CPS3320W01

Project 2\_3\_Collection

Yue He

1063785

Write-up

1. Explain its central purpose: Collections in Python are containers that are used to store collections of data, for example, list, dict, set, tuple etc. These are built-in collections. Several modules have been developed that provide additional data structures to store collections of data. One such module is the Python collections module. Python collections module was introduced to improve the functionalities of the built-in collection containers. Counter is a subclass of dictionary object. The Counter() function in collections module takes an iterable or a mapping as the argument and returns a Dictionary. In this dictionary, a key is an element in the iterable or the mapping and value is the number of times that element exists in the iterable or the mapping. The deque is a list optimized for inserting and removing items.
2. describes useful and/or interesting ways in which it might be used (with at least two practical examples): Collections are important in mathematics, so as a mathematics student, I was very interested in this. I chose count and deque as my two examples. In the first example, I created a list of fruits firstly. Secondly, got the item at the end of the list and deleted it and got the output of the changed collection. The efficiency of inserting and deleting data in the list is very low. Then I created a deque of fruits and added one item in the beginning of the deque and another one item at the end. Then I deleted the first item in this deque. Finally, I added one deque at the beginning and one at the end and got the output of final deque. Deque is an efficient two-way list of insert and delete operations. The other example was about count. Firstly, I used loop to get the number of times of each word appears in the collection. Then I performed several arithmetic and set operations (+, -, |, &) on the two new numeric collections and got the output. The operations of collections as the same as normal operations.
3. provides a high-level overview of the different functions included in the library as found in its official documentation (and provide a link to the documentation): namedtuple function is used to create a custom tuple object, and specifies the number of tuple elements, and can refer to an element of tuple with attributes instead of indexes; appendleft () and popleft () functions can be used to add or delete elements to the head of deque very efficiently; default function can be used when the referenced key does not exist, return a default value; OrderedDict function: key will be arranged in the order of insertion. Implement a FIFO (First In First Out) dict and when the capacity exceeds the limit, delete the earliest added Key first; Counter function is a simple counter.