Final Presentation Butler Theatre

EPICS Spring 2020

The Team

Team Leader
- Justin Rice

Client Liaison
- Gwen Spencer

Database Developers
- Andrew Nesler
- Steven Nirenberg

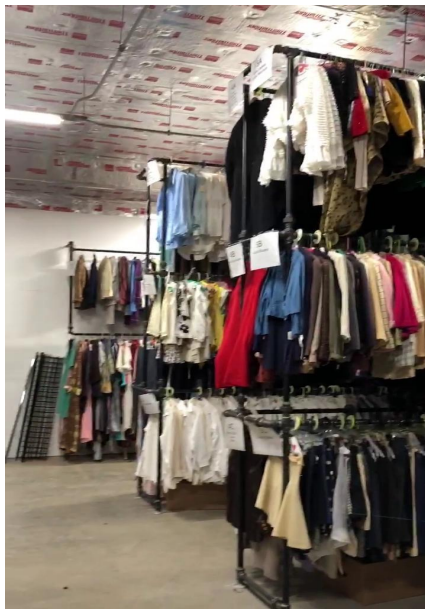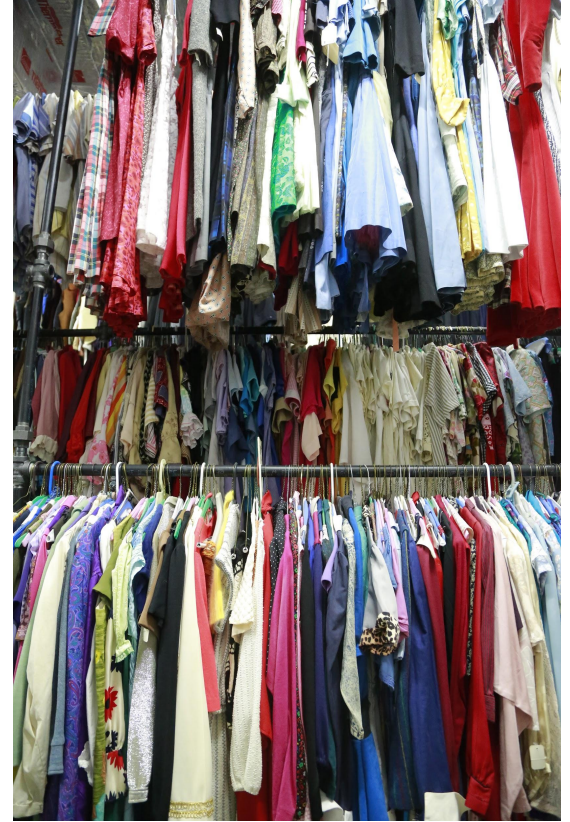**Documentation and Website Lead**
- Grace Maynard

About the Client: Butler Theatre

Renowned as one of the best programs in the country, Butler Theatre strives to push the boundaries of our art as we create innovative productions and instill in our graduates an entrepreneurial spirit that will help them to succeed in an ever-changing market. With a strong liberal arts foundation, we foster the development of well-rounded, critical-thinking artists who can plot their own successful path in theatre and in life.

Butler Costume Shop
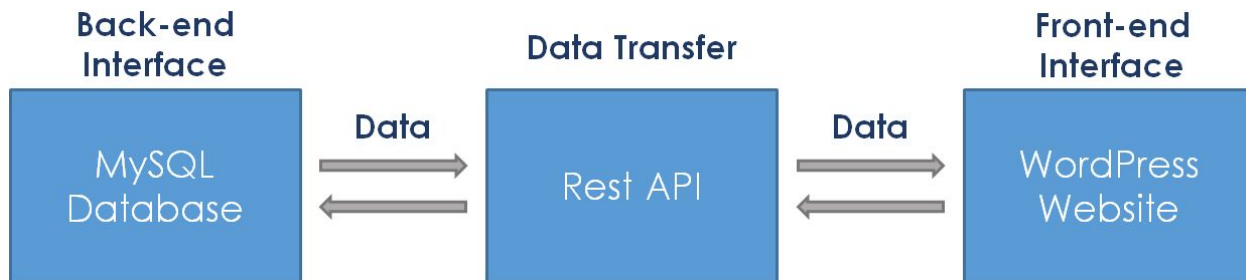
Butler Costume Shop

Project Overview

Design and develop a database system and application for the Butler Theatre Department to help organize their costumes and to increase the efficiency of accessing items.

Plan for the Semester

- Design a website for displaying all of the garment info and photographs
    - Use Adobe XD to design a wireframe for website
    - Build a WordPress site to display information

- Design & build a database to store the information for the garments
    - Create mySQL database for garment attribute information storage

- Design & build a rest API to attach the front-end website to the back-end database

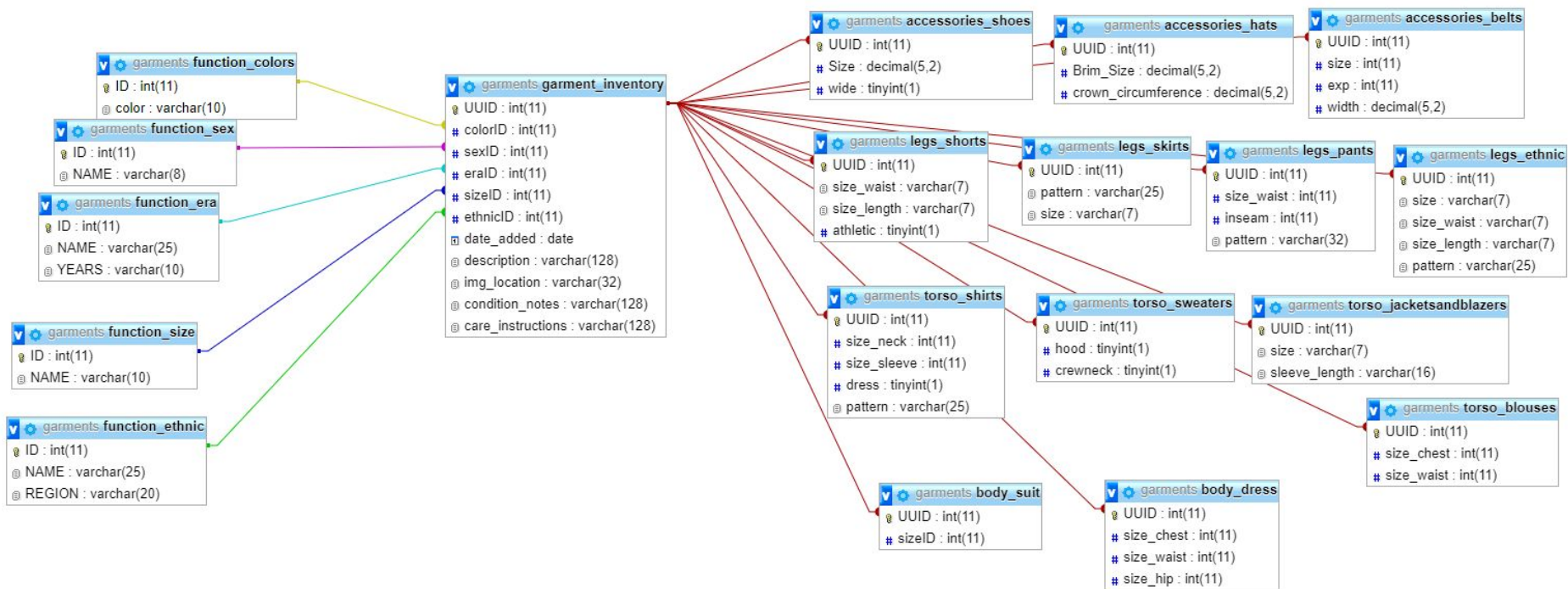| Back-end Interface		Data Transfer		Front-end Interface
MySQL Database	Data → ←	Rest API	Data → ←	WordPress Website

Wireframe Designs

WordPress

- Butler Theatre website will be using WordPress, the same system as the EPICS website
- Utilize Wordpress add-ons to access the MySQL database
- Developed child theme that is similar to wireframe design
- Added post types that correspond to garment types and will continue to work on custom fields
- https://10.131.3.197/

Database

- Pending changes due to evolving needs based on implementation
- Current setup: specific attributes in foreign tables specific to garment type, primary table for most attributes
- Lookup tables will hold generic standardized information such as color, size, gender, era and ethnicity for simple sorting
- Coordinating with needs of client
- PostgreSQL layout changes

Database Design

Rest API

- As mentioned prior, we have made the decision moving forward to utilize Express.js and Node.js as the REST API and API.
- Node is asynchronous whereas python is not by default
  - Asynchronous in coding means that the code can execute tasks without having to finish one and move on to the next
- // Node is best suited for small projects. As of right now, Butler Theatre is not on the same level as Men's Wearhouse.
- Node is also customizable and can be integrated easily with tools such as Express.
- Node is also able to produce high speed with heavy traffic.
- Syntax is similar to JavaScript and if one understands JavaScript, Node and Express will not be difficult to learn.

Accomplishments

- Looked through previous group's progress
- Updated EPICS website
- Met with our client and toured the storage facility
- Met with Nate Partenheimer
  - Discussed Fall 2019 database bugs
  - Discussed which technologies will be used in order to move the project forward
  - Set up a WordPress process for website development interface
    - Began creating custom post types and field groups
    - Selected a parent theme
    - Developed child theme
- Completed the initial wireframe design
  - Got design approved by the client
- Created our final presentation, poster and report

Goals for the Future

- Continue to develop API
- In WordPress, write the code to pull data via the API from the database
- Figure out ways to store images, or image files, in the database
- Connect the three parts together
- Refine the WordPress website
  - Finish designing the website to be similar to the wireframe
  - Create administrative view of the website
  - Finishing adding custom post types and field groups to match the database

Acknowledgements

- Nate Partenheimer

- Megan Wiegand

- Dr. Panos Linos

Butler Theatre

Justin Rice, Gwen Spencer, Grace Maynard, Andrew Nesler, & Steven Nirenberg
Butler University Computer Science & Software Engineering Department, Spring 2020

EPICS@BUTLER

Client Background and Information

Renowned as one of the best programs in the country, Butler Theatre strives to push the boundaries of our art as we create innovative productions and instill in our graduates an entrepreneurial spirit that will help them to succeed in an ever-changing market. With a strong liberal arts foundation, we foster the development of well-rounded, critical-thinking artists who can plot their own successful path in theatre and in life.

The theatre department has well over 15,000 articles of clothing in their collection. Organizing and categorizing these costumes is a monumental task and having a system to keep track of the different pieces would make the lives of the staff much easier.

Figure 1 & 2: The garment storage in the Theatre Storage & Scene Shop.

Objectives

- Design a wireframe to show the client the front-end interface
- Create a WordPress site to display information
- Create mySQL database for garment attribute information storage
- Build a rest API to attach the front-end website to the back-end database.

Figure 3: Diagram of how the data will flow from the database to the website. The website will pull attributes, images, etc. from the database and the API is the facilitator.

Development Tools

- Adobe XD: Wireframing tool for website design
- WordPress: Content management system hosting the Butler Theatre website
- phpMyAdmin: Administration tool for developing the MySQL database
- Node Express: Used to design and develop the API

Outcomes

The wireframe design process helped us determine how we would like users to interact with the website. We received input from our client on the design to understand how they would want users to be able to interact with the website. The WordPress site was created and the design aspects were implemented, established matching fonts and color schemes, and layouts.

Figure 4 & 5: Wireframe design for the Butler Theatre website.

Figure 6 & 7: Wireframe design for the Butler Theatre website.

The primary table aims to store general attribute information, with lookup tables attached to simplify sorting later. Each garment type has a table for their own specific qualities. Functional tables on the left will hold generic standardized information such as color, size, gender, era and ethnicity.

Figure 8: Entity Relationship Diagram for the garment database.

Project Accomplishments

- Completed the wireframe design for the WordPress website
- Created the WordPress site and began to implement the design elements from the wireframe
- Updated and expanded the ERD for the database
- Created a database for storing garment attributes
- Began initial research into API and identified the necessary elements

Goals for the Future

The main work to be completed in future semesters will be connecting the database and the front-end user interface, polishing the front-end design elements, and testing for quality assurance and breakability.

Website:
- The website will need to be further updated to match the design of the wireframe
- Specific features that will need to be implemented:
  - Garment search options
  - E-commerce capabilities
  - Accessibility features
  - Login options, and auth0 login for administrative purposes
  - The website should also be optimized for use on all devices (computers, tablets, phones, etc.)

Database:
- Consider how images and data will be inputted into the database
- Quality assurance testing and breakability
- Implementation of an identity function to automatically increment a universally unique per-garment identifier
- Migrate functional tables to lookup tables using natural keys

API:
- Develop and complete the Rest API
- Utilize Node.js & Express.js to write the code for the API

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Documentation and Website Lead: Grace Maynard

Acknowledgements

The Butler Theatre team would like to thank Nate Partenheimer for his endless assistance in developing our website and database. His continuous support throughout the lifetime of this project has been truly invaluable. Thank you to Megan Wiegand for allowing the EPICS class to work on her project. We have gained a significant amount of knowledge from working on this project and are thankful that the theatre department turned to EPICS for this project. Many thanks to Dr. Panos Linos for guiding us throughout this project and for encouraging us in completing this project.

Questions?