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### This reflection is to be completed individually (or with your pair-partner), though consultations with TAs and classmates are encouraged as long as they are appropriately acknowledged.

### This assignment was in’tended for you to work with stack and queues in order to play the game of "War". Although there are several data structures that CAN be used to implement the game, there are certain ones that are the most appropriate.

### This reflection document is intended to help you think about how to decide when a stack, queue or other data structure is best for a specific need in the program. For each pile listed below, which data structure did you decided to use and what was the reason for the choice? Do not use the hints in the assignment webpage as an explanation, but instead focus on the operations that you needed and how the data structure supports them.

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| 1. dealing pile   I used a stack for this. When dealing out cards you take from the top of the deck which is the last card that was placed in the pile. Therefore the last in will be the first out.   1. a player's playing pile   I used a stack for this. When playing a card you take from the top of the pile which is the last card that was placed in the pile. Therefore the last in will be the first out.   1. a player's storage pile   I used a queue. The pile should retain the order that it was in when it was won. Therefore the first in will be the first out.   1. the opponent's playing pile   I used a stack for this. When playing a card you take from the top of the pile which is the last card that was placed in the pile. Therefore the last in will be the first out.   1. the opponent's storage pile   I used a queue. The pile should retain the order that it was in when it was won. Therefore the first in will be the first out.   1. loot pile   I used a stack. The cards would be faced up when they are placed in the pile and would need to be essentially face down when they enter a storage pile. Having the last in be the first out allows you to pseudo flip them over and retain the same order they were in. |

Precisely describe what the data structure should be for the initial pile that needs to be shuffled, and why it may or may not be different from the data structure for the dealing pile.

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| In my program the dealingPile was the pile I initially shuffled. I had a list of a standard 0-9 deck and then I used that to create the dealingPile which I shuffled and then dealt to each playing pile. Therefor the initial pile that was shuffled is the dealing pile. |

Most design choices have advantages as well as disadvantages. Describe the primary advantages of using a stack or a queue data structure, which is admittedly restricted in how you would use it, versus a Python list for the last three piles in the list above.

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| The advantage is that it creates a black box for both data structures. It allows you to apply user friendly commands for these data structures such as enqueue, dequeue, and push. The underlying structure for both stack and queue is python lists, so a python list can do everything the stack and queue can do, however you would have to type out a lot of extra code for the implementation of these instances of stack and queue.  In essence, it cleans up the code. |

Describe at least one disadvantage of using a stack or a queue data structure, versus a Python list for the last three piles in the list above.

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| It does not allow a user as easy access to the commands of a python list. |

Imagine you are in a hackathon where you are restricted to using a single data structure for all of the piles and you have to choose between using all stacks and using all queue. Explain whether you would choose all stacks or all queues if you want to have the smallest impact on how the game functioned? Explain what changes and why you made the choice you did.

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| I would use all stacks. The only change would be that the order of cards in the playing pile would be reversed when they come from the storage pile. If I were to choose only queues 4 piles would be affected instead of just 2 piles. |