
Data Structures and Algorithms in Python

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Study Guide: Hints to Exercises

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Chapter

2

Object-Oriented Programming

Hints

Reinforcement

- R-2.1)** Think of applications that could cause a death if a computer failed.
- R-2.2)** Consider an application that is expected to change over time, because of changing economics, politics, or technology.
- R-2.3)** Consider the File or Window menus.
- R-2.4)** Consider using get and set methods for accessing and modifying the values.
- R-2.5)** Read about exception handling in Chapter 1.
- R-2.6)** Read about exception handling in Chapter 1.
- R-2.7)** Read about default parameter values in Chapter 1.
- R-2.8)** Try to make the last card over its limit.
- R-2.9)** The code should look very similar to `--add--`.
- R-2.10)** Create a vector of the appropriate length and then set its coordinates.
- R-2.11)** You will need to define the `--radd--` method.
- R-2.12)** Create a vector of the appropriate length and then set its coordinates.
- R-2.13)** You should be able to reuse your implementation of `--mul--`.
- R-2.14)** Remember that you are returning a single number (not a vector).
- R-2.15)** Use the `isinstance` function to determine the operand type.
- R-2.16)** If we were to increase the stop value, one at a time, at what point would a new value appear in the range?
- R-2.17)** Review the definition of inheritance diagram, and begin your drawing with object as the highest box.
- R-2.18)** Your program should output 42, which Douglas Adams considers to be the answer to the ultimate question of life, universe, and everything.
- R-2.19)** Try it out.

- R-2.20)** Think about what happens when a new instance of class Z is created and when methods of class Z are called.
- R-2.21)** Think about code reuse.
- R-2.22)** Be especially careful when the two sequences do not have the same length.
- R-2.23)** Be especially careful when one sequence is a prefix of another.

Creativity

- C-2.24)** Create a separate class for each major behavior.
- C-2.25)** Use the `isinstance` function to determine the operand type.
- C-2.26)** Think about how the internal counter should be initialized.
- C-2.27)** Consider the difference between the target value and the start of the range, and the step size for that range.
- C-2.28)** The key is being able to accurately track how many times `charge` has been called thus far during a month.
- C-2.29)** You will need to keep track of how much payment has been received in the current month.
- C-2.30)** Make sure to test your modified code.
- C-2.31)** Model your solution after our other subclasses of `Progression`.
- C-2.32)** Use the `sqrt` function in the `math` module.

Projects

- P-2.33)** If you have not had calculus, you can look up the formula for the first derivative of a polynomial on the Internet.
- P-2.34)** You don't have to use GUI constructs; simple text output is sufficient, say, using X's to indicate the values to print for each bar (and printing them sideways).
- P-2.35)** Use three different classes, for each of the actors, and provide methods that perform their various tasks, as well as a simulator engine that performs the periodic operations.
- P-2.36)** When a fish dies, set its associated cell back to **None**.
- P-2.37)** Use random number generation for the strength field.
- P-2.38)** Create a separate class for each major behavior. Find the available books on the Internet, but be sure they have expired copyrights.
- P-2.39)** Look up the formulas for area and perimeter on the Internet.