## Military Elite

Create the following class hierarchy:

* **Soldier** – general class for soldiers, holding **id**, **first name** and **last name.**
  + **Private** – lowest base soldier type, holding the field **salary**(double).
    - **LeutenantGeneral** – holds a set of **Privates** under his command.
    - **SpecialisedSoldier –** general class for all specialised soldiers – holds the **corps** of the soldier. The corps can only be one of the following: **Airforces** or **Marines**.
      * **Engineer** – holds a set of **repairs**. A **repair** holds a **part name** and **hours worked**(int).
      * **Commando** – holds a set of **missions**. A mission holds **code name** and a **state** (***inProgress*** or ***Finished***). A mission can be finished through the method **CompleteMission()**.
  + **Spy** – holds the **code number** of the spy.

Extract **interfaces** for each class. (e.g. **ISoldier**, **IPrivate**, **ILeutenantGeneral**, etc.) The interfaces should hold their public properties and methods (e.g. **Isoldier** should hold **id**, **first name** and **last name**). Each class should implement its respective interface. Validate the input where necessary (corps, mission state) - input should match **exactly** one of the required values, otherwise it should be treated as **invalid**. In case of **invalid** **corps** the entire line should be skipped, in case of an **invalid** **mission** **state** only the mission should be skipped.

You will receive from the console an unknown amount of lines containing information about soldiers until the command “**End**” is received. The information will be in one of the following formats:

* Private: “**Private <id> <firstName> <lastName> <salary>**”
* LeutenantGeneral: “**LeutenantGeneral <id> <firstName> <lastName> <salary> <private1Id> <private2Id> … <privateNId>**” where privateXId will **always** be an **Id** of a private already received through the input.
* Engineer: “**Engineer <id> <firstName> <lastName> <salary> <corps> <repair1Part> <repair1Hours> … <repairNPart> <repairNHours>**” where repairXPart is the name of a repaired part and repairXHours the hours it took to repair it (the two parameters will always come paired).
* Commando: “**Commando <id> <firstName> <lastName> <salary> <corps> <mission1CodeName> <mission1state> … <missionNCodeName> <missionNstate>**” a missions code name, description and state will always come together.
* Spy: “**Spy <id> <firstName> <lastName> <codeNumber>**”

Define proper constructors. Avoid code duplication through abstraction. Override **toString()** in all classes to print detailed information about the object.

Privates:  
**Name: <firstName> <lastName> Id: <id> Salary: <salary>**

Spy:  
**Name: <firstName> <lastName> Id: <id>  
Code Number: <codeNumber>**

LeutenantGeneral:  
**Name: <firstName> <lastName> Id: <id> Salary: <salary>  
Privates:  
 <private1 ToString()>  
 <private2 ToString()>  
 …  
 <privateN ToString()>**

**Note**: privates must be sorted by id in **descending order**.

Engineer:  
**Name: <firstName> <lastName> Id: <id> Salary: <salary>  
Corps: <corps>  
Repairs:  
 <repair1 ToString()>  
 <repair2 ToString()>  
 …  
 <repairN ToString()>**

Commando:  
**Name: <firstName> <lastName> Id: <id> Salary: <salary>  
Corps: <corps>  
Missions:  
 <mission1 ToString()>  
 <mission2 ToString()>  
 …  
 <missionN ToString()>**

Repair:  
**Part Name: <partName> Hours Worked: <hoursWorked>**

Mission:  
**Code Name: <codeName> State: <state>**

**NOTE:** Salary should be printed rounded to **two decimal places** after the separator.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Private 1 Pesho Peshev 22.22 Commando 13 Stamat Stamov 13.1 Airforces  Private 222 Toncho Tonchev 80.08  LeutenantGeneral 3 Joro Jorev 100 222 1  End | Name: Pesho Peshev Id: 1 Salary: 22.22  Name: Stamat Stamov Id: 13 Salary: 13.10  Corps: Airforces  Missions:  Name: Toncho Tonchev Id: 222 Salary: 80.08  Name: Joro Jorev Id: 3 Salary: 100.00  Privates:  Name: Toncho Tonchev Id: 222 Salary: 80.08  Name: Pesho Peshev Id: 1 Salary: 22.22 |
| Engineer 7 Pencho Penchev 12.23 Marines Boat 2 Crane 17  Commando 19 Penka Ivanova 150.15 Airforces HairyFoot finished Freedom inProgress  End | Name: Pencho Penchev Id: 7 Salary: 12.23  Corps: Marines  Repairs:  Part Name: Boat Hours Worked: 2  Part Name: Crane Hours Worked: 17  Name: Penka Ivanova Id: 19 Salary: 150.15  Corps: Airforces Missions:  Code Name: Freedom State: inProgress |