Lab Test

Hospital

- Has **unique** collection of doctors, and a **unique** collection of patients
- Can *add doctors*, *add patients*, and *start the healing*
- When starting the healing begins, each doctor attempts to cure diseases of each patient
- Can display a list of patients sorted by the number of diseases they have
- Can display a list of doctors sorted by the number of diseases they have cured
- Can display statistics (how many patients still have diseases and how many diseases are not cured)

Person

- Has an ID (integer) and a name (String)
- The length of the ID integer has to be 7 (ID_LENGTH - constant) when set. If an attempt to set an integer of a different length is made, an *InvalidDataException* should be thrown
- The length of the name has to be at least 6 (ID_NAME_LENGTH - constant) when set. If an attempt to set a shorter name is made, an *InvalidDataException* should be thrown

Patient

- Is a *Person*
- Has a **unique** collection of diseases, and diseases can also be added to that collection
- Can be cured of that disease (if she/he has it). If the person is cured of a given disease, the method returns true; otherwise it returns false
- When cured, a disease is removed from the corresponding collection

Doctor

- Is a *Person*
- Can cure a *Patient*
    - A doctor attempts to cure a random number of diseases a patient suffers from (that number must be smaller than the number of diseases of that patient)
    - If a doctor succeeds in curing a disease, its number of diseases counter is incremented
- Has a field which keeps track of the number of diseases cured (integer)

Disease

- Has a name and severity
- Has a method named *cure* which returns a boolean based on the chance of curing it, which depends on severity as follows
    - 75% chance of returning true for LOW severity
    - 50% chance of returning true for MEDIUM severity
    - 25% chance of returning true for HIGH severity

Severity

- Enum; can be LOW, MEDIUM or HIGH

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