
Embedded System Design Practice 1

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1. Lecture introduction
2. Install VMware and Linux
3. How to use git



Lecture introduction



Introduction

- **Embedded System Design**
- **Practice Location: IT/BT 609@every friday**
- **TA**
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Grading

- **Midtern : 20%**
- **Final : 20%**
- **Lab assignment : 20%**
- **Term Project : 30%**
- **Attendance : 10%**



Schedule (1/2)

Week	Date	Lecture
1	3/4	Introduction
2	3/11	SysLab - Orientation
3	3/18	SysLab - Implement Startup Code
4	3/25	SysLab - Basic UART & Timer Setting
5	4/1	SysLab - Implement Hardware Interrupt
6	4/8	SysLab - Implement Software Interrupt
7	4/15	Midterm Exan (No Practice Class)
8	4/22	SysLab - Implement Timer & GPIO



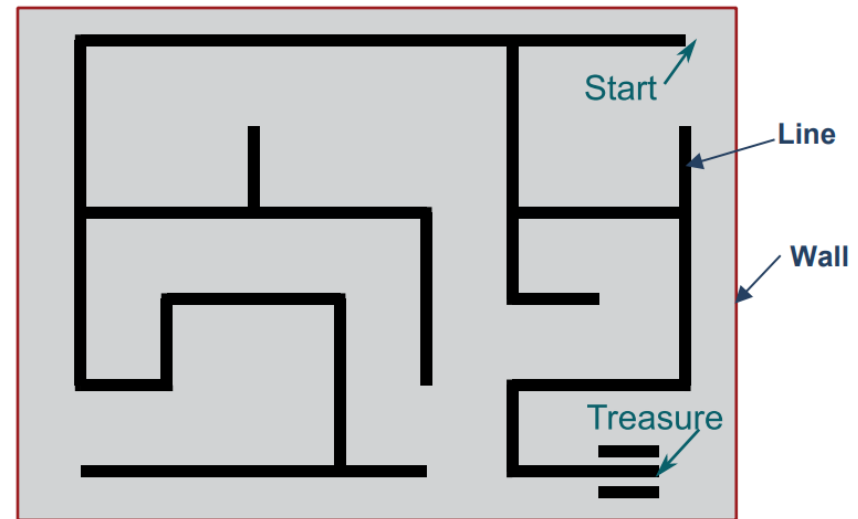
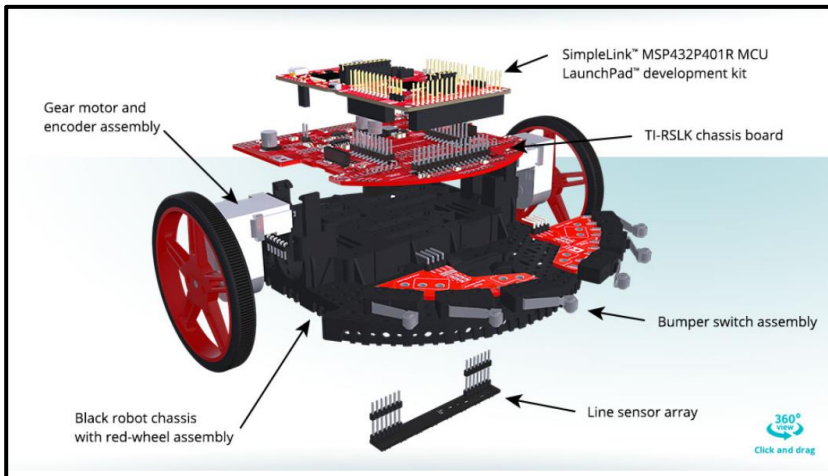
Schedule (2/2)

Week	Date	Lecture
9	4/29	SysLab - Q&A
10	5/6	QEMU - Orientation
11	5/13	QEMU - Stack & BSS
12	5/20	QEMU - Bit Banding & Count Down
13	5/27	Final Exam (No Practice Class)
14	6/3	Term Project
15	6/10	Term Project
16	6/17	Term Project (Optional)



Term Project

We will develop Line Tracer



Term Project

We will Implement

- Line Tracing Algorithm**
- Motor & Sensor Control**

with C & Assembly

Evaluate by how quickly you reached the finish line

- 2 chances**
- Score by time average of 2 chances**

How to make a team

- 2 people in one group
- Email to us with your team information

Otherwise, random teammate

[Email Format]

Title : Embedded_TeamMate

Contents : Your Name & Your Student ID

Teammate Name & Teammate Student ID

until next practice class (3/11)

Install VMware and Linux



Install Linux

- Ubuntu 14.04.6 LTS

- Website ([Link](#))

Desktop image

The desktop image allows you to try Ubuntu without changing your computer at all, and at your option to install it permanently later. This type of image is what most people will want to use. You will need at least 384MiB of RAM to install from this image.

64-bit PC (AMD64) desktop image

Choose this if you have a computer based on the AMD64 or EM64T architecture (e.g., Athlon64, Opteron, EM64T Xeon, Core 2). If you have a non-64-bit processor made by AMD, or if you need full support for 32-bit code, use the i386 images instead. Choose this if you are at all unsure.

32-bit PC (i386) desktop image

For almost all PCs. This includes most machines with Intel/AMD/etc type processors and almost all computers that run Microsoft Windows, as well as newer Apple Macintosh systems based on Intel processors.

Server install image

The server install image allows you to install Ubuntu permanently on a computer for use as a server. It will not install a graphical user interface.

64-bit PC (AMD64) server install image

Choose this if you have a computer based on the AMD64 or EM64T architecture (e.g., Athlon64, Opteron, EM64T Xeon, Core 2). If you have a non-64-bit processor made by AMD, or if you need full support for 32-bit code, use the i386 images instead. Choose this if you are at all unsure.

32-bit PC (i386) server install image

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VMware

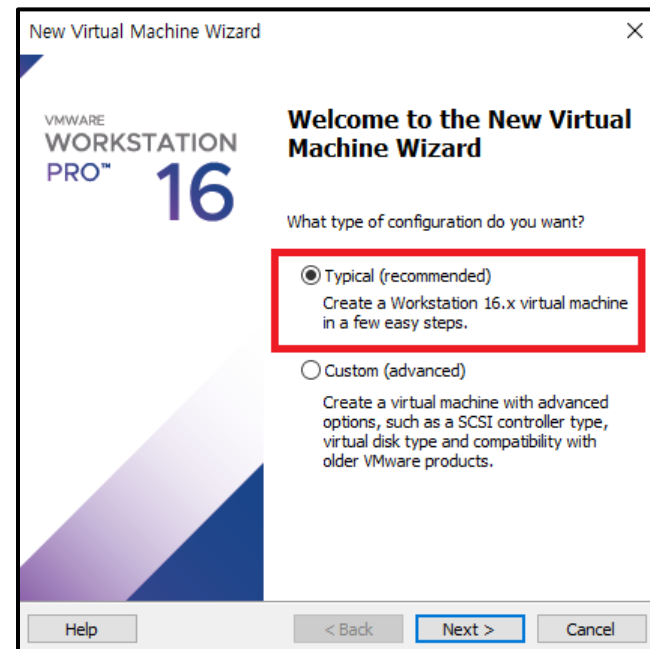
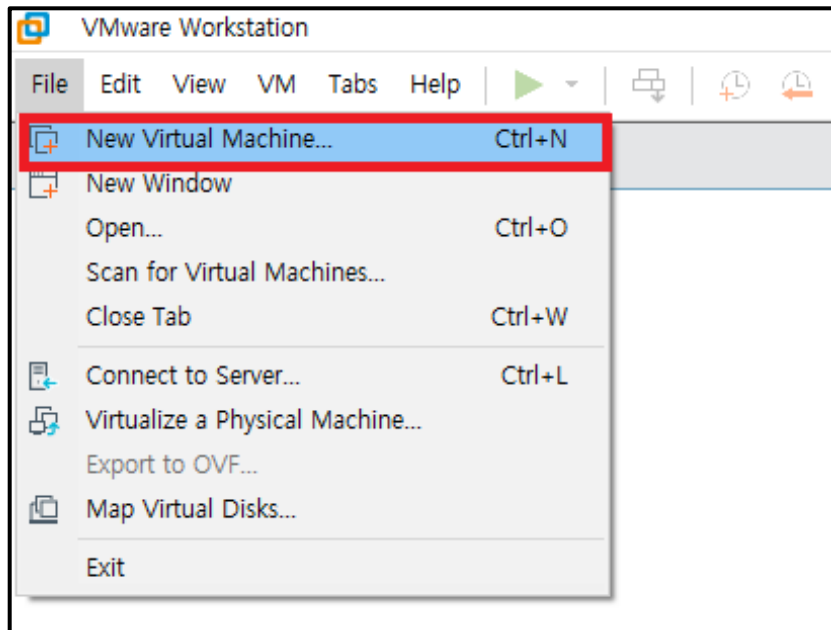
- X86 virtualization software to virtualize guest OS
- Website ([Link](#))

The screenshot displays the VMware website's 'Product Downloads' section. The navigation bar includes 'Product Downloads', 'Drivers & Tools', 'Open Source', 'Custom ISOs', and 'OEM Addons'. A table lists the available download:

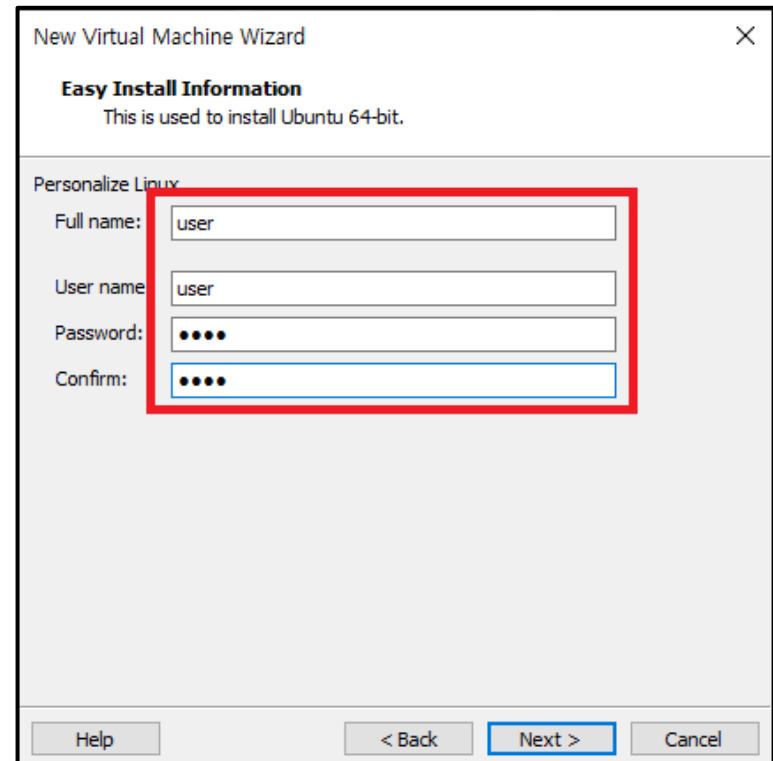
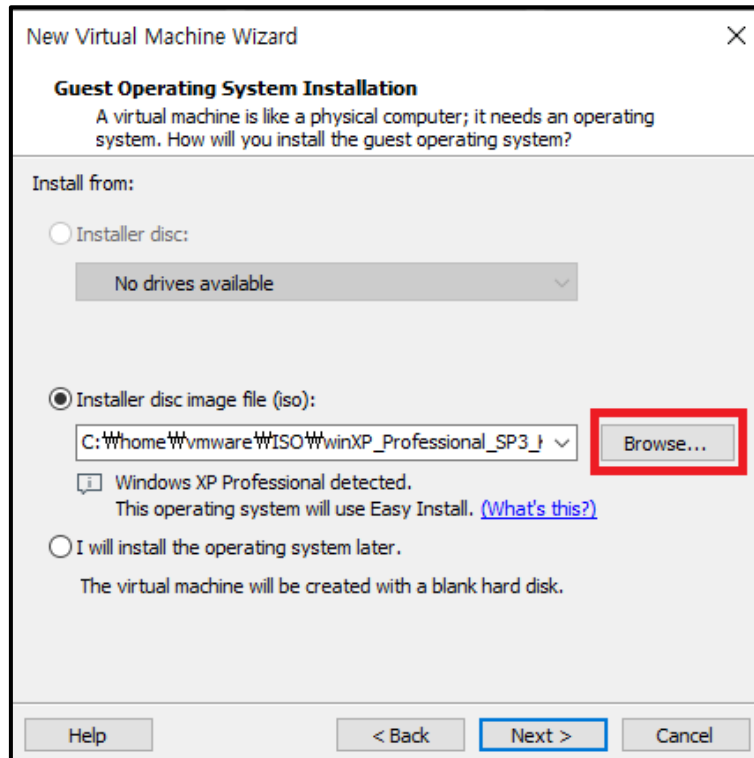
File	Information
VMware Workstation 16.2.2 Player for Windows 64-bit Operating Systems	DOWNLOAD NOW
File size: 584.24 MB	
File type: exe	
Read More	

At the bottom, there is a link for 'Information about MD5 checksums, and SHA1 checksums and SHA256 checksums'.

Create a virtual machine



Create a virtual machine



Create a virtual machine

New Virtual Machine Wizard

Specify Disk Capacity
How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB):

Recommended size for Ubuntu 64-bit: 20 GB

☒ Store virtual disk as a single file
☐ Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Help < Back Next > Cancel

Hardware

Device	Summary
Memory	16 GB
Processors	8
New CD/DVD (SATA)	Using file C:\home\Wmwar...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

3D graphics
☒ Accelerate 3D graphics

Monitors
☒ Use host setting for monitors
☐ Specify monitor settings:
Number of monitors:
Maximum resolution of any one monitor:

Graphics memory
Maximum amount of guest memory that can be used for graphics memory:

Display scaling
☐ Stretch mode:
☒ Keep aspect ratio stretch
Stretch the virtual machine display while maintaining the user interface aspect ratio
☐ Free stretch
Stretch the virtual machine display to fill the user interface, without maintaining the user interface aspect ratio

Add... Remove

Close Help

Create a virtual machine

For more information, refer to the following link

<https://lonaru-burnout.tistory.com/2>

GitLab for students



GitLab Login

1. At “hconnect.hanyang.ac.kr”, click “Sign in with Hanyang”

GitLab Community Edition

Open source software to collaborate on code

Manage Git repositories with fine-grained access controls that keep your code secure. Perform code reviews and enhance collaboration with merge requests. Each project can also have an issue tracker and a wiki.

Sign in

Register

Username or email

Password

☐ Remember me

[Forgot your password?](#)

Sign in


Sign in with

Hanyang

☐ Remember me

GitLab Login

2. Login with Hanyang account



한양대학교 | 로그인

고객님의 정보에 접근하기 위하여 인증이 필요합니다.
한양대학교 포털 한양인(HY-in)계정으로 로그인 하시기 바랍니다.

Portal Login

ID

Password

로그인

GitLab Login

3. Agree to terms of information provision

**한양대학교 | 개인정보의 제 3자 제공동의 요청**

한양대학교 OPEN API는 아래와 같은 개인정보를 온라인 소프트웨어 교육 지원 시스템 - Real 에 제공합니다.

제공 받는자

커넥트재단 (온라인 소프트웨어 교육 지원 시스템 - REAL)

제공 목적

웹상에서 학생 실습코드를 저장하고 빌드 하여 채점, 코드 리뷰를 수행하는 시스템 입니다.

실습 코드 저장은 GITLABCE를 활용할 예정입니다

코드 리뷰는 REVIEW BOARD, 빌드 및 채점은 JENKINS를 사용할 예정입니다.

한양대 도메인을 통해 서비스 하고 한양대 학생 인증을 적용할 예정입니다.


**** 실제 서비스를 사용자가 사용하는 환경 입니다.**


제공 항목

모든 항목에 동의하시어만 이용 가능합니다.

로그인사용자 정보조회

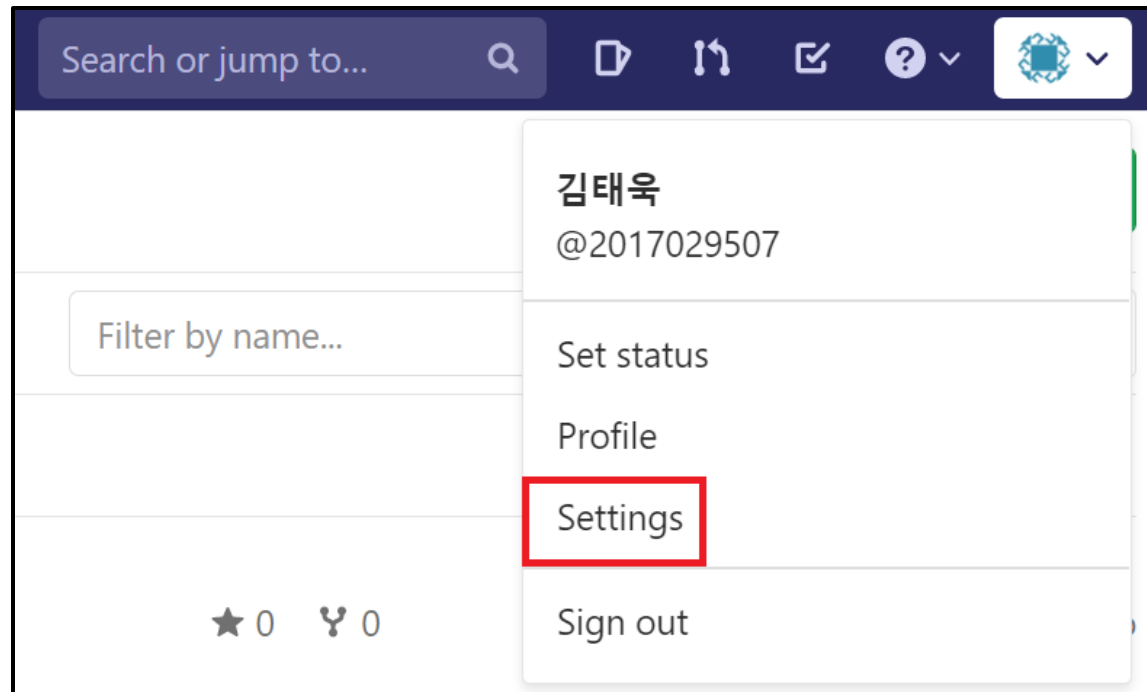
[포털에서 설정한 대표 신분 정보]
로그인한 사용자의 성명, 사용자ID, 학번(개인번호), 재학(재직) 여부, 소속대학, 소속명, 소속코드, 소속ID, 사용자구분명의 정보를 제공합니다.

☒ 전체 동의합니다. 

☐ 동의합니다. 

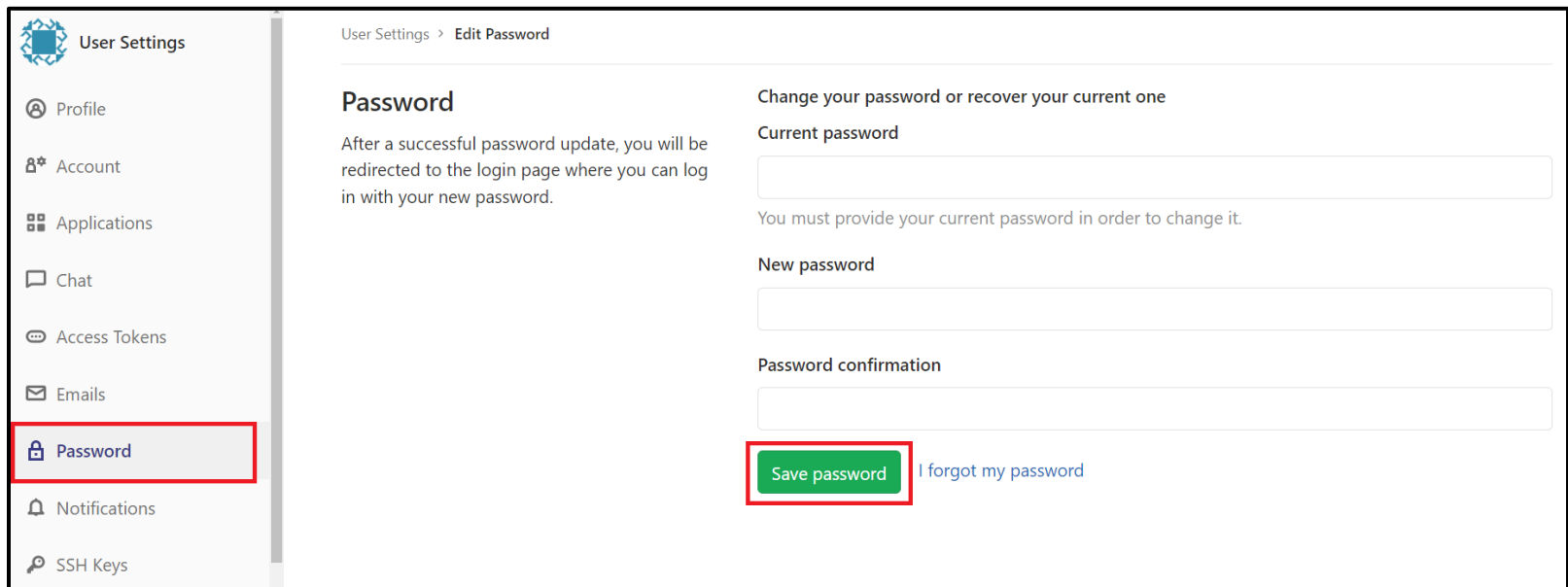
GitLab Login

4. Set password



GitLab Login

4. Set password



The screenshot shows the GitLab User Settings interface. On the left sidebar, the 'Password' option is highlighted with a red box. The main content area is titled 'User Settings > Edit Password'. It contains a 'Password' section with a note: 'After a successful password update, you will be redirected to the login page where you can log in with your new password.' To the right, there are three input fields: 'Current password', 'New password', and 'Password confirmation'. Below these fields is a green 'Save password' button, which is also highlighted with a red box, and a link that says 'I forgot my password'.

User Settings > Edit Password

Password

After a successful password update, you will be redirected to the login page where you can log in with your new password.

Change your password or recover your current one

Current password

You must provide your current password in order to change it.

New password

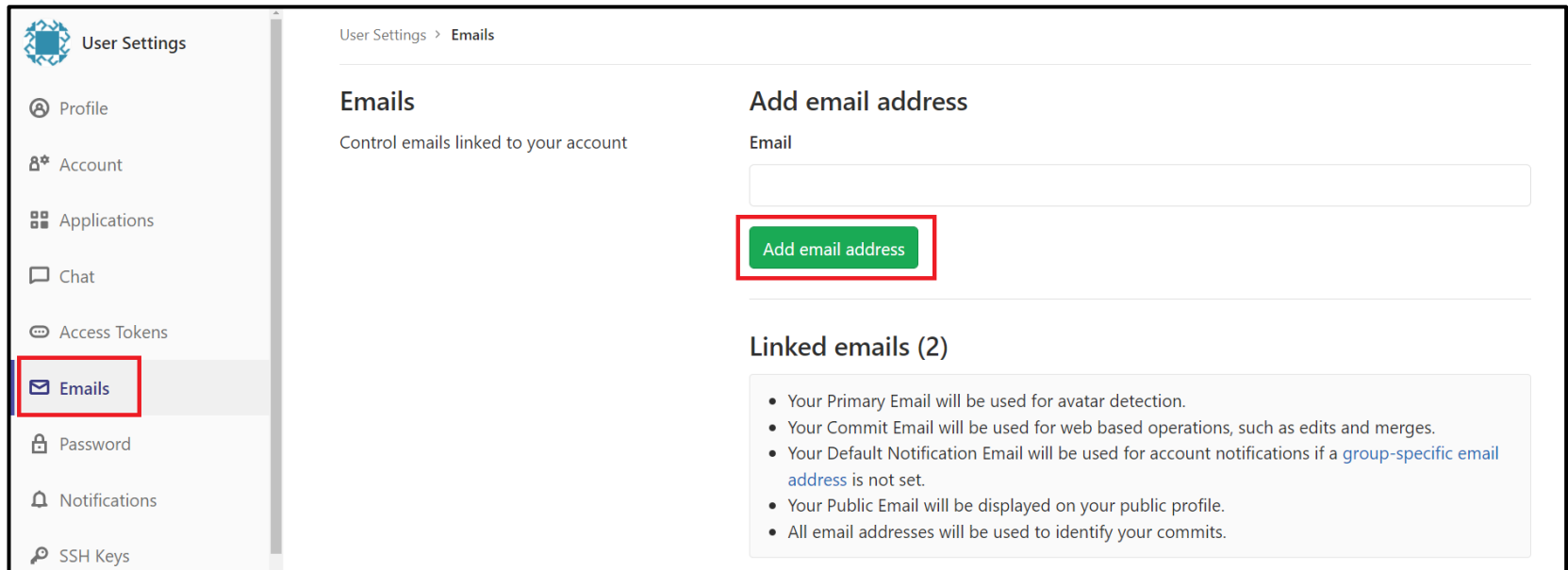
Password confirmation

[I forgot my password](#)

[Save password](#)

GitLab Login

5. Set email



User Settings > Emails

Emails

Control emails linked to your account

Add email address

Email

Add email address

Linked emails (2)

- Your Primary Email will be used for avatar detection.
- Your Commit Email will be used for web based operations, such as edits and merges.
- Your Default Notification Email will be used for account notifications if a [group-specific email address](#) is not set.
- Your Public Email will be displayed on your public profile.
- All email addresses will be used to identify your commits.

GitLab Login

6. After setting password and email, you can login without clicking “Sign in with Hanyang”

GitLab Community Edition

Open source software to collaborate on code

Manage Git repositories with fine-grained access controls that keep your code secure. Perform code reviews and enhance collaboration with merge requests. Each project can also have an issue tracker and a wiki.

Sign in

Register

Username or email

your_account

Password

.....

☐ Remember me

[Forgot your password?](#)

Sign in

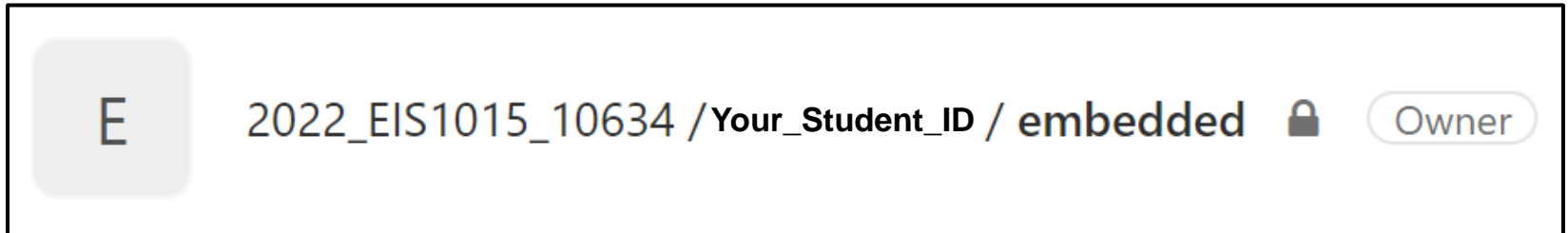
Sign in with

Hanyang

☐ Remember me

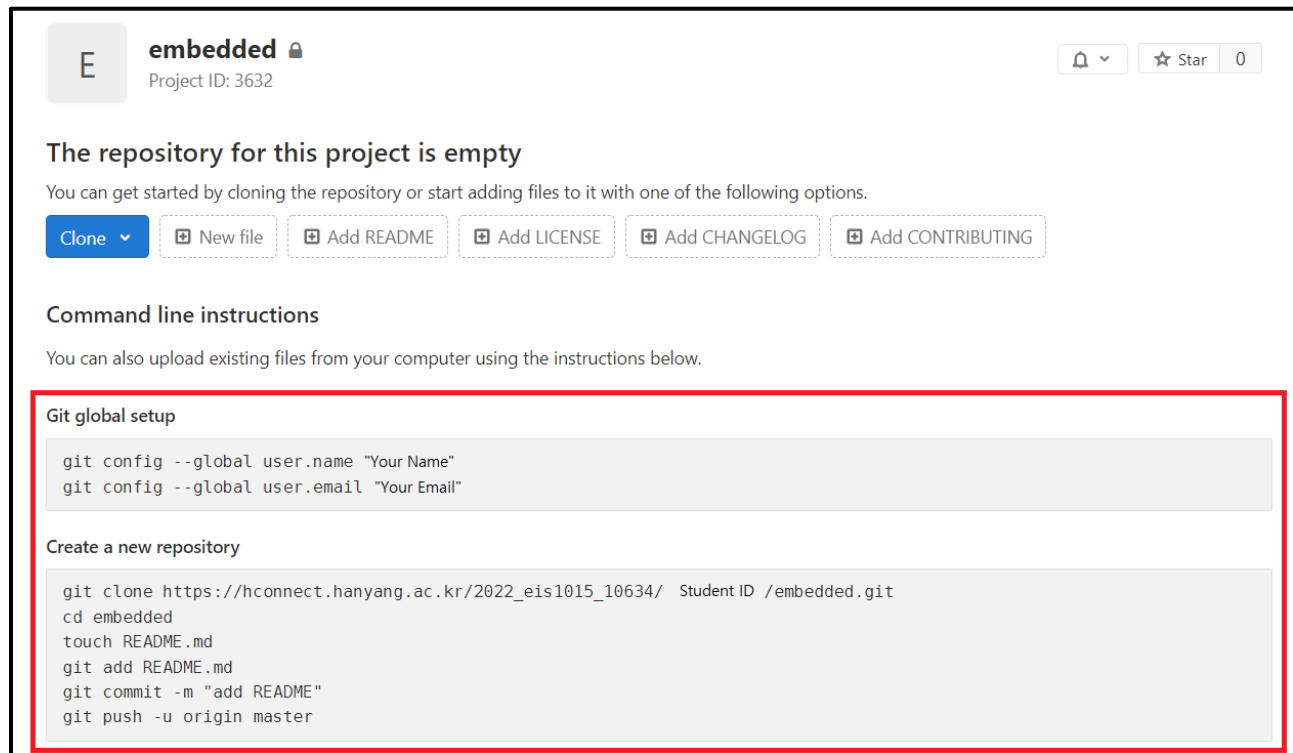
GitLab Setup

7. Click “embedded” repository



GitLab Setup

8. Setup git environment on your Linux



The screenshot shows a GitLab project page for a repository named 'embedded' (Project ID: 3632). The repository is empty. Below the repository name, there are buttons for 'Clone', 'New file', 'Add README', 'Add LICENSE', 'Add CHANGELOG', and 'Add CONTRIBUTING'. Under the 'Command line instructions' section, there are two code blocks. The first block, titled 'Git global setup', contains commands to configure the global user name and email. The second block, titled 'Create a new repository', contains commands to clone the repository, create a README file, add it to the commit, and push it to the origin master branch. The second code block is highlighted with a red border.

Git global setup

```
git config --global user.name "Your Name"
git config --global user.email "Your Email"
```

Create a new repository

```
git clone https://hconnect.hanyang.ac.kr/2022_eis1015_10634/ Student ID /embedded.git
cd embedded
touch README.md
git add README.md
git commit -m "add README"
git push -u origin master
```

GitLab Setup

8. Setup git environment on your Linux

```
$ apt-get install git
```

```
$ git config --global user.name "Your Name"  
$ git config --global user.email "Your Email"
```

GitLab Setup

8. Setup git environment on your Linux

```
$ git clone "git address"

$ cd embedded
$ echo "this is embedded repo" > README.md

$ git add README.md
$ git commit -m "add READMD"
$ git push -u origin master
```

Thank you

