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CS 298

Storing and Presenting Office Metric Data

Project Overview

The goal of my senior project is to create a website that stores data from various office metrics, then present that data in a pleasant way to users. The data is presented in a way that makes it simple to see how an office is doing at a glance, in terms of finances, projects worked on, and staff-hours spent.

Background

This project comes from Petram Design International. Petram has a few offices in different countries that it wants to keep track of. They do so through measuring various metrics like how many hours projects were worked on in a given month, how much income was generated from those projects, and more. Petram currently tracks these metrics through 3 different programs and wanted a simpler way to view all of the data in one location.

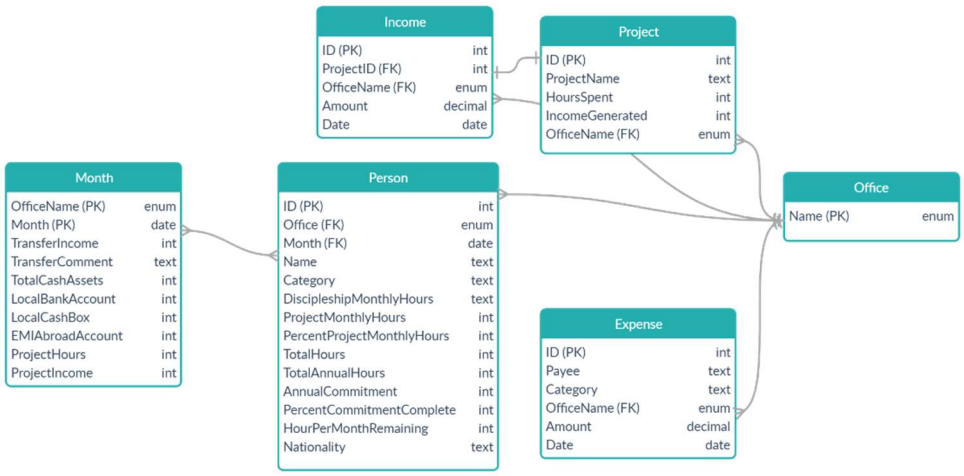
System Design

The website was implemented through Php and Javascript, and was hosted with Dreamhost at emiofficemetric.work. I used Chart.js to present the data in a graphical format. Php was used to process data, store incoming data in a database and retrieve data from the database. Javascript was used to request data from the database and display it on screen.

Wordpress was initially chosen to create the website but didn't allow for the freedom to work with Php code very easily. Because of that I decided to use the Wordpress template as the basis for how the website looked, but implemented the website with straight Php, HTML and Javascript. Chart.js was chosen because of the availability of help that exists for that library, and because of the range in graphs it allows.

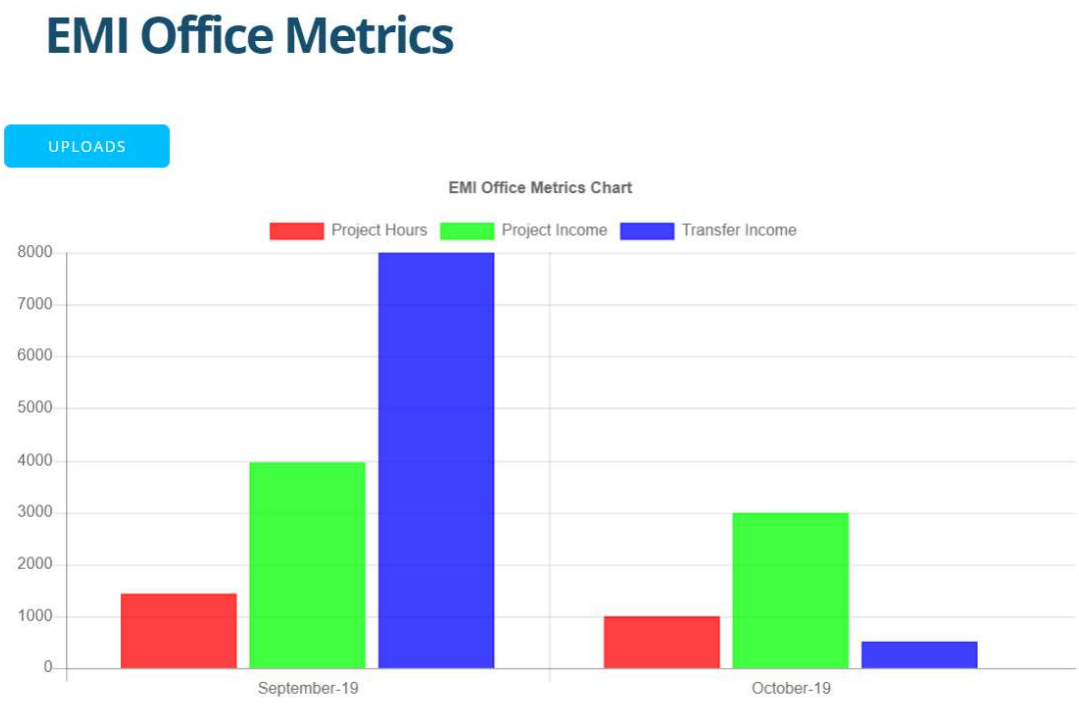
Data was planned to be uploaded to the website once a month per office through a form with preset metrics, and data would be associated with a specific office and month. This data is presented to show trends in an office over the last year, or to compare between offices.

The database schema is outlined in the picture below. The tables were made based off the metrics that Petram was interested in.

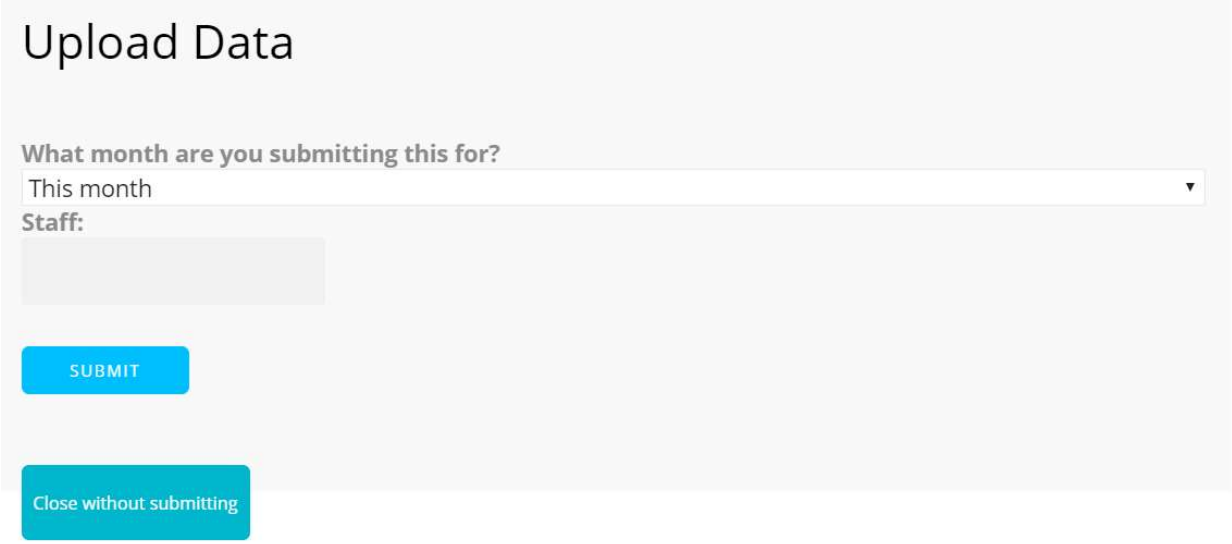


Results

The website was functioning by the end of the year, but not to the extent that was hoped for. The website retrieves data for monthly project hours, project income and transfer income. This information is then displayed to the user in a bar graph, with options to turn any of these categories off by clicking the corresponding label above the graph. There is an uploads button so that the user can input new data into a form, but the form and processing of input data is not complete. To add new data, the user would have to modify the database directly. The picture below shows the final state of the website displaying the metrics.



Below is the prototype for the form to upload new data to the database.



Conclusions

My biggest conclusion about this project is that working on something that you have no experience in is a lot harder than I had believed. I enjoyed thinking about features I wanted to implement but finding a way to do that is quite hard. It was especially hard to try to do this on Wordpress, which does not allow for convenient Php customization. I can also conclude from my work on this project that I struggle to motivate myself when there is little accountability in the form of presentations and/or tests.

All source code is hosted at https://github.com/NateGamble/SeniorProject.

Future Work

Some future work on this project would include adding more categories for the user to look at in the graph. Allowing the user to submit new data in a form would be a very beneficial addition to this project.

Acknowledgements

I would like to thank my father Chad Gamble for providing this project to work on, and my advisor Professor Plantinga for giving me some direction in how to approach my project.

References

https://www.stackoverflow.com

https://www.wpbeginner.com/