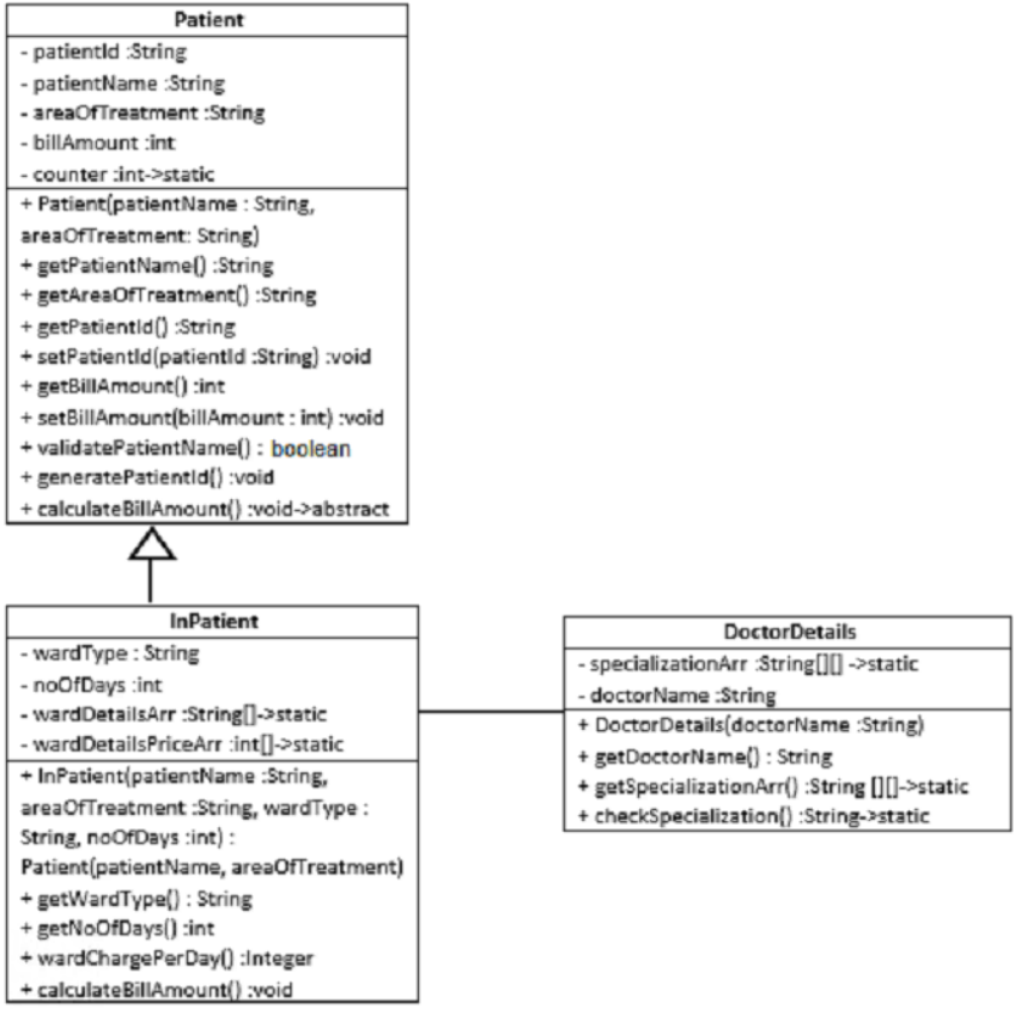
Patient
- patientId :String
- patientName :String
- areaOfTreatment :String
- billAmount :int
- counter :int->static
+ Patient(patientName : String, areaOfTreatment: String)
+ getPatientName() :String
+ getAreaOfTreatment() :String
+ getPatientId() :String
+ setPatientId(patientId :String) :void
+ getBillAmount() :int
+ setBillAmount(billAmount : int) :void
+ validatePatientName() : boolean
+ generatePatientId() :void
+ calculateBillAmount() :void->abstract
InPatient
- wardType : String
- noOfDays :int
- wardDetailsArr :String[]->static
- wardDetailsPriceArr :int[]->static
+ InPatient(patientName :String, areaOfTreatment :String, wardType : String, noOfDays :int) : Patient(patientName, areaOfTreatment)
+ getWardType() : String
+ getNoOfDays() :int
+ wardChargePerDay() :Integer
+ calculateBillAmount() :void
DoctorDetails
- specializationArr :String[][] ->static
- doctorName :String
+ DoctorDetails(doctorName :String)
+ getDoctorName() : String
+ getSpecializationArr() :String [][]->static
+ checkSpecialization() :String->static

Note:

- Do not include any extra instance/static variables and instance/static methods in the given classes
- Case sensitive comparison is to be done wherever applicable
- Do not change any value or case of the given variables
- Read notes and examples for better understanding of the logic

Implementation Details:

Class Name	Status of implementation
DoctorDetails	Partially Implemented
Patient	Partially Implemented
InPatient	Partially Implemented

DoctorDetails Class:

specializationArr:

- This is a static 2D array which contains two String arrays holding information about *specialization* (String) and *areaOfTreatment* (String) in each array respectively
- The initial values of the **specializationArr** are given below -

specializationArr	{{"Ophthalmologist", "Cardiologist", "Dermatologist"} {"Eye", "Heart", "Skin"}}

Note:

- This array is supplied. Hence no need to code
- The String arrays have one to one correspondence
- Do not change the **CASE** of elements in the array

checkSpecialization(*areaOfTreatment*):

- This is a static method which accepts *areaOfTreatment* (String) as a parameter and returns the *specialization* required to treat that area
- Check if the provided *areaOfTreatment is* present in the second String array of **specializationArr**
- If present, return the *specialization* required to treat that area from the corresponding value in first String array of **specializationArr**
- Otherwise, return null

Note: Perform **case in-sensitive** comparison

Example: If the *areaOfTreatment* is **"hEart"**, then the above method must return *specialization* as "**Cardiologist**"

Patient class:

generatePatientId():

- This method auto-generates and sets the **patientId** (String)
- The **patientId** would be prefixed with the first letter of **patientName** in uppercase followed by auto-generated value starting from 1001
- The auto-generated value should be incremented by 1 for the next **patientId**
- Use static variable **counter** appropriately to implement the auto-generation logic

Example: If the **patientName** is **"rudith"**, then the **patientId** would be **"R1001"**, second **patientId** generated would be **"D1002"** if the **patientName** is **"Danny"**

InPatient class:

wardDetailsArr:

- This is a static array which contains the *wardName*(s) (String) provided by the hospital as its elements
- The initial values of the **wardDetailsArr** are given below-

wardDetailsArr	{"ICU", "General", "Special"}

Note:

- This array is supplied. Hence no need to code
- Do not change the **CASE** of elements in the array

wardDetailsPriceArr:

- This is a static array which contains *chargePerDay* (int) of the respective *wardNames* in **wardDetailsArr**
- This array has one-to-one correspondence with the **wardDetailsArr**

- The initial values of the **wardDetailsPriceArr** are given below-

wardDetailsPriceArr	{2500, 500, 1000}

Note:

- This array is supplied. Hence no need to code

wardChargePerDay():

- This method validates **wardType** and returns *wardChargePerDay* (Integer)
- Check if the **wardType** is present in the **wardDetailsArr**
- If present, set the *wardChargePerDay* with the corresponding *chargePerDay* value of the **wardType** in the **wardDetailsPriceArr**

  Note: Perform **case-sensitive** comparison
- Otherwise, set the *wardChargePerDay* to -1
- Return *wardChargePerDay*

Example: If the **wardType** is **"ICU"**, then the *wardChargePerDay* would be **2500** currency

calculateBillAmount():

- This method calculates and sets the **billAmount** (int) and sets **patientId** (String) based on the below logic
- Identify *specialization* (String) by invoking **checkSpecialization()** method of **DoctorDetails** class by passing **areaOfTreatment** as parameter
- Identify *wardChargePerDay*(int) by invoking **wardChargePerDay()** method
- If the *specialization* is not null and *wardChargePerDay* is not -1 and **noOfDays** is greater than zero and **validatePatientName()** returns true, then-
    - Generate **patientId** by invoking **generatePatientId()** method
    - Identify *consultationFee*(int) based on *specialization* from the table below:

specialization	*consultationFee*
"Ophthalmologist"	400
"Dermatologist"	500
"Cardiologist"	800

Note: Perform **case-sensitive** comparison

- Calculate *wardCharge*(int) by multiplying **noOfDays** with *wardChargePerDay* and adding it *consultationFee*
- Set the **billAmount** with the obtained *wardCharge*

- Otherwise, set the **billAmount** to **-1** and **patientId** to **"NA"**

Example: If the **patientName** is **"rudith"**, **areaOfTreatment** is **"hEart", wardType** is **"ICU"** and **noOfDays** is **8** then **patientId** would be **"R1001"** (Assuming as first patient) and **billAmount** would be **20800** currency.