Python Programming

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Set

```
thisset = {"apple", "banana", "cherry"}
print(thisset)

# Access Set Items
thisset = {"apple", "banana", "cherry"}

for x in thisset:
    print(x)

print("banana1" in thisset)
```

Set

```
# Add Set Items

thisset = {"apple", "banana", "cherry"}
thisset.add("orange")
print(thisset)

thisset = {"apple", "banana", "cherry", "mango"}
tropical = {"pineapple", "mango", "papaya"}
thisset.update(tropical)
print(thisset)
```

Set

```
# Remove Item
thisset = {"apple", "banana", "cherry"}
thisset.remove("banana")
print(thisset)

thisset.discard("banana")
print(thisset)

x = thisset.pop()
print(x)
print(thisset)
```

Set

```
thisset = {"apple", "banana", "cherry"}
thisset.clear()
print(thisset)

a = set()
print(a)

del thisset
print(thisset)
```

Set

```
# Loop Sets
thisset = {"apple", "banana", "cherry"}
for x in thisset:
    print(x)

# Join Two Sets
set1 = {"a", "b" , "c"}
set2 = {1, 2, 3}
set3 = set1.union(set2)
print(set3)
print(set1)
```

Set

```
set1 = {"a", "b" , "c"}
set2 = {1, 2, 3}

set3 = set2.update(set1)
print(set2)
print(set3)
print(set1)
```

Set

```
# Keep ONLY the Duplicates
x = {"apple", "banana", "cherry"}
y = {"google", "microsoft", "apple"}

z = x.intersection_update(y)
print(x)
print(z)

z = x.intersection(y)
print(z)
print(x)
```

Dictionary

```
# Dictionary Items
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  22: 1964
}
print(thisdict)

# Dictionary Length
print(len(thisdict))
```

Dictionary

```
# Dictionary Items - Data Types
thisdict = {
  "brand": "Ford",
  "electric": False,
  "year": 1964,
  "colors": ["red", "white", "blue"]
}
# print(thisdict)
print(thisdict["colors"])

print(type(thisdict))
```

Dictionary

```
# Accessing Items
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
x = thisdict["model"]
print(x)

x = thisdict.get("model")
print(x)
```

Dictionary

```
# Get Keys
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
x = thisdict.keys()
print(x)
```

Dictionary

```
car = {
"brand": "Ford",
"model": "Mustang",
"year": 1964
}
x = car.keys()

print(x) #before the change
car["color"] = "white"
# print(car)
print(x) #after the change
```

Dictionary

```
# Get Values
car = {
"brand": "Ford",
"model": "Mustang",
"year": 1964
}
x = car.values()
print(x) #before the change
car["year"] = 2020
print(x) #after the change
```

Dictionary

```
car = {
"brand": "Ford",
"model": "Mustang",
"year": 1964
}
x = car.values()
print(x) #before the change
car["color"] = "red"
print(x) #after the change
```

Dictionary

```
# Get Items

car = {
"brand": "Ford",
"model": "Mustang",
"year": 1964
}
x = car.items()
print(x) #before the change
car["year"] = 2020
print(x) #after the change
```

Dictionary

```
car = {
"brand": "Ford",
"model": "Mustang",
"year": 1964
}
x = car.items()
print(x) #before the change
car["color"] = "red"
print(x) #after the change
```

Dictionary

```
# Check if Key Exists

thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
if "model" in thisdict:
    print("Yes, 'model' is one of the keys in the thisdict dictionary")
else:
    print('Not exist')
```

Dictionary

```
# Change Values
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisdict)
thisdict["year"] = 2018
print(thisdict)
```

Dictionary

```
# Update Dictionary
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
thisdict.update({"year": 2020})
print(thisdict)
```

Dictionary

```
# Adding Items
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
thisdict["color"] = "red"
print(thisdict)

thisdict.update({"color": "red"})
print(thisdict)
```

Dictionary

```
# Removing Items
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
thisdict.pop("model")
print(thisdict)
```

Dictionary

```
thisdict = {
  "brand": "Ford",
  "year": 1964,
  "model": "Mustang"
}
thisdict.popitem()
print(thisdict)

del thisdict["model"]
print(thisdict)

del thisdict
print(thisdict)
```

Dictionary

```
# Loop Through a Dictionary
thisdict = {
  "Name": "PKUSZ",
  "ID": "001",
  "Year": 2001
}

for x in thisdict:
    print(x)
```

Dictionary

```
thisdict = {
  "Name": "PKUSZ",
  "ID": "001",
  "Year": 2001
}
# print(thisdict["Year"])
for x in thisdict:
    print(thisdict[x])

for x, y in thisdict.items():
    print(x, y)
```

Dictionary

```
# Copy a Dictionary
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
mydict = thisdict.copy()
print(mydict)

mydict["year"]  = 2021
print(mydict)
print(thisdict)
```

Arguments (args)

```
def my_function(fname):
    print(fname + " Refsnes")

my_function("Emil")
my_function("Tobias")
my_function("Linus")

def my_function(fname, lname):
    print(fname + " " + lname)

my_function("Emil", "Refsnes")
```

Arbitrary Arguments, *args

```
def my_function(*kids):
    print(len(kids))
    print("The youngest child is " + kids[2])

my_function("Emil", "Tobias", "Linus")
```

Arbitrary Keyword Arguments, **kwargs

```
def my_function(**kid):
    print(type(kid))
    print("His last name is " + kid["lname"])

my_function(fname = "Refsnes", lname = "Zhang")
```

Lambda

```
# lambda arguments : expression

x = lambda a : a + 10
print(x(5))

x = lambda a, b, c : a + b + c
print(x(5, 6, 2))
```

Lambda

```
def myfunc(n):
    return lambda a : a * n

mydoubler = myfunc(2)
mytripler = myfunc(3)

print(mydoubler(11))
print(mytripler(11))
```

Homework1

Given two strings s and t, return true if t is an anagram of s, and false otherwise. (Using Dictionary)

Example :
Input: s = "anagram", t = "nagaram"
Output: True
print(IsAnagram(s,t))

```
def IsAnagram(s,t):

    return True or False
```

Homework2

Given a non-negative integer x, compute and return the square root of x. Since the return type is an integer, the decimal digits are truncated, and only the integer part of the result is returned.

Note: You are not allowed to use any built-in exponent function or operator, such as pow(x, 0.5) or x ** 0.5.

Example:
Input: x = 8
Output: 2

```
def MySqrt(x):

    return xxx
```

Questions?