Given the following UML and the corresponding classes' descriptions below:
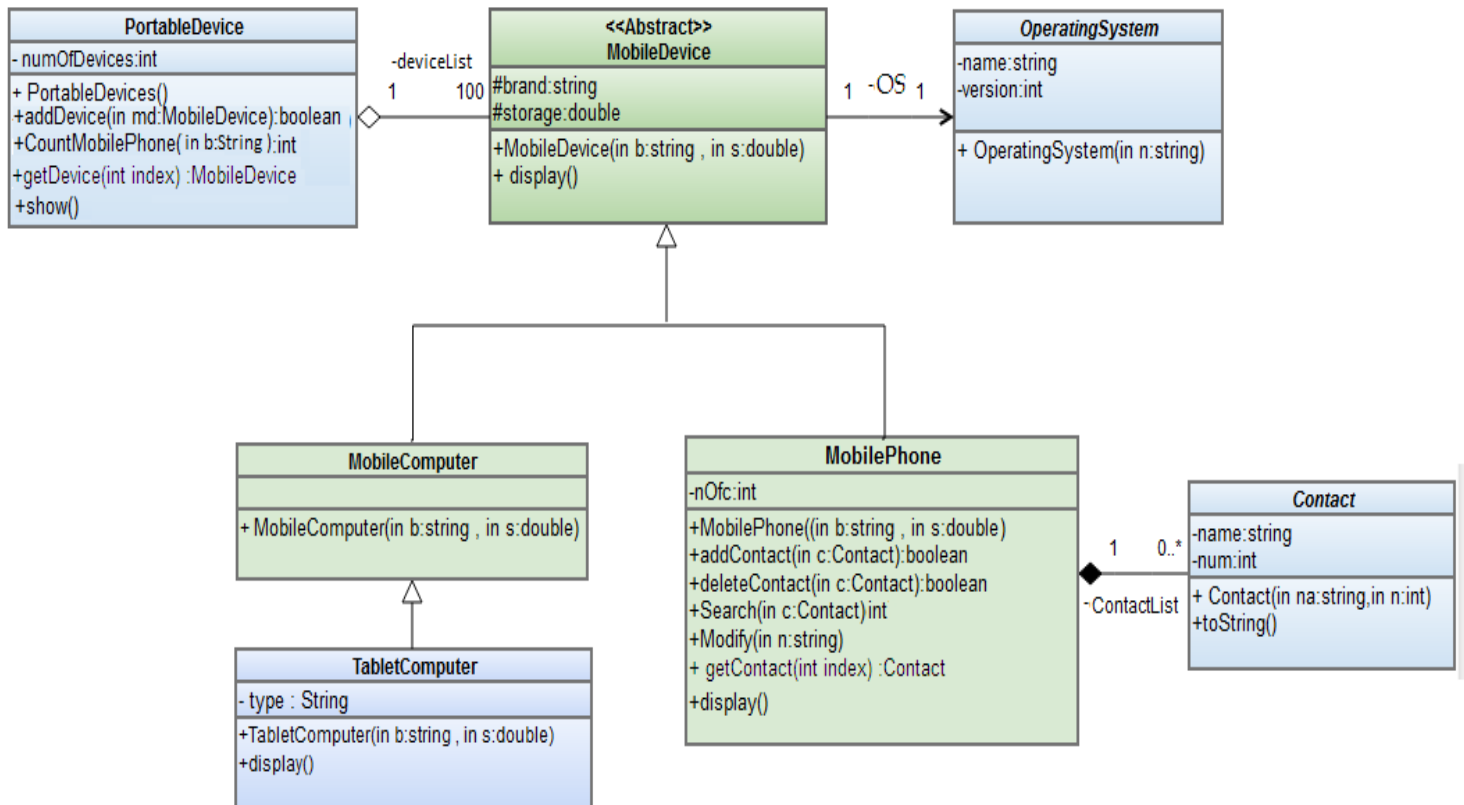
1. Write the java code for all classes.

2. Write a test class that:

   a. Create one MobileDevice array object that provides different Mobile devices.

   b. Add to the objected created in step (a) two MobileComputers and four MobilePhones (two Samsung , one LG, one Iphone).

   c. For each MobilePhone add at least a contact.

   d. Create a Portable Device object .

   e. Add all the mobile devices created in step (b) to the device list in the Portable Device .

   f. Test the Portable Device methods.

Classes Descriptions: -

PortableDevices

1- Attributes

- numOfDevices: an integer specifying the number of the current mobile devices available in the devicelist

2. Methods

- PortableDevices (): a constructor of class PortableDevices that do the following:

  a. Create a MobileDevices array with the appropriate size.

  b. Set numOfDevices to zero.

- addDevice (in md: MobileDevice): a method that adds the received MobileDevices to available Devices array , if the addition was successful return true , otherwise return false.

- getDevice(in index:int) : a method to return a MobileDevice based on its index.

- show (): a method that displays a list of the mobile computers brand and type

- CountMobilePhone(in b:string): a method that counts the total number of available MobilePhone of a specific brand.

MobileDevice

1-Attributes

- brand: a String specifying the MobileDevices brand.

- storage: a double specifying the storage capacity of the device

- OS : the mobile device operating system

2- Methods

- MobileDevices (in b:String,in s:double)a constructor of class MobileDevice to set its attributes , the operating system will be set as follow :

brand	OS
Samsung , LG , Kindle Fire	Android
Iphone , iPod Touch	iOS
Windows pad , Microsoft Tablet PC	Windows

- display (): a method that prints the MobileDevices information.

OperatingSystem

1- Attributes

- name: the name of the operating system

- version : the version of the operating system

2- Methods

- OperatingSystem(in n:string) a constructor to set the name of the operating system as received and assign the version as follow:

OS	version
Android	8
iOS	10
Windows	8

MobilePhone

1. **Attributes**

    - nOfc: an integer specifying total number of contacts in the contact list.

2. **Methods**

    - MobilePhone(in b:string,in s:double): a constructor of class MobilePhone to set its attributes and :

    a. Create a contactList, the size is determined as follow.

brand	size
Samsung , LG	50
Iphone	60
Windows pad	40

    b. Set nOfc to zero.

    - addContact(in c:Contact) add a contact to the contact list

    - deleteContact(in c:Contact) delete a contact from the contact list

    - search(in c:Contact) search and return the index of the received contact , if the contact is not found it will return -1.

    - modify(in na:string) modify a contact number based on his name(the user should enter the new mobile number) , if the contact is not found it will display an appropriate message.

    - getContact(int index): a method to return a Contact based on its index.

    - display (): a method to prints the mobile phone information and all the contact list.

Contact

1. **Attributes**

   - name: a string specifying the contact name.

   - num : an integer specifying the contact telephone number

2. **Methods**

   - Contact(in na:string,inn:int): a constructor of class Contact to set its attributes .

   - toString() : method to display the contact information as follow :

   Contact *name - number*

MobileComputer

1. **Methods**

   - **MobileComputer**(in b:string,in s:double): a constructor of class **MobileComputer** to set its attributes

TabletComputer

1. **Attributes**

   - Type: ainteger specifying the type of the tablet computer.

2. **Methods**

   - TabletComputer(String b ,double s) : a constructor of class Tablet Computer to set its attribute , the type is entered from the user.
   - display (): a method that displays the Tablet computer information as follow :

   [type]:[Operating System Name] version [Operating System Version]

Note: write any needed setters and getters for all classes.