Software Development Fundamentals

Lab 2

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Exercise 1

* Data requirements:
  + Problem input: Temperature in Fahrenheit degrees.
  + Problem output: Temperature in Celsius degrees.
  + Formula: Celsius = (5/9) \* (Fahrenheit-32).
* Algorithm:
  + Assign the degrees in Fahrenheit.
  + Convert degrees to Celsius.
  + Display degrees in Celsius.
* Test and expected results:
  + Enter degrees in Fahrenheit ie. 20, 100.
  + Expected results: 20F = -6.67C, 100F = 37.78C.

Exercise 2

* Data requirements:
  + Problem input: Yard width, yard length, house width, house length, yard area, house area, grass area.
  + Problem output: Time to cut grass (in seconds).
  + Formula: Grass area / 2.
* Algorithm:
  + Calculate house area and yard area.
  + Calculate grass area (yard – house).
  + Calculate time to cut grass using formula. Use this to output time in minutes.
* Test and expected results:
  + Enter respective widths and lengths (yard (50x20) and house (20x10)).
  + Expected results: 800m/2 = 400 seconds.

Exercise 3

* Data requirements:
  + Problem input: float1 and float2.
  + Problem output: sum, difference and product.
  + Formula: sum = float1 + float2, difference = float1-float2, product = float1 \* float2.
* Algorithm:
  + Enter numbers 1 and 2.
  + Calculate sum, difference and product.
  + Output results.
* Test and expected results:
  + Numbers 2.55 and 17.001.
  + Expected results: sum = 19.551, difference = 14.451, product = 43.35255.

Exercise 4

* Data requirements:
  + Problem input: distance in miles.
  + Problem output: distance in kilometers.
  + Formula: mile \* 1.60935.
* Algorithm:
  + Enter distance in miles (float).
  + Calculate km distance using formula and output result.
* Test and expected results:
  + 2.2 miles, 100 miles.
  + Expected results: 3.54km, 160.94km.

Please find link to Google Collab code:

<https://colab.research.google.com/drive/1iKWrK2RQdJ7AeW_zIbGKYEjWDZOgjiMJ#scrollTo=9yPHa2t6fXMT&line=1&uniqifier=1>