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CSC 102

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GitHub URL: <https://github.com/madisonwikoff/CSC102Project.git>

**PetMatcher**

***Our Goals & Objectives:***

For our final project, we wanted to make adding a new pet to one’s life and/or family much easier. PetMatcher—our project—is a program that will match you to a pet that best fits your needs by analyzing your current lifestyle. The entire application was built using a plethora of different functions.

The first phase involves the user answering quiz questions on a user interface, which leads the machine to its conclusion of which kind of pet would fit the user and their lifestyle best which is determined by incrementing counters for each type of pet if an answer is selected that matches that pet type. Once the match has been made, the second part of the program helps the user view a list of essential starting items such as food, equipment, and toys specific to each type of pet. Lastly the program helps the user design a routine for the new family addition, such as when to feed the pet, when to play with the pet, and when to bath it/clean its enclosure. In this part of the program, we incorporated the use of GPIO.

***Our Use of GPIO:***

Diagram

Description automatically generated

When incorporating the GPIO, we utilized different colored LEDs that signify each different type of task. For example, a blue LED signifies that it’s time to play with the pet. The user must enter times in an “hour:minute:second AM/PM” format, as the program is supposed to track the system’s clock upon clicking the “Start Day” button and, when the hour, minute, and period match the time that the user input in their routine, the corresponding LED will blink as a visual alarm to signify to the owner that it’s time for a specific task to be completed. It will blink for that minute. Pictured above is the circuit diagram for our LEDs.

***Our Use of GUI:***

The entire PetMatcher application operates on a graphic user interface created in Python through many different, unique functions that set up each window. The first window is a homepage with three buttons for each section of our program: one takes the user to our PetMatcher quiz, the second takes the user to a page where they select the pet type and can view lists of pet type-specific essentials, and the third takes the user to another pet type selection page and can then make their own customized routines. Every window has its own unique function that makes it run.

***Future Development Plans:***

If our team had more time, we would try to make use of the sqlite3 module and create a database for the essential items for the second part of the program, allowing the lists to be dynamic and let the user actively search for specific items as was our original vision. Additionally, we would add more to our incorporation of GPIO. Some buttons that stop the LEDs from blinking when pressed would allow even more user interaction, as they would press the button for the corresponding LED when a specified task is completed. Lastly, we would have liked to get Najja’s designs working on the Raspberry Pi, but the Pi didn’t agree with this unfortunately. Aside from these three ideas, our PetMatcher has taken shape just as we envisioned.

***What We Learned:***

The biggest lesson that our team learned was to not overestimate ourselves. We have limits as programmers at our skill level, and it is okay to acknowledge that changes have to be made, even if the change makes the end product simpler than we were hoping, in order to get the program working as we want or need.

Another major lesson learned is that each team member can play into their strengths, even if we might not be able to make use of everything brought to the table due to issues with the Pi. A major example of this for us was the battle to try and get Najja’s designs that he made for us to appear properly on the GUI when running it on the Pi.

These lessons definitely play into the idea of being patient with yourself and with your team when developing a program. We all had to take things we have learned throughout CSC 101 and CSC 102 and expand on them with our own research in order to accomplish what we did, especially regarding the creation of the Quiz and how to code a properly functioning GUI with multiple windows.

Overall, we are proud of what we were able to create with PetMatcher.