Software Development Fundamentals

Lab 3

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Exercise 1

* Data requirements:
  + Problem input: Time in hours, minutes and seconds (integers).
  + Problem output: Total time in seconds.
  + Formula: Hours \* 3600 + minutes \* 60 + seconds.
* Algorithm:
  + Enter integers for number of hours, minutes and seconds.
  + Calculate total using formula.
  + Display results.
* Test and expected results:
  + Enter times: 4 hours, 26 mins and 44 seconds.
  + Expected results: 16,004 seconds total.

Exercise 2

* Data requirements:
  + Problem input: Amount of seconds (integer).
  + Problem output: Seconds converted to hours, minutes and seconds.
  + Formula: seconds – (number of hours\*3600) – (number of minutes\*60).
* Algorithm:
  + Enter integer for total number of seconds.
  + Create variable for total seconds (total).
  + Hours will be total divided by 3600 rounded down using math.floor function. If this is greater than zero, then we take away (hours\*3600) from total.
  + Minutes will be total divided by 60 rounded down using math.floor function. If this is greater than zero, then we take away (minutes\*60) from total.
  + Seconds will be what is left in total after these are taken away.
  + State results.
* Test and expected results:
  + Enter 10000 seconds.
  + Expected results: 2 hours, 46 minutes, 40 seconds.

Exercise 3

* Data requirements:
  + Problem input: profit on chips, profit on burgers, hamBurgersSold (int) and chipsSold (int).
  + Problem output: Total profit.
  + Formula: chipsSold\*chipsProfit + hamburgersSold\*hamburgersProfit / 100 (and rounded to two decimal places.
* Algorithm:
  + Enter integers for chips sold and burgers sold and place them in variables.
  + Create variables for individual profit on chips and burgers respectively using cost and price for each.
  + Create total profits for each (eg. chipsSold\*chipsProfit).
  + Add these total profits to get final total. Divide by 100 and round to 2 decimal places for monetary results.
* Test and expected results:
  + 45 chips, 56 burgers.
  + Expected results: €51.05.

Please find link to colab code: <https://colab.research.google.com/drive/1iKWrK2RQdJ7AeW_zIbGKYEjWDZOgjiMJ#scrollTo=9yPHa2t6fXMT&line=53&uniqifier=1>