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Project 1 Programmer's Documentation

The objective of project 1 (P1) is to create a program that takes button input from the user and outputs audio as feedback to set the day and time on a clock. To properly run the program, first install the packages PyAudio and readchar, which are needed to hear the output and read the user input, respectively. Using Python3, run the main program set_clock.py in terminal. Referring to the audio output at the beginning, the user can press "j" to quit. Additionally, the keys "k", "l", ";" and "spacebar" are used to navigate through process of setting the day and time. The key ";" is used to go forward in the selections, "l" is used to go backward in the selections, "spacebar" is used to select the current option, and "k" is used to go to a help state. In the help state, the program will repeat what keys the user can press and their respective functions.

The selection process in ordered as follows: select day, select hour, select minute, and select AM/PM. After each component is selected, the program will read the final selections that the user chose. After the AM/PM has been chosen and the selection has been read, the program will announce the compiled final selection in the following form: "You have selected <day><hour><minute><AM/PM>." After this, the program will close.

One important data structure is the ordering of the options. For all components, the user is able to loop through the selections without receiving an error for reaching the end of the list. This allows the user to have two directions to choose from to get to the desired option. For some states, like the select minute state, this feature is convenient because of the large list of numbers to press through. For others like the select AM/PM state, where there are only 2 options, such a feature is redundant, but still necessary for the consistency of the key mapping.

Another important data structure is the rapid audio feedback. This allows the user to quickly cycle through the options without having to hear the entire option, hence saving time. At the same time, if the user presses too quickly, the program might not be able to say the selection fast enough before the next key press. Therefore, the user should practice restraint in pressing the keys.