Homework 3: Functions

Dylan W. Schwilk

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Instructions

Send me an email containing an .R file with all three functions defined. At the end of the .R file, write a short set of statements that give example uses of the functions (in other words, the tests that demonstrate they work!). Document in comments the expected output. I should be able to run the entire file in R with a clean environment, i.e. if I put `rm(list=ls())` at the top of the file.

Function: euclideanDist

Write a function called euclideanDist that will accept x and y coordinates for two points and return the Euclidean distance between them. Don't be concerned about error-checking arguments, but be careful about format and readability.

```
# euclideanDist: Returns the euclidean distance between two points,
# each specified by x and y coordinates.
#
# Args:
# p1 = 2-element vector [x1,y1] containing the coordinates of the
# first point.
# p2 = 2-element vector [x2,y2] containing the coordinates of the
# second point.
# Returns a scalar:
# distance between points.
```

Function lineParams:

Write a function, `lineParams` that calculates the slope and intercept of a straight line connecting two points, given the two points P1 and P2.

```
## lineParams: Given the (x,y) coordinates of two points, finds the
# slope and intercept of the line connecting the points.
#
# Args:
# point1 = 2-element vector containing x,y coordinates for point 1.
# point2 = 2-element vector containing x,y coordinates for point 2.
# Returns a list containing:
# slope = slope of the resulting line.
# intercept = Y-intercept of the resulting line.
```

Function decomposeTime

Write a function that decomposes a single input value in seconds into days + hours + minutes + residual seconds. Decide how the function should return the values. What should the function do if the input value is negative? I have not supplied a comment header for this function, create your own. Review the modulo operator (`%%`) and integer division operator (`%/%`).