**Difference between Mutable and Immutable objects in python**

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| **Mutable** | **Immutable** |
| 1. Mutable data types are the objects that can be modified and altered 2. We can Add new elements, remove an element and replace an element even after creating an object. 3. The mutable objects in Python are:   list, dictionary, set, array | 1. Immutable data types are the objects that cannot be modified and altered 2. we can’t add new elements, remove an element, replaces an element after creating an object. 3. The immutable data types in Python are: Tuple, int, float, complex |

**Difference between Append and Extend**

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| **Append :** | **Extend :** |
| 1. It adds its argument as a single element to the end of a list. The length of the list itself will increase by one.   Example : l = ['geeks', 'for']  l.append('geeks')  print l  o/p : ['geeks', 'for', 'geeks']   1. **Append** has constant time complexity O(1). | 1. It Iterates over its argument and adding each element to the list and extending the list. The length of the list increases by number of elements in it’s argument.   Example : L1 = [‘geeks’, ’for’]  L2 = [1,2,3,4]  L1.extend(L2)  Print(L1)  o/p : [‘geeks’ ,‘for’, 1,2,3,4]     1. **Extend** has time complexity of O(k). Where k is the length of list which need to be added. |

**Difference between List and Tuple**

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| **List** | **Tuple** |
| 1. We can alter list | 1. We can’t alter tuple |
| 1. Insert and pop are available | 1. Those are not available |
| 1. Consumes more memory. | 1. Consumes less energy |
| 4. Unexpected errors and changes can easily occur in lists. | 4. Unexpected errors and changes rarely occur in tuples. |
| 5. List consists of variable length | 5. Tuples have a fixed length |

**Difference between List and Array**

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| **List** | **Array** |
| 1. It can consist of elements belonging to different data types 2. Cannot directly handle arithmetic operations 3. Can be nested to contain different type of elements 4. Preferred for shorter sequence of data items 5. Greater flexibility allows easy modification of data 6. Consume larger memory for easy addition of elements | 1. Only consists of elements belonging to the same data type 2. Can directly handle arithmetic operations 3. Must contain either all nested elements of same size 4. Preferred for longer sequence of data items 5. Less flexibility since addition, deletion has to be done element wise 6. Comparatively more compact in memory size |

**Difference between Dictionary and Set**

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| **Dictionary** | **Set** |
| 1. Dictionary is a non-homogeneous data structure which stores key value pairs. 2. Dictionary is ordered 3. Dictionary is mutable. But Keys are not duplicated. 4. Dictionary will not allow duplicate elements but keys are not duplicated | 1. Set data structure is non-homogeneous data structure but stores in single row 2. Set is unordered 3. Set is mutable i.e we can make any changes in set. But elements are not duplicated. 4. Set will not allow duplicate elements |

**Difference between Index and Find**

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| **Index** | **Find** |
| 1. It is used to return of first index of the value and it give error if object not found | 1.It is used to find first index of the value and it will give -1 if it is not found |

**Difference b/w partition and split**

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| Partition | Split |
| 1. Partition returns a tuple  2 . The size of tuple returned by a partition is fixed and is always 3  3 . For Partition an argument is compulsory, else returns an error | 1. Split returns a list  2 . The size of list returned by a Split functions depends on the seperator and the max split size which is again optional  3. Split can work without any arguments, which by default takes spaces and '\n' as default seperator |

**Why do we prefer Dictionary instead of list?**

**A: 1.** It is **more** efficient to use a dictionaryfor lookup of elements because it takes less time to traverse in the dictionary than a list.

2. we use dictionaries rather than list because dictionary talks about information but list can not talks about information