

AP Computer Science Principles: 2020 Create Task  
Student Sample E

3a. My program ultimately works to address the issue of screen addiction in society, as users who record their usage are more conscious of their own addiction. My program then tackles the issue head on, as new alternatives to screen usage can be selected with the activities button, mitigating overall screen usage. As can be seen from the illustration of my program, users are able to **input the amount of time** they spend on their screen each day. This data is collected and can be paused by the users, and resumed at whatever time they continue use of their screen. Then once the user feels that have used a sufficient amount of screen time in a day, they can **click the screen free challenge button to output an amount of time to go screen free**. They also have the activity button which outputs different activities to try that don't involve screens.

3b.

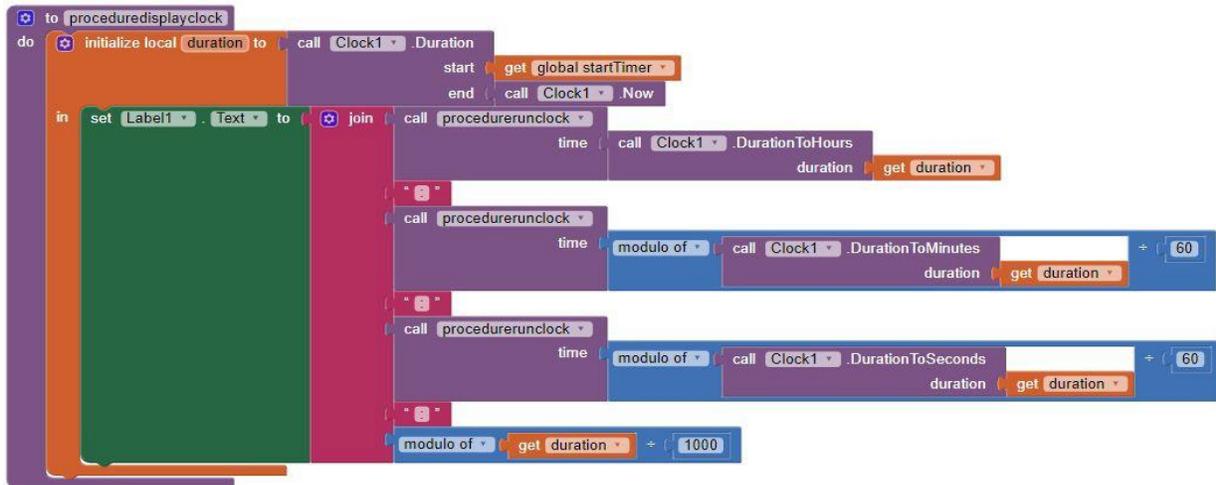


The list "activity" shown here is essential to my program because it contains the data that represents alternatives to screen usage and screen free challenge times. This list of data is essential to reducing screen addiction, and manage the overall complexity of my code. Instead of having several different buttons display alternative activities, the lists allow me to store all the data in one organized location. A procedure is then able to randomly select one of the strings for an index, to ensure that each string is displayed an approximately equal number of times. Without this list and another list that provides time amounts for the activities managing the complexity of the code, I would've had to individually enter each string into a separate button, creating redundancy in my code. I also would not have been able to ensure that each string was picked equally, because the individual buttons would not be controlled by the same procedure.

3c. Procedure: procedurerunlock



Call to Procedure procedurerunlock



The procedure, procedurerunlock, contributes to the overall functionality of my program, as it allows the stopwatch to both run and display the changing time every millisecond. The procedures, working in accordance, use the time parameter to make sure that the time is recorded by the stopwatch, and is then displayed live, when the user clicks the start button. Without the stopwatch it would not be possible for user to record the amount of time they spend on their screen, which is a crucial function to my app. If users are unable to see how much time they spend on their screens then they will not be conscious of their addictions, and therefore not willing or likely to take screen free challenges and try alternative activities. The algorithm accomplishes this task as it utilizes the parameter “time” to get the new time as the clock runs, and then updates this time so that it is displayed in a label. The parameter for time is essential to my algorithm, as procedure run clock would not work without it, and thus procedure display clock could not update either.

3d.

In the two test cases for my procedure the app user spent 30 minutes on their screen both times, before deciding to take a screen free challenge and try an alternative activity. In the first test, the user was directed to take a 60 minute screen free challenge, and try doing their homework instead. In the second test case, the user was directed to take a 120 minute screen free challenge and try visiting their friends instead. In my app the string data was programmed into the code, and each string was selected randomly, meaning that there was no expected

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result for either of the test cases. The conditions being tested are which string will be randomly selected. Once the program selects a string it then joins "Go Screen Free For:" with an amount of time, or "Try this activity:" is joined with an activity. The procedure to do this task accomplishes this goal by selecting a random fraction between 0 and 1, and then each of the six strings corresponds with a fraction. The corresponding string closest to the fraction chosen is then selected and displayed in the label.