Quiz 07

Due Mar 11 at 11:59pm **Points** 10 **Questions** 5 **Time Limit** None

Instructions

Answer the following questions in your own words. Do NOT simply cut and paste the information from the slides. You will receive a score of 0 if you copy the prose from the slides.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	1,159 minutes	10 out of 10

Correct answers are hidden.

Score for this quiz: **10** out of 10
Submitted Mar 11 at 6:44pm
This attempt took 1,159 minutes.

Question 1

2 / 2 pts

A Temporary Employment Agency hires and fires employees frequently using the strategy where the person hired most recently is the first person fired. You are responsible for writing a function to track when employees are hired and identifying the next person to be fired. Which builtin Python container would you use (list, tuple, dict, or set)? Which methods of that container would you use?

Your Answer:

To perform this operation we'll need to implement STACK which works on the basis of LIFO(Last In First Out) and to perform this operation we'll need to implement it using List.

And to perform this operation using list I would use list.append() to add the employee name at last and to remove the name from the beginning I'll

use list.pop().

Use a stack (LIFO) which can be implemented with a list, and either

list.insert(0, value), and list.pop(0) # insert at the beginning, pop from the beginning

or

list.append(value) and list.pop() # append at the end and pop from the end

Question 2

2 / 2 pts

You are asked to write a program that reads an arbitrary file and identify the 10 most frequently used words. Which Python container would you choose and why?

Your Answer:

The python container we can use is the function Counter() because it can count the occurrences of letters or words in a given string.

defaultdict(int) or Counter()

Question 3

2 / 2 pts

Explain how memoization works and how it can improve performance for some algorithms. Under what conditions does memoization help? Under what conditions, does it **not** offer much benefit?

Your Answer:

Memoization is the process to avoid recalculation and thus it increases the speed of calculation by saving time not recalculating it. It works in a way that it stores the result of a function and saves time not recalculating it if the calculation is to be done on the same elements.

Memoization can done during some programs where the function contains repetitive calls, for example: Factorial.

Memoization doesn't offer much benefit if the function doesn't have repetitive calls or has to compute a value less number of times.

Memoization stores intermediate results to avoid recalculation. This is very helpful for problems where the same request may be made many times, e.g. fibonacci, factorial, etc. Memoization does not help if the solution computes a value a small number of times.

Question 4

2 / 2 pts

You need to write a function that manages a customer waiting list. As the customer enters the store, she adds her name to the waiting list. When an employee becomes available, the employee identifies the customer who has been waiting the longest and then removes that customer's name from the list, and helps the customer. Which builtin Python data structure is most appropriate (list, tuple, dict, or set)? Which methods would you use?

Your Answer:

Here we'll need to implement a Queue, thus the built-in Python data structure which will be most appropriate will be using List.

In List to perform queue operations we can use list.insert() or list .append() to add the customer's name and the function such as list.pop() can be used to remove the name of the customer from the waiting list.

Use a queue (FIFO) which can be implemented with a list, and either

list.insert(0, value), and list.pop() # insert at the beginning, pop from the end

or

list.append(value) and list.pop(0) # append at the end and pop from the beginning

Question 5

2 / 2 pts

Describe a situation where lists are not appropriate but tuples are a good match.

Your Answer:

When you need to store a large dataset which shouldn't be changed then at that time you can use Tuples over lists because Tuples are immutable and the values can't be changed also if tuples are used the other developers will come to know that those values shouldn't be changed. When we need to group multiple values in a single element or need to swap values. Tuples are kind of lists that are immutable.

Tuples can be used as the key in a dictionary but lists can't be used a the key for a dictionary

Quiz Score: **10** out of 10