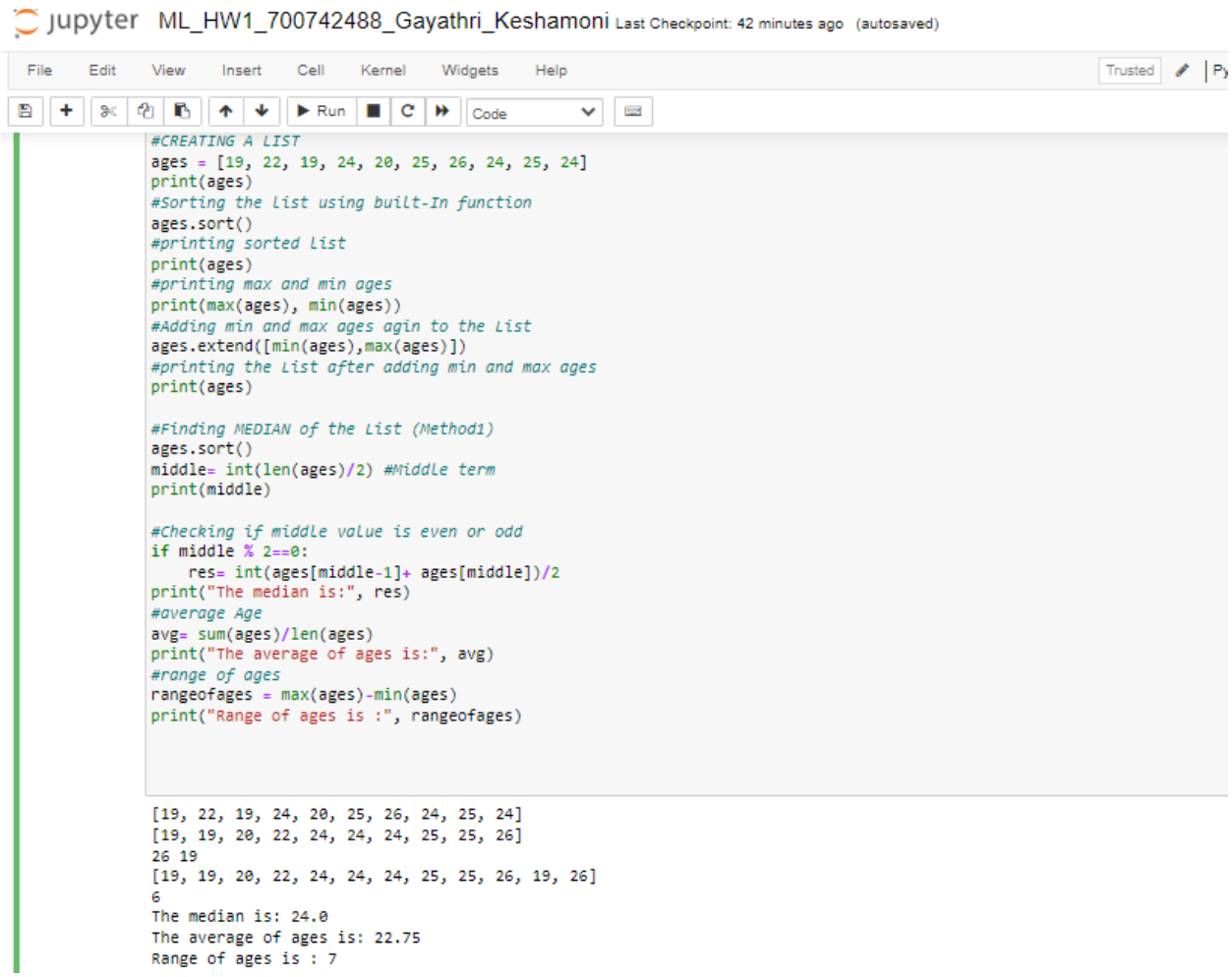
ML_ASSIGNMENT1

QUESTION-1



Explanation:

- Here created a list , named as ages.
- To sort the list , used a function called sort(), which sorts the list in ascending order by default.
- max() and min() methods are used to fetch maximum and minimum values from the list.
- ages.extend(), adds the elements of a list to the end of the list.
- Len() method used to get the length of the list.

QUESTION2

Explanation:

- Here created a dictionary and named as dog with keys and empty values.
- Created another dictionary, named as student with keys and values.
- Type(dict) method used to know the type of an object
- List() function creates a list object. It takes any iterable(dictionary,tuple,set) as a parameter and returns a list.
- So in this question we used list() to get the keys of dictionary as a list.

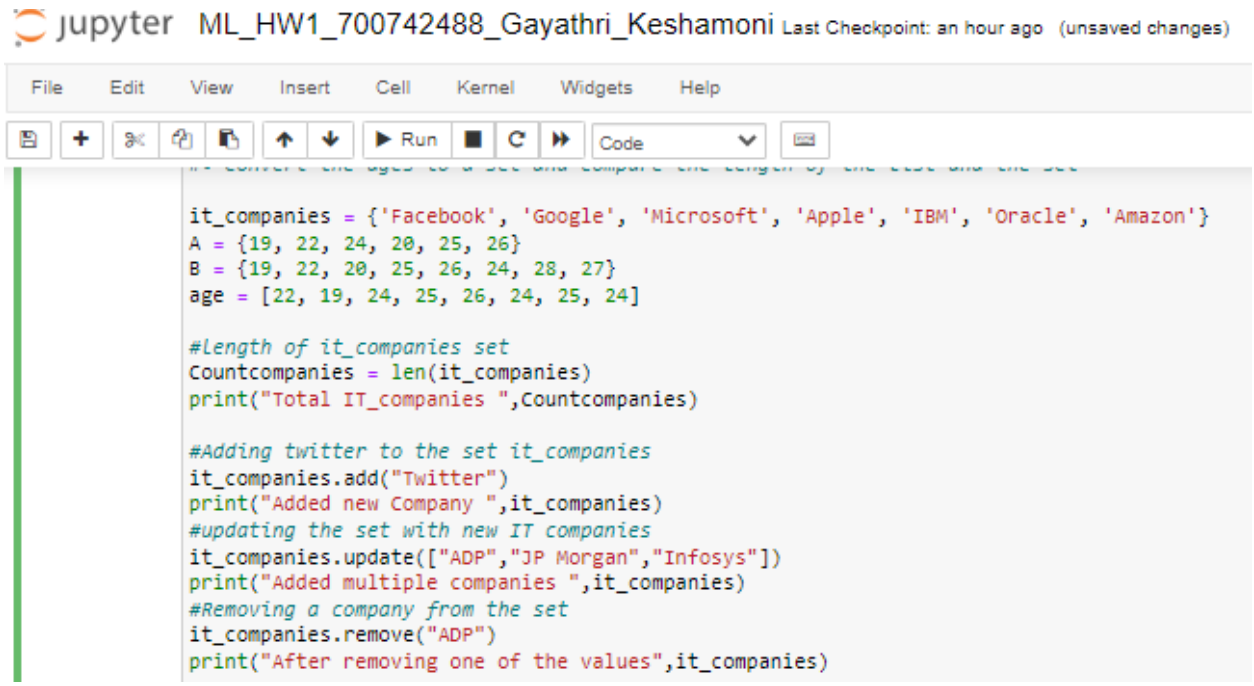
Question 3

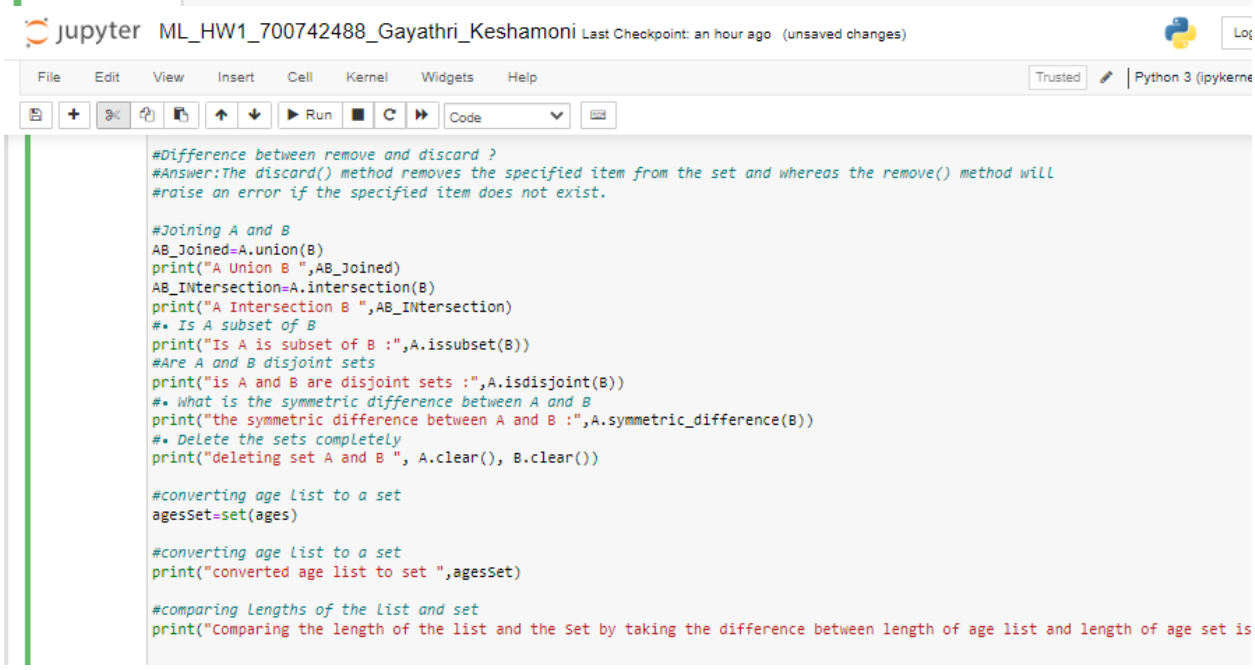
```
In [60]: #Question 3
         #Create a tuple containing names of your sisters and your brothers (imaginary siblings are fine)
         #• Join brothers and sisters tuples and assign it to siblings
         #• How many siblings do you have?
         #• Modify the siblings tuple and add the name of your father and mother and assign it to family_members

         #Brothers tuple
         brothers=("B1","B2","B3","B4")

         #Sisters tuple
         sisters=("S1","S2")

         #Joining tuples and assigning it to siblings tuple
         siblings=brothers+sisters
         print(siblings)

         #Length of tuple
         print("I have ",len(siblings), " siblings")

         #Modifying the siblings tuple by adding parent names and assigning it to a new tuple familymembers
         siblings=siblings+("RadhaKrishna","Sadguna")

         #Assigning modified siblings tuple to familymembers tuple
         familymembers=siblings
         print(familymembers)

         ('B1', 'B2', 'B3', 'B4', 'S1', 'S2')
         I have  6  siblings
         ('B1', 'B2', 'B3', 'B4', 'S1', 'S2', 'RadhaKrishna', 'Sadguna')
```

Explanation:

- Here tuples are created, named as brothers and sisters,
- Tuples are immutable, so cannot be added/changed/remove items. But we can combine tuples to form a new tuple and that can be done by using addition operation i.e concatenation. Using this technique , combined two tuples and created new tuple named as siblings. Then concatenated father and mother names to this tuple.
- Later assigned updated siblings tuple to new tuple called familymembers.

Question 4


jupyter ML_HW1_700742488_Gayathri_Keshamoni Last Checkpoint: an hour ago (unsaved changes)
File Edit View Insert Cell Kernel Widgets Help
Run Code
it_companies = {'Facebook', 'Google', 'Microsoft', 'Apple', 'IBM', 'Oracle', 'Amazon'}
A = {19, 22, 24, 20, 25, 26}
B = {19, 22, 20, 25, 26, 24, 28, 27}
age = [22, 19, 24, 25, 26, 24, 25, 24]
#Length of it_companies set
Countcompanies = len(it_companies)
print("Total IT_companies ",Countcompanies)
#Adding twitter to the set it_companies
it_companies.add("Twitter")
print("Added new Company ",it_companies)
#updating the set with new IT companies
it_companies.update(["ADP","JP Morgan","Infosys"])
print("Added multiple companies ",it_companies)
#Removing a company from the set
it_companies.remove("ADP")
print("After removing one of the values",it_companies)


jupyter ML_HW1_700742488_Gayathri_Keshamoni Last Checkpoint: an hour ago (unsaved changes)
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Trusted Python 3 (ipykerne
Run Code
#Difference between remove and discard ?
#Answer:The discard() method removes the specified item from the set and whereas the remove() method will
#raise an error if the specified item does not exist.
#Joining A and B
AB_Joined=A.union(B)
print("A Union B ",AB_Joined)
AB_INtersection=A.intersection(B)
print("A Intersection B ",AB_INtersection)
#• Is A subset of B
print("Is A is subset of B :",A.issubset(B))
#Are A and B disjoint sets
print("is A and B are disjoint sets :",A.isdisjoint(B))
#• What is the symmetric difference between A and B
print("the symmetric difference between A and B :",A.symmetric_difference(B))
#• Delete the sets completely
print("deleting set A and B ", A.clear(), B.clear())
#converting age list to a set
agesSet=set(ages)
#converting age list to a set
print("converted age list to set ",agesSet)
#comparing lengths of the list and set
print("Comparing the length of the list and the Set by taking the difference between length of age list and length of age set is

```
Total IT_companies  7
Added new Company  {'IBM', 'Amazon', 'Microsoft', 'Google', 'Oracle', 'Apple', 'Twitter', 'Facebook'}
Added multiple companies  {'IBM', 'Amazon', 'JP Morgan', 'ADP', 'Oracle', 'Apple', 'Twitter', 'Facebook', 'Infosys', 'Microsof
t', 'Google'}
After removing one of the values {'IBM', 'Amazon', 'JP Morgan', 'Oracle', 'Apple', 'Twitter', 'Facebook', 'Infosys', 'Microsof
t', 'Google'}
A Union B  {19, 20, 22, 24, 25, 26, 27, 28}
A Intersection B  {19, 20, 22, 24, 25, 26}
Is A is subset of B : True
is A and B are disjoint sets : False
the symmetric difference between A and B : {27, 28}
deleting set A and B  None None
converted age list to set  {19, 20, 22, 24, 25, 26}
Comparing the length of the list and the set by making difference between length of age list and length of age set is  6
```

Explanation:

- Here created a set, named as it_companies with data as given.
- Using add() method added another item into the set.
- Using update() method updated the set with more items.
- Using remove() method removed one of the companies(ADP) from the set.
- Using union() method on sets A and B. This method returns a set that contains all items from set A and all the items from set B.
- Using intersection() method on sets A and B, we fetched the similar data between two sets into a set A.
- Using Issubset() method , checked whether A is subset of B or not and it is true i.e A subset of B.
- Using disjoint() method checked whether there are any common elements.

Question 5

```
#Question 5
#The radius of a circle is 30 meters.
#• Calculate the area of a circle and assign the value to a variable name of _area_of_circle_
#• Calculate the circumference of a circle and assign the value to a variable name of_circum_of_circle_
#• Take radius as user input and calculate the area.

#Radius to be entered on run time
radius= 30
print("radius of the circle is:", radius)

#Area of the circle formula: pi*r*r
Area_of_circle=3.14*(radius**2)
print("Area of Circle ",Area_of_circle)

#Circumference of circle formula: 2*pi*r
circumference_of_circle=2*3.14*radius
print("Circumference of circle ",circumference_of_circle)
```

```
radius of the circle is: 30
Area of Circle  2826.0
Circumference of circle  188.4
```

Explanation:

- Here radius of the circle is given i.e 30 meters
- Calculated the area of the circle using formula pi*r*r and assigned it to a variable named Area_of_circle and printed output.
- Calculated circumference of the circle using formula 2*pi*r.
- Also took user input for radius and calculated the area of the circle.

Question 6

```
In [9]: #Question 6
#"I am a teacher and I love to inspire and teach people"
#• How many unique words have been used in the sentence? Use the split methods a
#to get the unique words.

sentence="I am a teacher and I love to inspire and teach people"

uniquewords=set(sentence.split())

#Printing number of unique word from the given sentence
print("No.of unique words are ",len(uniquewords))
```

```
No.of unique words are  10
```

Explanation:

- split() method breaks up a string into a list of strings.
- Then using set() created a set object using list of strings and assigned to a variable named uniquewords.
- And printed the count of uniquewords using len()

Question 7

```
In [10]: #Question 7
#Use a tab escape sequence to get the following lines.
 #    Name Age Country City
 #  Asabeneh 250 Finland Helsinki

#Making use of backwards slash t and n for tab key stroke and next line
print("Name\t\tAge\t\tCountry\t\tCity\nAsabeneh\t25\t\tFinland\t\tHelsinki")
```

```
Name            Age             Country         City
Asabeneh        25              Finland         Helsinki
```

Explanation:

- As mentioned in the query, using \t and \n created the required output lines.

Question 8

```
In [11]: #Question 8
         #Use the string formatting method to display the following:
         #radius = 10
         #area = 3.14 * radius ** 2
         #"The area of a circle with radius 10 is 314 meters square."

         radius = 10
         area = 3.14 * radius ** 2
         print("The area of a circle with radius %s is %s meters square." %(radius,area))

         The area of a circle with radius 10 is 314.0 meters square.
```

Explanation:

- Given radius and area values , using string formatting method , %s acts as a placeholder for a string and %d acts as a placeholder for a number.

Question 9

In [9]:
```
#Question 9
#Write a program, which reads weights (lbs.) of N students into a list and convert these weights to
#kilograms in a separate list using Loop. N: No of students (Read input from user)

students_wt=[]                          #weights in Lbs
limit=int(input("Enter number of elements:"))
students_wt_kgs=[]                              #weights in kgs
for i in range(0,limit):                    #Iteration to limit
    students_wt.append(int(input()))
    students_wt_kgs.append(students_wt[i]*0.4535)     #converting lbs to kgs
print(students_wt)
print(students_wt_kgs)
```

```
Enter number of elements:2
100
150
[100, 150]
[45.35, 68.025]
```

Explanation:

- Created a empty list to read weights of students in lbs from the user.
- Another empty list is created to store the values of converted weights from lbs to kgs.
- Using FOR loop took the user input .
- Converted the weights from lbs to kgs using formula lbs*0.4535, as 1 lb= 0.4535 and displayed lists of weights in lbs and kgs values.

Reference:

https://www.geeksforgeeks.org/python-programming-language/?ref=lbp

https://www.w3schools.com/python/