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Projects

Weather Web Application

Flask web-application displays weather information for any city/location in the world with a google-maps style weather map and hourly temperature graph.

- **API** calls to Weatherbit.io and Openweathermap.org.
- **JSON** weather data returned is stored in an **array** of **hashmaps**, where each hashmap element in the array represents weather data for a single day of the week, such as temperature, humidity, etc. for that day.
- **HTML** results page converted to Jinja template using **Bootstrap4** for styling, to which data was passed via **Flask**.
- Calculation and dynamic updating of **HTML** elements on the entire page by a single toggle to convert between metric and imperial units achieved through **DOM** manipulation using **jQuery**.
- Hourly weather graph created using the **chart.js JavaScript** library.
- Weather map produced using a leaflet **JavaScript** applet embedded in the page whose layers were provided by Openweathermap API and weather data was populated via hashmap array data in Flask.

Sushi Cat a Top-Down 2D Maze Traversal Game

The user plays as a cat collecting sushi in a top-down 2D maze created using turtle graphics module in Python. An exercise in **Object Oriented Principle**s.

- **Multidimensional array** to create the playable map where player, terrain, and **object** coordinates are maintained.
- Every coordinate within the map is an element in one of 3 **arrays**, representing passable terrain, impassable terrain, and interactable **objects** (such as sushi).
- In each array category, the coordinate object element is divided by the sprite/shader used to represent it, whether to appear visually as a wall, tree, flat ground, lantern, etc.
- Player/cat itself is an **object** which records quantity of sushi collected and current coordinate location.
- Based on **user input** (i.e. arrow or WASD keys), player/cat **object** calculates which coordinate is requested to be moved to next. Whether or not actual movement by the player occurs is determined by if the coordinate is a member of the array of passable terrain objects.

Animation Film Webscraper with SMS Notification

- Written in **Python** utilizing BeautifulSoup4 and Twilio **APIs**.
- **GET** requests to local film theatres film schedules to specifically filter for animation/anime films in real-time.
- Resulting **HTML/CSS/JavaScript** in **JSON** form is converted to unicode with BeautifulSoup4 and parsed to obtain film title, description, screening location, and screening dates for each unique film.
- Using the Twilio **REST** API, the information per film is sent as an **SMS** text to a recipient/phone number of your choosing.

School District Management Web Application

A **Flask** web-application for use in viewing and managing Schools, Students, Classes, and Instructors for a hypothetical School District, created for Database Design course at OSU with full **CRUD** functionality.

- **HTML/CSS** frontend whose displayed data from pages and input forms are dynamically generated from an **originally designed database** complete with entity relationship diagram (**ERD**) and database **schema**.
- Webapp transmits **SQL queries** to the database managed with **MariaDB**. Users of the application can directly alter the database to add or remove schools, teachers, etc. and retrieve such information as well.

Employment

Honolulu Museum of Art | ***Development Associate*** July 2014 - March 2018

Responsible for data fidelity and management of client/donor databases containing sensitive financial information. Developed automated procedures that used data from aforementioned databases to produce documentation reflecting parameters such as quarterly revenue and year to date comparisons of organizational fundraising goals for upper management use.

Develop online and in-person sales protocols for museum products, creating Standard Operating Procedure manuals for staff use organization-wide. Managed contribution/financial information tracking, procurement strategies, and receipt for major special projects with budgets ranging from $0.25M - $1M.

Website

https://john-sy.com

Github

https://github.com/DarkHorse108

Skills

- Python
- C/C++
- SQL
- JavaScript/jQuery
- HTML5/CSS3
- IA-32 Assembly
- OpenCL/OpenGL
- CUDA
- OpenMP

Technologies

- MariaDB/MySQL
- Flask
- Node.js
- Git
- Linux (Ubuntu + Red Hat Enterprise)

Education

B.S. Computer Science
Oregon State University
(2018 - Present)

B.S. Biology
Hawaii Pacific University
(2010 - 2013)
Colorado State University
(2008 - 2010)