

Name: Keyur Patel

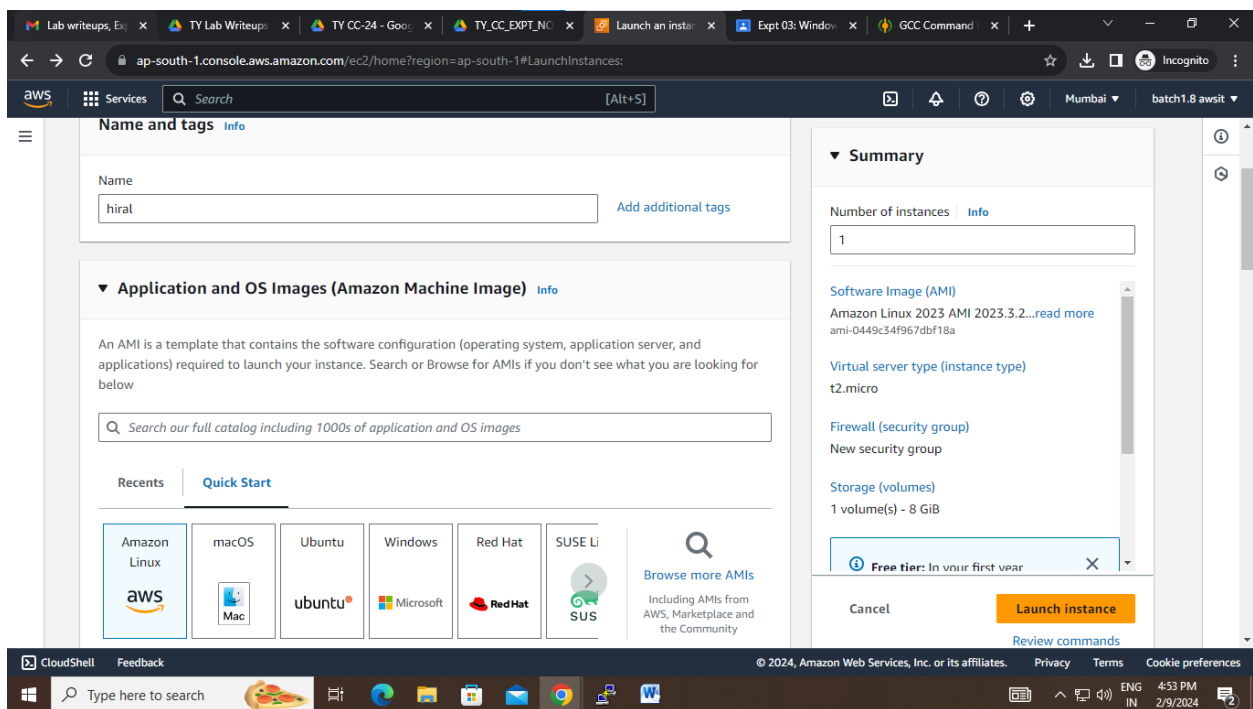
Roll No:16010421073

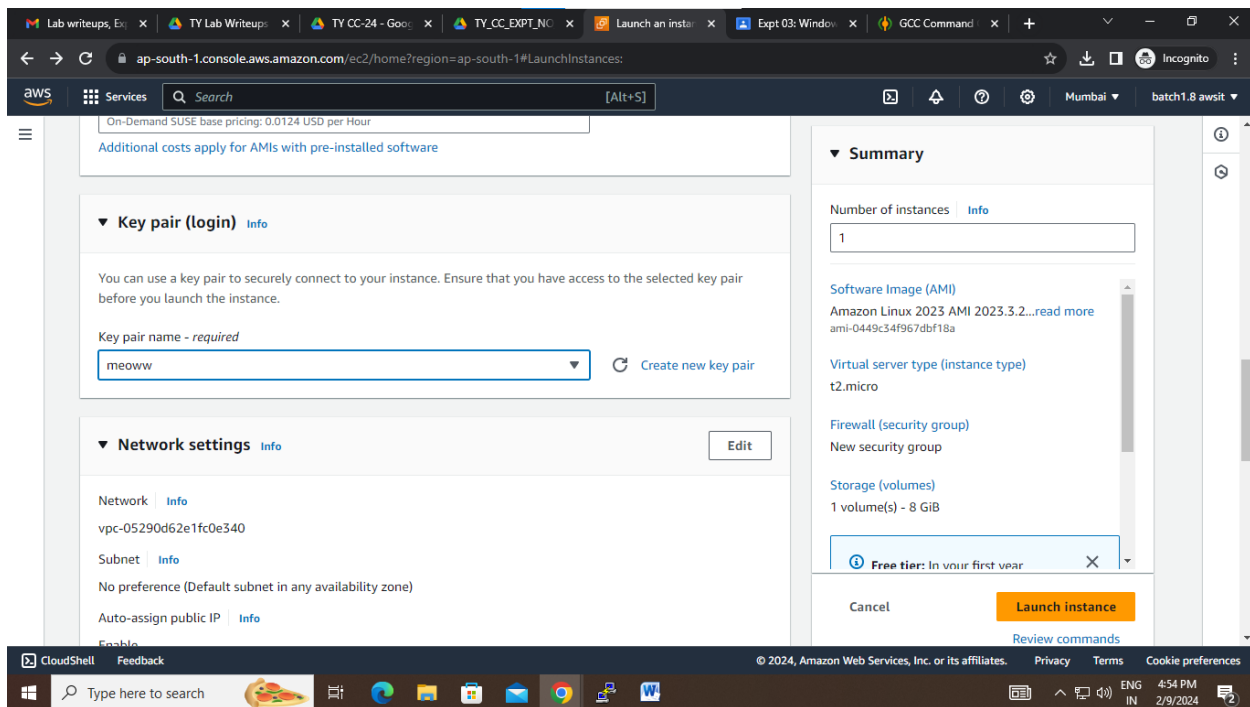
Batch : A2

Aim: Creating Linux/Ubuntu Virtual Machine Instance and executing a sample C++ program
AWS (IaaS)

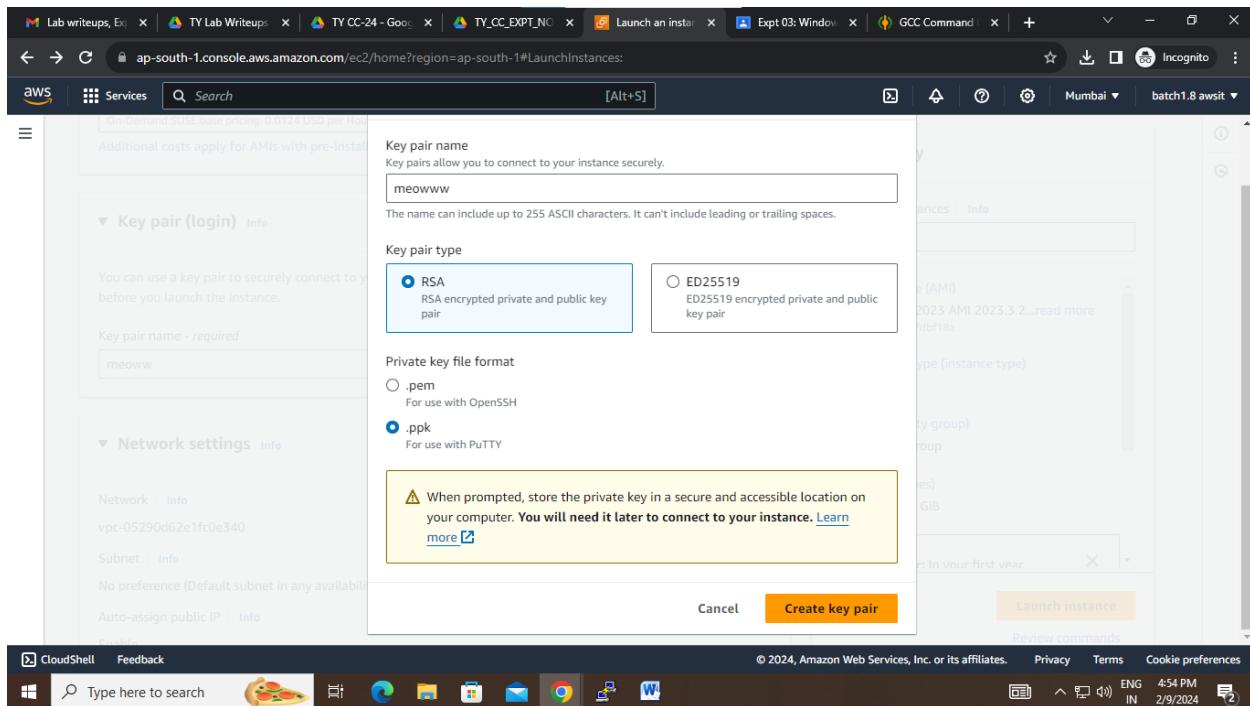
Results: (Program / Steps with screenshots) for all steps of download, connection and
hosting a website.

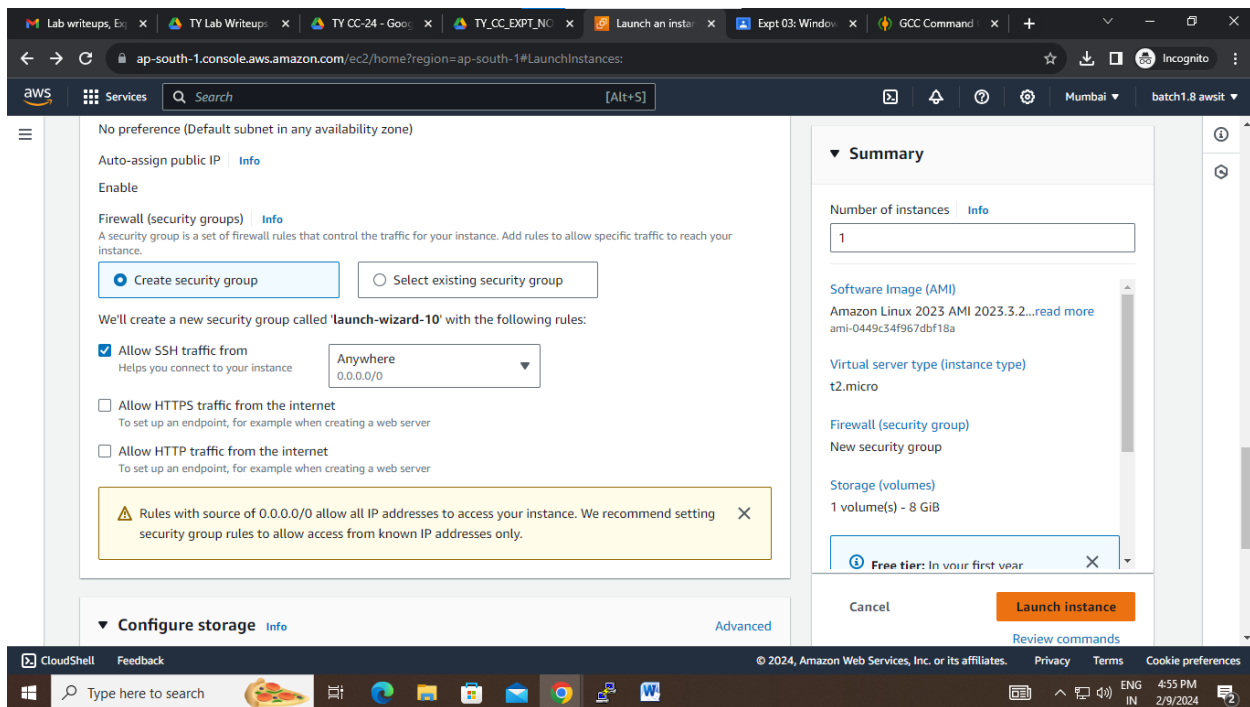
1) Creating a new instance



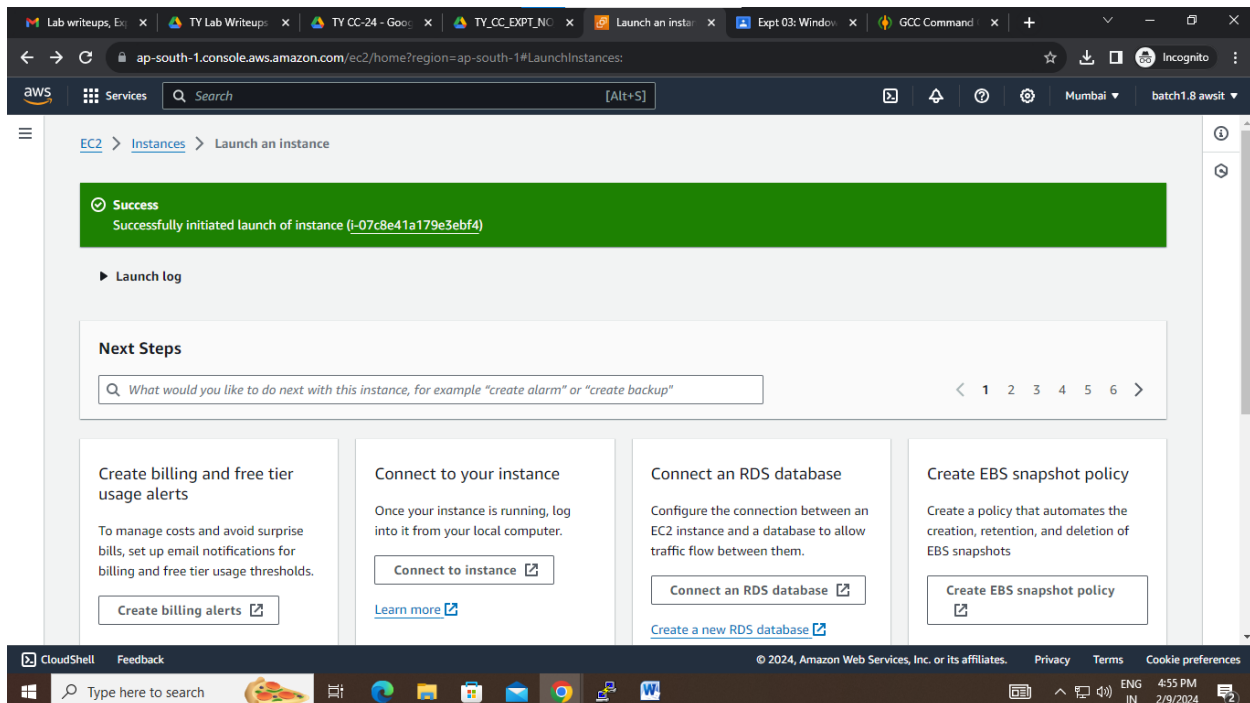


2) Creating a new key-pair (RSA)

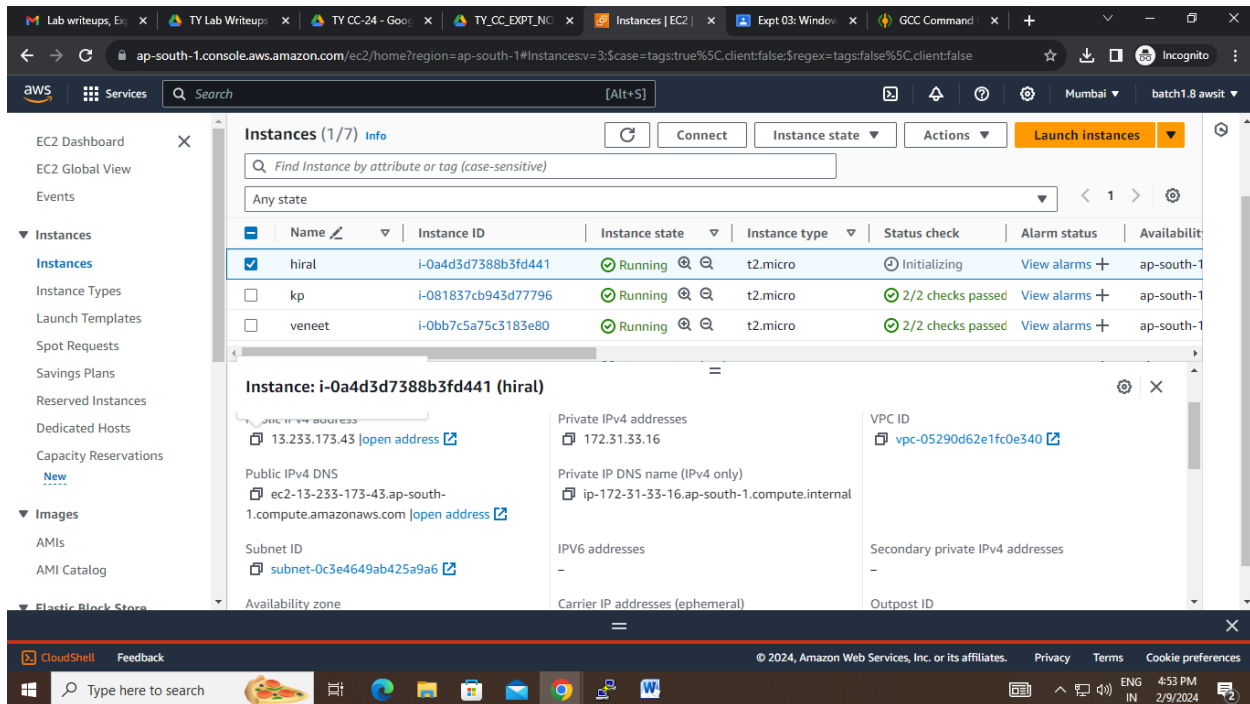




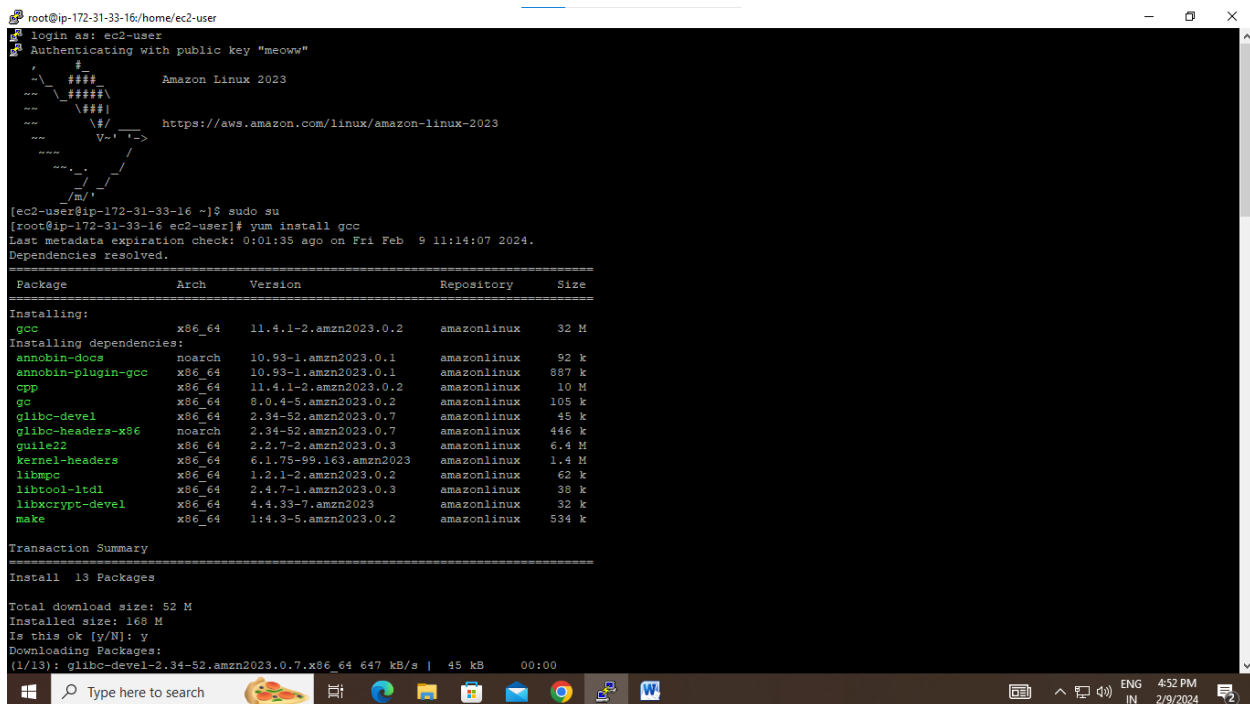
3) Successfully launched a new instance.



4) Ipv4 Public address.



5) Launching Putty



```
root@ip-172-31-33-16/home/ec2-user
(2/13): make-4.3-5.amzn2023.0.2.x86_64.rpm      5.5 MB/s | 534 kB  00:00
(3/13): gcc-8.0.4-5.amzn2023.0.2.x86_64.rpm     1.6 MB/s | 105 kB  00:00
(4/13): cpp-11.4.1-2.amzn2023.0.2.x86_64.rpm    39 MB/s | 10 MB   00:00
(5/13): kernel-headers-6.1.75-99.163.amzn2023.x 7.4 MB/s | 1.4 MB  00:00
(6/13): annobin-plugin-gcc-10.93-1.amzn2023.0.1 5.6 MB/s | 887 kB  00:00
(7/13): libmpc-1.2.1-2.amzn2023.0.2.x86_64.rpm  1.2 MB/s | 62 kB   00:00
(8/13): libxcrypt-devel-4.4.33-7.amzn2023.x86_6 1.2 MB/s | 32 kB   00:00
(9/13): libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_6 2.7 MB/s | 38 kB   00:00
(10/13): glibc-headers-x86-2.34-52.amzn2023.0.7 10 MB/s | 446 kB  00:00
(11/13): annobin-docs-10.93-1.amzn2023.0.1.noar 2.0 MB/s | 92 kB   00:00
(12/13): guile22-2.2.7-2.amzn2023.0.3.x86_64.rp 24 MB/s | 6.4 MB  00:00
(13/13): gcc-11.4.1-2.amzn2023.0.2.x86_64.rpm   50 MB/s | 32 MB   00:00
-----
Total                                           52 MB/s | 52 MB   00:01
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing                                     1/1
Installing : libmpc-1.2.1-2.amzn2023.0.2.x86_64 1/13
Installing : cpp-11.4.1-2.amzn2023.0.2.x86_64 2/13
Installing : annobin-docs-10.93-1.amzn2023.0.1.noarch 3/13
Installing : glibc-headers-x86-2.34-52.amzn2023.0.7.noarch 4/13
Installing : libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_64 5/13
Installing : kernel-headers-6.1.75-99.163.amzn2023.x86_64 6/13
Installing : libxcrypt-devel-4.4.33-7.amzn2023.x86_64 7/13
Installing : glibc-devel-2.34-52.amzn2023.0.7.x86_64 8/13
Installing : gcc-8.0.4-5.amzn2023.0.2.x86_64 9/13
Installing : guile22-2.2.7-2.amzn2023.0.3.x86_64 10/13
Installing : make-1:4.3-5.amzn2023.0.2.x86_64 11/13
Installing : gcc-11.4.1-2.amzn2023.0.2.x86_64 12/13
Running scriptlet: gcc-11.4.1-2.amzn2023.0.2.x86_64 12/13
Installing : annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64 13/13
Running scriptlet: annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64 13/13
Verifying : cpp-11.4.1-2.amzn2023.0.2.x86_64 1/13
Verifying : glibc-devel-2.34-52.amzn2023.0.7.x86_64 2/13
Verifying : make-1:4.3-5.amzn2023.0.2.x86_64 3/13
Verifying : gcc-8.0.4-5.amzn2023.0.2.x86_64 4/13
Verifying : kernel-headers-6.1.75-99.163.amzn2023.x86_64 5/13
Verifying : annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64 6/13
Verifying : libmpc-1.2.1-2.amzn2023.0.2.x86_64 7/13
Verifying : libxcrypt-devel-4.4.33-7.amzn2023.x86_64 8/13
Verifying : gcc-11.4.1-2.amzn2023.0.2.x86_64 9/13
```

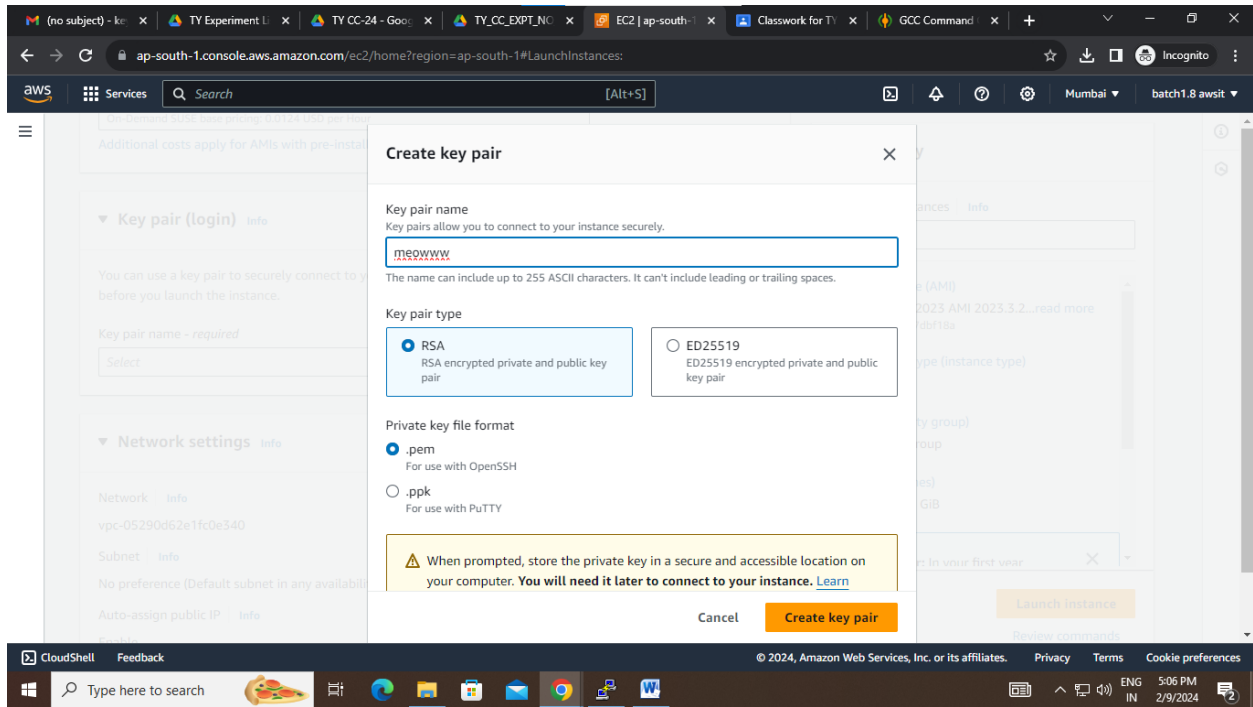
```
root@ip-172-31-33-16/home/ec2-user
Verifying : guile22-2.2.7-2.amzn2023.0.3.x86_64 10/13
Verifying : libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_64 11/13
Verifying : glibc-headers-x86-2.34-52.amzn2023.0.7.noarch 12/13
Verifying : annobin-docs-10.93-1.amzn2023.0.1.noarch 13/13

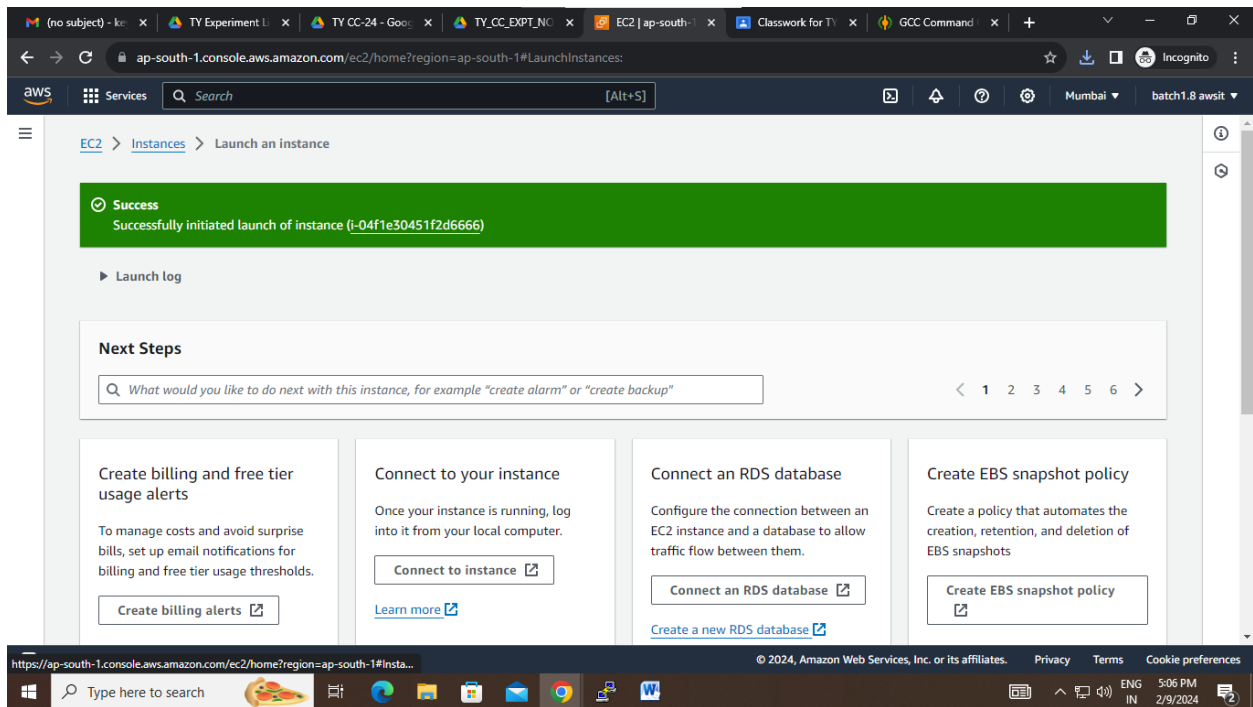
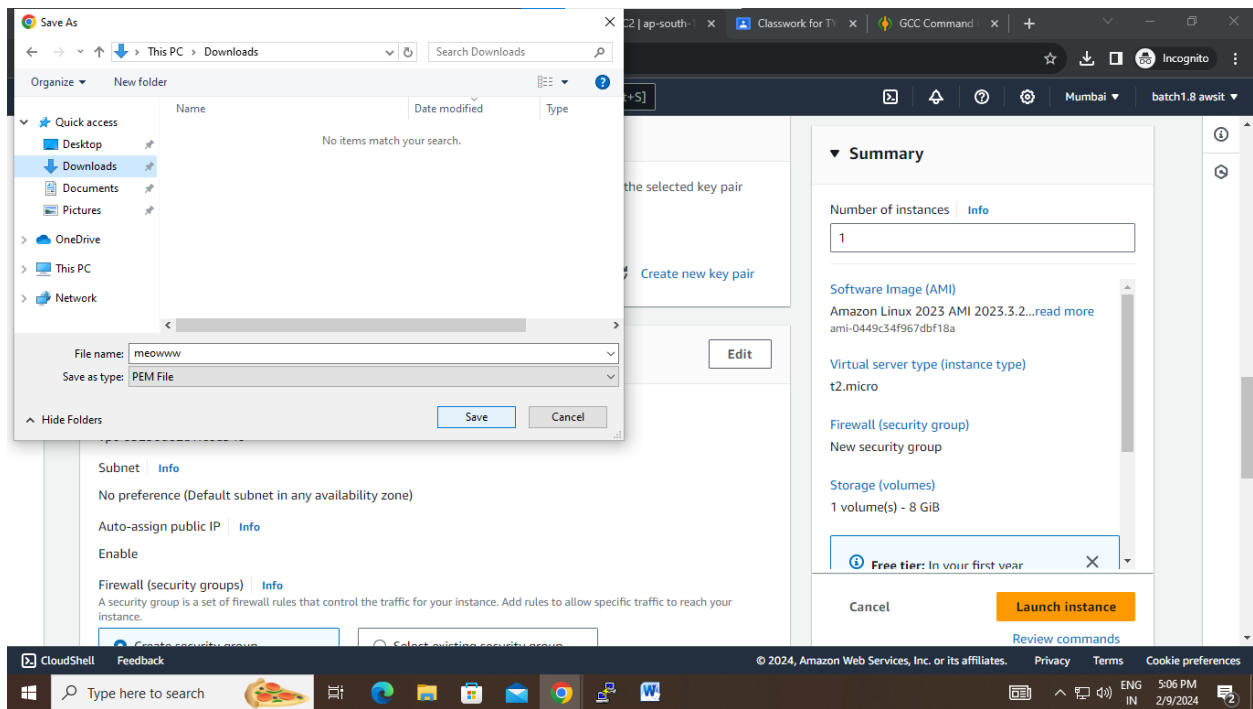
Installed:
annobin-docs-10.93-1.amzn2023.0.1.noarch
annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64
cpp-11.4.1-2.amzn2023.0.2.x86_64
gcc-8.0.4-5.amzn2023.0.2.x86_64
gcc-11.4.1-2.amzn2023.0.2.x86_64
glibc-devel-2.34-52.amzn2023.0.7.x86_64
glibc-headers-x86-2.34-52.amzn2023.0.7.noarch
guile22-2.2.7-2.amzn2023.0.3.x86_64
kernel-headers-6.1.75-99.163.amzn2023.x86_64
libmpc-1.2.1-2.amzn2023.0.2.x86_64
libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_64
libxcrypt-devel-4.4.33-7.amzn2023.x86_64
make-1:4.3-5.amzn2023.0.2.x86_64

Complete!
[root@ip-172-31-33-16 ec2-user]# gcc --v
gcc: error: unrecognized command-line option '--v'; did you mean '-v'?
gcc: fatal error: no input files
compilation terminated.
[root@ip-172-31-33-16 ec2-user]# gcc -v
Using built-in specs.
COLLECT_GCC=gcc
COLLECT_LTO_WRAPPER=/usr/libexec/gcc/x86_64-amazon-linux/11/lto-wrapper
OFFLOAD_TARGET_NAMES=nvptx-none
OFFLOAD_TARGET_DEFAULT=1
Target: x86_64-amazon-linux
Configured With: ../configure --enable-bootstrap --enable-languages=c,c++,fortran,lto --prefix=/usr --mandir=/usr/share/man --infodir=/usr/share/info --with-bugurl=https://github.com/amazonlinux/amazon-linux-2022 --enable-shared --enable-threads=posix --enable-checking=release --enable-multilib --with-system-zlib --enable-__cxa_atexit --disable-libunwind-exceptions --enable-gnu-unique-object --enable-linker-build-id --with-gcc-major-version-only --with-linker-hash-style=gnu --enable-plugin --enable-initfini-array --with-isl=/buildroot/build/BUILD/gcc-11.4.1-20230605/obj-x86_64-amazon-linux/isl-install --enable-offload-targets=nvptx-none --without-cuda-driver --enable-gnu-indirect-function --enable-cet --with-tune=generic --with-arch_64=x86-64-v2 --with-arch_32=x86-64 --build=x86_64-amazon-linux
Thread model: posix
```

```
root@ip-172-31-33-16/home/ec2-user
compilation terminated.
[root@ip-172-31-33-16 ec2-user]# gcc -v
Using built-in specs.
COLLECT_GCC=gcc
COLLECT_LTO_WRAPPER=/usr/libexec/gcc/x86_64-amazon-linux/11/lto-wrapper
OFFLOAD_TARGET_NAMES=nvptx-none
OFFLOAD_TARGET_DEFAULT=1
Target: x86_64-amazon-linux
Configured With: ../configure --enable-bootstrap --enable-languages=C,C++,Fortran,Go,Java,JavaScript,Lua,Perl,Python,Rust,Scala,Shell,Swift,Tcl,Verilog,ada,armasm,cs,fortran,java,lto,objc,obj-c++,obj-ld --mandir=/usr/share/man --infodir=/usr/share/info --with-bug-url=https://github.com/amazonlinux/amazon-linux-2022 --enable-shared --enable-threads=posix --enable-checking=release --enable-multilib --with-system-zlib --enable-cxx-atomic-builtins --enable-cxx-exceptions --enable-gnu-unique-object --enable-lto-linker-build-id --with-gcc-major-version-only --with-linker-hash-style=gnu --enable-plugin --enable-initfini-array --with-isl=/buildroot/build/BUILD/gcc-11.4.1-20230605/obj-x86_64-amazon-linux/isl-install --enable-offload-targets=nvptx-none --without-cuda-driver --enable-gnu-indirect-function --enable-cet --with-tune=generic --with-arch_64=x86-64-v2 --with-arch_32=x86-64 --build=x86_64-amazon-linux
Thread model: posix
Supported LTO compression algorithms: zlib zstd
gcc version 11.4.1 20230605 (Red Hat 11.4.1-2) (GCC)
[root@ip-172-31-33-16 ec2-user]# nano hello.c
[root@ip-172-31-33-16 ec2-user]# cat hello.c
#include <stdio.h>
int main()
{
    printf("hello world!!");
    return 0;
}
[root@ip-172-31-33-16 ec2-user]# gcc hello.c -o hello
/usr/bin/ld: cannot find .o: No such file or directory
/usr/bin/ld: cannot find hello: No such file or directory
collect2: error: ld returned 1 exit status
[root@ip-172-31-33-16 ec2-user]# gcc hello.c -o hello
/usr/bin/ld: cannot find .o: No such file or directory
/usr/bin/ld: cannot find hello: No such file or directory
collect2: error: ld returned 1 exit status
[root@ip-172-31-33-16 ec2-user]# gcc hello.c -o hello
[root@ip-172-31-33-16 ec2-user]# ./hello
hello world!![root@ip-172-31-33-16 ec2-user]# ^C
[root@ip-172-31-33-16 ec2-user]#
```

Post Lab Question:





Instances (1/9) Info

Find Instance by attribute or tag (case-sensitive)

Any state

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
venet	i-0bb7c5a75c3183e80	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1
arya	i-0ca9a66c04fa676d8	Terminated	t2.micro	-	View alarms +	ap-south-1
hiral2	i-04f1e30451f2d6666	Running	t2.micro	Initializing	View alarms +	ap-south-1
hiral	i-07c8e41a179e3ebf4	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1

Instance: i-04f1e30451f2d6666 (hiral2)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID: i-04f1e30451f2d6666 (hiral2)

Public IPv4 address: 13.201.51.103 [open address](#)

Private IPv4 addresses: 172.31.47.107

Instance state: Running

Public IPv4 DNS: ec2-13-201-51-103.ap-south-1.compute.amazonaws.com [open address](#)

Instances (1/9) Info

Find Instance by attribute or tag (case-sensitive)

Any state

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
venet	i-0bb7c5a75c3183e80	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1
arya	i-0ca9a66c04fa676d8	Terminated	t2.micro	-	View alarms +	ap-south-1
hiral2	i-04f1e30451f2d6666	Running	t2.micro	Initializing	View alarms +	ap-south-1
hiral	i-07c8e41a179e3ebf4	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1

Instance: i-04f1e30451f2d6666 (hiral2)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID: i-04f1e30451f2d6666 (hiral2)

Public IPv4 address: 13.201.51.103 [open address](#)

Private IPv4 addresses: 172.31.47.107

Instance state: Running

Public IPv4 DNS: ec2-13-201-51-103.ap-south-1.compute.amazonaws.com [open address](#)

Putty Configuration

Category: Session

Basic options for your PuTTY session

Specify the destination you want to connect to

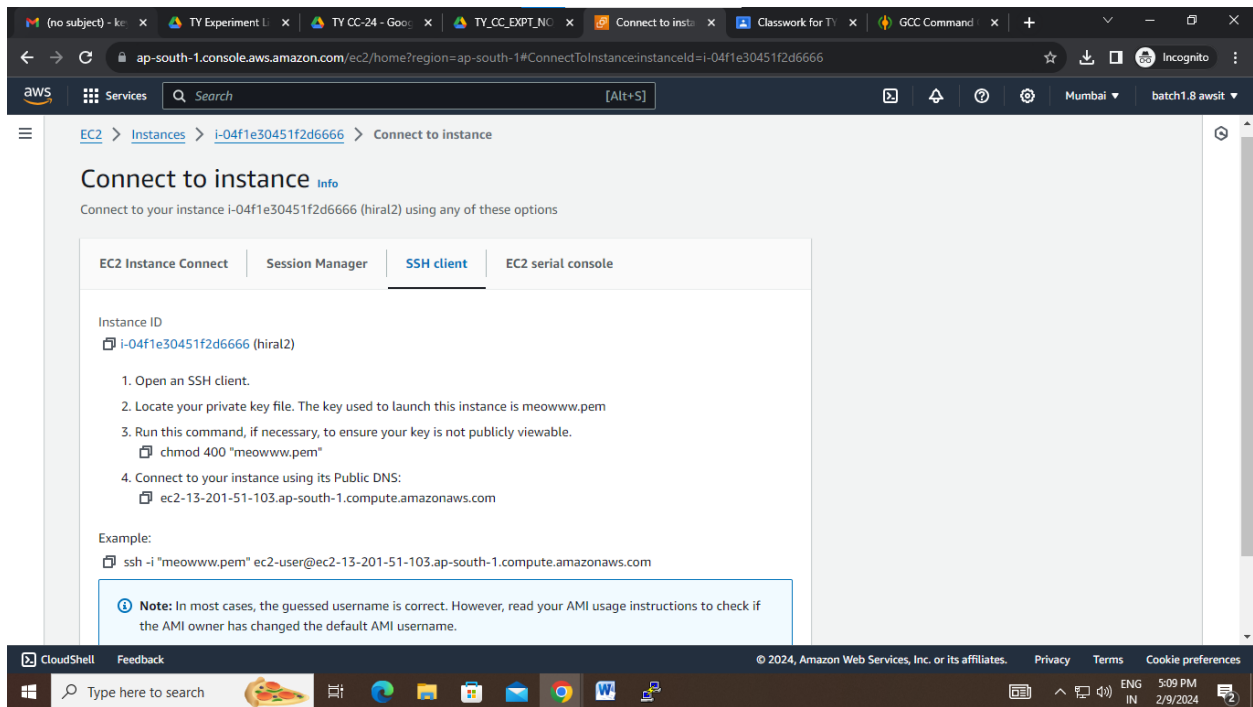
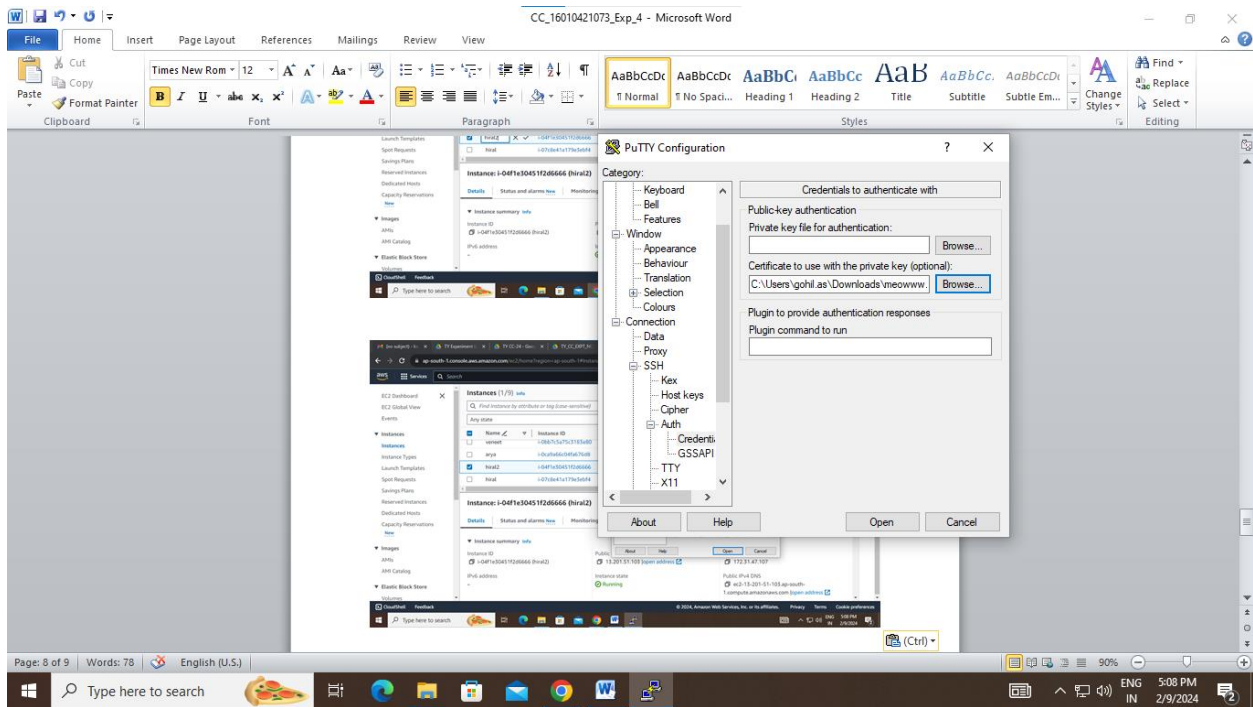
Host Name (or IP address): 13.201.51.103 Port: 22

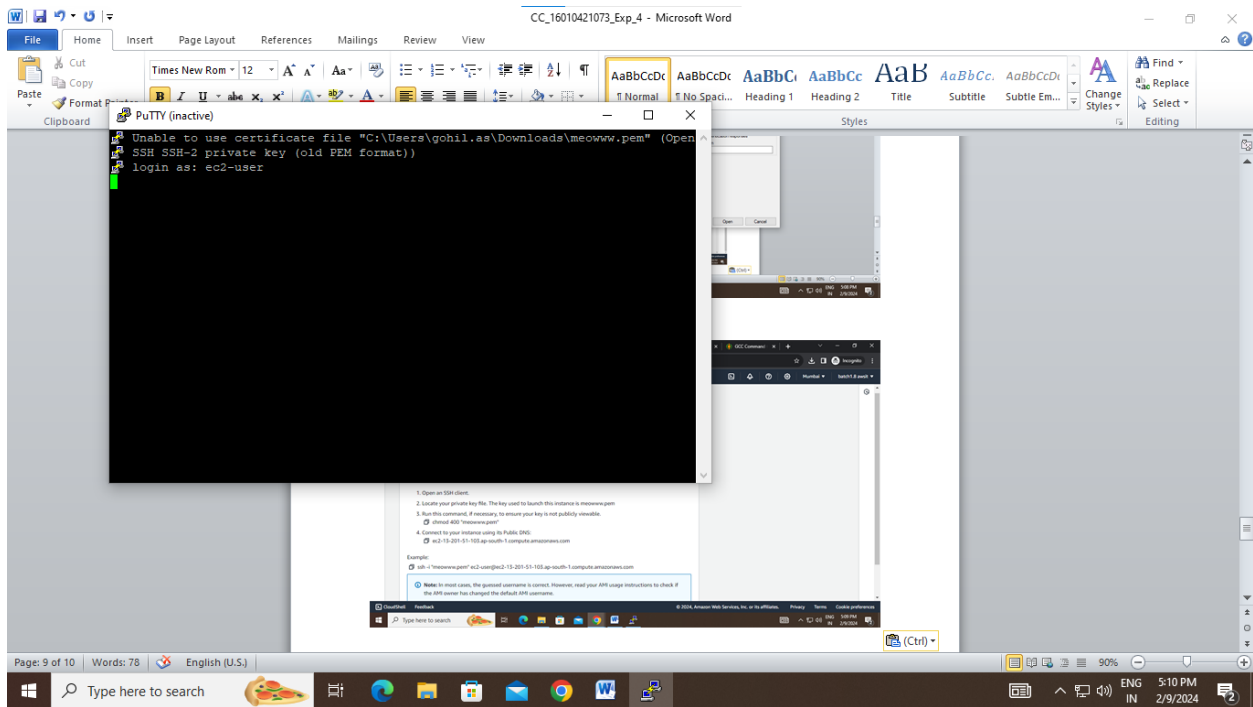
Connection type: SSH Serial Other: Telnet

Load, save or delete a stored session

Saved Sessions: Default Settings Load Save Delete

Close window on exit: Always Never Only on clean exit





Outcome: CO2 Describe fundamentals of cloud computing software security.

Conclusion: Successfully executed a sample program of c++ using linux virtual machine instance in AWS(IAAS).