Course: Introduction to Data Science (DS2006) - Laboratory 08

Task 1:
When the code in figure 1 is run, nothing is outputted because the Dog.bark() method was not called. However, if the bark method was called on dog1 for example then the output would be “Bidu looks at you and barks: Woof Woof!” with Bidu being the name of dog1.

Task 2:

a) The name of dog1, which is Bidu.
b) Pipoca, the name of dog2.
c) NameError: name 'dog3' is not defined. Did you mean: 'dog1'? This runtime error occurs because there is no reference to dog3.

Task 3: dog.py modified

Task 4:
When the .bark() method is run, it leads to a TypeError because it is trying to access the instance data (self.name) while missing self from the method signature. If the method was printing just a string then it wouldn’t need the self parameter, but if it uses instance data such as the name or breed it must receive self as a parameter.

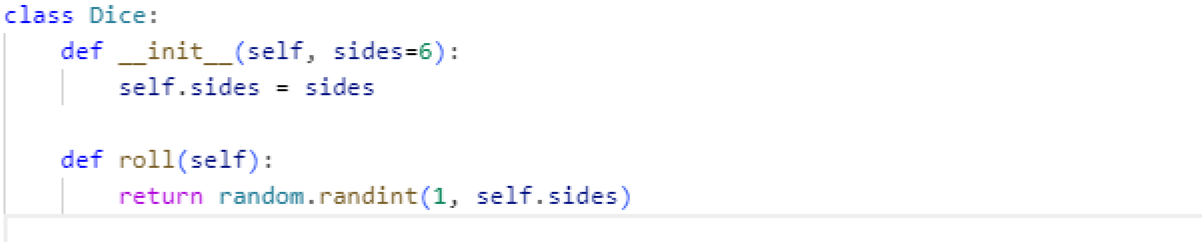
Task 5:
The .bark() method in figure 4 leads to a NameError when the code is run because there is no name variable in the method, but there is one in the instance context and that causes the NameError.

Task 6:
Calling dog1.bark() outputs the message defined in the bark method, while print(dog1.bark()) outputs both the bark message and None. This is because the bark method does not return anything, therefore the print function ends up logging None and not the bark message.

Task 7 - 9: dog.py modified

Task 10 - 14: cat.py implemented

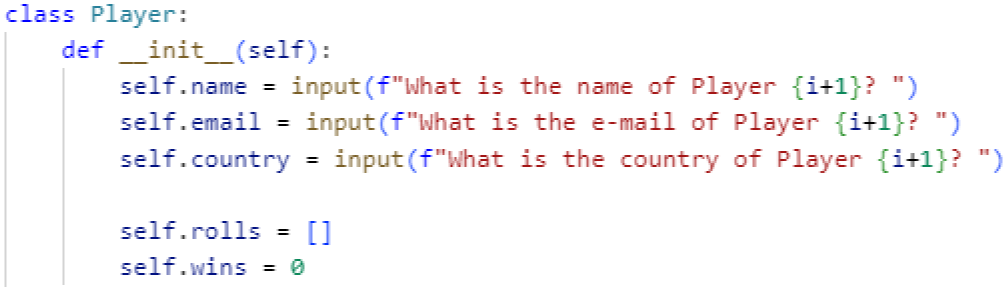
Task 15 - 16:
The Dice class could be enhanced to take the sides in the constructor params and then through a roll method use self.sides to decide which dice to roll.



```
class Dice:
    def __init__(self, sides=6):
        self.sides = sides

    def roll(self):
        return random.randint(1, self.sides)
```

The Player class could also be optimized to handle getting and setting player information when the class is instantiated internally.



```
class Player:
    def __init__(self):
        self.name = input(f"What is the name of Player {i+1}? ")
        self.email = input(f"What is the e-mail of Player {i+1}? ")
        self.country = input(f"What is the country of Player {i+1}? ")

        self.rolls = []
        self.wins = 0
```