Trey Wallace

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Prof. Md Ali

CIS 103 - Introduction to Programming

Written Assignment 3: Collections

Conceptual Questions

1. Explain what a list is in Python. How can you add and remove elements from a list?

A list in python is a sequence of items or objects. It uses [ ] and commas and is mutable. You can add something to a list by using the built-in functions insert or append. Inversely, to remove something you can use the functions remove or pop.

1. What is a tuple, and how is it different from a list? When would you use a tuple over a list?

A tuple is an immutable version of a list. Like the list it contains items however the difference is that tuples are immutable and cannot be changed once established. You could use a tuple when you need to make your data stored more secure and efficient

1. What is a set in Python? What are its key features?

A set is a collection type used to store multiple items in a single variable. Some key features are that they are unordered, immutable and cannot accept duplicates.

1. Explain how a dictionary works in Python. What are keys and values? Provide an example.

Dictionaries are used to store data values in a key: value pair system. You create them by defining them and using {}. you define the key and the value. The syntax requires the key to be in quotes and the values (if a string to be in quotes) to be without since they are usually integers. Key describes the item and Values assigns its meaning sometimes it’s a number sometimes it’s a word. An example would be a physical dictionary. The book is the storage, the words are the keys, and the values are the meanings that define the words.

Reflection:  
1. Which Python collection type (list, tuple, set, or dictionary) did you find most useful for storing data in these exercises? Why?

For this exercise I found the list most useful. Making a list, adding and removing things from or to it is an easier process and straight forward. At lease a hair more straight forward than the others as the list is mutable and it’s easy to call things from that list.

2. In your opinion, when would it be better to use a tuple instead of a list?

I think it depends on what you are doing. There are situations where a list is more appropriate.

3. What did you learn from attempting to add a duplicate item to a set? How does this behavior affect how you would use sets in programming?

I learned that sets cannot add duplicates, however it does not give an error message but will still print what you ask. This would mean that it probably shouldn’t be used with user input as the user could end up creating a duplicate.