

Suggestions for more effective use of Hands-On Labs.

2023/02/21 ver.1.5
K.Arai

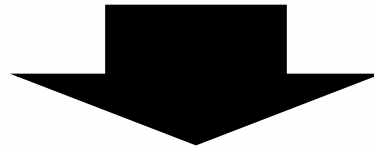


Summary of complaints from students

- Typo
- Some bugs
- Presence of questions **not studied** in lectures
 - In most questions, they frequently need to **see hints** and **copy answers**.
 - More learning materials needed

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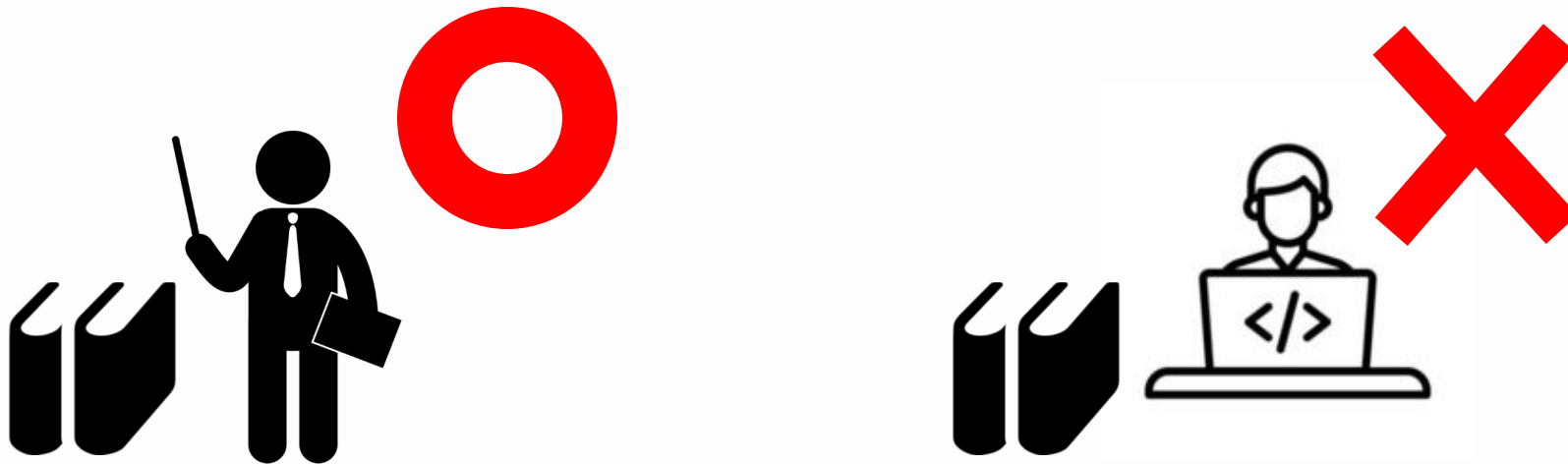
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A **mismatch** is occurring between **lecture content** and **e-learning contents**

Suggestion for more effective use

- This is due to the fact that **questions are created by system developers or planners**, not teachers of the lecture.



Teacher oriented system is needed.

Details of teacher oriented system

- We can use Hands-On Labs as a **platform for lectures**, not just a static e-learning content.
- In addition to role such as admin or member, we can create the role of **teacher**.

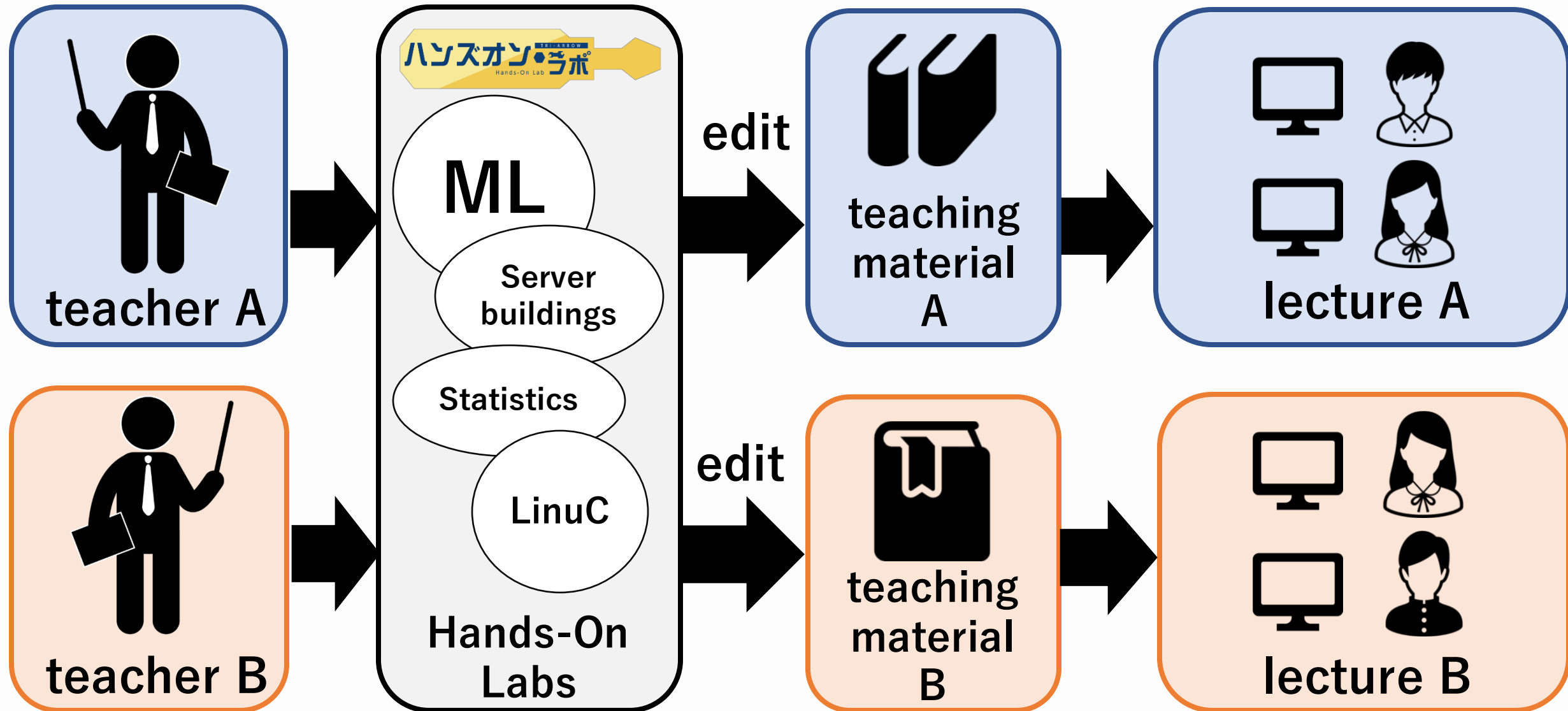


Details of teacher

- Each teachers who has different lectures can **create own teaching materials**.
- Teachers can select from **templates** such as quiz, server building, and Machine Learning and **freely edit** it.
- Teachers can **specify** which packages will be installed.



Overview of the suggested system



Implementation ideas

Section	implementation
LinuC Basic	Fix current admin tool
LinuC Advance	Developer should prepare to docker container, and teacher specify packages. And then, students use "apt-get" in order to install them.
Machine Learning	Teachers freely create or edit scenario.
Security	Teachers select existing software environment(wireshark, nmap OpenVAS) and edit scenario.

Pros of this system

- Just like before, teachers and students don't need to prepare environments.
- In addition, Engineers **don't need to edit and fix** learning contents.
 - only need to worry about the infrastructure part.
- This new system is more flexible than the previous one, allowing **more institutions** to use hands-on labs.

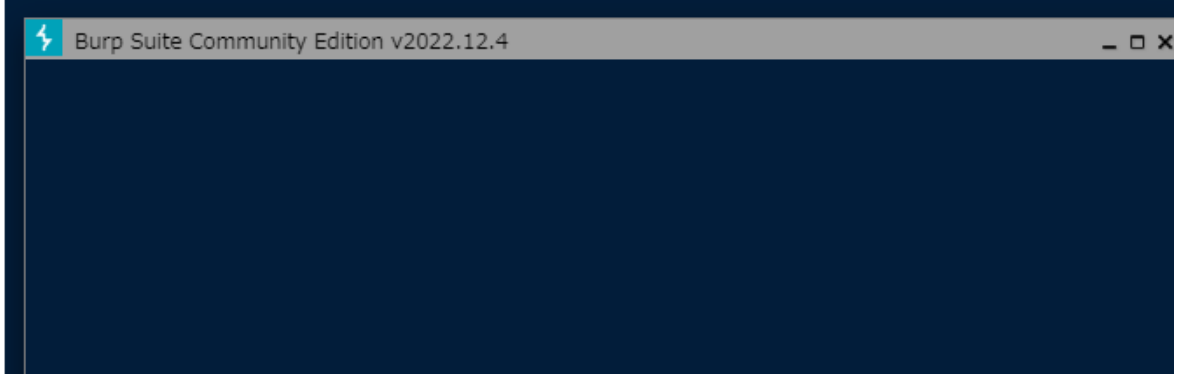
These ideas are also possible in each sections.

- **Advanced LinuC section(LinuC 応用編)**
 - In addition to basic server use, participants should be required to make some convenient or practical services.
- **Security section(セキュリティ)**
 - we should prepare contents like a case study(ex. man-in-the-middle attack).

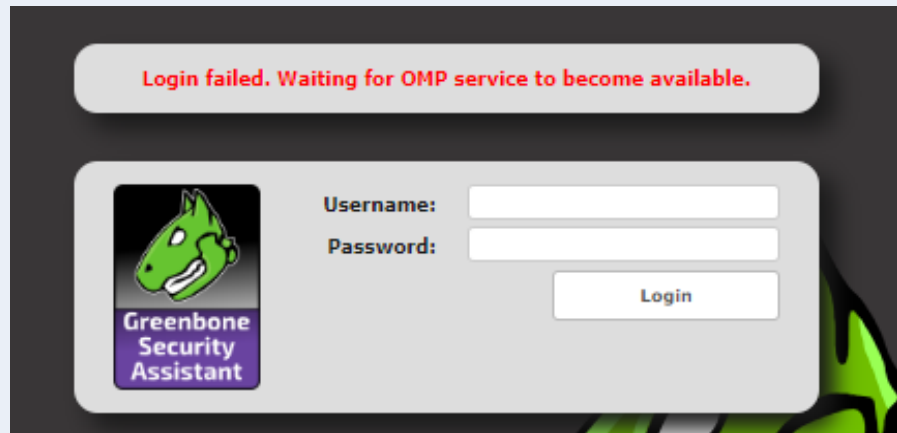
These contents will make participants
be more motivated.

- Hints can be written in **Markdown**.
- Enable uploading of lecture videos or materials so that student can review lecture again.
- They cannot organize knowledge because there is just a series of single questions.
- Do vulnerability diagnosis on self PC.
- We can prepare not only correct command, but also error resolution case.
- Regular expression is needed in True/False judgment.

Some bugs and issues I found (1/2)

Section	bugs and issues
Security > OWASP	There is no tutorial documents, just a blank pdf.
Linux Basic > Service	Command not be detected properly, instead "cat ~/.bash_history"
LinuC advanced > MySQL	Checkboxes are unchecked when I change tabs.
Security > Burp Suite	<p>I can not launch app. transparent window still remains.</p>  A screenshot of a window titled "Burp Suite Community Edition v2022.12.4". The window is mostly dark blue/black, with a lighter blue header bar containing the title and window control buttons. The content area is mostly empty, showing a dark background.

Some bugs and issues I found (2/2)

Section	bugs and issues
LinuC advanced > PHP	Scrolling is too slow and late. Probably due to php.ini is big size file and has many lines. Its hard to find corresponding part.
LinuC advanced > test program	Even though table2 data is shown, unchecked.
Security > OpenVAS	Sometimes login fails in spite of correct username and password. 

Version	Reason for revised	Create	
		Created by	Date
Ver1.0	init	K.Arai	2023/02/15
Ver1.1	Applied the template of tri-arrow	K.Arai	2023/02/16
Ver1.2	Fixed overview image	K.Arai	2023/02/16
Ver 1.3	Added description of role of teacher	K.Arai	2023/02/21
Ver 1.4	Added implementation ideas	K.Arai	2023/02/22
Ver 1.5	Added bugs and issues slide	K.Arai	2023/02/22