2nd Feb Assignment

February 4, 2023

1 Assignment 3

Q1. What are the characteristics of the tuples? Is tuple immutable?

Ans.The major characteristics of tuples are:

- Tuples is a collection of items.
- In tuples, items are unordered.
- Tuples are immutable
- Tuple items are indexable
- Tuple allows duplicate values

Q2. What are the two tuple methods in python? Give an example of each method. Give a reason why tuples have only two in-built methods as compared to Lists.

Ans. The two tuple methods in python are count and index The tuples has only two in-built methods as compared to lists because tuples are immutable or unchangeable.

[1]:
```
tuple1=(1,2,3,'jp',3,'vj',3.5,True)
```

[2]:
```
tuple1
```

[2]:
```
(1, 2, 3, 'jp', 3, 'vj', 3.5, True)
```

[3]:
```
#Example of count method in tuple
#count the number of 3 in tuple1
tuple1.count(3)
```

[3]:
```
2
```

[4]:
```
#Example of index method in tuple
#find the index of value 3 in tuple1
tuple1.index(3)
```

[4]:
```
2
```

Q3. Which collection datatypes in python do not allow duplicate items? Write a code using a set to remove duplicates from the given list.

- List = [1, 1, 1, 2, 1, 3, 1, 4, 2, 1, 2, 2, 2, 3, 2, 4, 3, 1, 3, 2, 3, 3, 3, 4, 4, 1, 4, 2, 4, 3, 4, 4]

Ans.Set in python don't allows duplicate items.

[5]:
```
# code using a set to remove duplicates from the given list.
List1 = [1, 1, 1, 2, 1, 3, 1, 4, 2, 1, 2, 2, 2, 3, 2, 4, 3, 1, 3, 2, 3, 3, 3,␣
↪4, 4, 1, 4, 2, 4, 3, 4, 4]
```

[6]:
```
set(List1)
```

[6]:
```
{1, 2, 3, 4}
```

Q4. Explain the difference between the union() and update() methods for a set. Give an example of each method.

Ans.The difference between union() and update method for a set are:

- Union method returns the all the elements present in set1 and set2 without updating set1 and set2.
- Update method add the value of a set to another set and update the set.

[8]:
```
set1={1,2,3,4}
set2={2,3,4,5}
```

[9]:
```
set1
```

[9]:
```
{1, 2, 3, 4}
```

[10]:
```
set2
```

[10]:
```
{2, 3, 4, 5}
```

[11]:
```
#Example of union() method
set1.union(set2)
```

[11]:
```
{1, 2, 3, 4, 5}
```

[12]:
```
set1
```

[12]:
```
{1, 2, 3, 4}
```

[13]:
```
set2
```

[13]:
```
{2, 3, 4, 5}
```

[17]:
```
#Example of update() method
set1.update(set2) #update value of set1
```

[18]:
```
set1
```

[18]:
```
{1, 2, 3, 4, 5}
```

[19]:
```
set2
```

[19]:
```
{2, 3, 4, 5}
```

Q5. What is a dictionary? Give an example. Also, state whether a dictionary is ordered or unordered.

Ans.The dicitonary is a datastructure in python which stores the collection of key-value pairs. The dictionary is ordered and not allow duplicates.

[20]:
```
#Example of dictionary
#create a dictionary d
d={'Name':'Jp','Class':'3rd year','Number':37628767}
```

[21]:
```
type(d)
```

[21]:
```
dict
```

Q6. Can we create a nested dictionary? If so, please give an example by creating a simple one-level nested dictionary.

Ans.Yes we can create a nested dictionary.

[22]:
```
#Example of nested dictionary
#create a nested dictionary d1
d1={'name':{'First':'Jp','Last':'Karwa'},'class':{'year':3,'semester':5}}
```

[23]:
```
type(d1)
```

[23]:
```
dict
```

Q7. Using setdefault() method, create key named topics in the given dictionary and also add the value of the key as this list [‘Python’, ‘Machine Learning’, ‘Deep Learning’]

- dict1 = {‘language’ : ‘Python’, ‘course’: ‘Data Science Masters’}

[24]:
```
#given dictionary
dict1 = {'language' : 'Python', 'course': 'Data Science Masters'}
```

[27]:
```
dict1.setdefault('topics',['Python','Machine Learning','Deep Learning'])
```

[27]:
```
['Python', 'Machine Learning', 'Deep Learning']
```

[28]:
```
dict1
```

[28]:
```
{'language': 'Python',
 'course': 'Data Science Masters',
 'topics': ['Python', 'Machine Learning', 'Deep Learning']}
```

Q8. What are the three view objects in dictionaries? Use the three in-built methods in python to display these three view objects for the given dictionary.

- dict1 = {'Sport': 'Cricket' , 'Teams': ['India', 'Australia', 'England', 'South Africa', 'Sri Lanka', 'New Zealand']}

Ans.The three view objects in dictionaries are:

- Keys
- Values
- Items

[29]:
```
dict1 = {'Sport': 'Cricket' , 'Teams': ['India', 'Australia', 'England', 'South␣
↪Africa', 'Sri Lanka', 'New Zealand']}
```

[30]:
```
#Method to display keys
dict1.keys()
```

[30]:
```
dict_keys(['Sport', 'Teams'])
```

[31]:
```
#Method to displat values
dict1.values()
```

[31]:
```
dict_values(['Cricket', ['India', 'Australia', 'England', 'South Africa', 'Sri
Lanka', 'New Zealand']])
```

[32]:
```
#Method to displat items
dict1.items()
```

[32]:
```
dict_items([('Sport', 'Cricket'), ('Teams', ['India', 'Australia', 'England',
'South Africa', 'Sri Lanka', 'New Zealand'])])
```