Goals (SDGs) and technologies, ensuring that each project meets all provided SDG and technology criteria.

```
$.ajax({
  url: "./assets/js/projects.json",
  dataType: "json",
  success: function (data) {
    let filteredProjects = () => {
      var techCompanies = data.filter(function (company) {
        let filterSdg =
          sdg?.length > 0
            ? sdg.every((item) => company.sdg?.includes(item))
            : true;

        let filterTechnology =
          tech?.length > 0
            ? tech.every((item) => company.tech?.includes(item))
            : true;
```

The projects are filtered by year to be displayed chronologically from most recent to least recent.

```
function renderProjectsByYear(projects) {
  const $companyWrapperContainer = $("#companyWrapperContainer");
  $companyWrapperContainer.empty(); // Clear previous projects

  // Check if projects is an array
  if (!Array.isArray(projects)) {
    // Handle the case where projects is not an array
    $companyWrapperContainer.html("<p>No records found</p>");
    return;
  }

  // Group projects by year
  const projectsByYear = {};
  projects.forEach((project) => {
    let year = null;

    // Auto-detect year from the 'year' field
    if (project.year) {
      year = Array.isArray(project.year) ? project.year[0] : project.year;
      // Extract year from date string (if applicable)
      if (typeof year === "string" && year.match(/^\d{4}$/)) {
        year = year.substring(0, 4);
      }
    }

    // If year is still null or invalid, set it to 'Unknown'
    if (!year || !parseInt(year, 10)) {
      year = "Unknown";
    }

    if (!projectsByYear[year]) {
      projectsByYear[year] = [];
    }
    projectsByYear[year].push(project);
  });
```

Appendix D

Appendix D provides a detailed account of the development processes involved in integrating JavaScript with HTML and CSS for the dynamic and interactive elements of the website. This documentation serves as a technical guide to understanding the scripts and frameworks that facilitate the website's functionality.

Development Process for JavaScript and HTML/CSS Integration

Appendix E

This appendix provides comprehensive training materials designed to equip the IS Department staff with the skills required to effectively use CSS and Bootstrap for maintaining and enhancing the website's design. The training materials focus on understanding the principles of responsive design, utilizing Bootstrap components, and applying custom CSS styles to achieve desired aesthetics and functionality.

Training Modules Outline for CSS & Bootstrap Integration