

Exercises on Data Structures in Python

Ali ZAINOUL
ali.zainoul.az@gmail.com

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Exercise 1: Lists

Write a Python program that does the following:

1. Initializes an empty list.
2. Asks the user to input a series of integers, one at a time.
3. Appends each integer to the list.
4. Prints the list.
5. Prints the sum of the integers in the list.

Exercise 2: Tuples

Write a Python program that does the following:

1. Initializes two tuples, each containing five integers.
2. Prints the first element of each tuple.
3. Prints the last three elements of each tuple.
4. Prints the concatenation of the two tuples.

Exercise 3: Dictionaries

Write a Python program that does the following:

1. Initializes an empty dictionary.
2. Asks the user to input a series of key-value pairs, one at a time.
3. Adds each key-value pair to the dictionary.
4. Prints the dictionary.
5. Asks the user to input a key, and prints the value associated with that key, if it exists in the dictionary.

Exercise 4: Stacks

Write a Python program that does the following:

1. Initializes an empty list.
2. Asks the user to input a series of strings, one at a time.
3. Pushes each string onto the stack (i.e., appends it to the end of the list).
4. Asks the user whether they want to pop an item off the stack (i.e., remove the last item from the list). If they do, pops the item and prints it. If they don't, asks again.

Exercise 5: Queues

Write a Python program that does the following:

1. Initializes an empty list.
2. Asks the user to input a series of strings, one at a time.
3. Enqueues each string (i.e., appends it to the end of the list).
4. Asks the user whether they want to dequeue an item (i.e., remove the first item from the list). If they do, dequeues the item and prints it. If they don't, asks again.

Good luck ♥