Python help sheet 2: Lists, Tuples, Files, Dictionaries, Sets

1. Creating an empty list: `myList = []`
2. Adding value to the end of a list variable *myList*: `myList.append(10)`
3. Getting the length of a list variable *myList:* `len(myList)`
4. Accessing and slicing in *myList:* `myList[i]`, `myList[i:j+1]`
5. Return and remove the last value in a list variable *myList*: `myList.pop()`
6. Iterating (looping) through a list:
   - For loop in a range from 0 to the length of myList:
     ```
     for i in range(len(myList)):
         print(myList[i])
     ```
   - For loop item-by-item:
     ```
     for item in myList:
         print(item)
     ```
   - While loop:
     ```
     i = 0
     while i < len(myList):
         print(myList[i])
         i += 1
     ```
7. Creating a tuple: `myTup = ('Mary', 'Clarkson', 28)`
8. 'Escape' characters in Python

Code	Result
`\n`	New line
`\t`	Tab
`\\`	Backslash
`\'`	Single Quote

9. Create a file cursor for writing in: `myfile = open('myfile.txt', 'w')`
10. Write into a file buffer with inserting values:
    ```
    myfile.write('First Name: {0}\nLast Name: {1}\n
            Age: {2}'.format(myTup[0], myTup[1], myTup[2]))
    ```
    OR
    ```
    myfile.write(f'First Name: {myTup[0]}\nLast  Name:
                          {myTup[1]}\nAge: {myTup[2]}')
    ```
    OR
    ```
    myfile.write('First Name: %s\nLast Name: %s\n
            Age: %d' % myTup)
    ```

11. Create a file cursor for writing to the end of an existing file :
```
myfile = open('myfile.txt', 'a')
```

12. Always close when done writing or reading: `myfile.close()`

13. Create a file cursor for reading: `myfile = open('myfile.txt', 'r')`

14. Store the content into a string variable: `myString = myfile.read()`

15. Store the content line-by-line into a list variable:
```
myList = myfile.readlines()
```

16. Reset file cursor to the beginning of the file: `myfile.seek(0)`

17. Create an empty dictionary: `myDict = {}`

18. Adding values into a dictionary:
    a. `myDict['Mary'] = 28`
    b. `myDict.update({'John': 27, 'Abigail': 29})`

19. Removing a value from a dictionary: `del myDict['Mary']`

20. Get the list of keys: `myDict.keys()`

21. Get the list of values: `myDict.values()`

22. Iterate over a dictionary (example):
```
for key in myDict:
   print(myDict[key])
```

23. Create an empty set: `mySet = set()`

24. Create an non-empty set: `mySet = {1,2,3}` or `mySet = set([1,2,3])`

25. Adding and removing values into or from a set: `mySet.add(1)`,
`mySet.remove(1)`, `mySet.discard(1)` (do nothing if 1 not in the set)

26. Union of two sets: `mySet.union(otherSet)`

27. Intersection of two sets: `mySet.intersection(otherSet)`

28. All elements that are in *mySet* but not in *otherSet*: `mySet.difference(otherSet)`