Machine Learning (ICP # 1)

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Question: 1

```python
#QUESTION 1

ages = [19, 22, 19, 24, 20, 25, 26, 24, 25, 24] ##creating a list for the ages

ages.sort() #sorting the Ages list
print("sorted list = ", ages)

print(f"max age:{max(ages)}, min age:{min(ages)}") #To print the min and max age
ages.extend([min(ages),max(ages)]) #adding min and max ages to the ages list
print(f"added list: {ages}") # list after addition

Middle_Index = int(len(ages)/2) # middle index in the list
print(Middle_Index)
if Middle_Index % 2 == 0:    #Condition to find if the length is even
 print(f"The median of ages: {int((ages[Middle_Index-1]  + ages[Middle_Index])/ 2)}") #Printing the median age

print(f"Average age is: {sum(ages)/len(ages)}")       #Printing the average age

print(f"Range of the ages: {max(ages) - min(ages)}") # printing the range of the ages
```

```
sorted list =  [19, 19, 20, 22, 24, 24, 24, 25, 25, 26]
max age:26, min age:19
added list: [19, 19, 20, 22, 24, 24, 24, 25, 25, 26, 19, 26]
6
The median of ages: 24
Average age is: 22.75
Range of the ages: 7
```

Question: 2

```python
#QUESTION 2

dog = {} #Created a empty dictionary
dog = {"name":"Max", "color":"brown", "bread":"Poomarian", "legs":"4", "age":"2"} #adding keys and values to the created director

#Created a empty student dictionary
student= {}
student= {"first_name":"Vinay","last_name":"Veereddy","gender":"Male","age":"25","martial status":"Single",
          "skills":['Critical Thinking '],"country":"india","city":"Hyderabad","address":"DilshukNagar"} #adding key values to s

print(f"length of student: {len(student)}") # Printing the lenght of student dictionary

print(type(student['skills']),student['skills'])        #Printing the values in skills and type of date

student['skills'].extend(['Communication', 'Creativity', 'Leadership']) #modifying skills by extend function
print(student['skills'])

print(f"keys of student dictionary:{student.keys()}")   #Printing dictionary keys as list

print(f"values of student dictionary: {student.values()}") #Printing dictionary keys as values
```

```
length of student: 9
<class 'list'> ['Critical Thinking ']
['Critical Thinking ', 'Communication', 'Creativity', 'Leadership']
keys of student dictionary:dict_keys(['first_name', 'last_name', 'gender', 'age', 'martial status', 'skills', 'country', 'cit
y', 'address'])
values of student dictionary: dict_values(['Vinay', 'Veereddy', 'Male', '25', 'Single', ['Critical Thinking ', 'Communication',
'Creativity', 'Leadership'], 'india', 'Hyderabad', 'DilshukNagar'])
```

Question: 3

```
#QUESTION 3

brothers = ("Sai", "Prasanna", "Kumar", "Pandu")    #Created a brother tuple
sisters = ("Ramya", "Sowmya", "Tej", "Rekha","Sudishna")  #Created a sisters tuple
siblings = brothers+sisters                         #Adding the siblings tuple
print(f"no of siblings: {len(siblings)}")           #Printing the number of siblings
print(siblings)
family_member = ()                       # created a family_member tuple
family_member += siblings + ("sambasiva_Rao", "Koteswaramma")  # modifying the family_member tuple by adding sibling to it
print("type: ",type(family_member))          # Printing the type of family_member
print("family member: ",family_member)
```

```
no of siblings: 9
('Sai', 'Prasanna', 'Kumar', 'Pandu', 'Ramya', 'Sowmya', 'Tej', 'Rekha', 'Sudishna')
type:  <class 'tuple'>
family member:  ('Sai', 'Prasanna', 'Kumar', 'Pandu', 'Ramya', 'Sowmya', 'Tej', 'Rekha', 'Sudishna', 'sambasiva_Rao', 'Koteswar
amma')
```

Question: 4

```
print(f"symmetric difference:{A.symmetric_difference(B)}") #Printing the symmetric difference
A.clear()
B.clear()
print(f"deleting both A and B: ", A.clear(), B.clear())    #Printing the deleted set
print(f"The length of the list age:{len(age)}")
AgeSet=set(age)                                            #convert age to set and compare length of list and set
print(f"The length of the set age:{len(age)}")
```

```
length of it_companies:  7
add new company:  {'IBM', 'Google', 'Apple', 'Oracle', 'Amazon', 'Microsoft', 'Facebook', 'twitter'}
updated it companies: {'IBM', 'Walmart', 'Oracle', 'Amazon', 'Google', 'Apple', 'twitter', 'Accenture', 'BOFA', 'Facebook', 'Mi
crosoft'}
remove it companies: {'IBM', 'Walmart', 'Oracle', 'Amazon', 'Google', 'Apple', 'twitter', 'BOFA', 'Facebook', 'Microsoft'}
discard it companies: {'IBM', 'Walmart', 'Oracle', 'Amazon', 'Google', 'Apple', 'twitter', 'BOFA', 'Facebook', 'Microsoft'}
join A union B:{19, 20, 22, 24, 25, 26, 27, 28}
join A intersection B:{19, 20, 22, 24, 25, 26}
if A is subset of B:True
if A is disjoint of B:False
{19, 20, 22, 24, 25, 26, 27, 28}
{19, 20, 22, 24, 25, 26, 27, 28}
symmetric difference:set()
deleting both A and B:  None None
The length of the list age:8
The length of the set age:8
```

Question: 5

```
#QUESTION 5

radius=30                                          #taking radius as per input
print(f"radius of the circle is: ", radius)
area_of_circle=3.14*(radius**2)                    #area of circle
circumference_of_circle=2*3.14*radius              #circumference of circle
print(f"area of circle: ", area_of_circle)
print(f"circumference of circle: ", circumference_of_circle)
radius_input = int(input("enter radius"))          #To take the input from the console
new_area = 3.14*radius_input*radius_input
print(f"Area from user input radius: ", new_area)
```

```
radius of the circle is:  30
area of circle:  2826.0
circumference of circle:  188.4
enter radius25
Area from user input radius:  1962.5
```

Question: 6

```
#QUESTION 6

sentence = "I am a teacher and I love to inspire and teach people"
list = sentence.split(' ')          #Split function by default uses whiteSpaces as the separator in the string sentence
print(list)
unique_words=len(set(list))              #number of unique words in given string
print(f"number of unique words in the given string: ",unique_words )      # printing the Unique_words length
```

```
['I', 'am', 'a', 'teacher', 'and', 'I', 'love', 'to', 'inspire', 'and', 'teach', 'people']
number of unique words in the given string:  10
```

Question: 7

```
# QUESTION 7

print("Name\t\tAge\t\tCountry\t\tCity\nAsabeneh\t250\t\tFinland\t\tHelsinki")  #To print the text by using the tab escape sequenc
```

```
Name            Age         Country      City
Asabeneh        250         Finland      Helsinki
```

Question: 8

```
#QUESTION 8

radius = 10
area = 3.14 * radius ** 2
print(f"The area of a circle with radius {radius} is {area} meters square.")  #To find the radius of the circle
```

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

Question: 9

```
#QUESTION 9

#list of students weights
weight_lbs = [150, 155, 145, 148]
weight_kgs = []

#converting weight to kgs
for x in weight_lbs:
    weight_kgs.append(x*0.453592)
print(f"weight in kgs: ",weight_kgs)   # Printing the Weight in Kgs
```

```
weight in kgs:  [68.0388, 70.30676, 65.77083999999999, 67.131616]
```