Healthy Horizons Web Application

EPICS

Spring 2019

Sam Badovinac, Dave Purdum,
Cal Ormanovich, David Emmerling,
Walker Demel, Abby Craig

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Chapter 1: Introduction

The Healthy Horizons program started in 2004 with the purpose of promoting healthy living by providing a comprehensive and confidential wellness package to Butler University faculty and staff. The program assists employees with improving their health, provides ongoing information and health education programs, and helps identify health risks and ways to reduce those risks. The program is conducted by the Health and Wellness Center, part of the College of Pharmacy and Health Sciences.

Healthy Horizons has a healthy living rewards program for Butler faculty. Participants of this rewards program accumulate points for making healthy life choices. Points are currently tracked and submitted via paper, and we worked on developing a web application to make this program run much more smoothly and hopefully attract more users.

Chapter 2: Project Organization and Management

Team Leader:

- Sam Badovinac

Client Liaison:

- Abby Craig

Front End team:

- Cal Ormanovich
- Walker Demel

Back End Team:

- Dave Purdum
- Sam Badovinac

Design and Statistics Team:

- Abby Craig
- David Emmerling

The way we divided up our work ended up being a very helpful and productive. We all used our different skills and interests to benefit the project in a meaningful way. Splitting up the work between the front end and the back end teams allowed us to continuously develop the website as a whole. Abby and David did all of the essential nontechnical work and allowed the developers to just focus on the website.

Chapter 3: Requirements Specifications

Our client asked us to create a website that will allow users of the Healthy Horizons program at Butler University to submit healthy habits using a technological solution instead of manually submitting a paper form. The Healthy Horizons program allows Butler faculty to earn points to redeem for rewards by incentivising good dieting habits. For example, faculty can track the number of times they go the gym, the number of steps taken a day, or attendance at meditation classes at the HRC. At the end of the semester, faculty can fill out a form that equates good habits with points, that can in turn be redeemed for different tiers of rewards.

Our client asked for an alternative to the current point submission. Before this project began, users need to fill out a paper form that tracks all healthy habits done for the entirety of the semester. Then, the faculty member has to manually calculate the number of points each of their habits earns, and then sum the total points. Then the papers need to be logged electronically after submission for internal use by Butler.

The client wanted a better solution. Users should be able to log their points electronically, have an application automatically calculate points for each habit, and also allow easy changes to the current set of goals offered by Healthy Horizons. Furthermore, a survey was constructed to get feedback from the faculty about the current points listed in the form, as well as interest in an electronic alternative.

We opted for a web-based solution. A website could allow any user on any device to access a web form that can allow users to track healthy habits as they complete them, and further submit points at the end of the semester. This way everything could be done electronically without paper submissions. Furthermore, a website is a good foundation for future features and changes made to the Healthy Horizons program.

Chapter 4: Architecture

Our goal was to create a website that would allow users to view and save information onto a server. We would host a server that stored persistent data, that is, web pages, images, and user data. Then a host, using a mobile device or computer, would access the server by making a request through a web browser. The client-server relationship is the fundamental feature of the architecture.

The server uses Node.js, a server side language that expands on the javascript capabilities that are typically limited by web browsers. Node.js is a brand of javascript that can handle things like reading files, querying databases, and handling HTTP requests that web browsers can't do. We run this Node.js so that the client can query it for information. This information includes web pages, style sheets, scripts, and resources such as images.

The client uses a web browser such as Chrome or Firefox on any device: computer or phone. These web browsers create an HTTP request to "get" web pages from the server. It will also get any style sheets, logic, or images also on the server. There are three languages that a browser can interpret: HTML, CSS, and Javascript.

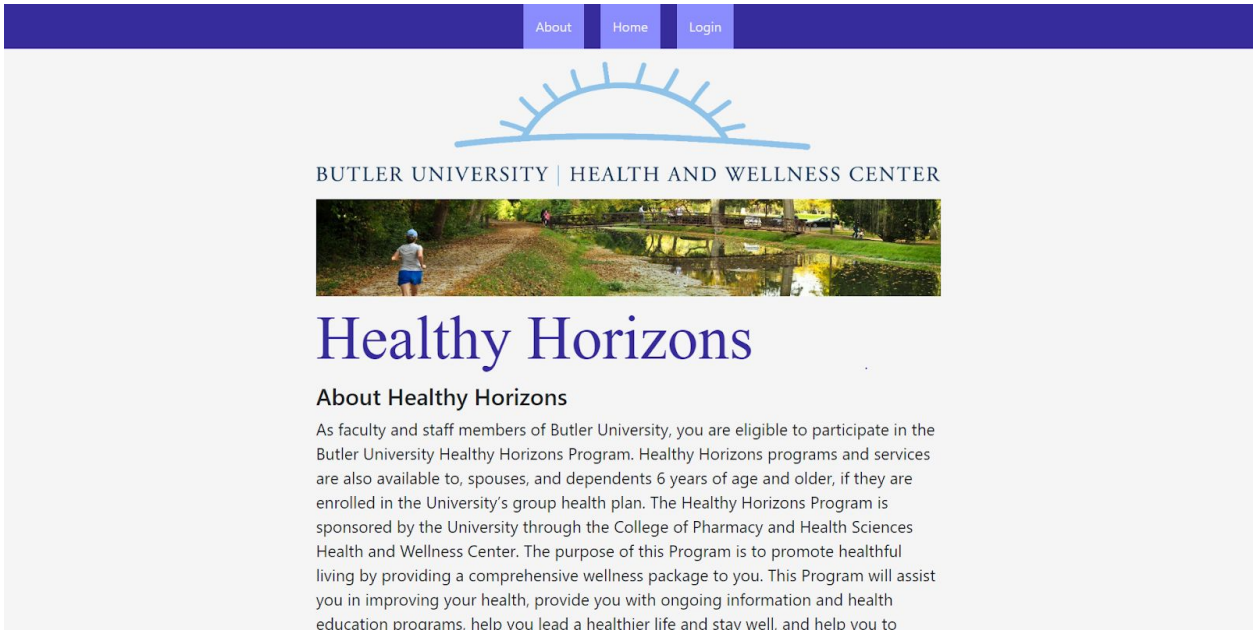
HTML describes the content on the page, and how it is structured. For example, the content inside titles and paragraphs are stored in HTML pages. Information, such that a button might be inside a paragraph, which could be inside a side panel on the page, is also stored here. However, how that information appears to the user is handle in a CSS file, or a style sheet. It describes the color, height and width, location, and other attributes related to each of the elements of the page. Finally, there are Javascript files that describes how the user interacts with what is on the page. It handles parsing data, performing calculations, and manipulating elements on the screen based on events that may have been called by a button press or internal function.

Chapter 5: Design

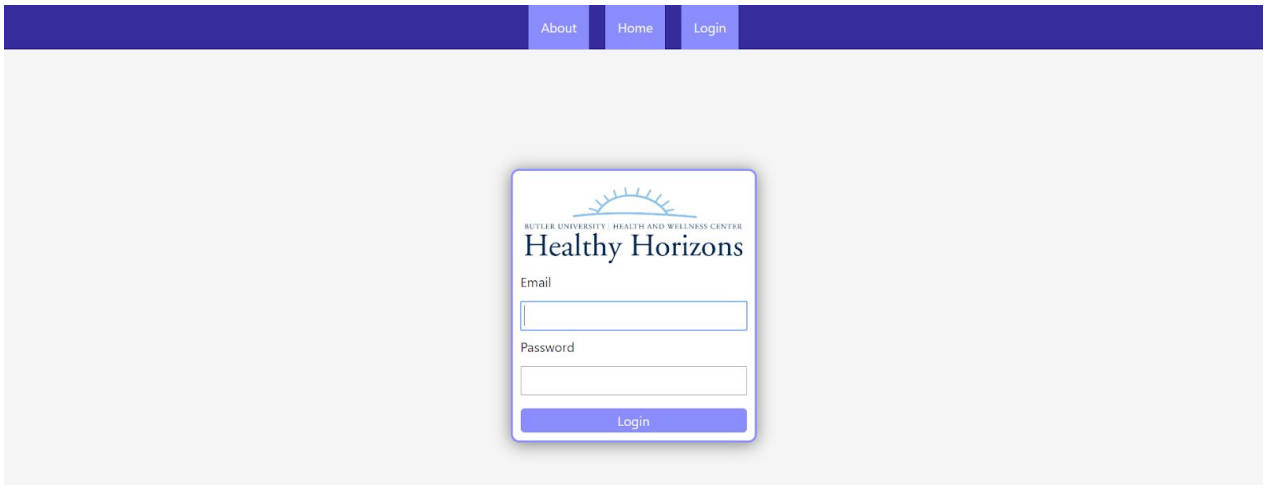
The design of the website was created using CSS and HTML. We did not want to have complex webforms. We choose to stay simple and classy with all of our web designs.

At the top of each of our webpages, there is a navigation bar with tabs to link to other pages on our website. It is made with Butler blue, and a complimentary lighter blue. It also contains a welcome message once users have logged in for a more personal touch.

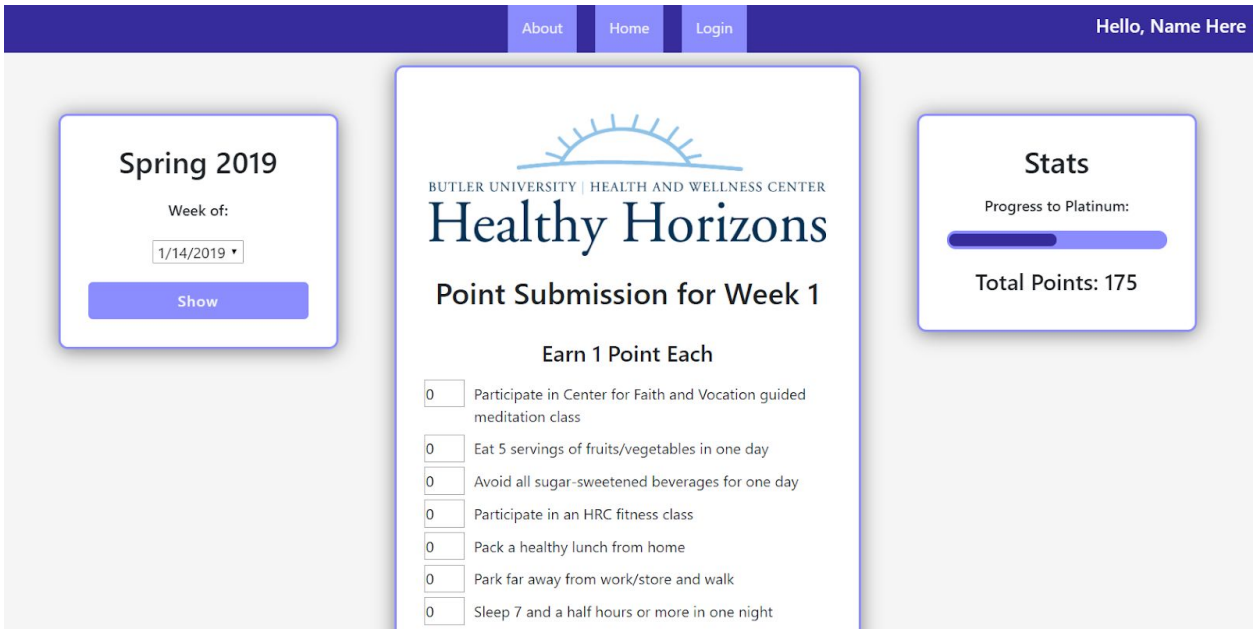
The About page is just an overview of Healthy Horizons. It gives information about the history, incentives, and how to get involved with Healthy Horizons. Because of the dynamic nature of our website, more can be added to this as needed.



The Login page is a simple, classic login form that takes a username and password. As of our 1.0, this is not technically working so much as a placeholder for a later version where faculty could possibly login with their butler information.



The Home page is what users are sent to after logging in. It is where participants submit points and view their total points. It is mostly just boxes with text and buttons in them. The Home page has three forms where you change the week you are submitting, submit the points, and view your stats.



The point submission, the main feature of our website, is center stage on the homepage. It is made up of iterative counters for each countable objective, and checkboxes for each objective

that can only be completed once in the semester. We grouped each objective by point value, mimicking the layout of the original paper point submission sheet we worked off of. The idea for this form is that the inputs are sent towards the server where each user's new point total is calculated.

Another idea for the home page was the statistics form on the right side. It displays a progress bar that is tied to each signed-in user's point percentage of the platinum tier. We have plans for this panel to grow in future website versions. Once more back-end support is implemented, and there could be department-wide competitions between faculty participants, the statistics panel could provide information about what team members are doing, or how many collective points each team has.

Chapter 6: Data Analytics

The data analytics team used Qualtrics to create a survey that would analyze the thoughts of Butler faculty and staff regarding the Healthy Horizons Rewards Program. The survey was sent out to 1262 people, and we received 233 responses. Therefore, our response rate was about 18.5%. We utilized one of the key features of Qualtrics to make our survey better suited to each respondent; we set up logic branches so that an answer to a prior question would send respondents to certain follow up questions.

Out of our respondents, 53% had never participated in the program before, and 47% had. It was beneficial to have such a close balance because it allowed us to gather ideas from each perspective. However, of those who had never participated, nearly 70% of participants said that they would be interested.

One of the most powerful results that came from the survey was that when asked about convenient tracking methods, 88% of respondents said that they preferred a web application to keep track of their points. This proved that there is a high demand for our project.

Next, we wanted to assess some of the existing objectives and gather ideas for new ones. We asked how frequently past participants achieved certain objectives, and found that 96% of people were always getting points for wearing their seatbelt. Therefore this wasn't challenging them to be healthier than normal, so it might not be a constructive way to earn points. When asked what objectives they would like to see added in the future, the most frequent answers were meal planning, walking or leaving their desk during the day, and attending wellness seminars.

Participants also seemed to want more to increase their motivation. Some of the incentives were new rewards, such as free HRC passes, competition between departments that could be tracked on the website, or monthly challenges worth bonus points.

We used Qualtrics to generate some graphics and write up a report to send to our client. Hopefully, this data helps the client as well as future EPICS teams looking to upgrade the web application.

Chapter 7: Future Work

We have created a lot of foundation, but there are still many features that need to be implemented before having a working product.

The web server needs to be able to handle a persistent login, so that way when a user is redirected to a page, they don't need to continually login to prove they still have access to the page. This can be solved by using cookies, or tracking ips, or a creative package in Node.js. We haven't yet figured out how to implement any of these methods.

After login, the web forms should be more interactive and responsive. That is, there should be more information displayed to the screen about current points, the point values of tasks, and these should be updated as the user adds new tasks. There should be no reason for a user to manually calculate points. In addition, the statistics panel with the progress bar should be full of information that is based on a logged in user. Because we have no persistent login, this has been achievable.

There should be an administrative login and an additional web page that allows an admin to change points in the system, possible look at other members point totals, and add events that change the possible tasks and point values. This requires another web page that interacts with server differently than other forms.

Lastly we would like to respond and update our website and the Healthy Horizons program based on the data we collected from our survey. We have created a report that outlines our results, but the next step is to make decisions based on that data about new tasks that could be added and what users might want to do on the website. Furthermore, another survey may be helpful after a working version of the website has been released.