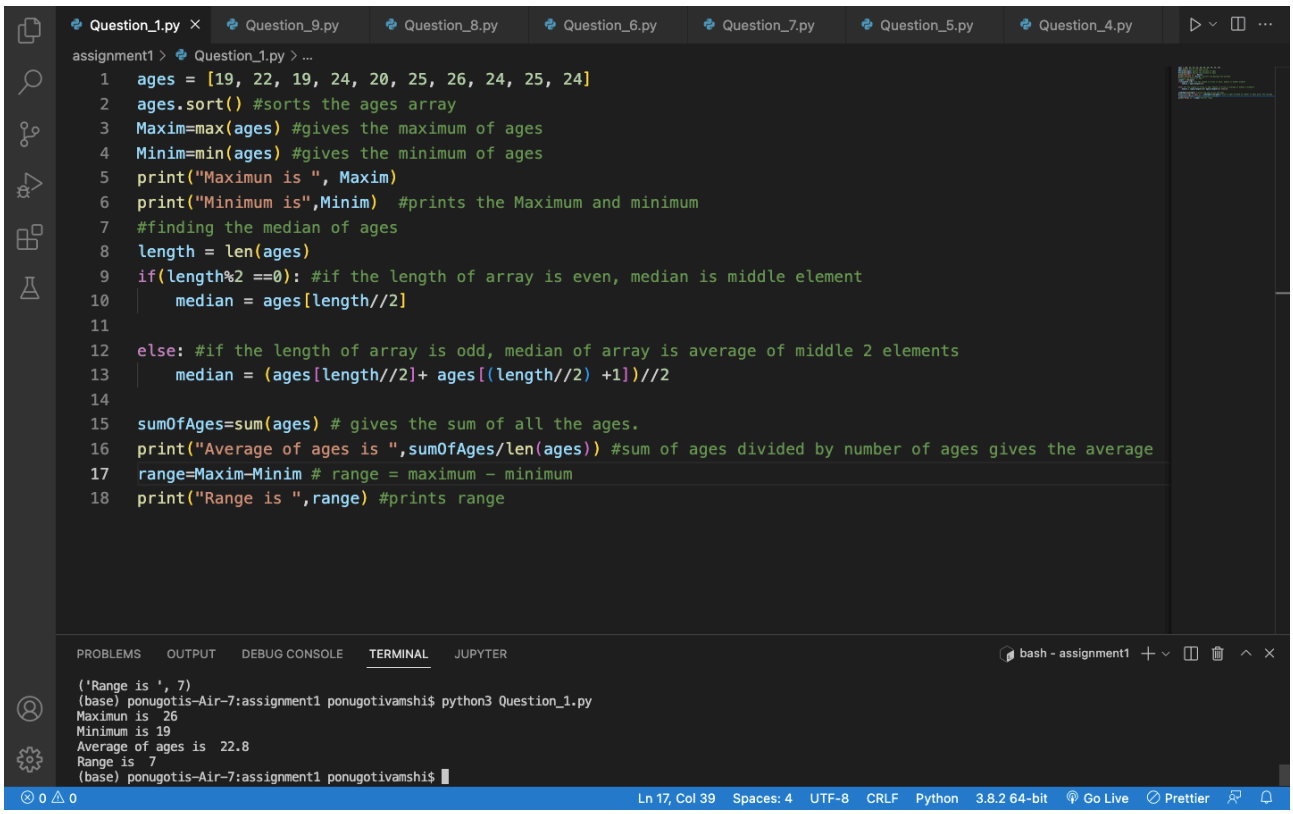
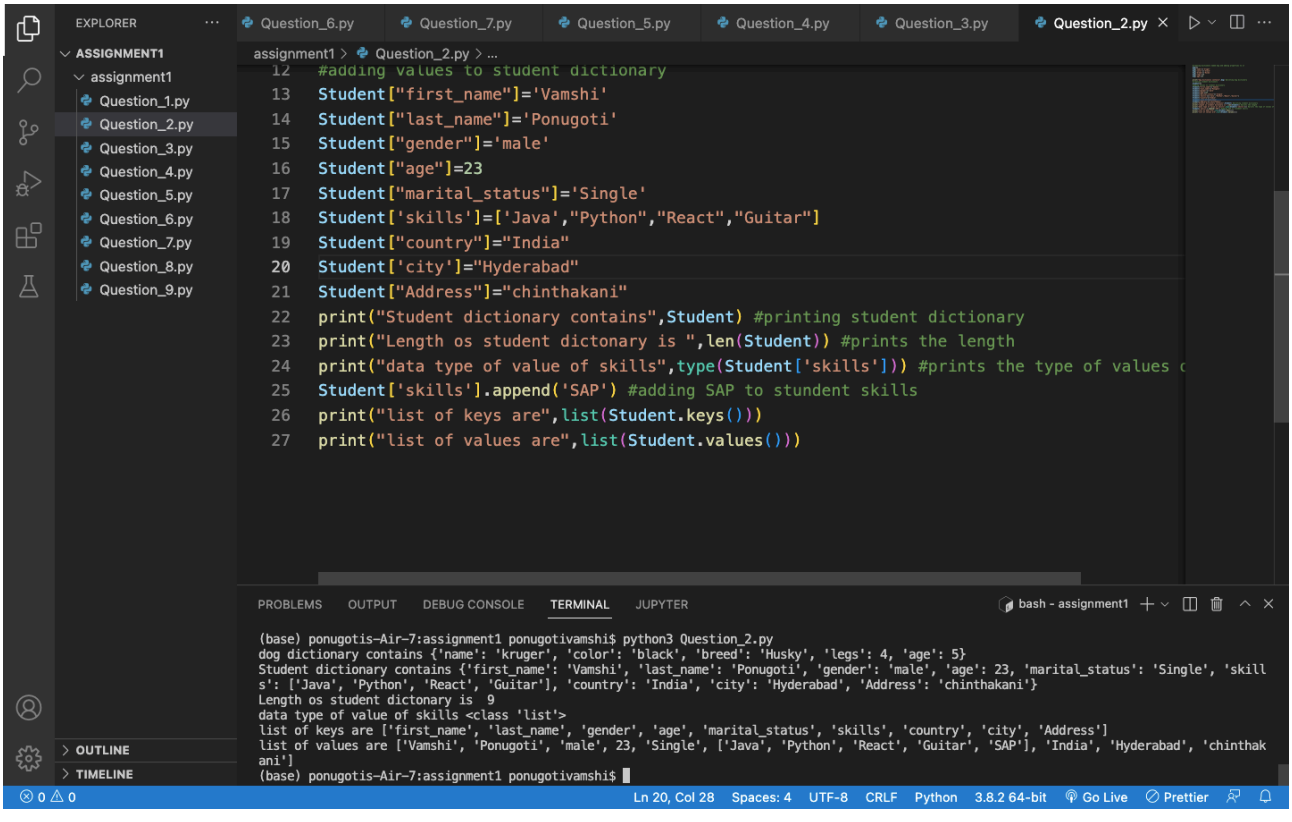
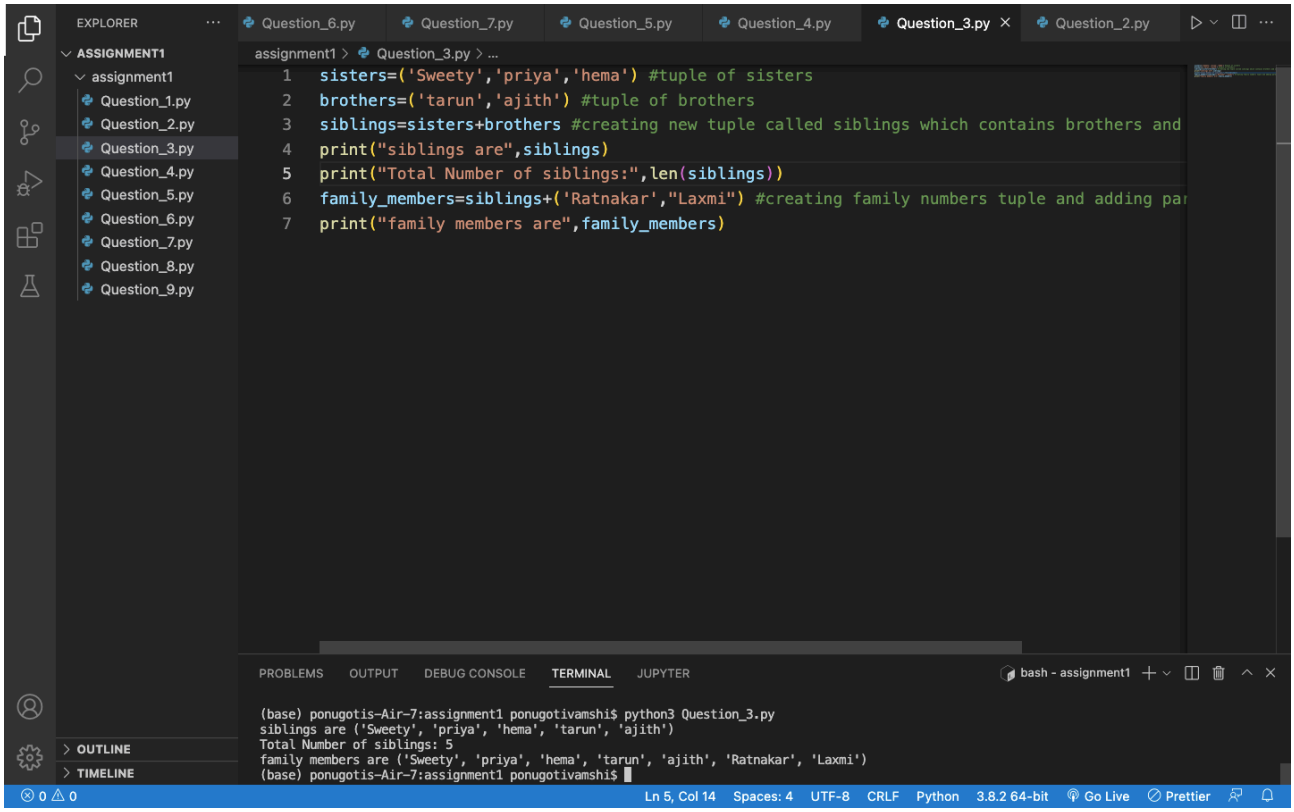


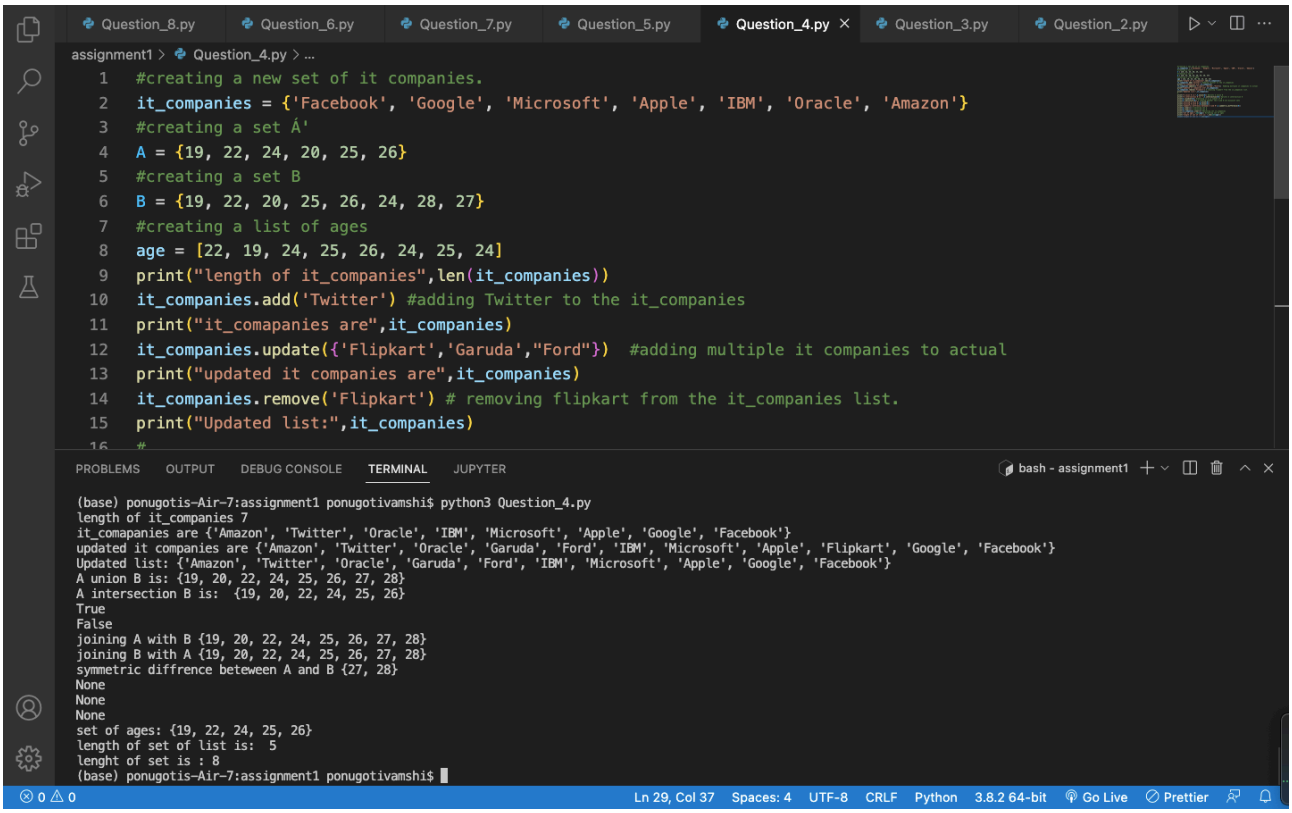
Q1.
A)Given a list called ages and I sorted the list and found max and min of the given list.
Added min and max of ages list to itself again. Found Median of the list by finding whether the number of elements in the list is even or odd. Based d on the the result found the median as mentioned in the code above.
—> Found average of the list be adding all the elements of the list and divided with length of the list.
—>Found the range of ages with the formula Maximum - Minimum
Code and output are shown as above.

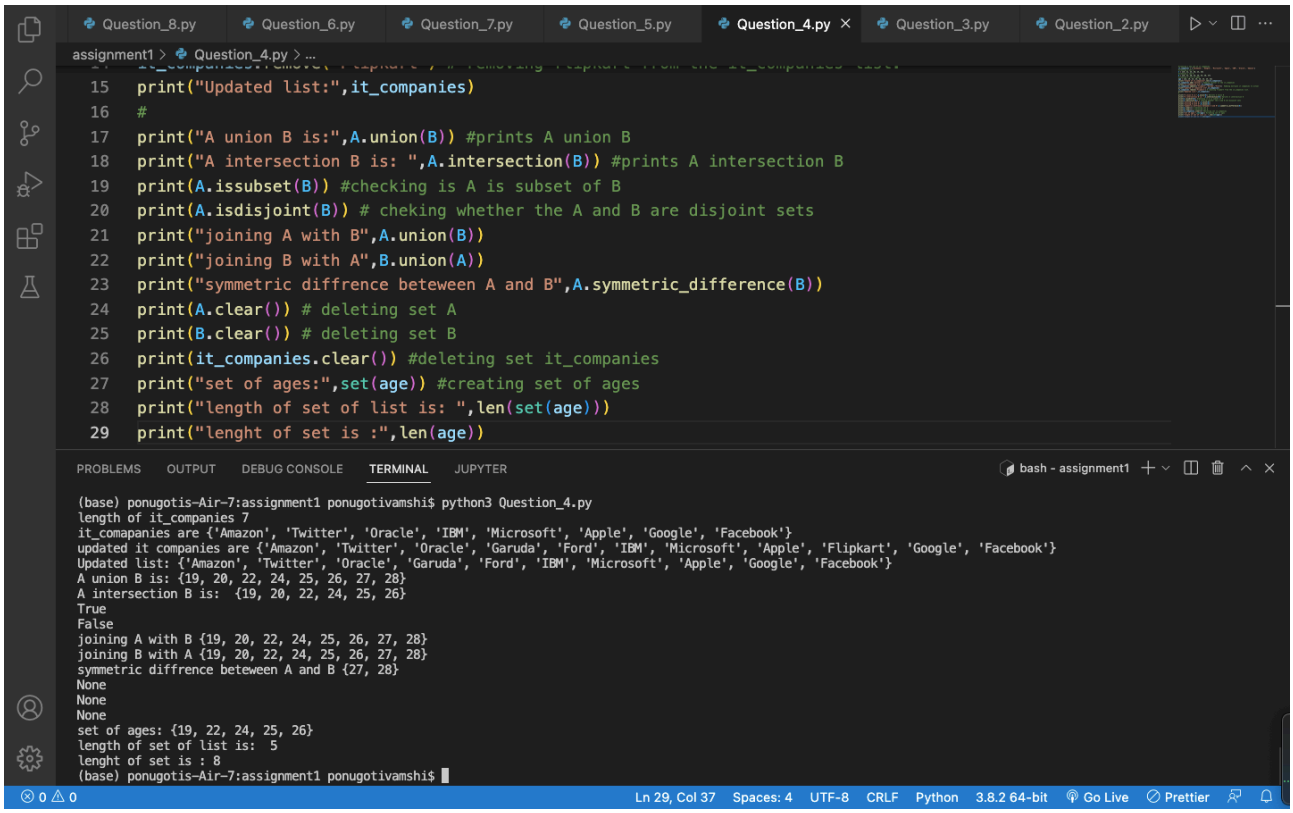


Q2. Created an empty dictionary called dog and added values to it like name, color, breed, legs, age
—>Created another dictionary named Student and added first_name, last_name, gender, age, marital status, skills, country, city and address to it. Found length of the dictionary . Using Student[skills] found the skills of the student. Modified the skills values by adding SAP to it. Printed the list of keys and values separately.
Code and it's output is as shown above.

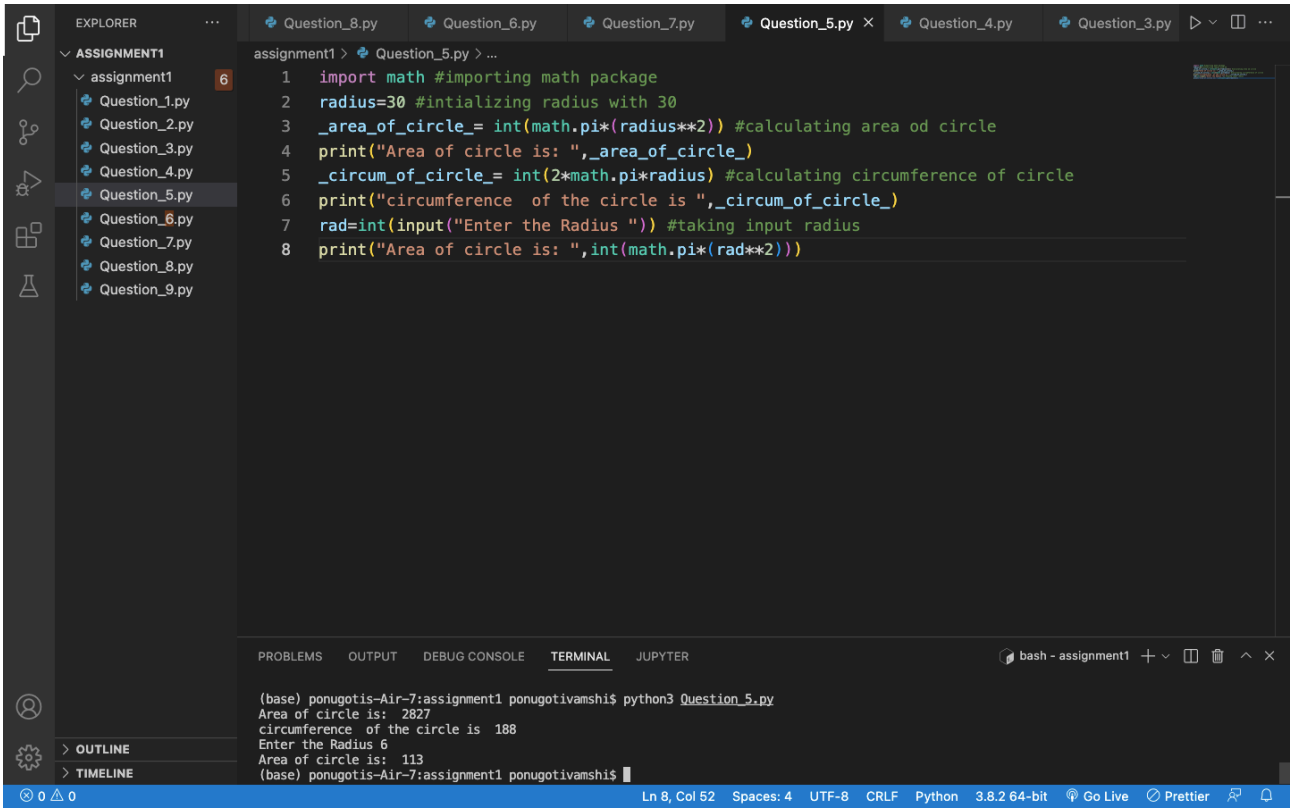


Q3. Created a tuple with names of sisters and brothers. Joined brothers and sisters tuples to the new tuple called siblings. By using the length function found the number of siblings. Created a family_members tuple and added siblings tuple and added parents name to it.
Code and output as shown above.

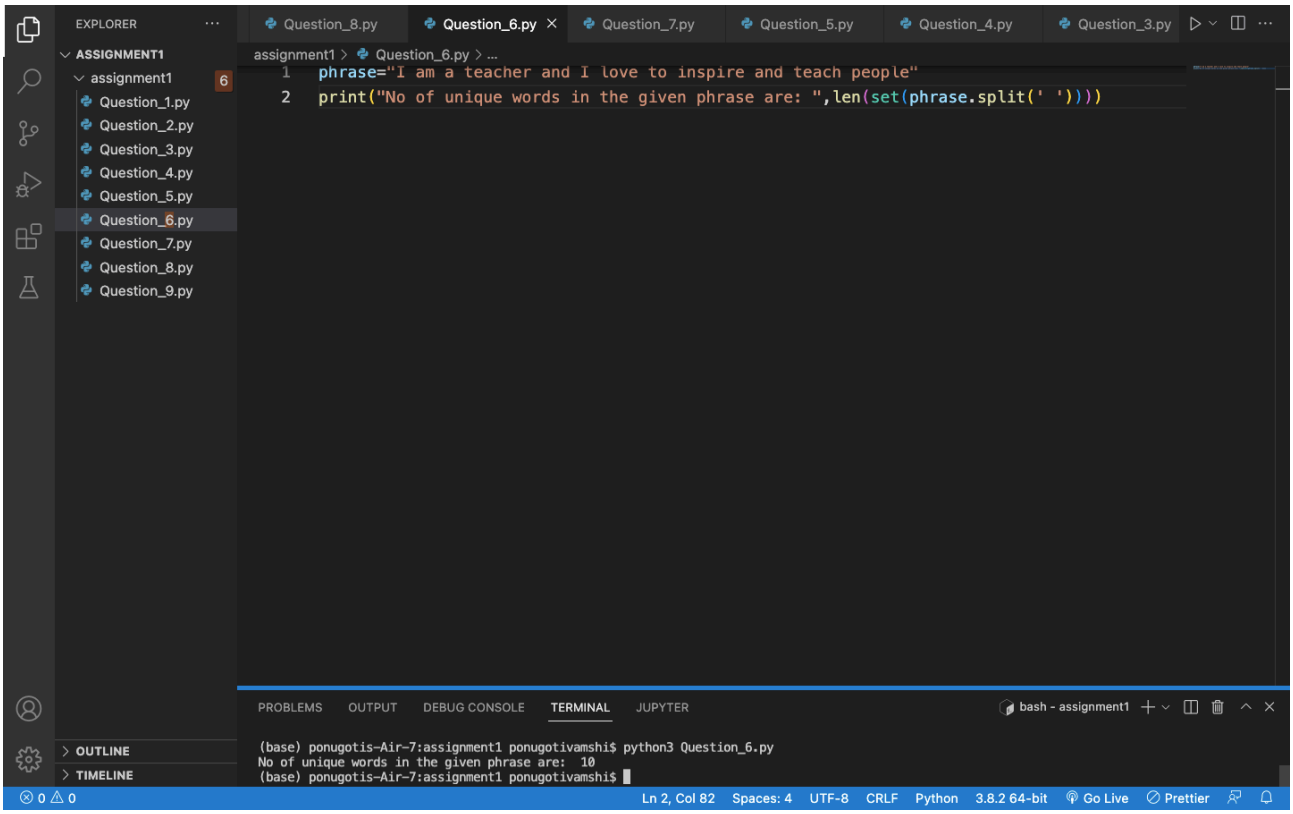




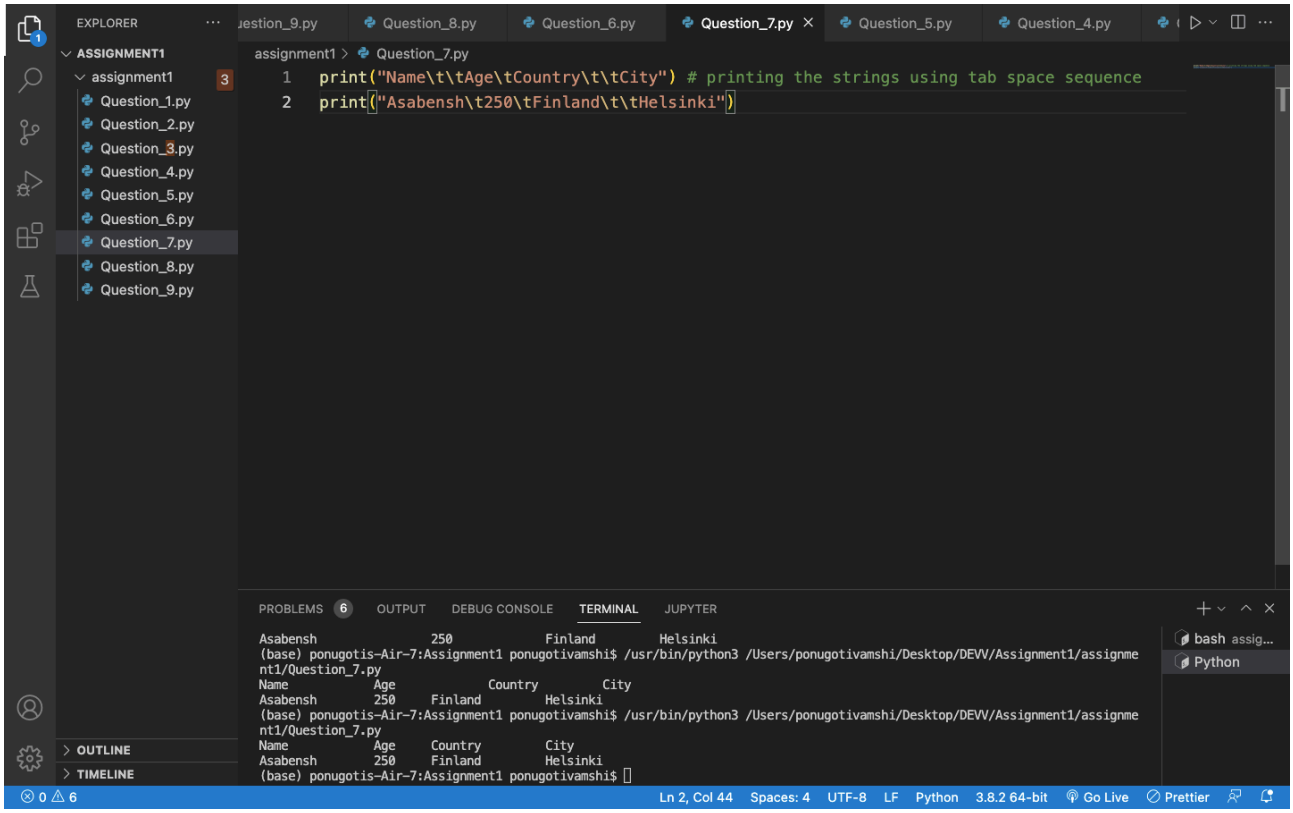
Q4. Created a set called it_companies. And created sets named A and B. And created a list of ages. Found the length of the set it_companies. Added Twitter to the set. Added new companies to the set. Performed the operations as given in the question such as joining A and B, A intersection B etc., Code and output are shown as above.



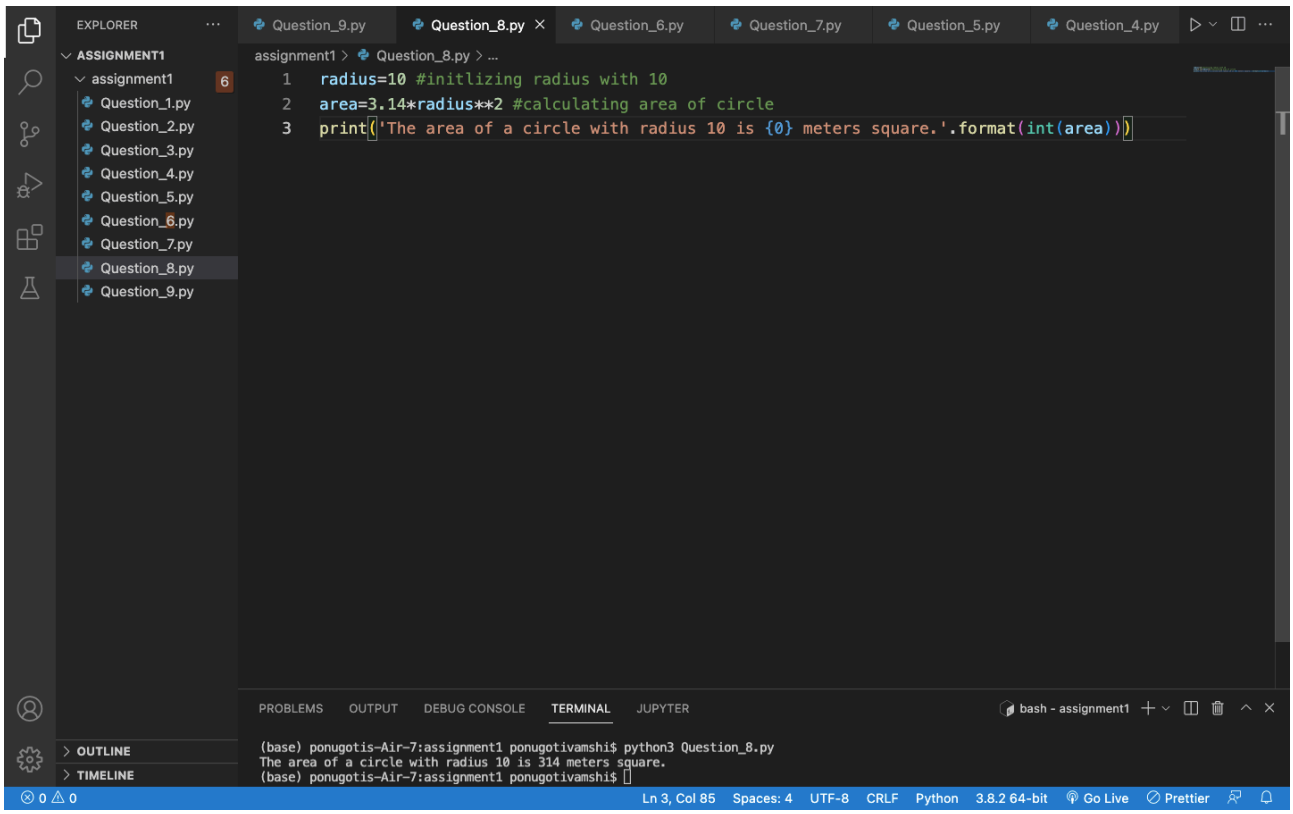
Q5.Calculated the area of circle with radius 30 and it was assigned it to the variable named _area_of_circle_ . Calculated the circumference of the circle and assigned it the variable named _circum_of_circle_ . Againtaken radius as input and found radius of the circle.Code and output are shown above



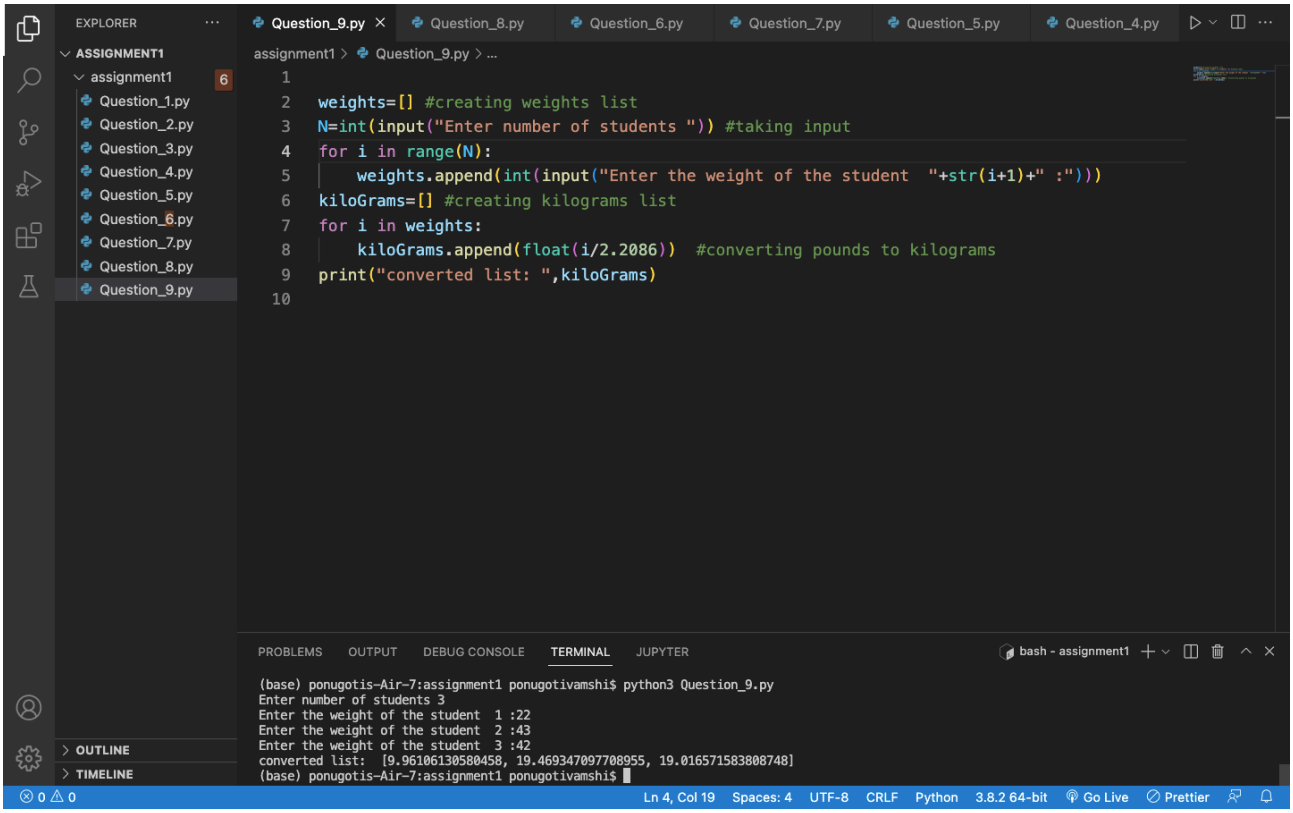
Q6. Found the number of unique words used to create the given sentence with the code shown in above.



Q7. Using tab space sequence printed the strings as given. Code and output as shown in above.



Q8. Using the string formatting method displayed the area of circle. Code as shown as above.



Q9. Taken Weights as input in pounds and calculated in terms of kgs. Code and output as shown in above.

Video link: https://drive.google.com/file/d/1EdinI9Xg7uTHFloYDHYM3Tw27ywGG__s/view?usp=sharing
Github link: https://github.com/vxp28550/ML_Assignment

Q.10

By splitting the data into 2 equal parts for training & testing.

training : [1, 3, 6, 11]

⇒ ['•', '*', '*', '•']

testing : [2, 6, 7, 10]

⇒ ['•', '*', '•', •]

confusion matrix :-

Truth \ prediction	o	x
o	TN	FP
x	FN	TP

The nearest neighbours for 2 are [1, 3, 6] for which the values are ['•', *', '*']

predicted for 2 = '*'

but the value is '•' so it is 'FP'

⇒ for nearest neighbours of 6 = [6, 7, 3]
which are having values = ['*', '•', '*']
from this predicted value for 6 = *
and given also '*', so it is True positive.

⇒ nearest neighbours of 7 =
[6, 6, 10] which are having values
= ['*', '*', '•']. so the predicted value
is * and the given is '•'. so it
is False positive.

⇒ nearest neighbours of 10 = [11, 7, 5]
which are having values = ['•', '•', '*']
so the predicted value is '•' and
actual value is also '•'. so it is
True negitive.

confusion Matrix :

	0	1
0	1	2
1	0	1

⇒ Accuracy :

$$\frac{(TP+TN)}{P+N} = \frac{1+1}{3+1} = \frac{2}{4} = \frac{1}{2} = 50\%$$

$$\text{sensitivity} = \frac{TP}{TP+FN} = \frac{1}{1+0} = 1$$

$$\text{specificity} = \frac{TN}{FP+TN} = \frac{1}{2+1} = \frac{1}{3}$$