

系统开发工具基础实验报告（一）

22110032031 张希敏

2024 年 9 月 12 日

目录

1 练习主题	1
2 练习内容	1
2.1 四个题目	1
2.1.1 题目一	1
2.1.2 题目二	3
2.1.3 题目三	4
2.1.4 题目四	5
2.2 20 个实例	7
3 问题及解决方案	12
4 解题感悟	15
5 github 链接	16

1 练习主题

(1) 版本控制 (Git)

(2) Latex 文档编辑

2 练习内容

2.1 四个题目

2.1.1 题目一

克隆课程网站的仓库。

答： 使用 git clone 命令，如图：

```
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /  
$ cd d:/gitku  
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku  
$ git clone https://github.com/missing-semester-cn/missing-semester-cn.github.io.git  
Cloning into 'missing-semester-cn.github.io'...  
remote: Enumerating objects: 3194, done.  
remote: Counting objects: 100% (1333/1333), done.  
remote: Compressing objects: 100% (475/475), done.  
remote: Total 3194 (delta 868), reused 874 (delta 858), pack-reused 1861 (from 1)  
Receiving objects: 100% (3194/3194), 15.47 MiB | 1.34 MiB/s, done.  
Resolving deltas: 100% (2036/2036), done.
```

(1) 将版本历史可视化并进行探索。

答： 输入 git log --all --graph --decorate 查看结果。

```

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku
$ cd D:/gitku/missing-semester-cn.github.io

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git log --graph --decorate
* commit af054fa1aea2f2599e4474d96b63f73dd9bd145f (HEAD -> master, origin/master, origin/HEAD)
| \
| Merge: dd3f3dd 9baa48c
| Author: Lingfeng_Ai <hanxiaomax@gmail.com>
| Date:   Fri Aug 16 06:54:16 2024 +0800
|
|     Merge pull request #172 from pspdada/master
|
|     Thank you so much
|
$ git log --graph --decorate
* commit af054fa1aea2f2599e4474d96b63f73dd9bd145f (HEAD -> master, origin/master, origin/HEAD)
| \
| Merge: dd3f3dd 9baa48c
| Author: Lingfeng_Ai <hanxiaomax@gmail.com>
| Date:   Fri Aug 16 06:54:16 2024 +0800
|
|     Merge pull request #172 from pspdada/master
|
|     Thank you so much
|
* commit 9baa48c778012164179e4e60725418941f41743b
| Author: psp_dada <1824427006@qq.com>
| Date:   Thu Aug 15 02:07:36 2024 +0800
|
|     remove irrelevant text
|
* commit f5df7de89dc7712483665cc6fe8a787aaef9bf
| Author: psp_dada <1824427006@qq.com>
| Date:   Thu Aug 15 01:46:12 2024 +0800
|
|     fix wrong index
|
* commit ef9a2f75409ff7746c03f6233066e3d2c634cd12
| Author: psp_dada <1824427006@qq.com>
| Date:   Thu Aug 15 01:32:44 2024 +0800
|
|     fix typo
|
* commit dd3f3dd37ce88bb78f802a425e652a65d2ce70d5
| Merge: d284d3e 8e26b4a
| Author: Lingfeng_Ai <hanxiaomax@gmail.com>
| Date:   Thu Aug 1 17:58:28 2024 +0800
|
|     将readme文件中的url的绝对路径改为相对路径，不用重复访问github，利于分享传播

```

(2) 是谁最后修改了 README.md 文件？

答： 输入 git log -1 README.md 查看结果，如图：

```

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git log -1 README.md
commit de98852ef0604cf918bab7f39c63a53932c845d8
Author: yuzq <yuzq@sunwayworld.com>
Date:   Thu Jun 6 14:43:07 2024 +0800

将readme文件中的url的绝对路径改为相对路径，不用重复访问github，利于分享传播

```

(3) 最后一次修改 _config.yml 文件中 collections: 行时的提交信息是什么？

答： 输入 git blame _config.yml | grep collections

git show --pretty=format:"%s" a88b4eac

结果如图：

```
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git blame _config.yml | grep collections
a88b4eac (Anish Athalye 2020-01-17 15:26:30 -0500 18) collections:

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git show --pretty=format"%s" a88b4eac
formatRedo lectures as a collection

diff --git a/2020/index.html b/2020/index.html
deleted file mode 100644
index 153ddc8..0000000
--- a/2020/index.html
+++ /dev/null
@@ -1,5 +0,0 @@
-----
-layout: redirect
-redirect: /
-title: Missing Semester 2020
-----
diff --git a/2019/automation.md b/_2019/automation.md
similarity index 100%
rename from 2019/automation.md
```

2.1.2 题目二

向仓库中添加一个文件并添加提交信息，然后将其从历史中删除。

答： 提交敏感信息文件：

```
echo "password123">>my_password
git add .
git commit -m "add password123 to file"
git log HEAD
```

清除提交记录：

```
git filter-branch --force --index-filter
'git rm --cached --ignore-unmatch ./my_password'
--prune-empty --tag-name-filter cat --all
```

检查文件是否删除，如图：

```

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ echo "password123">my_password
git add .
warning: in the working copy of 'my_password', LF will be replaced by CRLF the next time Git touches it
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git commit -m "add password123 to file"
[master 5366c32] add password123 to file
 1 file changed, 1 insertion(+)
 create mode 100644 my_password
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git log --all --oneline
5366c32 (HEAD -> master) add password123 to file
af054fa (origin/master, origin/HEAD) Merge pull request #172 from pspdada/master
9baa48c remove irrelevant text
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git filter-branch --force --index-filter'
'git rm --cached --ignore-unmatch ./my_password' \
--prune-empty --tag-name-filter cat -- --all
WARNING: git-filter-branch has a glut of gotchas generating mangled history
        rewrites. Hit Ctrl-C before proceeding to abort, then use an
        alternative filtering tool such as 'git filter-repo'
        (https://github.com/newren/git-filter-repo/) instead. See the
        filter-branch manual page for more details; to squelch this warning,
        set FILTER_BRANCH_SQUELCH_WARNINGS=1.
Proceeding with filter-branch...
Rewrite 5366c3275dce26edf649acdee64c1cc1ba8d2d5d (833/833) (576 seconds passed, remaining 0 predicted)    rm 'my_password'

Ref 'refs/heads/master' was rewritten
Ref 'refs/remotes/origin/master' was rewritten
Ref 'refs/remotes/origin/dependabot/bundler/activesupport-6.0.6.1' was rewritten
Ref 'refs/remotes/origin/dependabot/bundler/addressable-2.8.1' was rewritten
Ref 'refs/remotes/origin/dependabot/bundler/nokogiri-1.14.3' was rewritten
Ref 'refs/remotes/origin/dependabot/bundler/tzinfo-1.2.10' was rewritten
WARNING: Ref 'refs/remotes/origin/master' is unchanged
Ref 'refs/remotes/origin/review' was rewritten
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git log --all --oneline
5366c32 add password123 to file
d50a857 (HEAD -> master, origin/master, origin/HEAD) Merge pull request #172 from pspdada/master
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ ls
404.html Gemfile.lock _2020/_layouts/ favicon-16x16.png index.md robots.txt
CNAME README.md _config.yml about.md favicon-32x32.png lectures.html static/
Gemfile _2019/_includes/ apple-touch-icon.png favicon.ico license.md

```

2.1.3 题目三

从 GitHub 上克隆某个仓库，修改一些文件。当您使用 git stash 会发生什么？当您执行 git log –all –oneline 时会显示什么？通过 git stash pop 命令来撤销 git stash 操作，什么时候会用到这一技巧？

答： 使用 git stash 会将当前工作目录中的所有修改保存到一个新的“stash”中，并将工作目录和暂存区恢复到最近一次提交的状态。这使得修改被安全保存的同时，工作目录是干净的，没有未提交的修改。

执行 git log –all –oneline 命令会显示所有分支的提交历史，每个提交显示一行。

git stash pop 命令用于将最近一次 stash 的修改重新应用到当前的工作目录和暂存区中，使用场景有需要在不同的任务中切换的情景，或者已经完成了其他任务要回到之前 stash 的修改点继续工作的情景等。

```

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo (master)
$ git clone https://github.com/missing-semester-cn/missing-semester-cn.github.io.git
Cloning into 'missing-semester-cn.github.io'...
remote: Enumerating objects: 3194, done.
remote: Counting objects: 100% (1333/1333), done.
remote: Compressing objects: 100% (475/475), done.
remote: Total 3194 (delta 868), reused 874 (delta 858), pack-reused 1861 (from 1)
Receiving objects: 100% (3194/3194), 15.47 MiB | 3.22 MiB/s, done.
Resolving deltas: 100% (2036/2036), done.

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo (master)
$ cd D:/gitrepo/missing-semester-cn.github.io

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ echo "helloworld">>hello.txt
$ git add .
warning: in the working copy of 'hello.txt', LF will be replaced by CRLF the next time Git touches it

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   hello.txt

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git stash
Saved working directory and index state WIP on master: af054fa Merge pull request #172 from pspdada/master

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git log --all --oneline
3288293 (refs/stash) WIP on master: af054fa Merge pull request #172 from pspdada/master
e763f01 index on master: af054fa Merge pull request #172 from pspdada/master
af054fa (HEAD -> master, origin/master, origin/HEAD) Merge pull request #172 from pspdada/master
9baa48c remove irrelevant text
f5df7de fix wrong index

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git stash pop
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   hello.txt

Dropped refs/stash@{0} (328829392d9039ba0958620525d5963cff7c994)

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git log --all --oneline
af054fa (HEAD -> master, origin/master, origin/HEAD) Merge pull request #172 from pspdada/master
9baa48c remove irrelevant text
f5df7de fix wrong index

```

2.1.4 题目四

请在 `/.gitconfig` 中创建一个别名，使您在运行 `git graph` 时，您可以得到 `git log --all --graph --decorate --oneline` 的输出结果。

答：修改本地环境中的 `gitconfig` 文件，在最后添加别名 [alias]：

`graph = log --all --graph --decorate --oneline`

结果如图：

```

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git log --all --graph --decorate --oneline
* af054fa (HEAD -> master, origin/master, origin/HEAD) Merge pull request #172 from pspdada/master
| \
| * 9baa48c remove irrelevant text
| * f5df7de fix wrong index
| * ef9a2f7 fix typo
|
* dd3f3dd Merge pull request #171 from HowieChih/for-better-understanding
| \
| * 8e26b4a 更新#课程概览与 shell##一个功能全面又强大的工具关于修改亮度文件报错的翻译
| * 4e2ff43 更新#课程概览与 shell##一个功能全面又强大的工具关于修改亮度文件报错的翻译
|
* d284d3e Merge pull request #170 from crosscap/typo-fix
| \
| * 6e27b4f fix some typo in version-control.md
|
* f3773ac Merge pull request #169 from xjzh123/patch-1
| \
| * 45897e1 修复multiple错译为“乘积”
| * ede827e Merge pull request #168 from dxshelley/master
|
* 6221bbc Merge branch 'master' of https://pi-gitserver.kooldns.cn/dxshelley/missing-semester-cn 合并
| \
| * 3417047 'test'
|
* de98852 将readme文件中的url的绝对路径改为相对路径, 不用重复访问github, 利于分享传播
|
* d78268f Merge pull request #162 from moralok/master

```

gitconfig - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

```

fscache = true
[color]
    interactive = true
    ui = auto
[help]
    format = html
[diff "astextplain"]
    textconv = astextplain
[rebase]
    autosquash = true
[filter "lfs"]
    clean = git-lfs clean -- %f
    smudge = git-lfs smudge -- %f
    process = git-lfs filter-process
    required = true
[credential]
    helper = helper-selector
[alias]
    graph = log --all --graph --decorate --oneline

```

第1行, 第1列 100% Unix (LF) UTF-8

```

Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git graph
* af054fa (HEAD -> master, origin/master, origin/HEAD) Merge pull request #172 from pspdada/master
| \
| * 9baa48c remove irrelevant text
| * f5df7de fix wrong index
| * ef9a2f7 fix typo
|
* dd3f3dd Merge pull request #171 from HowieChih/for-better-understanding
| \
| * 8e26b4a 更新#课程概览与 shell##一个功能全面又强大的工具关于修改亮度文件报错的翻译
| * 4e2ff43 更新#课程概览与 shell##一个功能全面又强大的工具关于修改亮度文件报错的翻译
|
* d284d3e Merge pull request #170 from crosscap/typo-fix
| \
| * 6e27b4f fix some typo in version-control.md
|
* f3773ac Merge pull request #169 from xjzh123/patch-1
| \
| * 45897e1 修复multiple错译为“乘积”
| * ede827e Merge pull request #168 from dxshelley/master
|
* 6221bbc Merge branch 'master' of https://pi-gitserver.kooldns.cn/dxshelley/missing-semester-cn 合并
| \
| * 3417047 'test'
|
* de98852 将readme文件中的url的绝对路径改为相对路径, 不用重复访问github, 利于分享传播
|
* d78268f Merge pull request #162 from moralok/master

```

2.2 20 个实例

(1) **git init:** 创建一个新的 git 仓库，其数据会存放在一个名为.git 的目录下。

```
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /e/gitrepo
$ git init
hint: Using 'master' as the name for the initial branch. This default branch nam
e
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:   git branch -m <name>
initialized empty Git repository in E:/gitrepo/.git/
```

(2) **git add <filename>:** 添加文件到暂存区。

```
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ echo "password123">my_password
git add .
warning: in the working copy of 'my_password', LF will be replaced by CRLF the next time Git touches it
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git commit -m "add password123 to file"
[master 5366c32] add password123 to file
 1 file changed, 1 insertion(+)
 create mode 100644 my_password
```

(3) **git status:** 显示当前的仓库状态。

```
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ echo "helloworld">hello.txt
git add .
warning: in the working copy of 'hello.txt', LF will be replaced by CRLF the next time Git touches it
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo/missing-semester-cn.github.io (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   hello.txt
```

(4) **git commit:** 创建一个新的提交。

```
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ echo "password123">my_password
git add .
warning: in the working copy of 'my_password', LF will be replaced by CRLF the next time Git touches it
Zhang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git commit -m "add password123 to file"
[master 5366c32] add password123 to file
 1 file changed, 1 insertion(+)
 create mode 100644 my_password
```

(5) **git log:** 显示历史日志。

git log --all --graph --decorate: 可视化历史记录

```

MINGW64:/d/gitku/missing-semester-cn.github.io
$ git log
commit 59aa2897ddcc64c88f390071c5a91107b0466479 (HEAD -> master, origin/master, origin/HEAD)
Merge: af054fa 626a323
Author: LingFeng_Ai <hanxiamax@gmail.com>
Date:  Sun Sep 1 09:03:24 2024 +0800

    Merge pull request #178 from Infinite-Approximation/master

    缺少了对于top-level directory的翻译

commit 626a323eed42f6ec5fb3cf97720ae3e6ee9948bf
Author: jkd <231057299831@gmail.com>
Date:  Sat Aug 24 20:51:31 2024 +0800

    缺少了对于top-level directory的翻译

commit af054fa1aea2f2599e4474d96b63f73dd9bd145f
Merge: dd3f3dd37ce88bb78f802a425e652a65d2ce70d5
Author: psp_dada <1824427006@qq.com>
Date:  Fri Aug 16 06:54:16 2024 +0800

    Merge pull request #172 from pspdada/master

    Thank you so much

commit 5baa48c78012164179e4e60725418941f41743b
Author: psp_dada <1824427006@qq.com>
Date:  Thu Aug 15 02:07:36 2024 +0800

    remove irrelevant text

commit f5df7de9d7c7712483665cc6fe8a787aaefbef9bf
Author: psp_dada <1824427006@qq.com>
Date:  Thu Aug 15 01:46:12 2024 +0800

    fix wrong index

commit ef9a2f75a09ff7746c03f6233066e3d2c634cd12
Author: psp_dada <1824427006@qq.com>
Date:  Thu Aug 15 01:32:44 2024 +0800

    fix typo

commit dd3f3dd37ce88bb78f802a425e652a65d2ce70d5
Merge: d284d3e 8e26b4a
Author: LingFeng_Ai <hanxiamax@gmail.com>
Date:  Thu Aug 1 17:58:28 2024 +0800

    Merge pull request #178 from Infinite-Approximation/master

    缺少了对于top-level directory的翻译

commit 626a323eed42f6ec5fb3cf97720ae3e6ee9948bf
Author: jkd <231057299831@gmail.com>
Date:  Sat Aug 24 20:51:31 2024 +0800

    缺少了对于top-level directory的翻译

commit af054fa1aea2f2599e4474d96b63f73dd9bd145f
Merge: dd3f3dd37ce88bb78f802a425e652a65d2ce70d5
Author: psp_dada <1824427006@qq.com>
Date:  Fri Aug 16 06:54:16 2024 +0800

    Merge pull request #172 from pspdada/master

    Thank you so much

commit 5baa48c78012164179e4e60725418941f41743b
Author: psp_dada <1824427006@qq.com>
Date:  Thu Aug 15 02:07:36 2024 +0800

    remove irrelevant text

commit f5df7de9d7c7712483665cc6fe8a787aaefbef9bf
Author: psp_dada <1824427006@qq.com>
Date:  Thu Aug 15 01:46:12 2024 +0800

    fix wrong index

commit ef9a2f75a09ff7746c03f6233066e3d2c634cd12
Author: psp_dada <1824427006@qq.com>
Date:  Thu Aug 15 01:32:44 2024 +0800

    fix typo

commit dd3f3dd37ce88bb78f802a425e652a65d2ce70d5
Merge: d284d3e 8e26b4a
Author: LingFeng_Ai <hanxiamax@gmail.com>
Date:  Thu Aug 1 17:58:28 2024 +0800

```

(6) `git help <command>`: 获取 git 命令的帮助信息。

```
Zhang_Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git help status
```

git-status(1) Manual Page

NAME

git-status - Show the working tree status

SYNOPSIS

```
git status [<options>] [-] [<pathspec>...]
```

DESCRIPTION

Displays paths that have differences between the index file and the current HEAD commit, paths that have differences between the working tree and the index file, and paths in the working tree that are not tracked by Git (and are not ignored by [gitignore\(5\)](#)). The first are what you *would* commit by running `git commit`; the second and third are what you *could* commit by running `git add` before running `git commit`.

(7) **git checkout <revision>**: 更新 HEAD 和目前的分支。

```
Zhang_Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git reflog
59aa289 (HEAD => master, origin/master, origin/HEAD) HEAD@{0}: clone: from https://github.com/missing-semester-cn/missing-semester-cn.github.io.git
Zhang_Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git checkout 59aa289
Note: switching to '59aa289'.
You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.
If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -c with the switch command. Example:
  git switch -c <new-branch-name>
Or undo this operation with:
  git switch -
Turn off this advice by setting config variable advice.detachedHead to false
HEAD is now at 59aa289 Merge pull request #178 from Infinite-Approximation/master
```

(8) **git branch**: 显示分支。

`git branch <name>`: 创建分支。

`git branch -d <name>`: 删除分支。

```

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io ((59a
a289...))
$ git branch
* (HEAD detached at 59aa289)
  master

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io ((59a
a289...))
$ git branch user1

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io ((59a
a289...))
$ git branch
* (HEAD detached at 59aa289)
  master
  user1

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git branch
  master
  user1
  user2

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git branch -d user2
Deleted branch user2 (was 59aa289).

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git branch
  master
  user1

```

(9) **git checkout -b <name>** 或者 **git switch -c <name>**: 创建分支并切换到该分支。

git checkout <name> 或者 **git switch <name>**: 切换分支。

```

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git checkout -b user2
Switched to a new branch 'user2'

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (user2)
$ git checkout master
Switched to branch 'master'.
Your branch is up to date with 'origin/master'.

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ |

```

(10) **git merge <revision>**: 合并到当前分支。

```

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git merge user1
Already up to date.

```

(11) **git rebase**: 将一系列补丁变基 (rebase) 为新的基线。

使用 Rebase 方式将分支 B 并入分支 A 时，在 B 分支上的每一次 commit 都会单独添加到 A 分支，而不再像 Merge 方式那样创建一个合并 commit 来合并两个分支的内容。

```

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (user2)
$ git checkout user1
Switched to branch 'user1'

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (user1)
$ git rebase user2
Successfully rebased and updated refs/heads/user1.

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (user1)
$ git checkout user2
Switched to branch 'user2'

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (user2)
$ git merge user1
Current branch user2 is up to date.

Zhang Ximin@DESKTOP-V9BBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (user2)
$ git merge user1
Already up to date.

```

(12) **git remote:** 列出远端。

git remote show <name>: 查看某个远程仓库的详细信息。

```
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote
origin
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote show origin
* remote origin
  Fetch URL: https://github.com/missing-semester-cn/missing-semester-cn.github.io.git
  Push URL: https://github.com/missing-semester-cn/missing-semester-cn.github.io.git
  HEAD branch: master
  Remote branches:
    dependabot/bundler/activesupport-6.0.6.1 tracked
    dependabot/bundler/addressable-2.8.1 tracked
    dependabot/bundler/nokogiri-1.14.3 tracked
    dependabot/bundler/tzinfo-1.2.10 tracked
    master tracked
    review tracked
  Local branch configured for 'git pull':
    master (switched to branch, up to date)
  Local ref configured for 'git push':
    master pushes to master (up to date)
```

(13) **git fetch:** 从远端获取对象/索引。

```
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git fetch origin
```

(14) **git clone:** 从远端下载仓库。

```
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitrepo (master)
$ git clone https://github.com/missing-semester-cn/missing-semester-cn.github.io.git
Cloning into 'missing-semester-cn.github.io'...
remote: Enumerating objects: 316, done.
remote: Counting objects: 100% (316/316), done.
remote: Compressing objects: 100% (47/47), done.
remote: Total 3199 (delta 871), reused 877 (delta 861), pack-reused 1861 (from 1)
Receiving objects: 100% (3199/3199), 15.48 MiB | 4.95 MiB/s, done.
Resolving deltas: 100% (2059/2059), done.
```

(15) **git remote add <name> <url>:** 添加一个远端。

```
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote add zxm https://github.com/zxm2580/xtkfgjic-202408.git
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote
origin
zxm
```

(16) **git remote rename <oldname> <newname>:** 可以将名字为 oldname 的远程仓库改名为 newname。

```
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote rename zxm zmx
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote
origin
zmx
```

(17) **git remote get-url <name>:** 查看名字为 name 的远程仓库的链接。

```
Chang Ximin@DESKTOP-V9BBMLO MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote get-url zmx
https://github.com/zxm2580/xtkfgjic-202408.git
```

(18) **git remote set-url <name> <newurl>**: 将名字为 name 的远程仓库的链接更改为 newurl。

```
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote get-url zmx
https://github.com/zxm2580/xtkfgjjc-202408.git
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote set-url zmx https://github.com/zxm2580/testk000.git
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote get-url zmx
https://github.com/zxm2580/testk000.git
```

(19) **git remote rm <name>**: 删除名字为 name 的远程仓库。

```
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote rm zmx
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git remote
origin
```

(20) **git pull <remote-name> <branch>**: 获取 <remote-name> 的更改，然后将这些更改合并到分支。

在默认情况下，git pull 相当于 git fetch 后 git merge。

```
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku/missing-semester-cn.github.io (master)
$ git pull origin HEAD
From https://github.com/missing-semester-cn/missing-semester-cn.github.io
 * branch      HEAD      -> FETCH_HEAD
Already up to date.
```

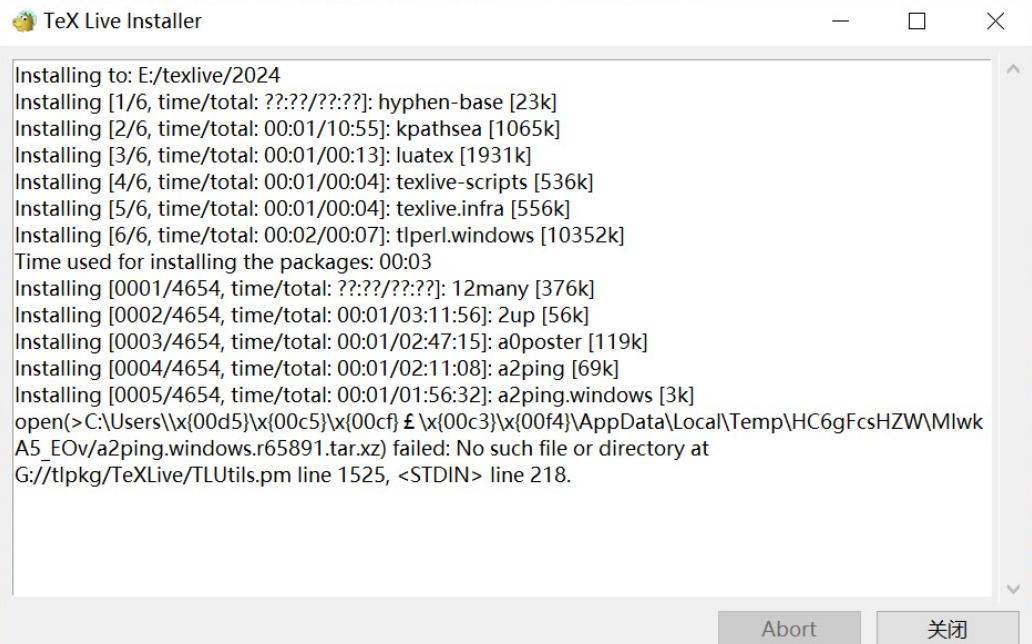
3 问题及解决方案

(1) 问题：使用 git 克隆库时报错：git schannel: crypt e no revocation checkout。

解决方案：查找问题发现该报错通常是因为 Git 无法连接到证书撤销列表 (CRL) 服务器或者在本地配置中禁用了撤销检查。尝试配置 Git 以允许对证书撤销状态进行跳过。运行命令:git config--global http.sslVerify false 之后再 git clone 即可。后续发现本人这里的报错原因其实是本地网络无法连接到 github 网站，开启网络加速后再 git clone 即不报错。

```
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku
$ git config --global http.sslVerify false
zhang Ximin@DESKTOP-V9BBBML0 MINGW64 /d/gitku
$ git clone https://github.com/missing-semester-cn/missing-semester-cn.github.io.git
Cloning into 'missing-semester-cn.github.io'...
remote: Enumerating objects: 3199, done.
remote: Counting objects: 100% (1338/1338), done.
remote: Compressing objects: 100% (477/477), done.
remote: Writing objects: 100% (3199/3199), done 877 (delta 861), pack-reused 1861 (from 1)
Receiving objects: 100% (3199/3199), 15.48 MB | 5.23 MiB/s, done.
Resolving deltas: 100% (2039/2039), done.
```

(2) 问题：安装 Latex 时报错，如下：

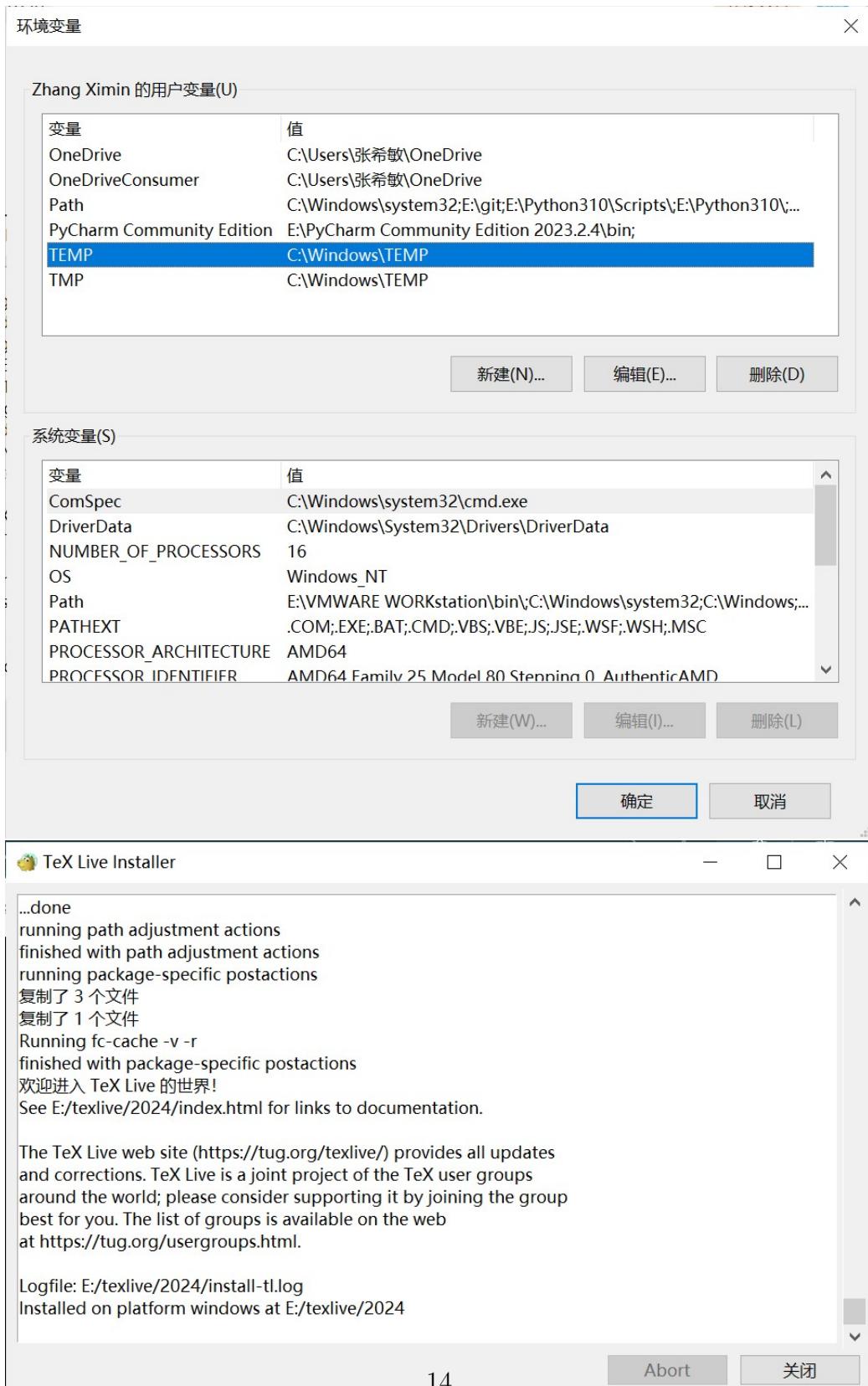


The screenshot shows a window titled "TeX Live Installer". The main area contains a log of package installations:

```
Installing to: E:/texlive/2024
Installing [1/6, time/total: ???:??/???:??]: hyphen-base [23k]
Installing [2/6, time/total: 00:01/10:55]: kpathsea [1065k]
Installing [3/6, time/total: 00:01/00:13]: luatex [1931k]
Installing [4/6, time/total: 00:01/00:04]: texlive-scripts [536k]
Installing [5/6, time/total: 00:01/00:04]: texlive.infra [556k]
Installing [6/6, time/total: 00:02/00:07]: tlperl.windows [10352k]
Time used for installing the packages: 00:03
Installing [0001/4654, time/total: ???:??/???:??]: 12many [376k]
Installing [0002/4654, time/total: 00:01/03:11:56]: 2up [56k]
Installing [0003/4654, time/total: 00:01/02:47:15]: a0poster [119k]
Installing [0004/4654, time/total: 00:01/02:11:08]: a2ping [69k]
Installing [0005/4654, time/total: 00:01/01:56:32]: a2ping.windows [3k]
open(>C:\Users\x{00d5}\x{00c5}\x{00cf} £ \x{00c3}\x{00f4}\AppData\Local\Temp\HC6gFcsHZW\MIwk
A5_EOv/a2ping.windows.r65891.tar.xz) failed: No such file or directory at
G://tlpkg/TeXLive/TUUtils.pm line 1525, <STDIN> line 218.
```

At the bottom right of the window are two buttons: "Abort" and "关闭" (Close).

解决方案：用户名是中文导致安装程序找不到相关文件。修改环境变量使其绕过中文路径即可。



(3) 问题：使用 Latex 插入图片时报错，如下：

The screenshot shows a LaTeX editor window with the file 'document.tex' open. The code includes sections for '练习主题', '练习内容', and '四个题目'. A red box highlights a section of code involving a figure inclusion:

```
\begin{figure}
    \centering
    \includegraphics[width=0.7\linewidth]{screen shot001}
    \caption{}
    \label{fig:screenshot001}
\end{figure}
```

The editor displays three error messages in the bottom-left pane:

- document.tex 错误 28 Undefined control sequence. ^^^\includegraphics
- document.tex 错误 28 Missing number, treated as zero. ^^^\includegraphics[width=0.7\linewidth]
- document.tex 错误 28 Illegal unit of measure (pt inserted). ^^^\includegraphics[width=0.7\linewidth]

On the right side of the editor, there is a sidebar titled '练习主题' which lists several items under '四个题目'.

解决方案：发现是忘记在导言区添加宏包了，添加后问题解决。

The screenshot shows the same LaTeX editor window after adding the missing package '\usepackage{graphicx}' to the preamble. The code now compiles successfully, as indicated by the green status bar message '开始 : xelatex.exe -synctex=1 -interaction=nonstopmode "document".tex'.

The code in the editor now includes:

```
\documentclass[a4paper, 12pt]{article}
\usepackage[UTF8]{ctex}
\usepackage{graphicx}
```

After compilation, a terminal window shows the command 'git log --graph --oneline' and its output, indicating a successful commit history.

4 解题感悟

本实验中，我练习了关于 Git 版本控制和 Latex 文档编辑的内容，掌握了 Git 和 Latex 的基本操作。尤其在 Git 版本控制方面，我练习了克隆仓库、探索版本间的关系、添加并提交文件到仓库、切换不同分支、远端操

作等方面的内容，受益匪浅。在 Latex 使用过程中我遇到许多问题，经过网络查询也得以解决，锻炼了我上手新工具和解决问题的能力。

另外，我也体会到了 Git 和 Latex 在项目开发中的重要性。Git 作为版本控制工具，能够帮助我们高效地管理代码和文档，大大提高我们的工作效率。而 Latex 则以其强大的排版功能和灵活的宏包系统，成为我们撰写技术文档的得力助手。

5 github 链接