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```
function [total_length, total_weight, total_cost] =
 PS06_cableUDF_008_14(heights, distances, num_strands)

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% ENGR 132
% Program Description
% This function calculates the total length, weight, and cost of the
 wires
% given input heights, distances, and number of strands.
%
% Function Call
% function [total_length, total_weight, total_cost] =
 PS06_cableUDF_008_14(heights, distances, num_strands)
%
% Input Arguments
% 1. heights   /This input is for the height from the bridge deck to
 the
% tower anchorage
% 2. distances  /This input is for the distance from the tower base to
 deck
% anchorage
% 3. num_strands  /This input is the number of strands for each
 individual
% desired wire
%
% Output Arguments
% 1.total_length  /calculated total required wire length
% 2.total_weight  /calculated total weight of the wires
% 3.total_cost    /calculated total cost of the wires
%
% Assignment Information
%   Assignment:        PS 06, Problem 3
%   Team ID:   008-14
%   Team Member:  John Chapla, jchapla@purdue.edu
%   Team Member:  Matthew Wen, wen101@purdue.edu
%   Team Member:  Donghyun Lee, lee3034@purdue.edu
%   Team Member:  Ranjan Behl, rbehl@purdue.edu
%   Contributor:   Name, login@purdue [repeat for each]
```

```
%   My contributor(s) helped me:
%     [ ] understand the assignment expectations without
%         telling me how they will approach it.
%     [ ] understand different ways to think about a solution
%         without helping me plan my solution.
%     [ ] think through the meaning of a specific error or
%         bug present in my code without looking at my code.
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

This section sets two constants to be used for calculations

INITIALIZATION

This sets a value for the weight of a single strand per meter

```
cable_weight = 1.1; %k/m

% This sets the cost of a kilo of strand as $25
cost_kilo = 25; %$
```

This section calculates the total length, total weight, and total cost of the input cords

CALCULATIONS

Calculates the total length

```
total_length = sum(sqrt(heights .^ 2 + distances .^ 2));

% Calculates the total weight
total_weight = sum((num_strands .* cable_weight) * total_length);

% Calculates the total cost
total_cost = total_weight * cost_kilo;

% Prints the results from the calculations
%fprintf("Total Length = %0.4f meters, Total Weight = %0.4f kilograms,
%Total Cost = $%0.4f \n",total_length, total_weight, total_cost); This
%printf statement is a comment due to part 7 of the problem
```

```
Not enough input arguments.

Error in PS06_cableUDF_008_14 (line 54)
total_length = sum(sqrt(heights .^ 2 + distances .^ 2));
```

This sections shows what is printed to the command window

COMMAND WINDOW OUTPUT

Calling function

```
%function [total_length, total_weight, total_cost] =
 PS06_cableUDF_008_14(heights, distances, num_strands)

% Results
% x = PS06_cableUDF_008_14([50 54 58 62 66 70],[30 58 84 108 130 150],
[45 45 45 45 45 36])
% Total Length = 675.4893 meters, Total Weight = 193932.9841
 kilograms, Total Cost = $4848324.6025
%
% x =
%
%   675.4893
```

This section lays out the academic integrity statement

ACADEMIC INTEGRITY STATEMENT

We have not used source code obtained from any other unauthorized source, either modified or unmodified. Neither have we provided access to our code to another. The function we are submitting is our own original work.

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