Advanced JavaScript
Lab 2

A. JavaScript as Object Oriented Programing

A.1. Using the constructor method for creating Objects, write a script that allows you to create a rectangle object that

- **Should have width and height properties.**
- **Implement a method for calculating its area**
- **Implement a method for calculating its perimeter.**
- **Implement displayInfo() function to display a message declaring the width, height, area, and perimeter of the created object.**

A.2. Create your own object that contains a list of numerical sequence, with the following details

- **Your constructor takes 3 parameters to define start, end of list and step**
- **The list should be private and filled with private method**
- **You can create getter and setter for the list if needed**
- **Allow the user to apply the following functionality to his created sequence**
    - **Append or prepend a new value within the same numerical sequence**
    - **Dequeue or pop a value,**
    - **you have to ensure that you are pushing value within the same sequence otherwise through exception**
    - **you have to ensure that there is no duplicated value otherwise through exception**
- **all of the properties should be defined using accessor and/or data descriptor, prevent them from being deleted, iterated or being modified.**
- **Override .toString() function to display a message with all of the list content.**
- **you can add any property you need.**

A.3. Create your box object that contains books objects, ensure that you can

a. Create a book object and add it to the box object content property

b. Count # of books inside the box

c. Delete any of these books in the box according to a book title.
Note: You should delete a single copy of the books with the same title.

d. Create Class Property that counts numbers of created books objects and Class method to retrieve it.

e. Use .toString() to display the box instance's dimensions and how books are stored in it.

f. Implement .valueof() so that if there is more than one box object we can get the total number of books in these boxes by adding them
i.e. if box1 has 5 books and box2 has 2 books,
then box1 + box2 should return 7

Note:

- Use Constructor Pattern for creating the Book Objects
- There is no inheritance
- Using global variables is not allowed
- No Class methods and properties are allowed except for those required in part d.
- Box object has the following properties:
  height, width, length, material, and content.
  - The content property contains an array of book objects
- Book object has the following properties:
  title, numofChapters, author, numofPages, publisher, numofCopies
- You should use accessor and/or data descriptor for defining properties, and if needed, prevent them from being deleted, iterated, or being modified.
- You can define any function needed for both box and book objects