

CH 2: README.

LOCATIONS:

chapter2.py contains problems 1-5

futvala.py contains problem 6

7.py contains problem 7

10.py contains problem 10

11.py contains problem 11

1. Print an introduction to the temperature converter program. There was one input, the temperature in Celsius. The output is the temperature in Fahrenheit. There was no process to solving this problem, I only had to copy the code from the textbook (like asked) and add an introduction.
2. Print the average of three scores. The three inputs will be test scores. There will be one output which is the average of the three scores. I know that to calculate the average, I need to calculate the sum of the inputs and divide it by the number of inputs. That is how I went about solving problem 2.
3. Modify the *convert.py* code such that it iterates 5 times. This program works by having a for loop run around the code for problem 1. See problem one for input, process, and output.
4. Modify *convert.py* so it prints out the conversion of every 10 degrees from 0 to 100. There is no input into this function. There are 11 outputs (0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100). The process I came up with was to use the modulus function. The mod function calculates the remainder of a number divided by a number. I know that any multiple of 10 (or 0) will return 0 with the expression "<number> % 10," so I can use this to filter out the input of every number up to 100. Using mod, I can pass on the values that are multiples of 10 to the equation that ends up printing the result.
5. Modify the *futval.py* program so the user can specify the years. The inputs are years, apr, and the principal. The output is the value of the investment after a certain period of years. To solve this, I only had to change the loop to iterate to the number of years the user specified. The rest was given in the book.
6. Suppose you invest a fixed amount each year. Calculate the total value of the investment. The inputs are the investment per year, the number of years, and the apr. The output is the value of the investment at the end of the time period. To solve this, I thought about how apr works on a year to year basis. I know that the end of a period of time, the total interest percent will be apr^{year} . So I know that the value of an investment over a period of time is $\text{principal} * \text{apr}^{\text{year}}$. Because there are multiple investments, I can write a for loop that will run through this formula for each year. So it calculates the total value (over every year for the investment) of the investment and adds it to a total. That is how I solved this problem.
7. Calculate the compound interest where the user can specify the compounds per year. This problem is basically asking me to plug numbers into the compound interest formula. The inputs are the apr, principal, compounds per year, and the number of years. The output is the value of the investment at the end. To solve this, I remembered the compound interest formula from math. I can tell from the problem that to solve, I only

have to plug numbers into the formula. So I programmed the compound interest formula into python. Then, I just output the result after the formula.

10. Make a program that does a unit conversion of my choice. I made a program that converts kilometers to meters. The input is the distance in kilometers. The output is the distance in meters. To convert the numbers, I multiply the kilometers by 1000 because there are 1000m in one km.

11. Write an interactive python calculator. Make it run 100 times. The input is an expression and the output is the evaluation of the expression. My process of completing this problem has 3 parts. First, I have to get the input from the user, which is the expression. Second, I have to evaluate the input to find the value of the expression. Next, I need to print it all out. That is what I did and it worked.