Nightingale Hospital has come up with an enhancement to their existing Information System Management. As a first step towards that, they will require an API which will retrieve patient information with their MRN (Medical Record Number).

Given below are the required sample Input and Output along with other details.

Input

The data input is a text file *'input.txt'* where each row contains a medical record. A sample medical record is

IN236;Joseph Franklin;M;24186-ENT;9/4/2012;12/4/2012

Where**,**

IN236– Medical Record Number (MRN) – Unique Number (*IN* for Incoming, *OUT* for Outgoing)

Joseph Franklin – Patient Name

M – Gender

24186-ENT – Physician Id

09/04/2012 – Admission Date

12/04/2012 – Discharge Date

Output

The output will be of type *Map<Integer,Map>*

The first key will be **1** (Integer) and the value will be a *Map<String,List<PatientVO>>.* The value map will have admission date as key and a list of patients **(**each item in the list should have all values populated like *mrn, patient name, bill* **etc...))** who got admitted on that admission date as the value.

The second key will be **2** (Integer) and the value will be a *Map<String, Integer>.* The value map will have physician category as key and no. of patients under that category as value.

"*ENT*", "*NEU*","*GEN*" are three categories of Physicians. The Physician Id from the input file contains a number followed by **"-"**and the category of Physician ("*ENT*", "*NEU*","*GEN*")

A sample output is given in below table.

Key (Integer)	Value (Map)
1	*{27/09/2012=[{ mrn: OUT124	patientName: Caroline Buyse	gender: F	physicanId: 13695-GEN	bill: 8750	admissionDate: Sun Mar 09 00:00:00 IST 2014	dischargeDate: Tue Apr 10 00:00:00 IST 2012 }, { mrn: OUT136	patientName: Jonathan Brown	gender: M	physicanId: 13696-GEN	bill: 2500	admissionDate: Sun Mar 09 00:00:00 IST 2014	dischargeDate: Fri May 09 00:00:00 IST 2014 }], 09/04/2012=[{ mrn: IN236	patientName: Joseph Franklin	gender: M	physicanId: 24186-ENT	bill: 4500	admissionDate: Tue Sep 04 00:00:00 IST 2012	dischargeDate: Tue Dec 04 00:00:00 IST 2012 }]}*
2	{NEU=2, GEN=2, ENT=2}

N.B. – The output should not be hardcoded. If it is found that the output is hardcoded the examination will be cancelled and the attempt will be considered Unsuccessful.

Validation

The data input is to be validated as per below:

1. All fields are mandatory.
2. Patient Name should contain only alphabets and spaces.
3. Admission Date and Discharge Date should only be in '***dd/MM/yyyy'*** format.
4. Discharge Date cannot be greater than Admission Date.
5. MRN should start with ***IN*** or ***OUT*** followed by a Number.
6. Physician Id should start with a number followed by ***"-"***and then followed by either "***ENT***", "***NEU***" or "***GEN"***.

The API should throw a ***PatientInformationException*** in case any of the above validation fails.

N.B. – Examinees are advised to vary the data of the input file accordingly to check various scenarios.

Calculation Of Bill Amout

The bill amount for each record should be calculated as per below rule:

Bill Amount = ***No. of Days stayed in Hospital * Per Day Charge for each category***.

No. of Days stayed in Hospital = Difference between Discharge Date and Admission Date. For example if Admission Date is 8/4/2012 and Discharge Date is 12/4/2014, then No. of Days stayed in Hospital will be 4.

Per Day Charge for Each Category is given in table below.

Category	Per Day Charge
GEN	1250
ENT	1500
NEU	1750

Notes

1. Do not change the structure of the skeleton code and do not add any public methods.
2. Do not add/remove/modify any fields of the VO class.
3. Do not change any access specifiers/modifiers of the existing code.
4. Do not change Input Parameters Types and Output Parameter Types.
5. Periodically click on the **Save Project** button to upload your latest code. Merely pressing '***Cntrl+S*** ' will not suffice.
6. You can check the latest Uploaded code by clicking on **the Download Latest Code** button.