PMNV IT Services

Website Redesign and Database Connection Proposal

Rainbow Records

Parsa Momeni & Nikola Velinov
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COMM 2216
Derek Jamensky

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Executive Summary

Our team at PMNV Information Technology Services will redesign the Rainbow Records website from scratch and will add a database integration.

Our website redesign aims to solve the deficiencies with the current Rainbow Records website. Customers accessing the Rainbow Records website have reported that the website displays content incorrectly on mobile devices, which leads to problems with navigating the user interface. Additionally, customers have had difficulty searching for products on the website. This is due to the search functionality returning unrelated search results and the product navigation interface having an unintuitive design with too many search categories to choose from. Our new website design aims to solve these problems by providing an easy-to-navigate user interface and an improved search function.

We will also be developing a database connection which will be integrated with the newly redesigned website. This will allow data to be inserted automatically when a customer submits an order. Our database connection will completely bypass the manual process that Rainbow Records was doing before, which consisted of printing emails and typing them into shipping labels. Our new database connection guarantees that Rainbow Records will have an efficient method of managing data, which is scalable to allow for many orders at once.

The first steps of our project will consist of preliminary meetings with the Rainbow Records staff, which will help us be aware of the requirements and the expectations for our project. Next, we will present three unique website designs for Rainbow Records to select as their new website redesign.

For the website redesign, we will be using HyperText Markup Language (HTML), Cascading Style Sheets (CSS), JavaScript, and Bootstrap. HTML, CSS, and Bootstrap will be used to design the website's appearance. JavaScript will be used to add interactive functionality to the Rainbow Records website by improving the search feature and adding order forms. The website will be designed using mobile first design practices, which ensures that we will have a mobile-friendly website design.

The database connection will be developed using Structured Query Language (SQL) and JavaScript. We will also be using the existing Rainbow Records database, which is hosted by Amazon Web Services (AWS). JavaScript will be used to access the order form data from the Rainbow Records website, while SQL queries will be used to insert the data into the AWS database. To access the database, we will be using the database login provided by Alex VanPelt. Once we have the login, we can connect it to the JavaScript back-end where we will be able to run SQL queries.

The total duration of the project will be thirty-one weeks. This consists of two weeks of preliminary meetings, three weeks of design selection, eight weeks of website development with feedback, three weeks of database development, two weeks of testing, two weeks of launch, and ten weeks of maintenance.

The preliminary meetings will be used to gather requirements and expectations. The design selection stage will provide three designs for the clients at Rainbow Records to choose from. The website development stage is when the website will be developed, while having weekly meetings with the clients to give feedback. In the database development stage, we will develop the AWS database connection. In the testing period, we will test each component with Rainbow Records, to ensure that their requirements are being met. In the launch phase, we will provide training and data migration to help Rainbow Records transition to the new system. In the maintenance phase, we will continue to provide support and assist new users to the system.

Once completed, the final redesigned website will bring an easy-to-use layout for customers of all screen sizes to access. The new website will have a responsive design allowing mobile users to find and order products, effectively giving them the same experience as users accessing the website on a computer. With our enhanced user interface, customers will be able to find products using the improved search functionality. Our improvements to the search functionality will allow customers to find different types of products using the search categories which accurately returns desired search queries. Once all of these improvements have been put into production, the Rainbow Records website will be accessible for customers to find and order products efficiently.

Once the database connection has been developed, quick and easy data processing will occur between the Rainbow Records website and the AWS hosted database. Data received from customer order forms in the company website will be automatically inserted into the database, which bypasses the printing and typing that was done before. Overall, our database connection ensures that Rainbow Records will have automatic data processing, which saves time taken to print and type order forms.

Proposal Objective

In this proposal, we will redesign the Rainbow Records website using Bootstrap HyperText Markup Language (HTML) & responsive design principles. This will fulfil the need for compatibility across all browsers and accommodate for the increase in online sales. Additionally, we will set up a database connection which will automate the insertion of data.

Shortcomings with the Current System

We have identified some areas for improvement in the current Rainbow Records company system of receiving orders and displaying products. This is pertaining to the customer website accessibility and the database connection.

Search function of the Rainbow Records Website is Difficult to Use

Customers have reported that the search function of the Rainbow Records website does not return the desired results of their search query. If a customer searches for a specific term the search function does not return all the possible results. Additionally, there have been reports of the search function returning results that are not related to the customer's search query. The search function needs to be improved in order for customers to be able to easily locate their products.

Website Needs Redesign for Mobile User Compatibility

Customers accessing the Rainbow Records website on mobile devices have reported that they are struggling to navigate the website's user interface and place orders. eCommerce companies like Rainbow Records will have customers frequently accessing their website and purchasing products from a mobile device. Therefore, it is important to have a website that supports all types of screen sizes.

The Rainbow Records website has only been designed to display on larger screen sizes, like on a computer. When users access the website on a mobile device, the website's content appears disorganized, making it difficult to access. With the current website design, mobile phone users will have difficulty finding products and ordering them on the website.

Database Needs Integration with the Rainbow Records Website

In an eCommerce company like Rainbow Records, it is important to have an organized way of processing customer orders and managing inventory using a database. Having the database not connected to the company website means that orders will have to be processed manually.

Currently, Rainbow Records is manually processing orders by printing out emails and typing order information onto shipping labels. This is inefficient and not scalable. The more orders Rainbow Records receives, the more difficult and time-consuming it will be to manually enter the order information. An integrated website with the company database will allow the processing of customer orders to be automated.

Proposed Improvements

To improve customer access to the Rainbow Records website, we will redesign the website. We will also connect the Amazon Web Services (AWS) database to the website to automate order processing.

Responsive Website Redesign with Improved Search & Navigation

Starting from scratch, we will be redesigning the Rainbow Records company website. We will improve user access to the website by redesigning the website's navigation system, allowing users to find and order products. We will also redesign the website's search functionality to return accurate search results, allowing customers to effectively find the products they are looking for. To ensure mobile device compatibility, we will reconfigure the website display to allow for a mobile-friendly design. We will design an easy-to-navigate user interface for users of all screen sizes, while applying "mobile-first" design principles to ensure best practice.

Complete Database Integration with the Rainbow Records Website

Automating the processing of customer orders using a database is essential to have in an eCommerce company like Rainbow Records. Databases allow for easier management and organization of large amounts of data. The connection of a database to the company website will reduce manual work, which saves time.

We will connect the Structured Query Language (SQL) database hosted by AWS to the redesigned website. The connected database will allow Rainbow Records to process orders into shipping labels automatically, allowing for more productivity and efficiency.

Once developed, all customer order data and product data will be inserted into the database. The connected database will allow Rainbow Records to execute SQL queries and generate reports on the data, allowing the company to manage the number of products being ordered.

Project Details

In this section, we will explain the specific details on how we will perform our project. This includes the first steps of our solution, the software we will be using, and a description of the components that our solution will consist of.

Plan of Action

Preliminary Analysis & Meetings

We will conduct an analysis of the current Rainbow Records website and database which will allow us to gain a thorough understanding of what specific requirements we need to fulfil. We will have weekly meetings with Lucy VanPatten and Alex VanPelt to set up deadlines, expectations, and guidelines for our proposed solution.

Design Selection Stage

After these preliminary meetings, we will hold another round of meetings to determine the design for the Rainbow Records company website. We will present three unique website designs to the clients at Rainbow Records. The designs will have different types of navigation menus, product displays, and product ordering pages. Afterwards, we will give Rainbow Records an opportunity to select one of the design layouts to have as their final website redesign.

Development and Feedback Stage

After the selection process, we will begin the website redesign process. At this stage, we will develop the new website while having meetings with Rainbow Records to showcase our progress. This phase will be in effect for two months, the design will be considered final after that.

Database Connection Development

Once the website has been developed, we will develop the database connection. This will be a much simpler process than the website redesign because JavaScript will allow us to easily parse order data and insert it into the database. Once development has completed, we will present the database connection to Rainbow Records.

Testing

The first portion of testing stage is where we will test the website's code for any problems. After that, we will start beta testing the site with the Rainbow Records staff to ensure that their requirements are met. A few weeks will be needed for the testing stage to ensure that each component has been tested thoroughly.

Launch

The purpose of the launch phase is to assist Rainbow Records to get acclimated with the new system. We will provide technical support, create documentation, and train users. Upon completion of the launch phase, the website will be officially released with the database connection included.

Software and Technologies Used

HyperText Markup Language (HTML) & Cascading Style Sheets (CSS)

For the website design, we will be using HTML and CSS. "HTML & CSS are two of the core technologies for building web pages'' [1]. HTML handles how content is displayed on the webpage, while CSS is used to modify the appearance of the webpage and the placement of content [1].

JavaScript

JavaScript is a programming language used in web development that "allows … dynamic features on web pages [to be programmed] that cannot be done with only HTML and CSS" [2]. In the website redesign, we will use JavaScript to design order forms for customers to order products. JavaScript will also be used to improve the search functionality. In the database connection, JavaScript will be used to store data from the order forms into the database.

Responsive Design Principles

Throughout our website design, we will be using responsive design principles to create a website that is compatible with all screen sizes. Responsive design refers to "a set of practices that allows web pages to alter their layout and appearance to suit different screen widths [and] resolutions" [3]. CSS & Bootstrap will be used in the website redesign to create a responsive layout.

Bootstrap

To Assist with responsive design and CSS styling, we will also be using Bootstrap. Bootstrap is an additional tool that is used with HTML which adds pre-made CSS styling for website appearance and mobile-friendly design [4]. Bootstrap allows us to design a website which is compatible with all screen sizes while using minimal CSS.

Structured Query Language (SQL)

SQL is the programming language used to communicate with a relational database and perform various data operations [5]. In the database connection, we will be using SQL to run queries for inserting data into the database.

Amazon Web Services (AWS)

AWS is Amazon's online server platform, which includes a database service [6]. Rainbow Records uses an AWS database, so we will connect that database to the company website.

Visual Studio Code

We have chosen Microsoft Visual Studio Code as the Integrated Development Environment (IDE) for this project. An IDE is a type of software that allows for the development of applications [7]. IDEs contain a text editor and a debugger [7]. Visual Studio Code includes a text editor which highlights and colors syntax, as well as a marketplace to install extensions [8].

Website Redesign Description

Overview

We will develop, test, and debug a responsive website for Rainbow Records which will allow customers to place orders and view products.

The main technologies we will be using to construct the website are:

- HTML
- CSS
- JavaScript
- Bootstrap

Improvement of the Website Navigation System

Our main focus of this website redesign will be improving the user's access to finding products on the website and placing orders. We can achieve this by using Bootstrap HTML which provides pre-made CSS styling for nav-bars, headers, forms, buttons, and icons for our use. We will use JavaScript to incorporate web forms for customers to fill out when they order a product. The data from these forms will be sent to the database. We will also be using JavaScript to improve the website's search functionality, allowing customers to easily find products.

Responsive Design Principles

Responsive design will also be a primary focus of ours during the website redesign. Responsive design is essential to have in a modern-day eCommerce website, as over 50% of all website traffic comes from mobile devices [9]. With a responsive website, Rainbow Records can be certain that their website is accessible to all types of users.

Mobile-First Design Practice

To ensure we keep consistency with responsive design principles, we will apply a "mobile-first" development strategy. "Mobile-first" web design refers to the practice of "[Starting] the product design from the mobile end which has more restrictions, then expand its features to create a tablet or desktop version" [10].

Plan of Action

To achieve a successful website redesign, we will present our design to our clients at Rainbow Records, where they can provide us with feedback on our progress. Our clients will be able to test the website periodically to suggest new additions and to verify that their requirements have been fulfilled. This ensures that we have met the needs of Rainbow Records.

Database Connection Description

Overview

In addition to the website redesign, we will connect an AWS hosted SQL database to the website.

To connect the database to the website, we will use:

- AWS
- SQL
- JavaScript

AWS Database

AWS provides a database service called RDS (Relational Database Service)[6]. It is compatible with many DBMSs (Database Management System) such as MySQL, PostgreSQL, Oracle, and SQL Server [6]. Rainbow Records already has an AWS database, so we will connect the database to the JavaScript back-end. In our database connection, we will speak to Alex VanPelt to determine which DBMS the Rainbow Records AWS database uses and connect it to the back end.

Plan of Action

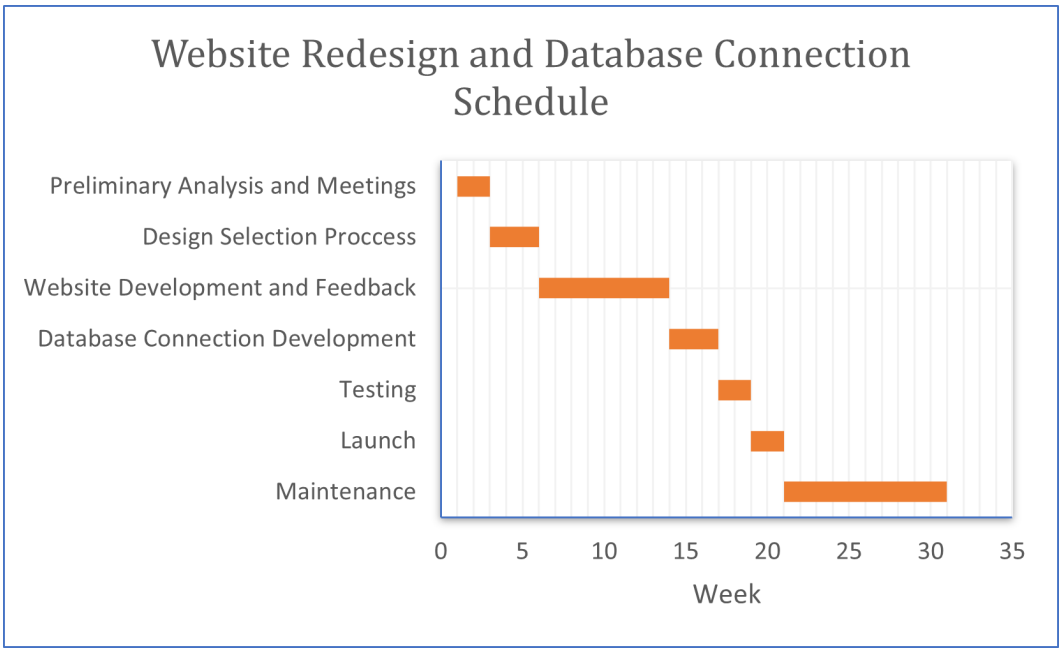
To achieve this, we will obtain the database login from Alex VanPelt and use the database login credentials in the JavaScript back-end to establish communication between the website and the database. Once connected, we can access the customer's order data, validate it, and insert it into the database. Our website redesign will include JavaScript forms, where we can access input fields for insertion into the database.

Data Entry Process After Database Connection

This database will be beneficial to Rainbow Records because it will automate the process of data entry for when a customer orders a product. With our database connection, data entered through the website's order forms will be inserted into the database where it can then be automatically printed into shipping labels. Once the connection has been completed, Alex VanPelt will be able to automate the processing of order data. This will greatly reduce the manual work that was performed without the database connection.

Schedule

In total, our project will last for approximately 30 weeks consisting of 7 sections. 20 of those weeks will be dedicated to the development of the website redesign and database connection. The remaining 10 weeks will consist of a maintenance period where we will provide technical support for the new system and troubleshoot any errors. The maintenance period will allow Rainbow Records to become fully acclimated with the new website, allowing for a successful transition from the old system.



Analysis and Meetings

Phase Duration: 2 weeks

In this phase, we will be holding weekly meetings with our clients at Rainbow Records to gather specific requirements about the website redesign and database connection. We will analyze the current Rainbow Records website and database, identifying areas to focus our development on. Our team will draft 3 designs according to the requirements, which will be presented in the design selection phase.

Design Selection Stage

Phase Duration: 3 weeks

In this phase, we will hold another set of meetings to present 3 website designs that we have drafted according to the requirements received in the previous stage. Each of the 3 designs will have their own unique user interface for ordering and finding products. Once we have presented our designs, we will allow the clients at Rainbow Records to choose the best design to be developed in the redesigned website.

Website Development and Feedback

Phase Duration: 8 weeks

During this stage, our team will be developing the new website while having weekly meetings with the Rainbow Records clients to update them on the progress. These meetings will be held to ensure that our design is meeting the requirements of our clients. This will also give Rainbow Records the opportunity to provide feedback and suggest changes. We plan for the first half of this phase to be spent developing the website, while the remaining half will be used to accept feedback and make changes. Once the 8-week period is over, the website design will be considered final.

Database Connection Development

Phase Duration: 3 weeks

In this phase, the database connection will be developed and integrated with the redesigned website. Our team will be using JavaScript to develop the database connection, making it simple to integrate the database with the newly designed website. At the end of this phase, we will present our database connection to Rainbow Records.

Testing

Phase Duration: 2 weeks

Upon completion of the website redesign and database connection, we will begin the testing phase. Each week of the testing phase will be dedicated to different types of testing. First, our team will test individual sections of code within the website and database integration to see if they are working correctly. Then, in the second week of testing, our team will allow Rainbow Records to test our solution to ensure that it has met their requirements. This ensures that our final product can be thoroughly tested.

Launch

Phase Duration: 2 weeks

Once testing has been completed, the launch phase will begin. In this phase, the website and database connection will transition from a development environment to a production environment, replacing the old system. In this phase, our team will work together to provide documentation and train new users. This phase will beneficial and helpful for Rainbow Records to transition to the new system.

Maintenance

Phase Duration: 10 weeks

The final phase of our project will be dedicated to providing a 10-week maintenance period for the new website and connected database. We will be working closely with Rainbow Records staff to view the progress of our solution over time and make changes if necessary. We will continue to provide technical support for users of the system and assist with troubleshooting.

Conclusion

We will deliver a fully functional website redesign with an integrated database to Rainbow Records in 31 weeks. The website redesign will bring a mobile-friendly design with an easy-to-use navigation system and a straightforward product search function. We will design a responsive layout for the Rainbow Records website, which will make the website accessible to mobile users, leading to more orders.

Our database connection will bring automated data entry when orders are being processed on the website. This will make order processing automatic, which removes the need to print out order emails and typing them onto shipping labels.

In total, the project will progress for 31 weeks. It will consist of preliminary meetings, design selection, development with feedback, testing, launch, and a maintenance phase lasting 10 weeks. At the end, Rainbow Records will be transitioned to their new website.

Recommendations

To get ready for our first meeting, we recommend that Rainbow Records prepares the detailed requirements and expectations for the website and database connection. We recommend that Rainbow Records contacts us to schedule a time and date for our first meeting. This will help us plan our schedule, so that we can get started with development as soon as possible.

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