

# 实验一：Git和Latex使用学习实验报告

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## 摘要

本实验报告主要记录了作者通过课程网站及B站学习Git知识和Latex用法的学习过程以及心得。

## 1 实验内容

### 1.1 版本控制(Git)

下载Git，学习Git的命令行接口。克隆课程网站仓库，将版本历史可视化并进行探索，完成课后习题。

### 1.2 Latex文档编辑

学习Latex的使用方法，并制作自己的实验报告模板。

## 2 操作指令

练习用Git命令行	
git init	创建一个新的 git 仓库
git status	显示当前的仓库状态
git commit	创建一个新的提交
git clone	从远端下载仓库
git log	显示历史日志
git log --all --graph --decorate	可视化历史记录（有向无环图）
git branch name	创建分支
git branch	显示分支
git remote	列出远端
git remote add name url	添加一个远端
git add filename	添加文件到暂存区
git commit -m "illustration"	将暂存区文件提交到版本库
git push	将本地仓库的提交推送到远程仓库

表 1: Git

练习用Latex命令行	
<code>\documentclass{ctexart}</code>	使用 Latex编写包含中文的文档
<code>\usepackage[leftright,top,bottom]{geometry}</code>	设置页边距
<code>\title{\heiti \zihao{2} %title}</code>	编辑标题字体，字号，内容
<code>\date{\today}</code>	编辑日期
<code>\ctexset{section={format={\heiti \zihao{4}}}, subsection={format={ \heiti \zihao{5}},beforeskip=0pt,afterskip=0pt}, subsubsection={format={\kaishu \zihao{5}},beforeskip=0pt ,afterskip=0pt}}</code>	编辑各级标题字体，字号，行间距
<code>\begin{document}\end{document}</code>	编辑文档内容
<code>\vsapce{10pt}</code>	增加/减少行间距
<code>\begin{abstract}</code> <code>\end{abstract}</code>	编辑摘要
<code>\maketitle</code>	写入标题
<code>\begin{enumerate}</code> <code>\item 内容</code> <code>\item 内容</code> <code>\end{enumerate}</code>	段落自动标号
<code>url{ %链接 }</code>	插入超链接
<code>\begin{itemize}</code> <code>\item 内容</code> <code>\item 内容</code> <code>\end{itemize}</code>	· 强调符号
<code>\begin{figure}[htbp]</code> <code>\centering</code> <code>\includegraphics[图片大小]{图片路径}</code> <code>\caption{图片标题、说明}</code> <code>\label{fig:图片标签}</code> <code>end{figure}</code>	插入图片
<code>% \usepackage{tabularray}</code> <code>\begin{table}[h]</code> <code>\end{table}</code>	插入表格

## 3 练习实例

### 3.1 Git

#### 3.1.1 克隆课程网站仓库

1. 获取自己建的ssh密钥信息

```
18501@C:\Users\I\OneDrive\Desktop MINGW64 ~/Desktop
$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgQDSIW0ny+VCpgiLSVdP/708kgmmssqP2xbifnbxNaz3
W0dEGEfsQiBpVMynXCEpM8+HFxmKDVZKxVaTrfQ6mhUWIik0Gv+RjrnaIf979d099f62Mh8lkrxssaJ
wvvlhQaIk3rS2WbjPzRykIjAM0bK/EEfgB1XkIHbjq9ukER27Ad3VM6gC3xg2JpXiXvfHQ0/KxwpPIOU
mVFyQVQILUCnTvPuQgPJ90u6aMZr0R0RQXrzdK17Qyyw6EHLyFRxb2P6JZiG9GFbD8E5Gc/DGXdtZnG1
JuZqmU4eoLKz0RMuulK9CaFj86JsBhvpw6NiSZtJ0esUatxWCBEnZ0kpG+oDDrXIDbmZMMizI/z8iq1
Z7TFKBjnJsgf0cffMjvMTr9qW/aOhk0xIEUm//w7AwYkYKK68QUZbC9Xec6mVW9W43zyxNHNADAYHfgw
aUlyg9Ttj+WV3zGNbj2M48cARDYJkvb39emFXL+K8bWn+INPCKkuDN8H/Ac2d815L6SprqM= 1850194
163@qq.com
```

图 1: cat ~/.ssh/id\_rsa.pub

2. 通过 SSH（安全外壳协议）连接到 GitHub 服务器

```
18501@C:\Users\I\OneDrive\Desktop MINGW64 ~/Desktop
$ ssh -T git@github
Warning: Permanently added '[ssh.github.com]:443' (ED25519) to the list of known ho
sts.
Hi xixiyhaha/systemTool! You've successfully authenticated, but GitHub does not pro
vide shell access.
```

图 2: ssh -T git@github.com

3. git init: 创建一个新的 git 仓库

```
18501@C:\Users\I\OneDrive\Desktop MINGW64 /c/Latex/系统开发工具基础/psychic-octo-engine (main)
$ git init
Reinitialized existing Git repository in C:/Latex/系统开发工具基础/psychic-octo-engine/.git/
```

图 3: git init

4. git clone: 克隆仓库

```
18501@C:\Users\I\OneDrive\Desktop MINGW64 ~/Desktop
$ git clone git@github.com:missing-semester-cn/missing-semester-cn.github.io.git
Cloning into 'missing-semester-cn.github.io'...
Warning: Permanently added '[ssh.github.com]:443' (ED25519) to the list of known ho
sts.
remote: Enumerating objects: 3194, done.
remote: Counting objects: 100% (3194/3194), done.
remote: Compressing objects: 100% (1126/1126), done.
remote: Total 3194 (delta 2040), reused 2735 (delta 2033), pack-reused 0 (from 0)
Receiving objects: 100% (3194/3194), 15.44 MiB | 4.09 MiB/s, done.
Resolving deltas: 100% (2040/2040), done.
```

图 4: git clone

5. git log: 查看历史日志, 按q退出

```
MINGW64:/c/Users/18501/Desktop/missing-semester-cn.github.io

18501@MINGW64 ~/Desktop/missing-semester-cn.github.io (master)
$ git log
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 f5df7de89dc7712483665cc6fe8a787aafbef9bf
Author: psp_dada <1824427006@qq.com>
Date: Thu Aug 15 01:46:12 2024 +0800

    fix wrong index
```

图 5: git log

6. git log -all -graph -decorate: 可视化历史记录 (有向无环图)

```
18501@MINGW64 ~/Desktop/missing-semester-cn.github.io (master)
$ git log --all --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 f5df7de89dc7712483665cc6fe8a787aafbef9bf
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
```

图 6: git log -all -graph -decorate

7. git add name: 添加文件到暂存区

```
18501@MINGW64 /c/Latex/系统开发工具基础/psychic-octo-engine (main)
$ git add 作业1
warning: in the working copy of '作业1/第一周.aux', LF will be replaced by CRLF
the next time Git touches it
warning: in the working copy of '作业1/第一周.log', LF will be replaced by CRLF
the next time Git touches it
```

图 7: git add name

8. git commit -m "illustration": 将暂存区文件提交到版本库

```
18501@MINGW64 /c/Latex/系统开发工具基础/psychic-octo-engine (main)
$ git commit -m "version 1"
[main 71336a5] version 1
5 files changed, 69 insertions(+), 60 deletions(-)
```

图 8: git commit -m "illustration"

9. git push: 将本地仓库的提交推送到远程仓库

```
18501@MINGW64 /c/Latex/系统开发工具基础/psychic-octo-engine (main)
$ git push
Warning: Permanently added '[ssh.github.com]:443' (ED25519) to the list of known hosts.
Enter passphrase for key '/c/Users/18501/.ssh/github':
Enter passphrase for key '/c/Users/18501/.ssh/github':
Enumerating objects: 15, done.
Counting objects: 100% (15/15), done.
Delta compression using up to 20 threads
Compressing objects: 100% (8/8), done.
Writing objects: 100% (8/8), 88.34 KiB | 295.00 KiB/s, done.
Total 8 (delta 5), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (5/5), completed with 5 local objects.
To github.com:xixiyaha/psychic-octo-engine.git
05384ab..71336a5 main -> main
```

图 9: git push

10. git branch: 显示分支

```
18501@MINGW64 /c/Latex/系统开发工具基础/psychic-octo-engine (main)
$ git branch
* main
```

图 10: git branch

11. git branch: 列出远端

```
18501@MINGW64 /c/Latex/系统开发工具基础/psychic-octo-engine (main)
$ git remote
origin
```

图 11: git branch

## 12. git status: 显示当前的仓库状态

```

18501@C:\i: MINGW64 /c/Latex/系统开发工具基础/psychic-octo-engine (main)
$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   "\344\275\234\344\270\2321/\347\254\254\344\270\200\345\221\250.aux"
    modified:   "\344\275\234\344\270\2321/\347\254\254\344\270\200\345\221\250.log"
    modified:   "\344\275\234\344\270\2321/\347\254\254\344\270\200\345\221\250.pdf"
    modified:   "\344\275\234\344\270\2321/\347\254\254\344\270\200\345\221\250.synctex.gz"
    modified:   "\344\275\234\344\270\2321/\347\254\254\344\270\200\345\221\250.tex"

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    "\344\275\234\344\270\2321\3671d9519684f17b9b96eaeca6db42e6.png"
    "\344\275\234\344\270\2321\4ffbfc1437dd891758904bd297c85946.png"
    "\344\275\234\344\270\2321\58a7eea9feb1c6073c85548618e7cef4.png"
    "\344\275\234\344\270\2321\b471598ff20a910bccfd0abfd541bcef.png"
    "\344\275\234\344\270\2321\f5be76d6714babd5b02bc1ae4fcd7bdc.png"

no changes added to commit (use "git add" and/or "git commit -a")

```

图 12: git status

## 3.2 Latex

使用Latex自己编辑的实验报告模板代码如下:

```

% 第一周.tex > ...
1  \documentclass{ctexart}
2  \usepackage[left=2cm,right=1.97cm,top=2cm,bottom=2cm]{geometry}
3  \usepackage{ctex}
4  \usepackage{palatino}
5  \usepackage{lipsum}
6  \title{\heiti \zihao{2} 标题}
7  \author{\kaishu \zihao{-4} 邓林\qqquad 23020007014\}
8  \songti \zihao{-5}中国海洋大学 \qqquad 23软件工程 }
9  \date{}
10 \ctexset{section={format={\heiti \zihao{4}}},
11 subsection={format={ \heiti \zihao{5}
12 \bfseries},beforekip=0pt,afterkip=0pt},
13 subsubsection={format={\kaishu \zihao{5}},beforekip=0pt ,afterkip=0pt}}
14 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
15
16 \begin{document}
17   \maketitle
18   \begin{abstract}
19
20   \end{abstract}
21
22   \section{实验内容}
23
24   \section{操作指令}
25
26   \section{实验样例}
27
28   \section{实验心得}
29
30
31   \end{document}

```

图 13: 实验报告模板代码

## 4 困难与解决

### 4.1 ssh未连接到Github

1. 通过 SSH（安全外壳协议）连接到 GitHub 服务器

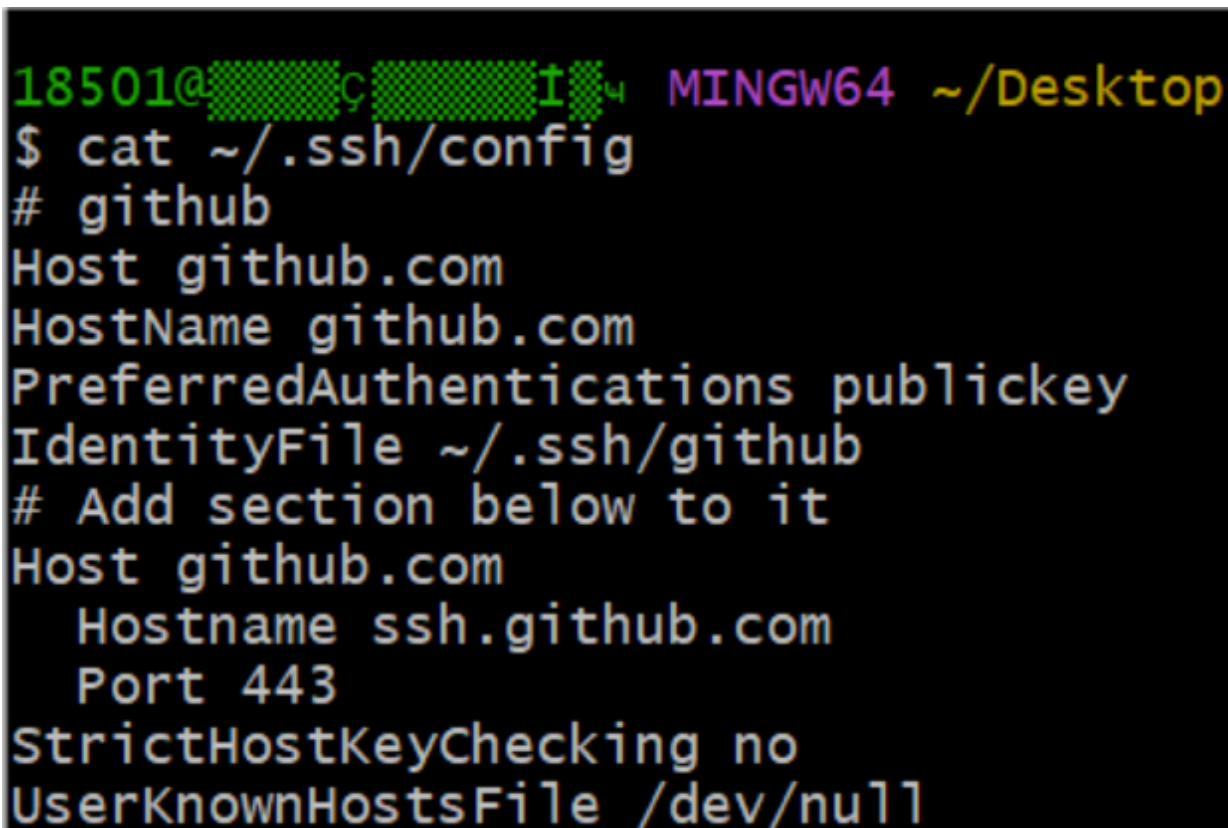


```
18501@██████: C: ██████ I:  MINGW64 ~/Desktop
$ ssh -T git@github.com
Connection closed by 127.0.0.1 port 443
```

图 14: ssh -T git@github.com

这里检测发现ssh未连接到GitHub

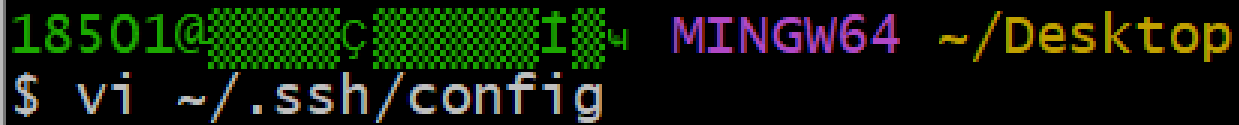
2. 打开config文件查看信息，发现有问题



```
18501@██████: C: ██████ I:  MINGW64 ~/Desktop
$ cat ~/.ssh/config
# github
Host github.com
HostName github.com
PreferredAuthentications publickey
IdentityFile ~/.ssh/github
# Add section below to it
Host github.com
    Hostname ssh.github.com
    Port 443
StrictHostKeyChecking no
UserKnownHostsFile /dev/null
```

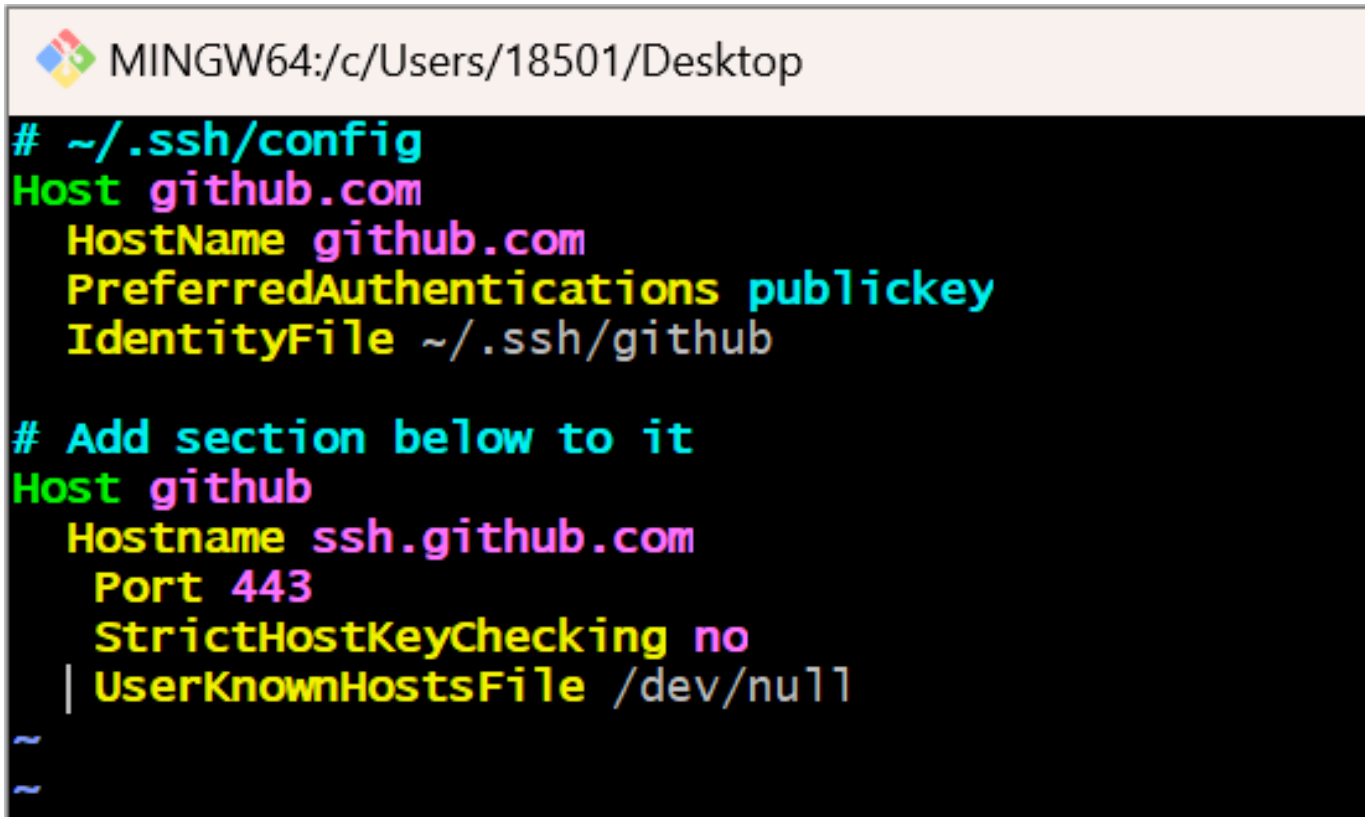
图 15: cat ~/.ssh/config

3. 编辑config文件，添加代码，连接成功



```
18501@MINGW64 ~/Desktop
$ vi ~/.ssh/config
```

图 16: vi ~/.ssh/config



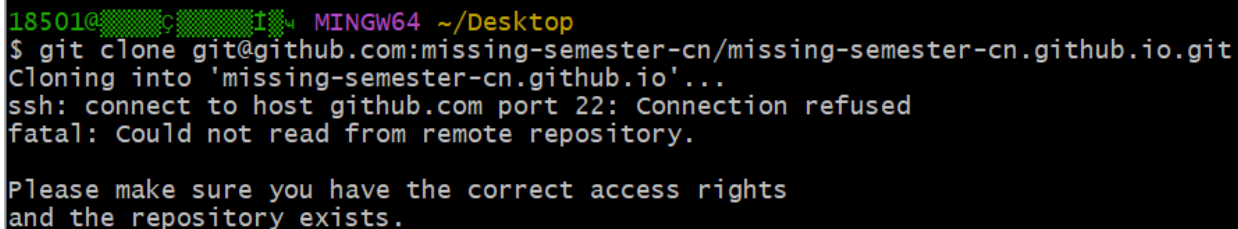
```
MINGW64:/c/Users/18501/Desktop
# ~/.ssh/config
Host github.com
    HostName github.com
    PreferredAuthentications publickey
    IdentityFile ~/.ssh/github

# Add section below to it
Host github
    Hostname ssh.github.com
    Port 443
    StrictHostKeyChecking no
    | UserKnownHostsFile /dev/null
~
~
```

图 17: vi ~/.ssh/config

## 4.2 使用 git clone + 仓库ssh协议网址，报错

1. 尝试使用 SSH 协议克隆 GitHub 仓库时遇到了 “Connection refused” 错误。这是因为在 .ssh/config 文件中配置了 GitHub 的 SSH 连接使用非标准端口 443，而 git clone 命令默认使用端口 22。



```
18501@MINGW64 ~/Desktop
$ git clone git@github.com:missing-semester-cn/missing-semester-cn.github.io.git
Cloning into 'missing-semester-cn.github.io'...
ssh: connect to host github.com port 22: Connection refused
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
```

图 18:



可更改为使用 github 标签来连接到 GitHub

```
18501@MINGW64 ~/Desktop
$ git clone git@github:missing-semester-cn/missing-semester-cn.github.io.git
Cloning into 'missing-semester-cn.github.io'...
Warning: Permanently added '[ssh.github.com]:443' (ED25519) to the list of known hosts.
remote: Enumerating objects: 3194, done.
remote: Counting objects: 100% (3194/3194), done.
remote: Compressing objects: 100% (1126/1126), done.
remote: Total 3194 (delta 2040), reused 2735 (delta 2033), pack-reused 0 (from 0)
Receiving objects: 100% (3194/3194), 15.44 MiB | 4.09 MiB/s, done.
Resolving deltas: 100% (2040/2040), done.
```

图 19:

2. 也可以修改文件

```
MINGW64:/c/Users/18501/Desktop
# ~/.ssh/config
Host github.com
  Hostname ssh.github.com
  Port 443
  PreferredAuthentications publickey
  IdentityFile ~/.ssh/github
  StrictHostKeyChecking no
  UserKnownHostsFile /dev/null
```

图 20:

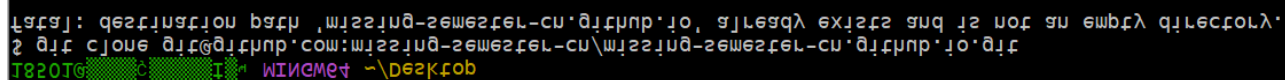
，用git@github.com 连接:

```
18501@MINGW64 ~/Desktop
$ ssh -T git@github
ssh: Could not resolve hostname github: Name or service not known
```

图 21:

```
18501@MINGW64 ~/Desktop
$ ssh -T git@github.com
Warning: Permanently added '[ssh.github.com]:443' (ED25519) to the list of known hosts.
Enter passphrase for key '/c/Users/18501/.ssh/github':
Hi xixiyhaha! You've successfully authenticated, but GitHub does not provide shell access.
```

图 22:



```
tfqj: qeefjuaftou bafu ,wjszjua-sweeetel-cu'bfjupr'io, ajleaqj exjzfs auq js not an embfj qjlecfouj.  
z bfj cjoue bfj@bfjupr'com:wjszjua-sweeetel-cu\wjszjua-sweeetel-cu'bfjupr'io'bfj  
T820TG WINGMEt -\DezKfob
```

图 23:

## 5 实验心得

### 5.1 Git

本次Git学习遇到了许多困难，其中最大的问题就是我的ssh密钥配置有很多的问题，但因为对Git方面的知识十分不了解，所以看不懂错误提示，也完全不知道如何下手去解决问题。因此只能上网查资料或者看课程资料，但种类繁多，筛选信息也十分困难。最终通过询问同学，使用人工智能，才逐步了解这些知识，最终解决。

### 5.2 Latex

本次Latex学习相较于Git，体验较为轻松。在网上能学习到比较系统的安装、配置Latex操作系统的视频，以及使用教程。学习的方向更加明确，学习起来也就更加轻松。掌握了一些基本的编写操作，如标题，分级章节，插入图片、表格、链接等等。我也在学习的过程中体会到了Latex文本编辑器的便捷之处，也更加让我有了使用该系统代替word的想法，虽然图片位置调整仍觉得十分困难。

## 6 Github仓库ssh链接

`urlgit@github.com:xixiyhaha/psychic-octo-engine.git`