In the name of HIM

180 Min

1- Design a class of Book having a Title (with associated get and set methods) and some Part(s) with following interface:
   a. Initialize with an array $[a_0, a_1, \dots, a_n]$ whereas a_i is a Part
      i. The same action with operator =
   b. Constructor
   c. Insert or get any Part
      i. Also with operators () and []
   d. Merge with another Book and returning the result.
      i. The same action with operator +
   e. Implement iterator for it.
2- Each Part has also the same interface but has some Sections and each Section has some Pages. Each Page contains a String as the text and an integer as the page number. Implement them with a template abstract class and additional properties of each class.
   a. Book has an Author, Version, Publish_Year and …
   b. Part and Section have not Title but have a number.
3- Implement the array with dynamic size and consequently implement associated assignment operator, copy and move constructors.
4- Design a static list of Books in Book.
5- Design a SearchableMedia that has a list of predefined topics and a method of searching in topics and a method of getting the title.
6- Design a class of SearchableBook which has all interfaces of Book and SearchableMedia. What about getTitle?

   With the best wishes
   M. Taheri