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Class Descriptions

Treadmill Program

The first class, Treadmill, sets up the main interface of the treadmill program. It creates the treadmill1, clock1, stopwatch, timer1, runTracker1, displayDistanceTimer, displayDistance objects, as well as a new Font object, a button handler, and 2 new windows. Using the JFrame class, it also builds the interface of the program using buttons, text fields, and labels.

The private class Clock, which implements the Action Listener, displays the time in the main user interface. This method is called every second, to keep updating the time correctly on screen. The private class DistanceTimer has a similar function as Clock does, but displays the distance that the user is “running” on screen, and it is too updated every second.

The ButtonHandler class handles all of the JFrame components of the main window, from the Treadmill class. The buttons turn the treadmill on or off, control the speed and incline of the treadmill, stops the treadmill, and displays the values while the treadmill is running. Depending on the button pressed, it will also decide which buttons are available to press. For example, you cannot hit the Start button before the On/Off button is clicked and it is colored green. The on/off button is responsible for instantiated the treadmill1 object, which is the main object used in the program. The start button also instantiates the runTracker1 object which will track the distance of the run.

The Window2 class extends JFrame, and it creates a second window, but it is actually the first window that you see when you start the program. This window asks the user to enter their weight and gender, which are both used in calculating the number of calories burned while running. Once the button “Enter” is pressed, the window closes, and the main interface of the program (which was opened behind it) is seen. If the user does not enter a weight, it is set to a default value of 150. Also, male is the default gender.

The Window3 class is used when the stop/reset button is pressed. A third window is created, using this class, displays the results of the run, which includes Distance, Time, and Calories Burned. Also, this window will ask you if you want to create a data document with the results of the run stored in it. If you choose yes, it will create a document called “TreadmillOutput.data”. If you choose no, the 3rd window will be closed leaving the main window displayed again.

The TreadmillModel1 class is the first class describing a treadmill object. It is a simple class, containing only start, reset, on, and speed data. The names of this data are pretty self-explanatory.

The TreadmillModel2 class extends the TreadmillModel1 class. It adds more features to a treadmill object .This contains variables for incline, pace, weight, gender, and calories. This class holds the gender and weight variables entered in the first screen, and will calculate the amount of calories burned during the run.

The Timer class keeps track of the time for the run. This class contains start and stop methods, and also calculates the amount of time elapsed, which is important for calculating distance. It also formats the time to display in minutes and seconds, like an average person would expect to see while using a treadmill.

The RunTracker class tracks the distance of the run. The main function of the class calculates the distance traveled using the pace variable each second, and adds that to the distance variable. It is calculated every second because the method calculateDistance is called every second from the DistanceTimer class, to display it on screen.