CS 121 – Quiz 4

2010 Feb 26th
Question 4

• Part 1
  – You are given a list DISTANCE in feet and a list TIMES in minute
  – You are asked to create a list with the velocity in miles/hour
• **Script Outline**
  
  – #Initialize DISTANCE and TIMES
  
  – #Create a table VTab to contain the velocities for all cars
    • VTab := table();
  
  – #Write a for loop to compute the velocity for each car
    • for i from 1 to nops(TIMES) do
      – #for each car, convert the velocity to the right unit and inset the value to the table
        – VTab[i] := convert(DISTANCE[i]/TIMES[i],units,feet/min,miles/hour);
    • end do:
  
  – #convert VTab to a list
• Part 2
  – Count how many vehicles there were such that the velocity is at least 6.8 miles/hour higher than the previous vehicle
  – Compute the average velocity over all the vehicles for which this was true
• Script Outline
  – #Get the list of velocities from part I, say VELOCITY
  – #Initialize a count variable
    • count := 0:
  – #initialize a variable for the total velocity of those vehicles
    • totalV := 0:
• # Write a for loop to traverse all elements in VELOCITY
  – for i from 2 to nops(VELOCITY) do
    • # Write a conditional statement to check if one element is at least 6.8 higher than the previous one
    • If (VELOCITY[i] – VELOCITY[i-1]) >= 6.8 then
      – #if the condition is true, count goes up by 1 and add the velocity to totalV
      – count := count + 1:
      – totalV := totalV + VELOCITY[i]:
    • end if:
  – end do:
• #get the final count and the average velocity (totalV/count)
• If you are not sure why the loop control variable i starts from 2 or what nops function does, please review the quiz3 chat slides.
Question 5

• (a-c):
  – #Use new values on the starter script for Lab4 Part2
  – #Print out xp, totalTime and numBounces

• (d):
  – #change the input: convert the velocity units from feet/second to meters/second
  – v0 := convert(58.8, units, feet/second, meters/second);
  – #change the output: convert xp from meters to feet
  – convert(xp, units, meters, feet);

• (e): same as (b)