

Question 1: Answer the following questions

- 1- What are lists and tuples? What is the key difference between the two?
- 2- What is break, continue and pass in Python?
- 3- What is the use of self in Python?
- 4- What is docstring in Python?
- 5- Python supports multiple inheritance . explain it with example

Question2 : True or false and

- 1- Classes take memory space when they are created
- 2- Object Oriented Programming Provides logical structure to a program where programs are divided functions
- 3- Data Abstraction Allows showing important aspects while hiding implementation details
- 4- A constructor is a void method that has the same name as the class and is used to initialize objects of that class.
- 5- Encapsulation is one of the 3 pillars of Object Oriented Programming (OOP). It literally means to perceive an entity in a system or context from a particular perspective. We take out unnecessary details and only focus on aspects that are necessary to that context or system under consideration.

Question3: Write Python Code to solve these problems

- 1- Create a function that takes a string and returns the number (count) of vowels contained within it.

Example:

`count_vowels("Celebration") → 5`

- 2- Write a function that finds the sum of the first n natural numbers. Make your function recursive.

Example:

`sum_numbers(5) → 15`

`# 1 + 2 + 3 + 4 + 5 = 15`

3- Display Fibonacci series up to 10 terms

Expected output :

Fibonacci sequence:

0 1 1 2 3 5 8 13 21 34

4- Write a Python program to check if value 200 exists in the following dictionary.

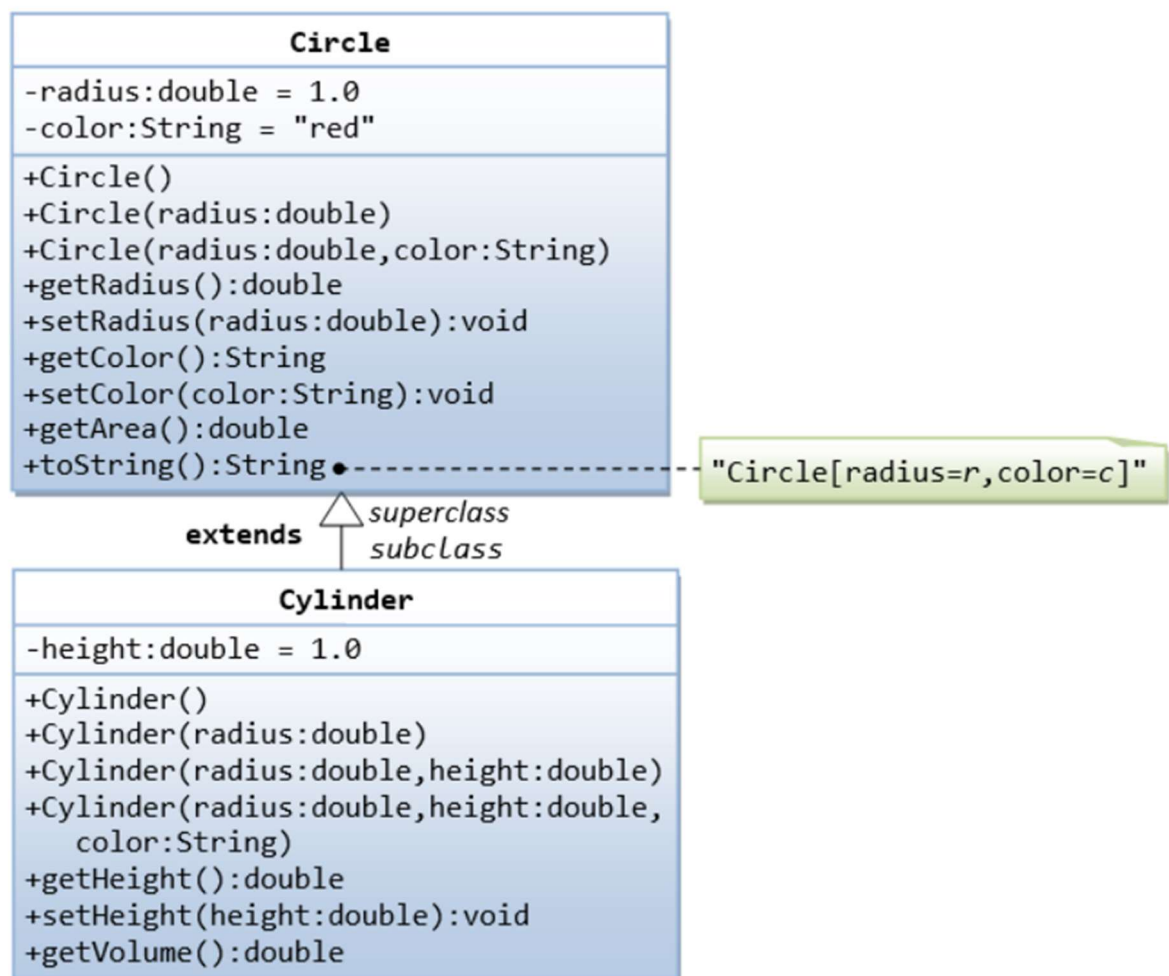
Given:

sample_dict = {'a': 100, 'b': 200, 'c': 300}

Expected output:

200 present in a dict

5-



Question 4 : Make this possible

- 1- Generate Random Password Containing [40% uppercase 30% lowercase and 30% numbers]
- 2- Using [Html , Css , Javascript] allow light and dark mode in your website

Hints :

Light mode : background : #fff ; color : #2f2f2f

Dark mode : background : #2f2f2f; color: #fff

Question 5 : Explain only by example

- 1- Default constructor vs parameterized constructor
- 2- Class vs object

Good luck 😊

Eng: Hesham Mohamed