

Advanced Python for NLP

Assignment 4 – Advanced Python

Please keep each question to a maximum of four sentences.

Question 1:

- A) What Dunders do you use regularly? Provide 2 examples and what their functions are.
- B) You can change a symbols original Dunder function; this can be considered a form of Python modification. Can you think of a scenario where you would want to do this?

Question 2:

- A) What is the difference between a Method and a Function?
- B) In what situations should you use a Class over a group of independent Functions?

Question 3:

- A) What is the difference between a Class Variable and an Instance Variable?
- B) In what situation would you want to change the Class Variables? Provide at least one example.

Question 4:

```
book1 = Book("The Great Gatsby", "F. Scott Fitzgerald", "Fiction")
book2 = Book("Sapiens", "Yuval Noah Harari", "Non-Fiction")

# Change class variable total_books for book2
Book.total_books = 4

book1.display_info()
book2.display_info()

book3 = Book("Sapiens", "Yuval Noah Harari", "Non-Fiction")
book3.display_info()

book4 = Book("Sapiens", "Yuval Noah Harari", "Non-Fiction")
book4.display_info()
```

- A) What is the total number of books for book1, book2, book3, and book4?

```
class Book:
    total_books = 0
    book_types = ['Fiction', 'Non-Fiction']

    def __init__(self, title, author, book_type):
        self.title = title
        self.author = author
        self.book_type = book_type

        # Update class variables
        Book.total_books += 1

    def display_info(self):
        print(f>Title: {self.title}")
        print(f">Author: {self.author}")
        print(f">Book Type: {self.book_type}")
        print(f">Total Books: {Book.total_books}\n")
```

```
class ColorBook(Book):
    def __init__(self, name, writer, word_length, color, has_image):
        super().__init__(name, writer, word_length)
        self.color = color
        self.has_image = has_image
```

- B) What does ColorBook inherit from Book? What would we label ColorBook as?
- C) Why is there no "self" within ColorBook's second __init__?
- D) What is the purpose of making something like ColorBook this way?

Question 5:

- A) What are decorators? Provide an example of two that you know.
- B) @property has three functions, write them out and explain what they do, the variable in question is labeled "price".

Bonus:

The following should only have pseudocode within them, the framework is the only important part:

- A) Create a small Book Class and then a Class that inherits Book, screenshot it and provide it here.
- B) With that same Book Class, use a decorator to create two books within it that have an author and title variable.