1. Take the procedural design approach and create first the context diagram and then the highest-level data-flow diagram (including possible control signals as in Figure 6.8 of the textbook, page 289) for an electronic lock in the laboratory door having the following requirements specifications:

* The lock has an integrated RFID card reader and every registered user has a unique identification code.
* An accepted card is acknowledged by a green LED and a rejected one by a red LED.
* The lock will open when an adequate current is flowing through its control solenoid; otherwise, it remains locked.
* Information about registered users and their permitted entrance times is stored on a database of a remote workstation that manages all locks within the whole college building.
* Embedded controllers of individual locks in the building communicate with the common workstation through a wireless communications network.

You may define additional requirements yourself if needed.

**Add your answer below**

1. Study the conclusion section of the following articles:

* Ana M. Fernández-Sáez, Marcela Genero, DaniloCaivano, and Michel R. V. Chaudron. 2015. On the use of UML documentation in software maintenance: results from a survey in industry. In *Proceedings of the 18th International Conference on Model Driven Engineering Languages and Systems* (*MODELS ’15*). IEEE Press, 292–301.
* Chaudron, M.R.V., Heijstek, W. & Nugroho, A. How effective is UML modeling ?. *Softw Syst Model* **11,** 571–580 (2012).

Please complete the fields and mark with “*X*” if you agree or not with the idea mentioned by the author in each sentence.

* *“Modeling is a common practice in software development and will become more common with the adoption of* ***1\_\_\_\_\_\_\_*** *technology”*
* 43% of ICT professionals admitted that UML documentation is used to **2\_\_\_\_\_\_\_**
* *“An important gap in the knowledge about using UM is related to the impact of* ***3\_\_\_\_\_\_\_*** *”*
* The effort of implement a model into a tool is not time-consuming as much as **4\_\_\_\_\_\_\_**
* *“* ***5\_\_\_\_\_\_\_*** *teams use UML more frequently”  
  “For developers a practical problem that limits the adoption of UML is* ***6\_\_\_\_\_\_\_*** *”*
* Tools for software development lifecycle are not well integrated and not sufficiently **7\_\_\_\_\_\_\_**
* *“Software design tooling must integrate* ***8\_\_\_\_\_\_\_****”*

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| --- | --- | --- | --- |
| **Field** | **Answer** | **Agree?** | |
| **Yes** | **No** |
| **1** |  |  |  |
| **2** |  |  |  |
| **3** |  |  |  |
| **4** |  |  |  |
| **5** |  |  |  |
| **6** |  |  |  |
| **7** |  |  |  |
| **8** |  |  |  |