

CSCI-4116

Assignment 1

Anas Alhadi

B00895875

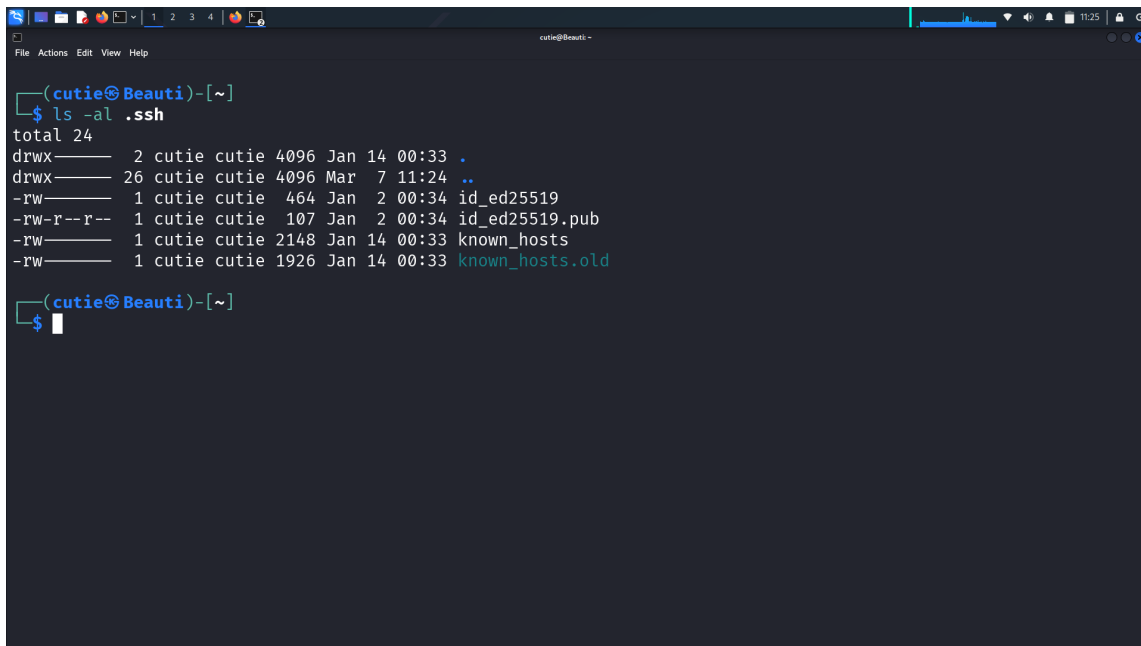
March 7, 2025

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1 Exercise 1

1.1 Q1 and 2



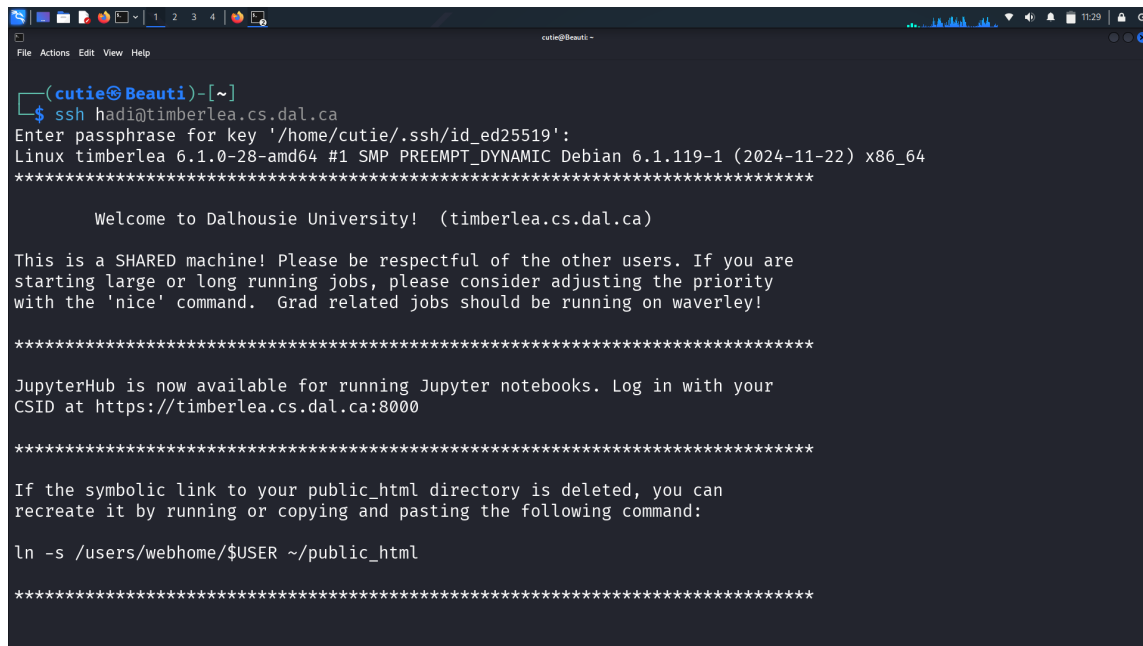
```
(cutie@Beauti)-[~]  
$ ls -al .ssh  
total 24  
drwx----- 2 cutie cutie 4096 Jan 14 00:33 .  
drwx----- 26 cutie cutie 4096 Mar 7 11:24 ..  
-rw----- 1 cutie cutie 464 Jan 2 00:34 id_ed25519  
-rw-r--r-- 1 cutie cutie 107 Jan 2 00:34 id_ed25519.pub  
-rw----- 1 cutie cutie 2148 Jan 14 00:33 known_hosts  
-rw----- 1 cutie cutie 1926 Jan 14 00:33 known_hosts.old  
  
(cutie@Beauti)-[~]  
$
```

1.2 Q3



```
(cutie@Beauti)-[~]  
$ ssh-copy-id -i ./ssh/id_ed25519.pub hadi@timberlea.cs.dal.ca
```

1.3 Q4



```
(cutie@Beauti)-[~]
$ ssh hadi@timberlea.cs.dal.ca
Enter passphrase for key '/home/cutie/.ssh/id_ed25519':
Linux timberlea 6.1.0-28-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.119-1 (2024-11-22) x86_64
*****

Welcome to Dalhousie University! (timberlea.cs.dal.ca)

This is a SHARED machine! Please be respectful of the other users. If you are
starting large or long running jobs, please consider adjusting the priority
with the 'nice' command. Grad related jobs should be running on waverley!

*****

JupyterHub is now available for running Jupyter notebooks. Log in with your
CSID at https://timberlea.cs.dal.ca:8000

*****

If the symbolic link to your public_html directory is deleted, you can
recreate it by running or copying and pasting the following command:

ln -s /users/webhome/$USER ~/public_html

*****
```

1.4 Q5

1. Benefits:

- More resilient to brute force attacks as the key size is much larger than usual passwords
- More resilient to social engineering attacks since it is much harder to extract information about the key from the user (the only way to do so is to have the user share their private key which is easier to avoid as opposed to sharing general information that might hint to possible user created passwords)
- Does not require the user to memorize passwords

2. Drawback:

- Requires more complex/involved setup as opposed to passwords.
- Requires key management, since losing the key means that the user will not be able to login anymore (so a backup/key recovery mechanism must be used in conjunction)

2 Question 2

2.1 Part 1

Create blank project
Create a blank project to store your files, plan your work, and collaborate on code, among other things.

Project name
csci2201_lab5
Must start with a lowercase or uppercase letter, digit, emoji, or underscore. Can also contain dots, pluses, dashes, or spaces.

Project URL
https://git.cs.dal.ca/hadi
Pick a group or namespace where you want to create this project.

Project slug
csci2201_lab5

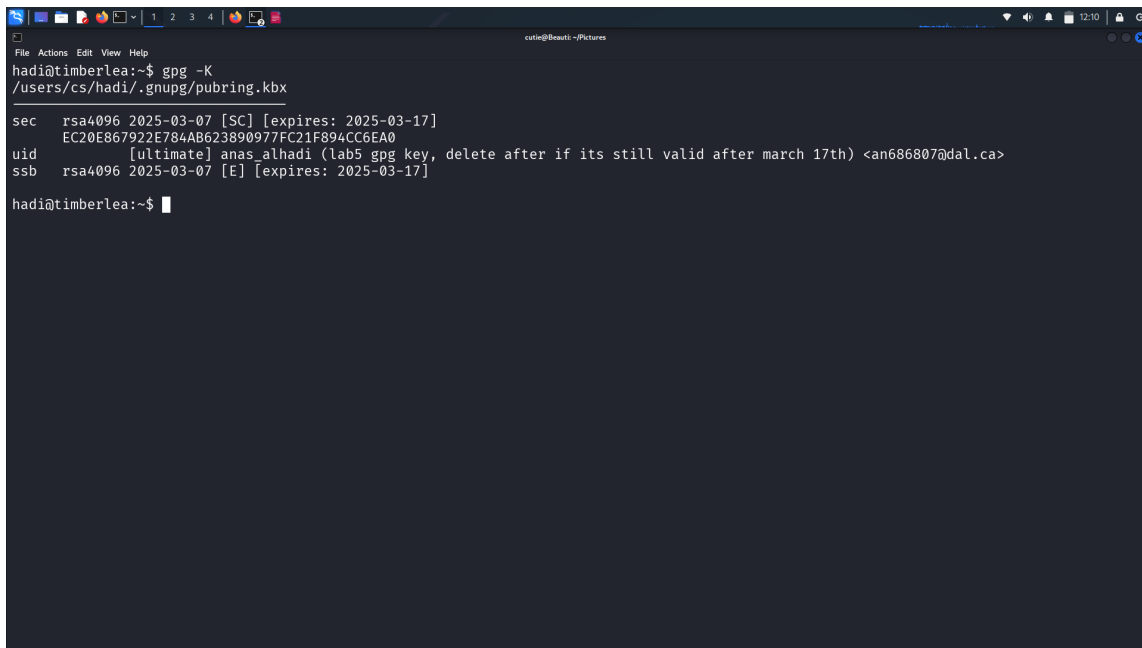
Visibility Level
☒ Private
Project access must be granted explicitly to each user. If this project is part of a group, access is granted to members of the group.
☐ Internal
The project can be accessed by any logged in user except external users.
☐ Public
The project can be accessed without any authentication.

Project Configuration
☒ Initialize repository with a README
Allows you to immediately clone this project's repository. Skip this if you plan to push up an existing repository.
☐ Enable Static Application Security Testing (SAST)
Analyze your source code for known security vulnerabilities. [Learn more.](#)

[Create project](#) [Cancel](#)

```
hadi@timberlea:~/lab5$ ls
hadi@timberlea:~/lab5$ git clone git@git.cs.dal.ca:hadi/csci2201_lab5.git
Cloning into 'csci2201_lab5'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
hadi@timberlea:~/lab5$
```

2.2 Part 2

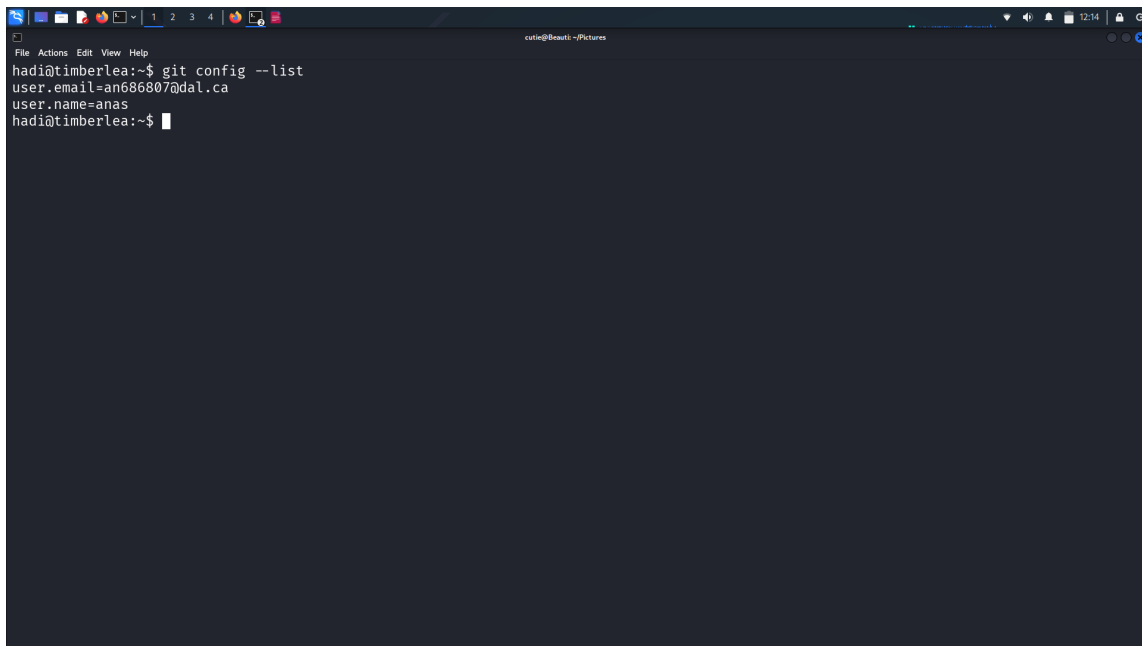


A terminal window titled 'cutin@Beauit - Pictures' showing the execution of the 'gpg -K' command. The output displays the details of a newly generated GPG key: a 4096-bit RSA key created on 2025-03-07, expiring on 2025-03-17, with the user ID 'anas alhadi (lab5 gpg key, delete after if its still valid after march 17th)' and email 'an686807@dal.ca'. The prompt returns to 'hadi@timberlea:~\$'.

```
cutin@Beauit - Pictures
hadi@timberlea:~$ gpg -K
/users/cs/hadi/.gnupg/pubring.kbx

sec   rsa4096 2025-03-07 [SC] [expires: 2025-03-17]
      EC20E867922E784AB623890977FC21F894CC6EA0
uid    [ultimate] anas alhadi (lab5 gpg key, delete after if its still valid after march 17th) <an686807@dal.ca>
ssb    rsa4096 2025-03-07 [E] [expires: 2025-03-17]

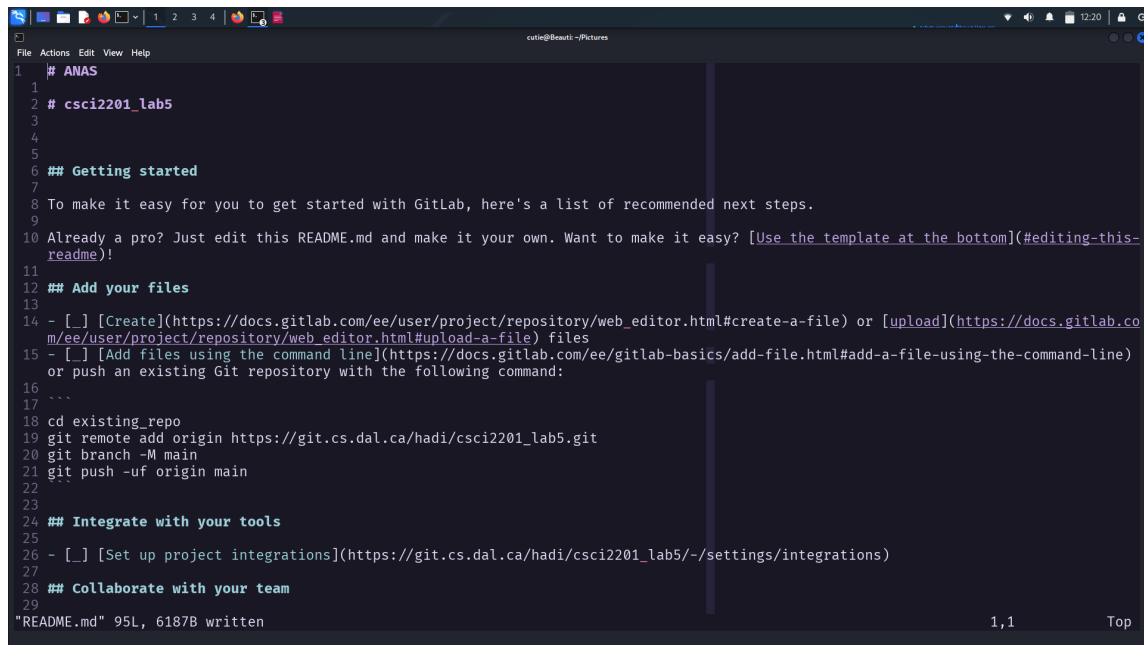
hadi@timberlea:~$
```



A terminal window titled 'cutin@Beauit - Pictures' showing the execution of the 'git config --list' command. The output shows the configured user information: 'user.email=an686807@dal.ca' and 'user.name=anas'. The prompt returns to 'hadi@timberlea:~\$'.

```
cutin@Beauit - Pictures
hadi@timberlea:~$ git config --list
user.email=an686807@dal.ca
user.name=anas
hadi@timberlea:~$
```

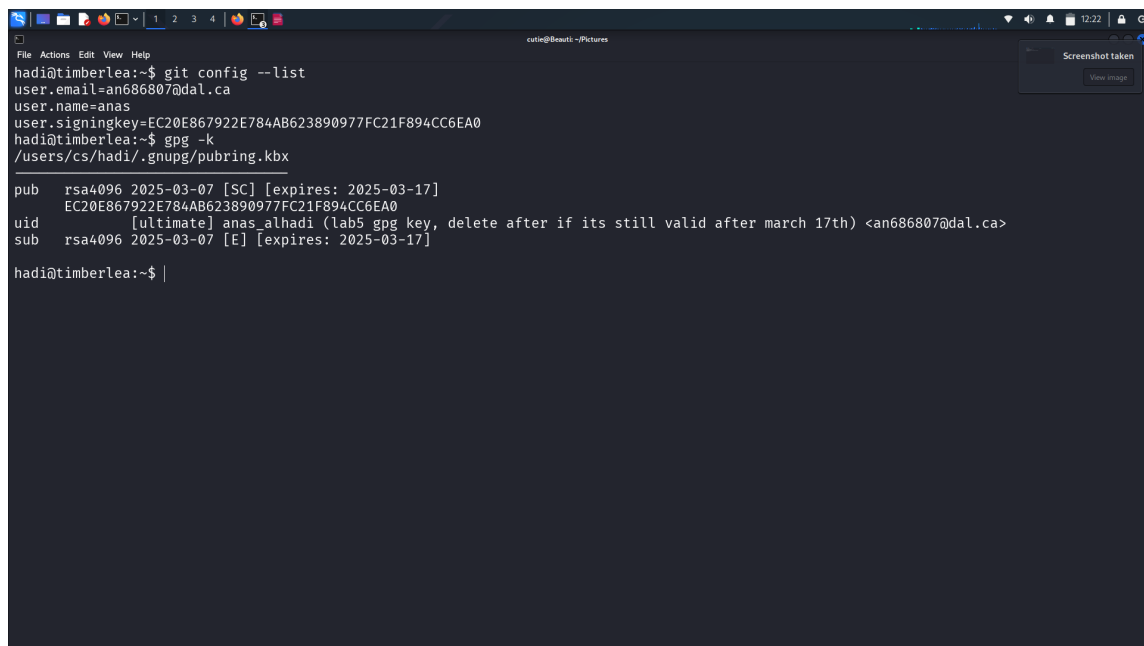
2.3 Part 3



A screenshot of a web browser displaying the GitLab web editor interface. The editor shows a file named `README.md` with the following content:

```
1 # ANAS
2 # csci2201_lab5
3
4
5
6 ## Getting started
7
8 To make it easy for you to get started with GitLab, here's a list of recommended next steps.
9
10 Already a pro? Just edit this README.md and make it your own. Want to make it easy? [Use the template at the bottom](#editing-this-readme)!
11
12 ## Add your files
13
14 - [ ] [Create](https://docs.gitlab.com/ee/user/project/repository/web_editor.html#create-a-file) or [upload](https://docs.gitlab.com/ee/user/project/repository/web_editor.html#upload-a-file) files
15 - [ ] [Add files using the command line](https://docs.gitlab.com/ee/gitlab-basics/add-file.html#add-a-file-using-the-command-line) or push an existing Git repository with the following command:
16 ---
17
18 cd existing_repo
19 git remote add origin https://git.cs.dal.ca/hadi/csci2201_lab5.git
20 git branch -M main
21 git push -uf origin main
22
23
24 ## Integrate with your tools
25
26 - [ ] [Set up project integrations](https://git.cs.dal.ca/hadi/csci2201_lab5/-/settings/integrations)
27
28 ## Collaborate with your team
29
30 "README.md" 95L, 6187B written
```

The bottom right corner of the editor shows "1,1" and a "Top" link.



A screenshot of a terminal window showing the output of `git config --list` and `gpg --key` commands. The terminal output is as follows:

```
hadi@timberlea:~$ git config --list
user.email=an686807@dal.ca
user.name=anas
user.signingkey=EC20E867922E784AB623890977FC21F894CC6EA0
hadi@timberlea:~$ gpg --key
/users/cs/hadi/.gnupg/pubring.kbx

pub   rsa4096 2025-03-07 [SC] [expires: 2025-03-17]
       EC20E867922E784AB623890977FC21F894CC6EA0
uid           [ultimate] anas_alhadi (lab5 gpg key, delete after if its still valid after march 17th) <an686807@dal.ca>
sub   rsa4096 2025-03-07 [E] [expires: 2025-03-17]

hadi@timberlea:~$ |
```

A "Screenshot taken" dialog box is visible in the top right corner of the terminal window.

```
File Actions Edit View Help
hadi@timberlea:~/lab5/csci2201_lab5$ git add -A
hadi@timberlea:~/lab5/csci2201_lab5$ git commit -m "added name"
[main 8fee06d] added name
 1 file changed, 2 insertions(+)
hadi@timberlea:~/lab5/csci2201_lab5$ git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 32 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 265 bytes | 132.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
To git.cs.dal.ca:hadi/csci2201_lab5.git
 801cfc4..8fee06d  main -> main
hadi@timberlea:~/lab5/csci2201_lab5$ |
```

2.4 Part 4

```
cutin@Beauli:~$ gpg --armor --export hadi@timberlea:~/lab5/csc2201_lab5$ gpg --armor --export -----BEGIN PGP PUBLIC KEY BLOCK-----

mQINB8GfLgaMBEAddIBJUfTy3AJl6hjsn3XwrSV4ZDheosvqLhzBTeRQoh1VTc+yy+
mvh5R8Baqj0F88Ekkk1AtcU8ansnta0q7iU0+hJ7CkeN1TXcAztVihm0cBHvLhcZ
9aN/UMHYQoLM2i1i7uKlXJGvHPaJ02gVZS+rXfzMO599AJWqpAbQcTtWRxOxkLWK
1LY440kVJSDk792CuR5vu6vFNK4hGAe00A1/rjS4H201B56UgrZPmqgDRR14fWM
sA1pyQFv7zcadX3xP+Lfm6UT3TSB83iRSC3jkIvXH1B0gTYr4KvH20D5xfb9af0G
CMH8Dh00Y/IknBAMhIo/y/gW8uXX47pJWx6SS5E4bcBnaf9btQHI5NTIESJPUyrb
35KPrjQnmbXkZ/MpC8b+CdtPoeG725lpSmmY0GGWQ0T7Q9725v3U0qETVInr1PdQ
VGLC/vDB3MuI7mLpFNxFjI5MOFCq8em5aGPKFokr47jQcFN2IP0zQjmsnfmFispN
NsrmfE15a8j5wxC1J5P5quHP0P1PwGuBrIVFhDaQV+QPAyG17brFJGfodxBAEfg
0FtfHMXzS66eEsxGqLMsPa4/TjxTCApm1yU/T0Htb7LCujLrEmxbe16sNKsvDv
/SnIQvHs0kfwlu2/F9cfivb3+USAP2ztWbXD5++QcTXCBci+80yf0f+7zQARAQAB
tF5HbmFzX2FsaGFFaSAobGF1NSBncGcga2V5LCBkZWxlZGUgYWZ0ZXIgaWYgaXRz
IHN0aWxsIHZhbG1IGFmdGVyIG1hcmNoIDE3dGgpdXhbjY4NjgwN0BkYWYyZ2E+
iQJUBBMBGGA+F1EE7CDoZ5IueEq2I4kJd/wh+JTMbqAFAmfLgaMCGwMFCQANLwAF
Cwk1BwIGFQoJCAsCBYCAwECHgECF4AACGkQd/wh+JTMbqAFEBAA11ATtJVbcNjW
1JvXJnmwMrEoIhdwTKzX/Ic06Z5Xjq63f6x1APi7E4U+toHY5awqBq42frWH6XQ
f2K8D9HJBWZEPGmc8AdLfIt7imm6GnPPxXvPFTaZr/ah7uIwtDtQeXh78iWV0b30
0ewbMjwCHTJVhe+cc0cknCz/VzWrZN0TEfho79oVZ83SpbKk/S1a6SAIXWN1dCiM
X6CF9DsKXq62CPh6oIY+7W8jE30/H9txE346UXHkm5JhQ+30iReNw3vhsK6rWwX
RdY0uQNRyqr8J0vuNDJQdgGuLApUqp3nIIkufy5vH9UqE0f98RIPuXVqoA9v0KW9
V5TKcs4Om15BCBrowLau99+zhKrnQV/m8a2AeDZH3hUxdLYcS0asbEmASvTbKRW
qv8XOR2f9LjgiCW4YwwEjDwM0KUCmLkTsnJpMLzEZme0BsrRIY5a0JQuSOLFvx/h
JC81CGs0ukDE7adycCWFr4aXgzF8DXMcQA/MzTYKPkwyEEd5CHDS7aSJx5+8R0U
bM31DemCobe7jTTPuvujjEs0py3RAL1XzdvPUKGPtOL8rfaYgdEx+RxTpvI3rSN
QFvXvZd/+LdoEo9LMUtnAv+gMP+MvT/hA05mDxi0hMCILKrFbuhk8Ny5XhVCoB
N3bo3+FAeUoprvr2vN7GX1jb7UDHu5Ag0EZ8sZowEQALJ80LNVgmTLz1VePBV
++gE/9d/7z4aG+c88jbaMLBLXnv8NtkD6q5/sLFHtDEBV1/STIQ6oW3LNbiAZDce
zxa9UwpGPg4JFtKsKdHHS0bvg/EhsegSZMTMgLj0mXXQ9XmAG3BJDTksxs5WBIFZ
s450Ep1mMha8DCOURPTmUwh4+u7siZHxKPYtWzCcXiwr2UTnj4yE6zhzKG1DjJop
4b8QH204Li1LMD+tonyIULiLext+aTMuIkTnsIGI9higjTBKirmUCCz2z7G/NYAC
ejYbdkuywrqP8JSK5s1v0u+GgBdfpK8k5EqAWTpNfPv61ENQ6Pw1vGN6a5h/J/ez
```

GPg Keys - User Settings

https://git.cs.dal.ca/~user_settings/gpg_keys

Kali LinuxKali ToolsKali DocsKali ForumsKali NetHunterExploit DBGoogle Hacking DBOffSecriotcryptography

User Settings / GPg Keys

Search settings

GPg Keys

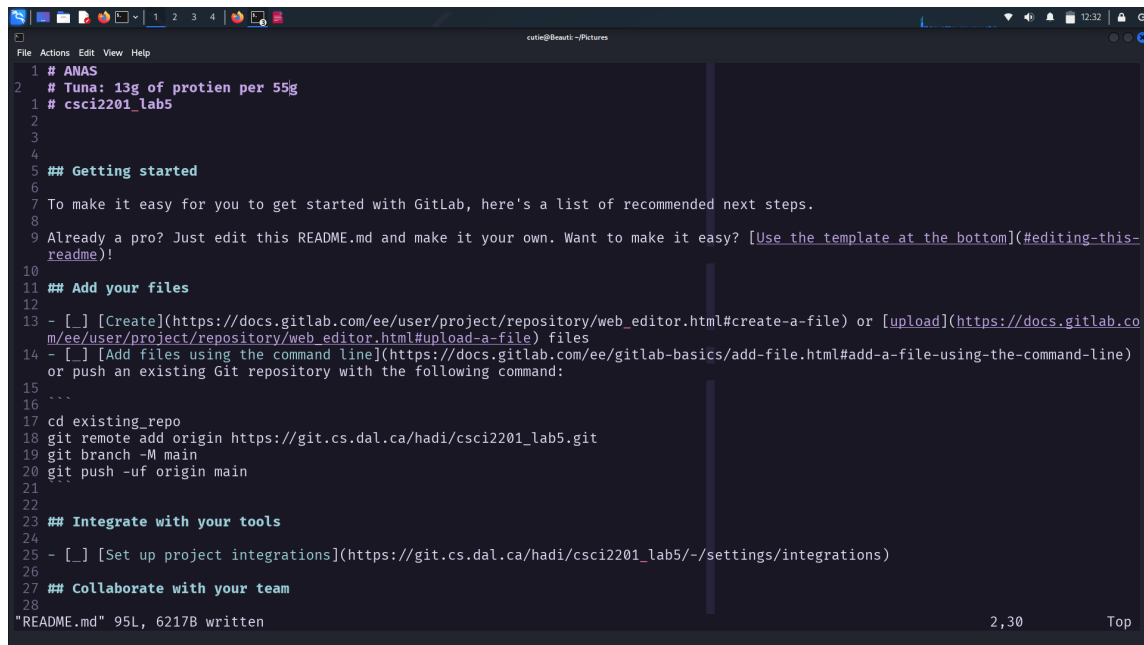
GPg keys allow you to verify signed commits.

Your GPg keys 1

Add new key

Key	Status	Created	Actions
<div>EC20E867922E7848623890977FC21F89ACC6EAB</div> <div>Subkey</div> <div>24153A73C9254393B84888FF57B0C4128F408</div>	an6B807@dal.ca Verified	Created just now	<div>Revoke</div> <div></div>

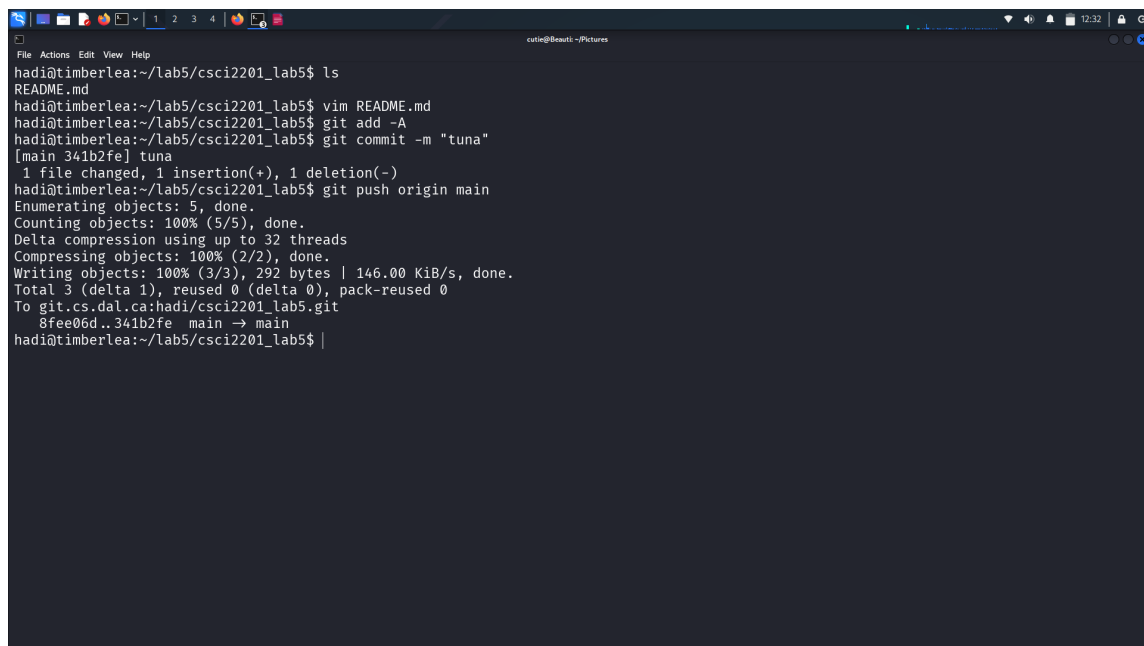
2.5 Part 5



A screenshot of a code editor window titled "csc21@Beauit - Pictures". The editor displays a README.md file with the following content:

```
1 # ANAS
2 # Tuna: 13g of protien per 55g
3 # csci2201_lab5
4
5 ## Getting started
6
7 To make it easy for you to get started with GitLab, here's a list of recommended next steps.
8
9 Already a pro? Just edit this README.md and make it your own. Want to make it easy? [Use the template at the bottom](#editing-this-readme)!
10
11 ## Add your files
12
13 - [ ] [Create](https://docs.gitlab.com/ee/user/project/repository/web_editor.html#create-a-file) or [upload](https://docs.gitlab.com/ee/user/project/repository/web_editor.html#upload-a-file) files
14 - [ ] [Add files using the command line](https://docs.gitlab.com/ee/gitlab-basics/add-file.html#add-a-file-using-the-command-line) or push an existing Git repository with the following command:
15 ---
16
17 cd existing_repo
18 git remote add origin https://git.cs.dal.ca/hadi/csci2201_lab5.git
19 git branch -M main
20 git push -uf origin main
21
22
23 ## Integrate with your tools
24
25 - [ ] [Set up project integrations](https://git.cs.dal.ca/hadi/csci2201_lab5/-/settings/integrations)
26
27 ## Collaborate with your team
28
29 "README.md" 95L, 6217B written
```

The status bar at the bottom right shows "2,30" and "Top".



A screenshot of a terminal window showing the execution of Git commands in a directory ~/lab5/csci2201_lab5. The commands and their output are as follows:

```
hadi@timberlea:~/lab5/csci2201_lab5$ ls
README.md
hadi@timberlea:~/lab5/csci2201_lab5$ vim README.md
hadi@timberlea:~/lab5/csci2201_lab5$ git add -A
hadi@timberlea:~/lab5/csci2201_lab5$ git commit -m "tuna"
[main 341b2fe] tuna
1 file changed, 1 insertion(+), 1 deletion(-)
hadi@timberlea:~/lab5/csci2201_lab5$ git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 32 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 292 bytes | 146.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
To git.cs.dal.ca:hadi/csci2201_lab5.git
8fee06d..341b2fe main -> main
hadi@timberlea:~/lab5/csci2201_lab5$
```