Lab 7 -Deploy a simple web-based booking system using the Go programming language.

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CLCM3403:Cloud Architecture Design and Implementation Planning

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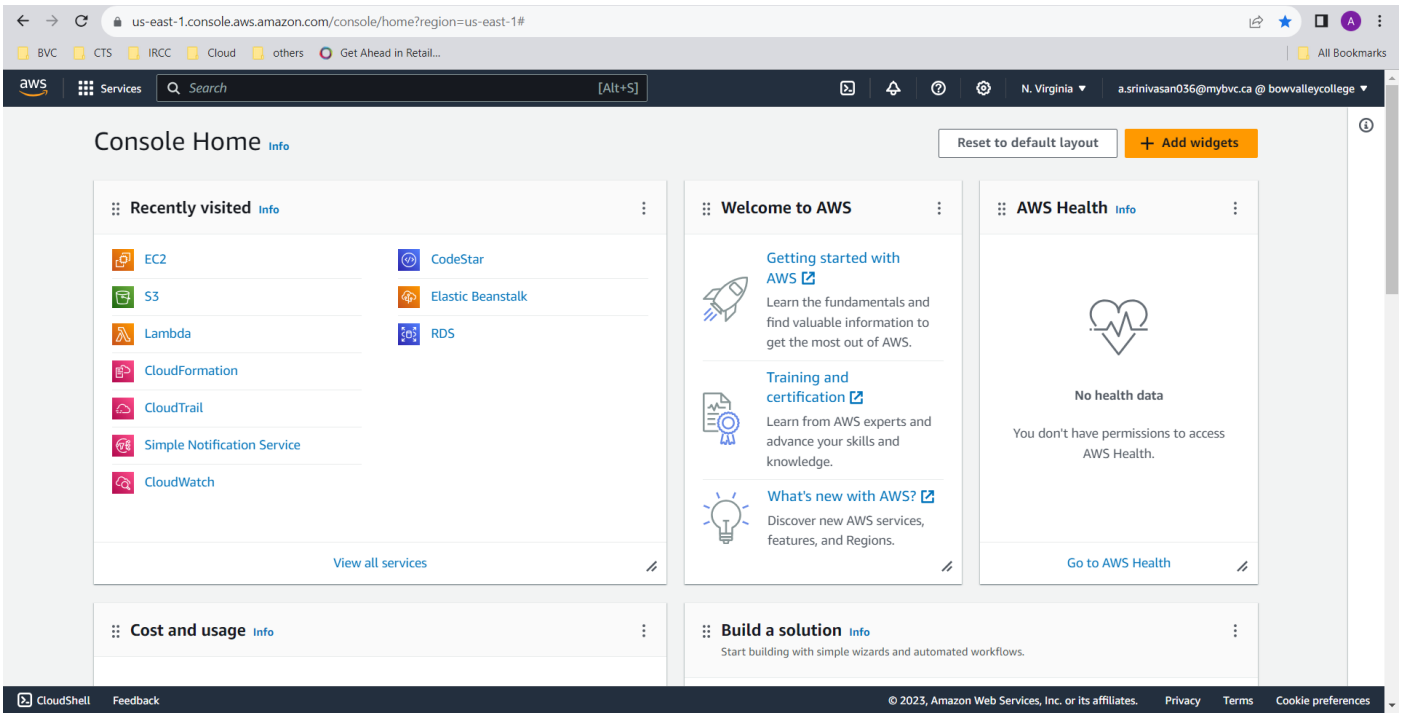
Description:

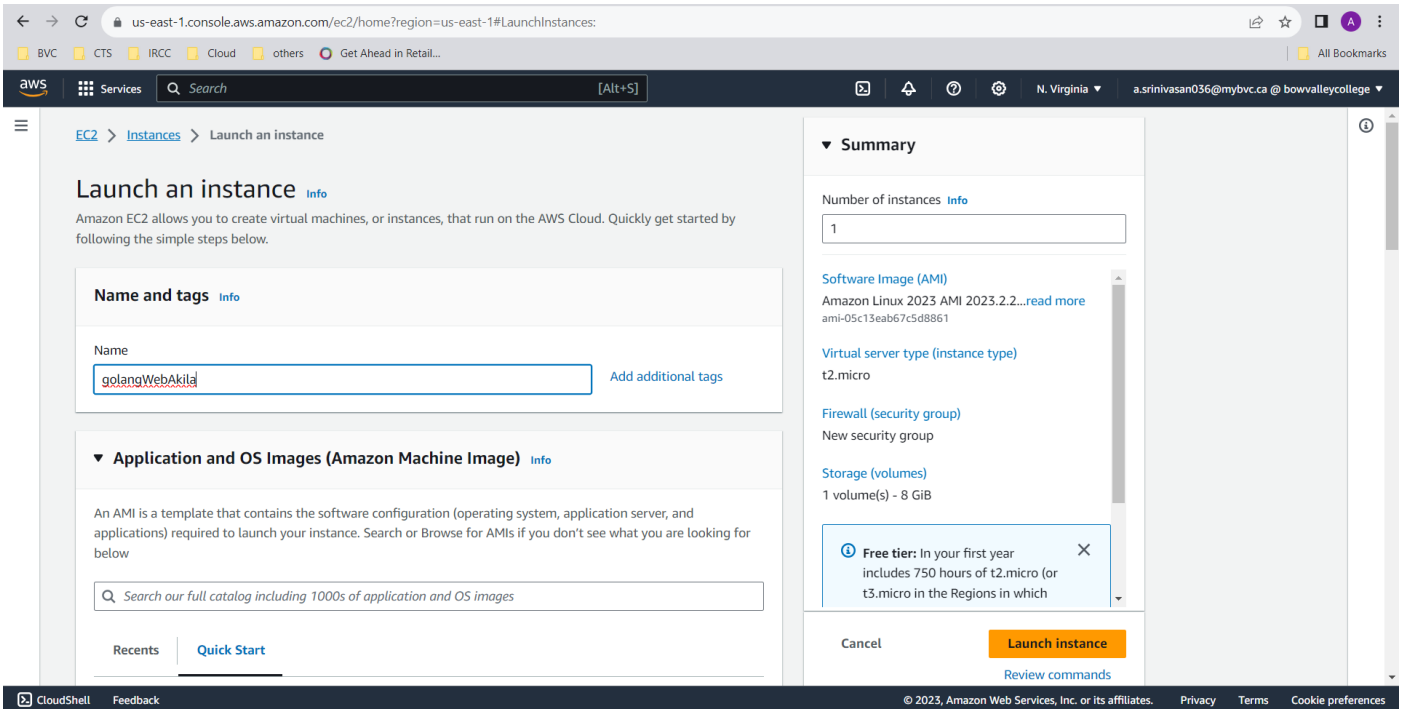
The hospital booking system will allow users to book appointments. And deploy it on Amazon EC2 instance.

Screenshots:

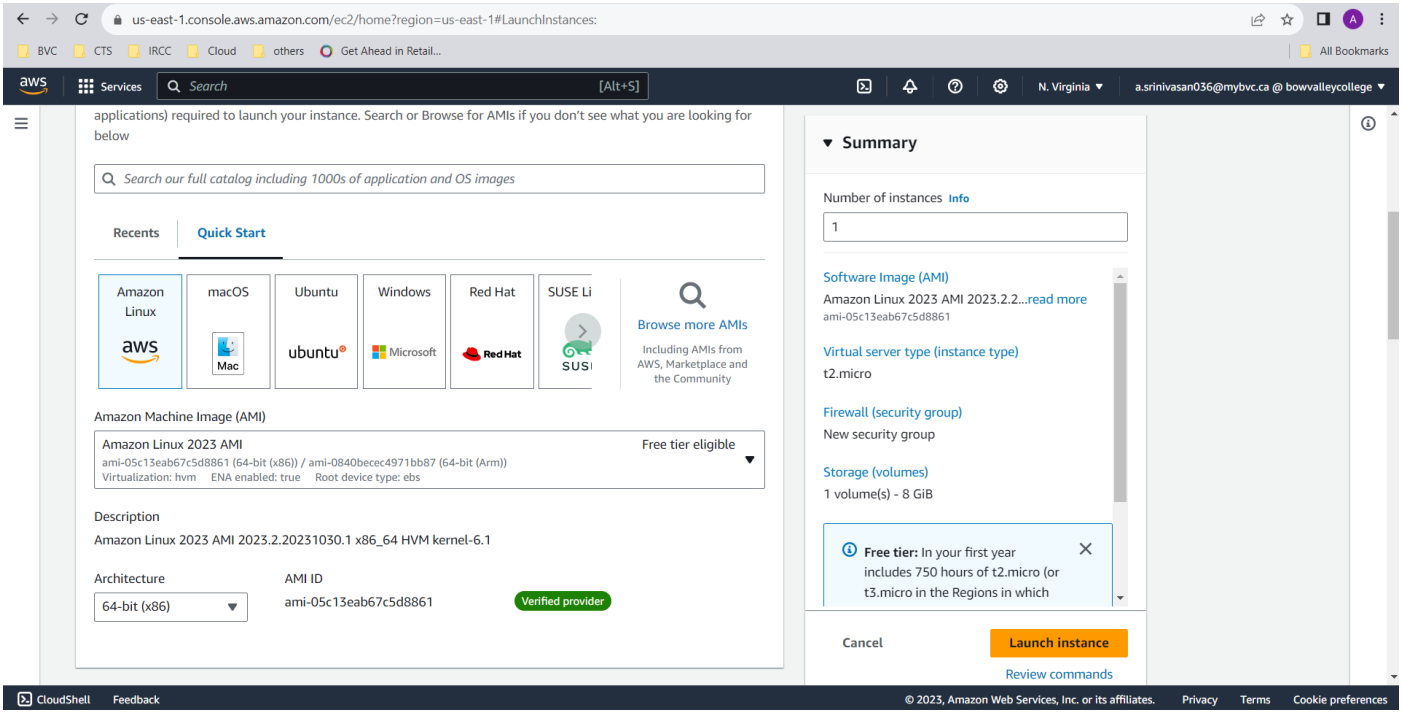
Open the console management and create an EC2 instance.



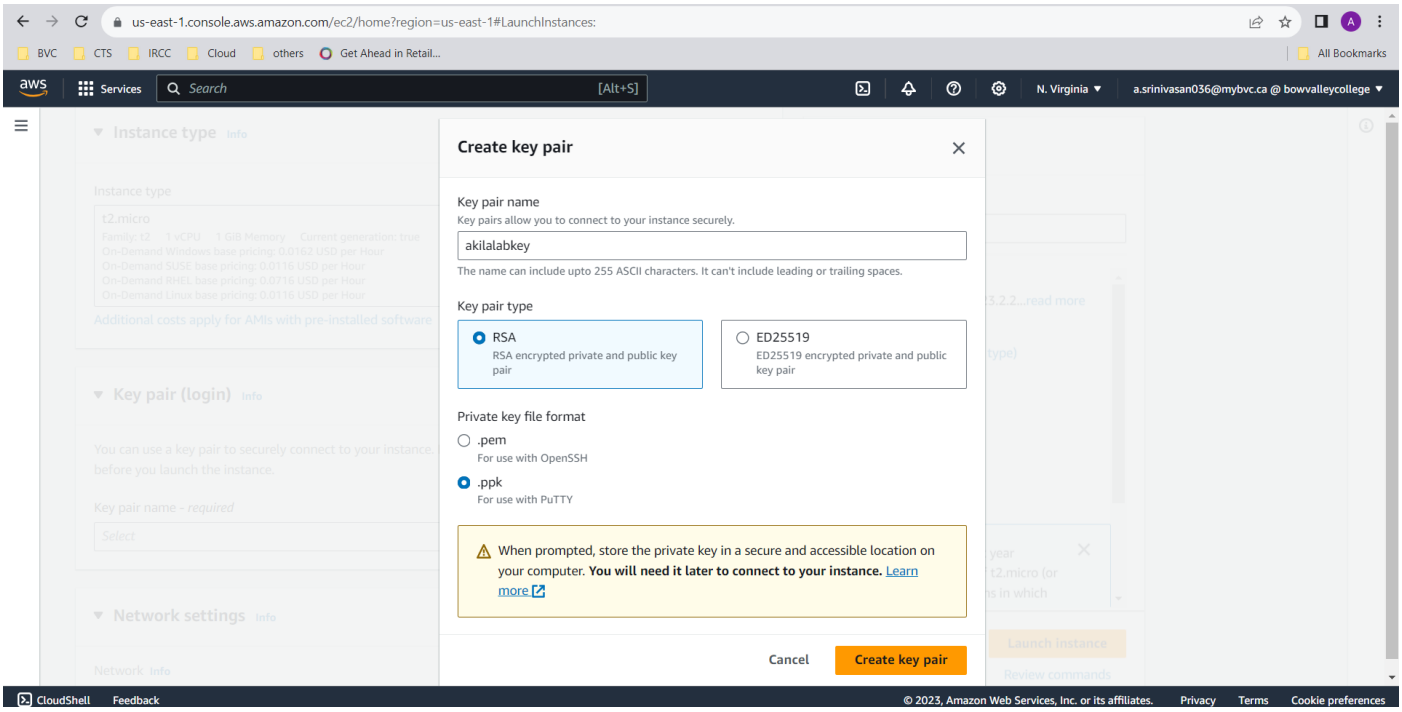
Create an instance and name it according to the request or related to the task. Here I have given “golangwebakila”

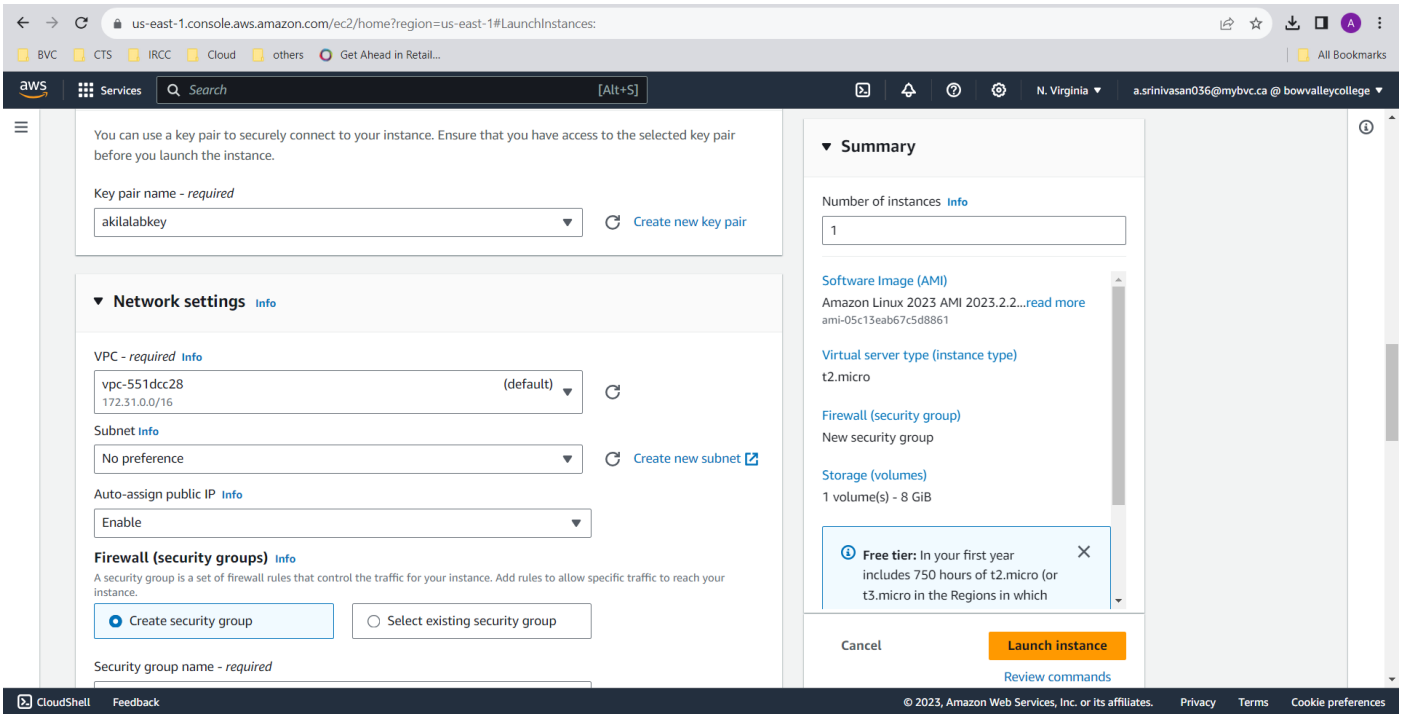


Here I have chosen the linus os for my instance.

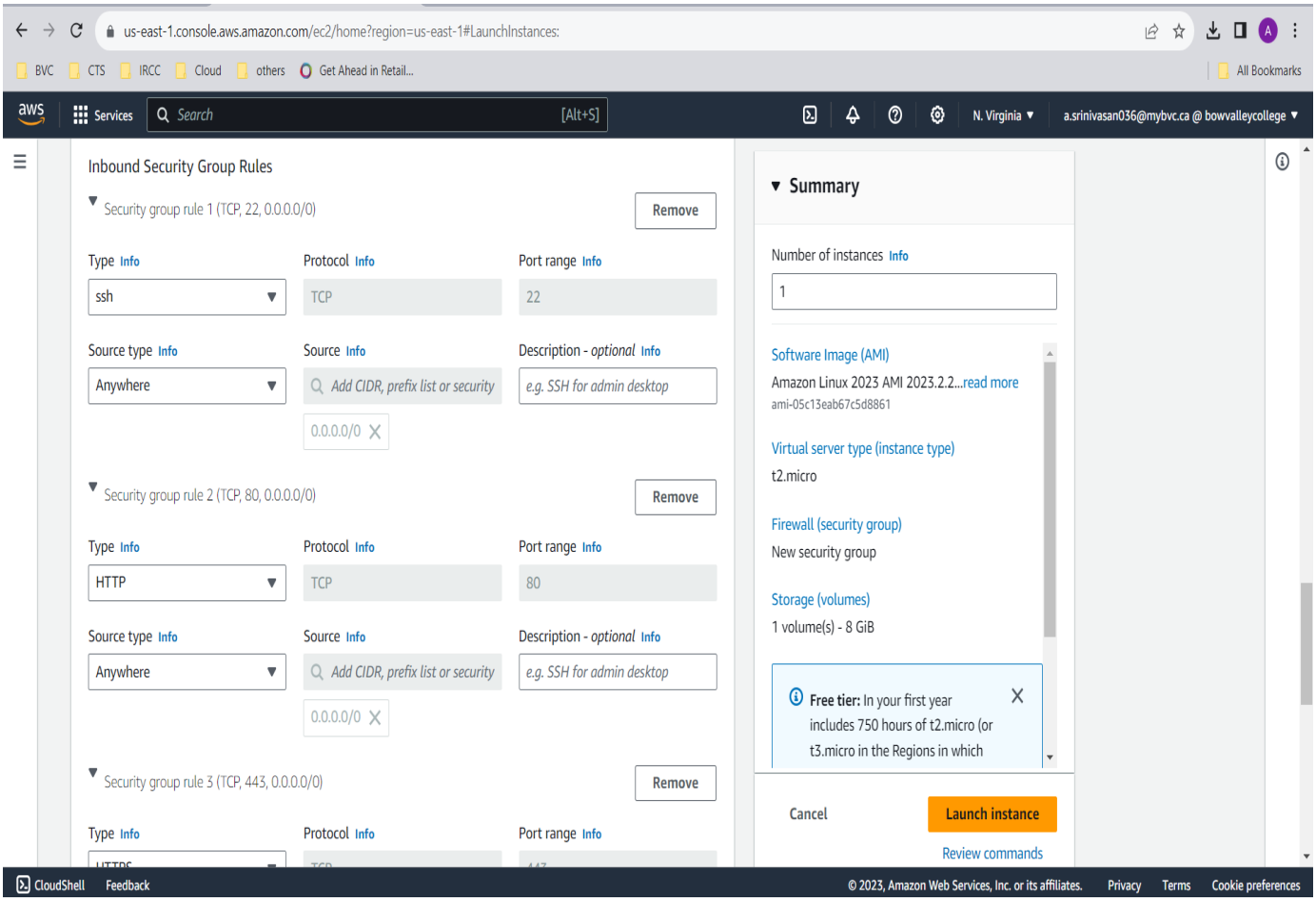


We have to create a new key pair for the instance. I have named the key as akilalabkey with .ppk format. Once I create it it will download the .ppk file to my local machine.

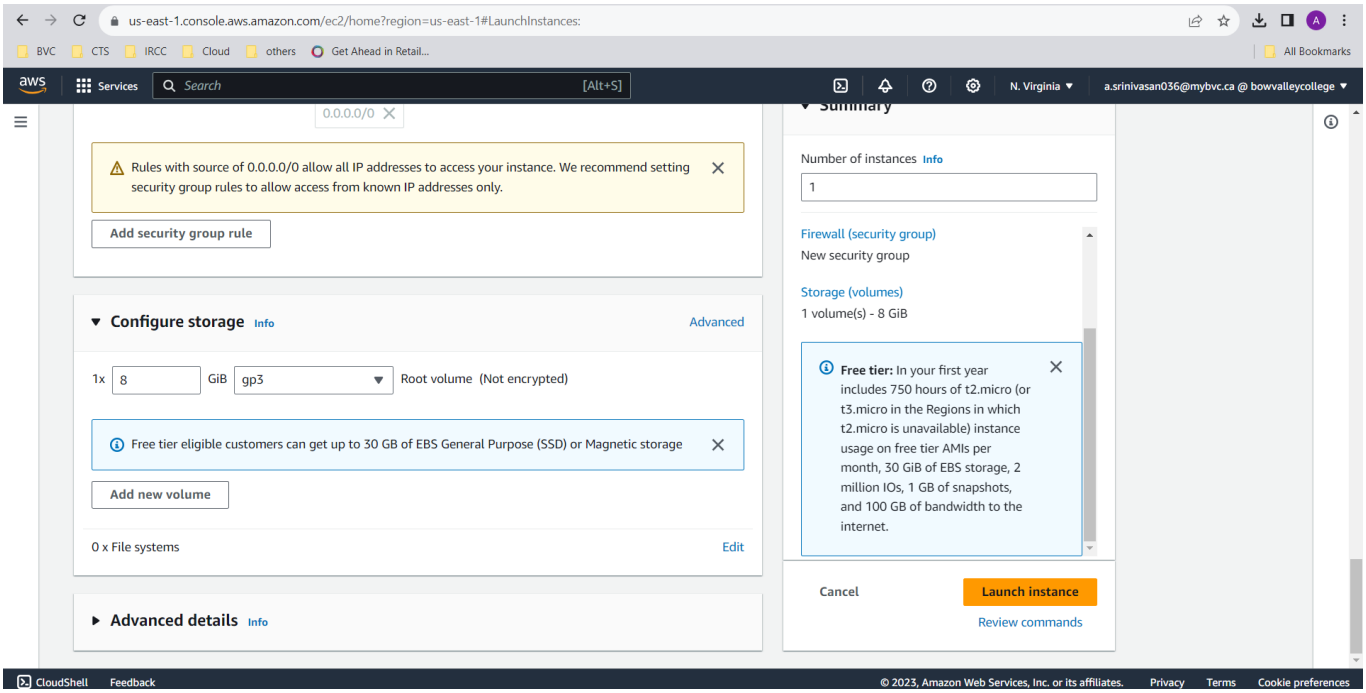


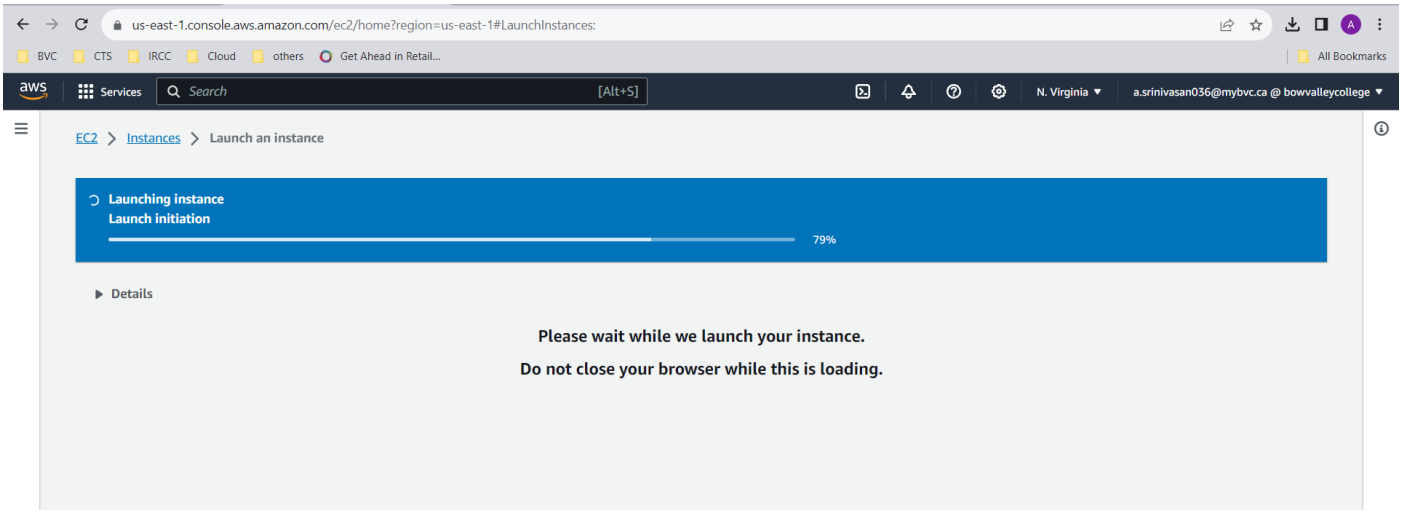


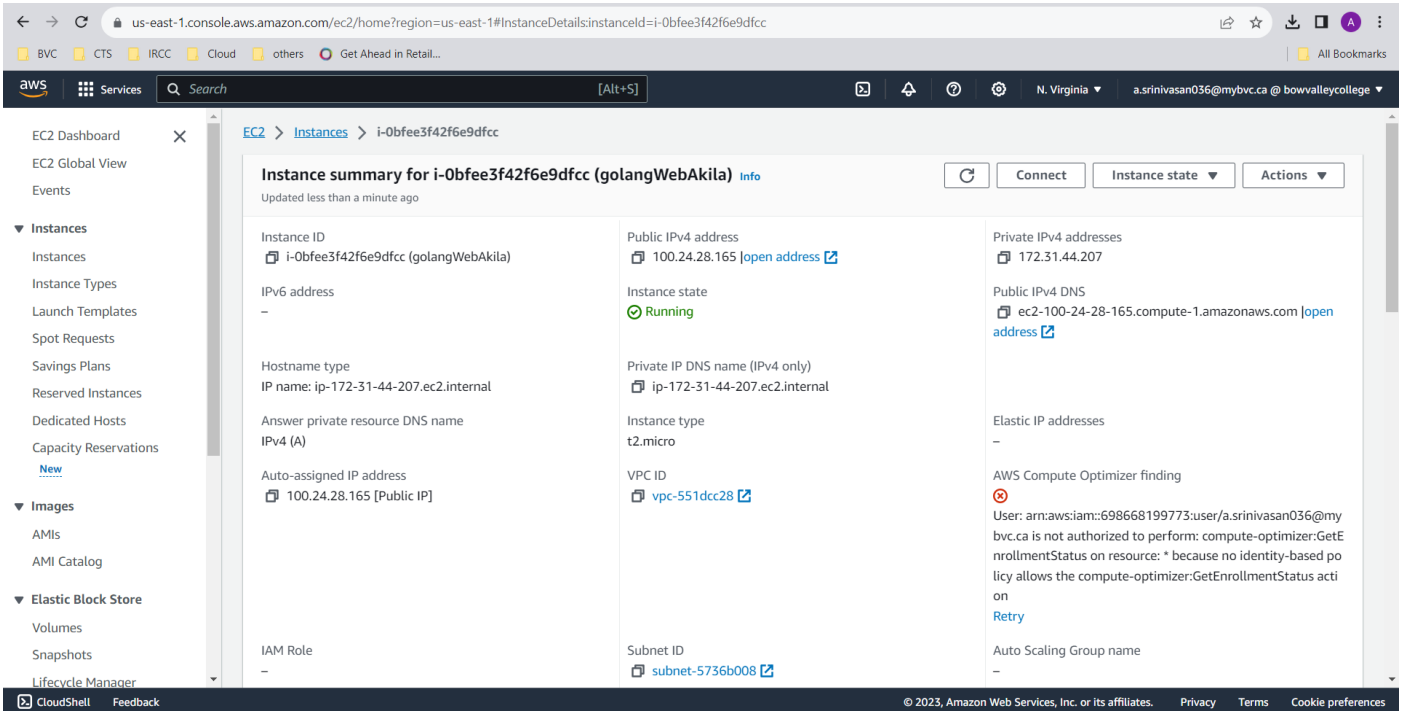
Add the security group as – all traffic with port 8080 and also HTTP



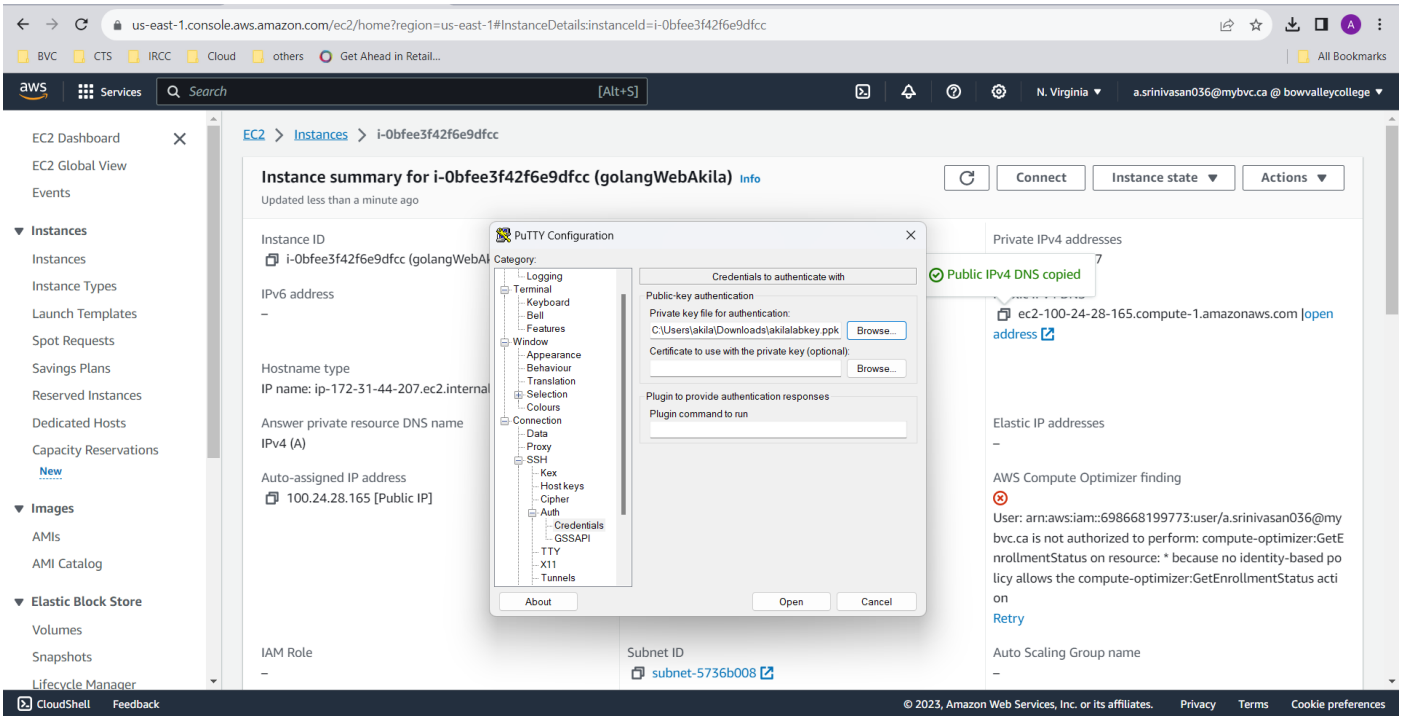
After all of these now click on launch instance button to launch



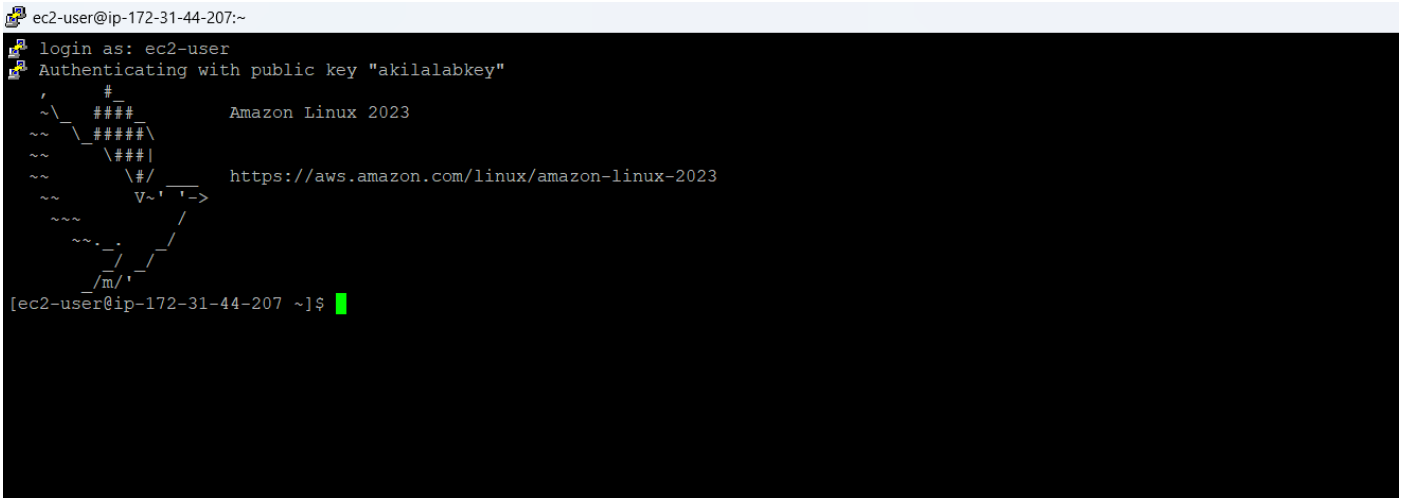




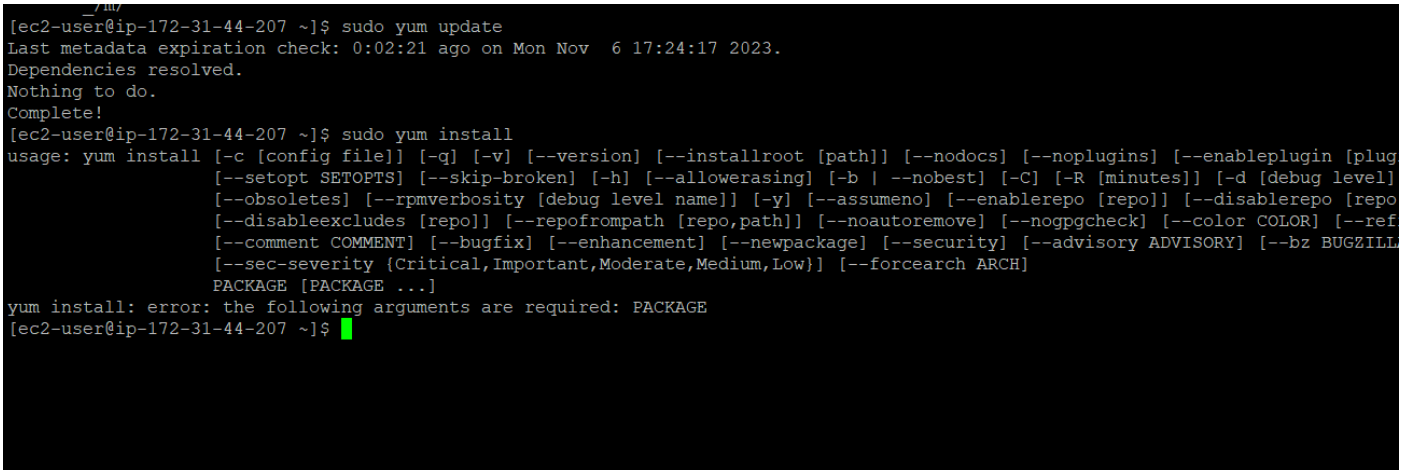
Now open the putty to access the EC2 instance which we have created just now.



Login as “ec2-user”



To update give the cmd as “sudo yum update”



Now install the golang using the cmd “sudo yum install golang”

```
[ec2-user@ip-172-31-44-207 ~]$ sudo yum install golang
Last metadata expiration check: 0:08:51 ago on Mon Nov  6 17:24:17 2023.
Dependencies resolved.
================================================================================================================================
 Package                        Architecture          Version                            Repository                       Size
================================================================================================================================
Installing:
 golang                         x86_64                1.20.10-1.amzn2023.0.1             amazonlinux                     599 k
Installing dependencies:
 annobin-docs                   noarch                10.93-1.amzn2023.0.1               amazonlinux                      92 k
 annobin-plugin-gcc             x86_64                10.93-1.amzn2023.0.1               amazonlinux                     887 k
 apr                            x86_64                1.7.2-2.amzn2023.0.2               amazonlinux                     129 k
 apr-util                       x86_64                1.6.3-1.amzn2023.0.1               amazonlinux                      98 k
 cpp                            x86_64                11.4.1-2.amzn2023.0.2              amazonlinux                      10 M
 emacs-filesystem               noarch                1:28.2-3.amzn2023.0.6              amazonlinux                     9.5 k
 gc                             x86_64                8.0.4-5.amzn2023.0.2               amazonlinux                     105 k
 gcc                            x86_64                11.4.1-2.amzn2023.0.2              amazonlinux                      32 M
 git-core                       x86_64                2.40.1-1.amzn2023.0.1              amazonlinux                     4.3 M
 git-core-doc                   noarch                2.40.1-1.amzn2023.0.1              amazonlinux                     2.6 M
 glibc-devel                    x86_64                2.34-52.amzn2023.0.7               amazonlinux                      45 k
 glibc-headers-x86              noarch                2.34-52.amzn2023.0.7               amazonlinux                     446 k
 golang-bin                     x86_64                1.20.10-1.amzn2023.0.1             amazonlinux                      58 M
 golang-src                     noarch                1.20.10-1.amzn2023.0.1             amazonlinux                      11 M
 guile22                        x86_64                2.2.7-2.amzn2023.0.3               amazonlinux                     6.4 M
 kernel-headers                 x86_64                6.1.59-84.139.amzn2023             amazonlinux                     1.4 M
 libmpc                         x86_64                1.2.1-2.amzn2023.0.2               amazonlinux                      62 k
 libserf                        x86_64                1.3.9-23.amzn2023.0.3              amazonlinux                      58 k
 libtool-ltdl                   x86_64                2.4.7-1.amzn2023.0.3               amazonlinux                      38 k
 libxcrypt-devel                x86_64                4.4.33-7.amzn2023                  amazonlinux                      32 k
 make                           x86_64                1:4.3-5.amzn2023.0.2               amazonlinux                     534 k
 perl-Error                     noarch                1:0.17029-5.amzn2023.0.2           amazonlinux                      41 k
 perl-File-Find                 noarch                1.37-477.amzn2023.0.5              amazonlinux                      26 k
```

Now install apache webserver by "sudo yum install httpd"

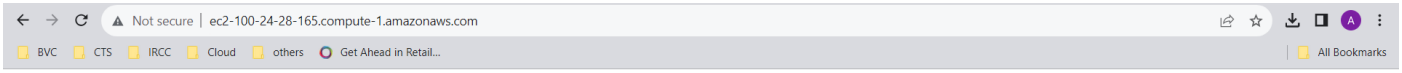
```
  Verifying        : perl-Error-1:0.17029-5.amzn2023.0.2.noarch                                  26/33
  Verifying        : git-core-doc-2.40.1-1.amzn2023.0.1.noarch                                   27/33
  Verifying        : glibc-headers-x86-2.34-52.amzn2023.0.7.noarch                               28/33
  Verifying        : golang-src-1.20.10-1.amzn2023.0.1.noarch                                    29/33
  Verifying        : perl-Git-2.40.1-1.amzn2023.0.1.noarch                                       30/33
  Verifying        : annobin-docs-10.93-1.amzn2023.0.1.noarch                                    31/33
  Verifying        : perl-File-Find-1.37-477.amzn2023.0.5.noarch                                 32/33
  Verifying        : emacs-filesystem-1:28.2-3.amzn2023.0.6.noarch                               33/33

Installed:
  annobin-docs-10.93-1.amzn2023.0.1.noarch      annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64  apr-1.7.2-2.amzn2023.0.2.x86_64                 apr-util-1.6.3-1.amzn2023.0.1.x86_64
  apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64  cpp-11.4.1-2.amzn2023.0.2.x86_64                emacs-filesystem-1:28.2-3.amzn2023.0.6.noarch   gc-8.0.4-5.amzn2023.0.2.x86_64
  gcc-11.4.1-2.amzn2023.0.2.x86_64              git-2.40.1-1.amzn2023.0.1.x86_64                git-core-2.40.1-1.amzn2023.0.1.x86_64           git-core-doc-2.40.1-1.amzn2023.0.1.noarch
  glibc-devel-2.34-52.amzn2023.0.7.x86_64       glibc-headers-x86-2.34-52.amzn2023.0.7.noarch   golang-1.20.10-1.amzn2023.0.1.x86_64            golang-bin-1.20.10-1.amzn2023.0.1.x86_64
  golang-src-1.20.10-1.amzn2023.0.1.noarch      guile22-2.2.7-2.amzn2023.0.3.x86_64             kernel-headers-6.1.59-84.139.amzn2023.x86_64    libmpc-1.2.1-2.amzn2023.0.2.x86_64
  libserf-1.3.9-23.amzn2023.0.3.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
  mercurial-5.7.1-1.amzn2023.0.3.x86_64         perl-Error-1:0.17029-5.amzn2023.0.2.noarch      perl-File-Find-1.37-477.amzn2023.0.5.noarch     perl-Git-2.40.1-1.amzn2023.0.1.noarch
  perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64   perl-lib-0.65-477.amzn2023.0.5.x86_64           subversion-1.14.2-5.amzn2023.0.3.x86_64         subversion-libs-1.14.2-5.amzn2023.0.3.x86_64
  utf8proc-2.6.1-2.amzn2023.0.2.x86_64

Complete!
[ec2-user@ip-172-31-44-207 ~]$ sudo yum install httpd
```

After installation now start the web server "sudo systemctl start httpd" and enable it –"sudo systemctl enable httpd"

```
ec2-user@ip-172-31-44-207:~
Total download size: 2.1 M
Installed size: 6.3 M
Is this ok [y/N]: y
Downloading Packages:
(1/9): mod_http2-2.0.11-2.amzn2023.x86_64.rpm                                          2.3 MB/s | 150 kB     00:00
(2/9): httpd-tools-2.4.56-1.amzn2023.x86_64.rpm                                        1.2 MB/s |  82 kB     00:00
(3/9): mod_lua-2.4.56-1.amzn2023.x86_64.rpm                                            807 kB/s |  62 kB     00:00
(4/9): httpd-2.4.56-1.amzn2023.x86_64.rpm                                              2.2 MB/s |  48 kB     00:00
(5/9): libbrotli-1.0.9-4.amzn2023.0.2.x86_64.rpm                                        12 MB/s | 315 kB     00:00
(6/9): generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch.rpm                           1.0 MB/s |  19 kB     00:00
(7/9): mailcap-2.1.49-3.amzn2023.0.3.noarch.rpm                                        2.1 MB/s |  33 kB     00:00
(8/9): httpd-filesystem-2.4.56-1.amzn2023.noarch.rpm                                   754 kB/s |  15 kB     00:00
(9/9): httpd-core-2.4.56-1.amzn2023.x86_64.rpm                                          18 MB/s | 1.4 MB     00:00
--------------------------------------------------------------------------------------------------------------------
Total                                                                                  9.6 MB/s | 2.1 MB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                         1/1
  Installing       : mailcap-2.1.49-3.amzn2023.0.3.noarch                                    1/9
  Running scriptlet: httpd-filesystem-2.4.56-1.amzn2023.noarch                               2/9
  Installing       : httpd-filesystem-2.4.56-1.amzn2023.noarch                               2/9
  Installing       : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch                       3/9
  Installing       : libbrotli-1.0.9-4.amzn2023.0.2.x86_64                                   4/9
  Installing       : httpd-tools-2.4.56-1.amzn2023.x86_64                                    5/9
  Installing       : httpd-core-2.4.56-1.amzn2023.x86_64                                     6/9
  Installing       : mod_http2-2.0.11-2.amzn2023.x86_64                                      7/9
  Installing       : mod_lua-2.4.56-1.amzn2023.x86_64                                        8/9
  Installing       : httpd-2.4.56-1.amzn2023.x86_64                                          9/9
  Running scriptlet: httpd-2.4.56-1.amzn2023.x86_64                                          9/9
  Verifying        : httpd-tools-2.4.56-1.amzn2023.x86_64                                    1/9
  Verifying        : mod_http2-2.0.11-2.amzn2023.x86_64                                      2/9
  Verifying        : mod_lua-2.4.56-1.amzn2023.x86_64                                        3/9
  Verifying        : httpd-2.4.56-1.amzn2023.x86_64                                          4/9
  Verifying        : libbrotli-1.0.9-4.amzn2023.0.2.x86_64                                   5/9
  Verifying        : httpd-core-2.4.56-1.amzn2023.x86_64                                     6/9
  Verifying        : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch                       7/9
  Verifying        : mailcap-2.1.49-3.amzn2023.0.3.noarch                                    8/9
  Verifying        : httpd-filesystem-2.4.56-1.amzn2023.noarch                               9/9

Installed:
  generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch    httpd-2.4.56-1.amzn2023.x86_64              httpd-core-2.4.56-1.amzn2023.x86_64      httpd-filesystem-2.4.56-1.amzn2023.noarch
  httpd-tools-2.4.56-1.amzn2023.x86_64                 libbrotli-1.0.9-4.amzn2023.0.2.x86_64       mailcap-2.1.49-3.amzn2023.0.3.noarch     mod_http2-2.0.11-2.amzn2023.x86_64
  mod_lua-2.4.56-1.amzn2023.x86_64

Complete!
[ec2-user@ip-172-31-44-207 ~]$ sudo systemctl start httpd
```

```
Installed:
  generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch      httpd-2.4.56-1.amzn2023.x86_64           httpd-core-2.4.56-1.amzn2023.x86_64      httpd-filesystem-2.4.56-1.amzn2023.noarc
  httpd-tools-2.4.56-1.amzn2023.x86_64                   libbrotli-1.0.9-4.amzn2023.0.2.x86_64    mailcap-2.1.49-3.amzn2023.0.3.noarch     mod_http2-2.0.11-2.amzn2023.x86_64
  mod_lua-2.4.56-1.amzn2023.x86_64

Complete!
[ec2-user@ip-172-31-44-207 ~]$ sudo systemctl start httpd
[ec2-user@ip-172-31-44-207 ~]$ sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-44-207 ~]$
```

After enabling it we can see the website showing “It works!” text on the screen.

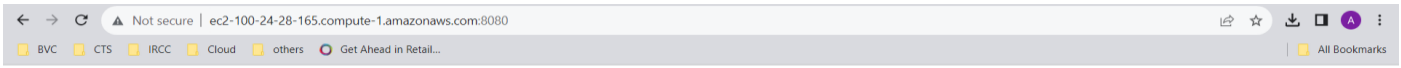


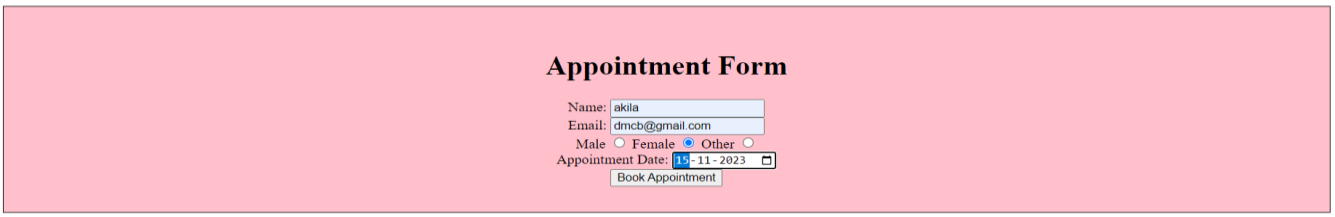
It works!

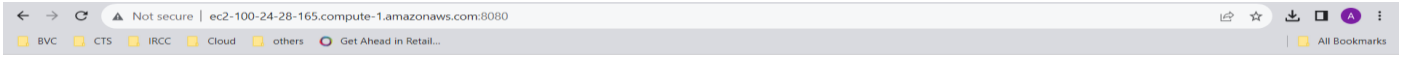
Now create a go file by giving the cmd as “sudo nano filename.go” paste the code and run the file by “sudo go run filename.go”

```
Installed:
  generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch      httpd-2.4.56-1.amzn2023.x86_64           httpd-core-2.4.56-1.amzn2023.x86_64      httpd-filesystem-2.4.56-1.amzn2023.noarch
  httpd-tools-2.4.56-1.amzn2023.x86_64                   libbrotli-1.0.9-4.amzn2023.0.2.x86_64    mailcap-2.1.49-3.amzn2023.0.3.noarch     mod_http2-2.0.11-2.amzn2023.x86_64
  mod_lua-2.4.56-1.amzn2023.x86_64

Complete!
[ec2-user@ip-172-31-44-207 ~]$ sudo systemctl start httpd
[ec2-user@ip-172-31-44-207 ~]$ sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-44-207 ~]$ sudo nano hospitalAppointmentForm.go
[ec2-user@ip-172-31-44-207 ~]$ sudo nano run hospitalAppointmentForm.go
[ec2-user@ip-172-31-44-207 ~]$ sudo go run hospitalAppointmentForm.go
Server is running on :8080...
```

In the url add”:8080” at the end and remove ‘s’ in the https. Fill out the form and submit







Booked Successfully!!!

We can see the details we have entered by giving cat filename which mentioned in the code.

```
[ec2-user@ip-172-31-44-207 ~]$ sudo systemctl start httpd
[ec2-user@ip-172-31-44-207 ~]$ sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-44-207 ~]$ sudo nano hospitalAppointmentForm.go
[ec2-user@ip-172-31-44-207 ~]$ sudo nano run hospitalAppointmentForm.go
[ec2-user@ip-172-31-44-207 ~]$ sudo go run hospitalAppointmentForm.go
Server is running on :8080...
^Csignal: interrupt
[ec2-user@ip-172-31-44-207 ~]$ sudo nano hospitalAppointmentForm.go
[ec2-user@ip-172-31-44-207 ~]$ sudo go run hospitalAppointmentForm.go
Server is running on :8080...
^Csignal: interrupt
[ec2-user@ip-172-31-44-207 ~]$ cat bookings.txt
Name: akila, Email: dmcb@gmail.com, Gender: female, Appointment Date: 2023-11-15
Name: akila2, Email: dmcb@gmail.com, Gender: female, Appointment Date: 2023-11-17
Name: akila3, Email: dmcb@gmail.com, Gender: female, Appointment Date: 2023-11-27
[ec2-user@ip-172-31-44-207 ~]$
```

After completion of the task delete the EC2