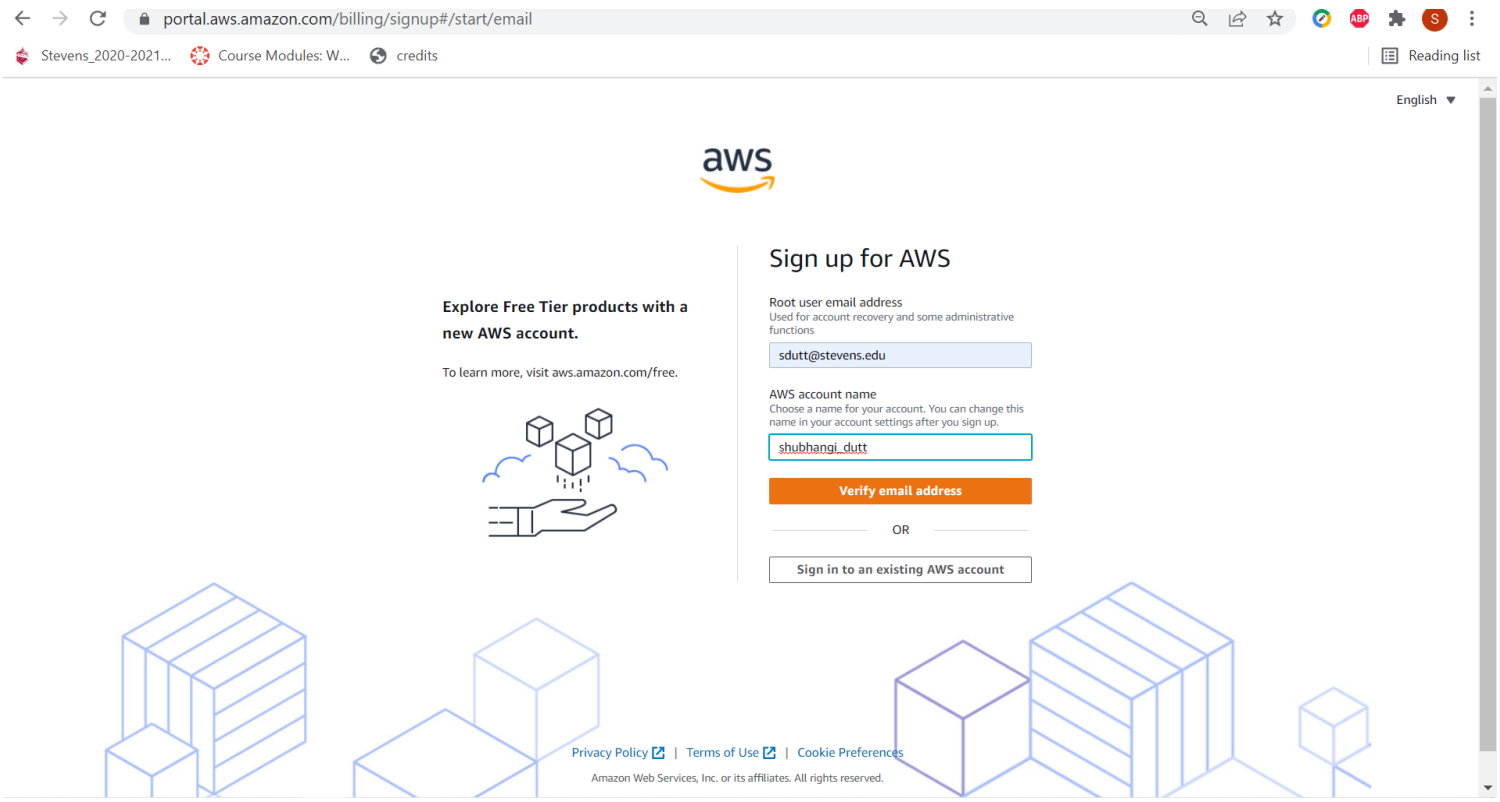
Shubhangi Dutt
CS-524A

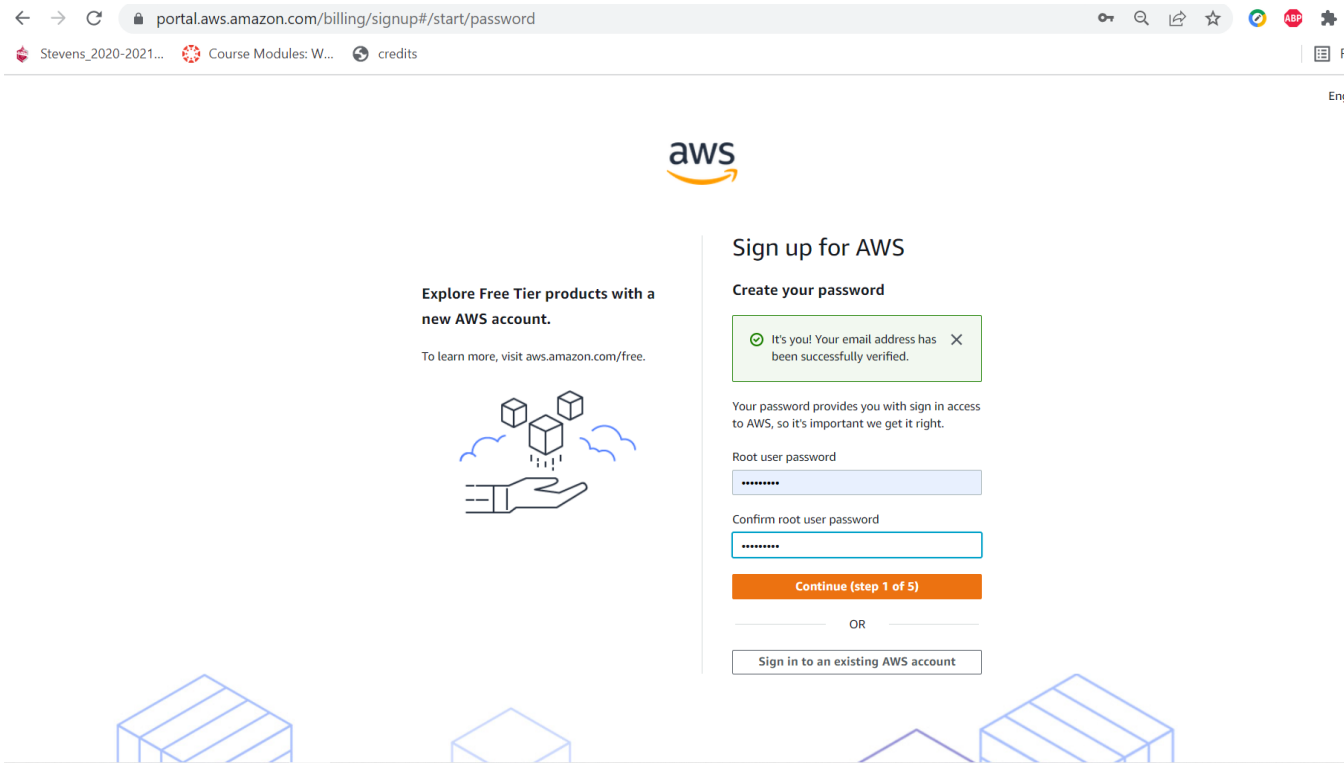
Lab Assignment-1

Creating an AWS Free-Tier Account

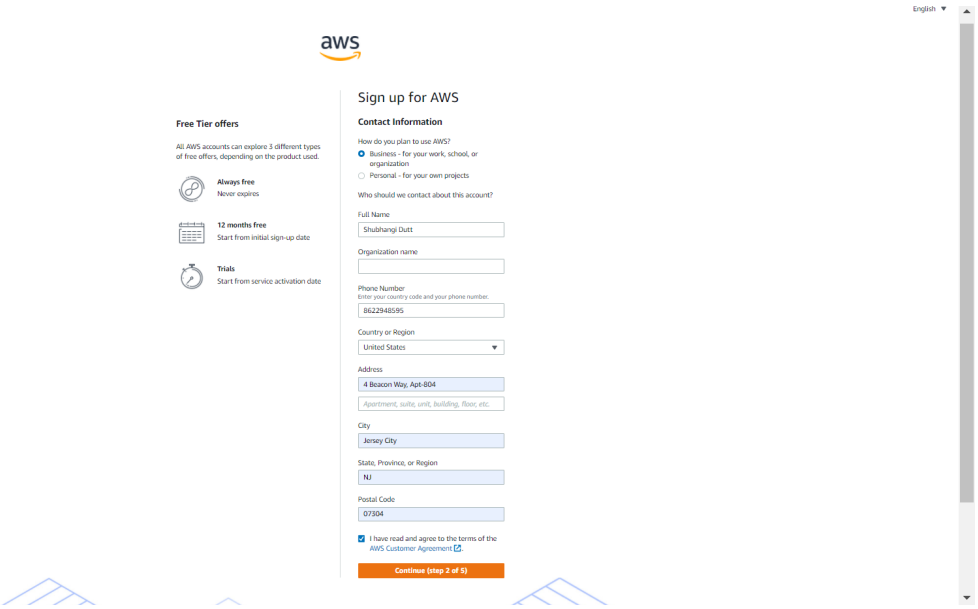
1. Using my Steven's email ID **sdutt@stevens.edu**, I registered for an aws account and set up an account name, **shubhangi_dutt** for it.



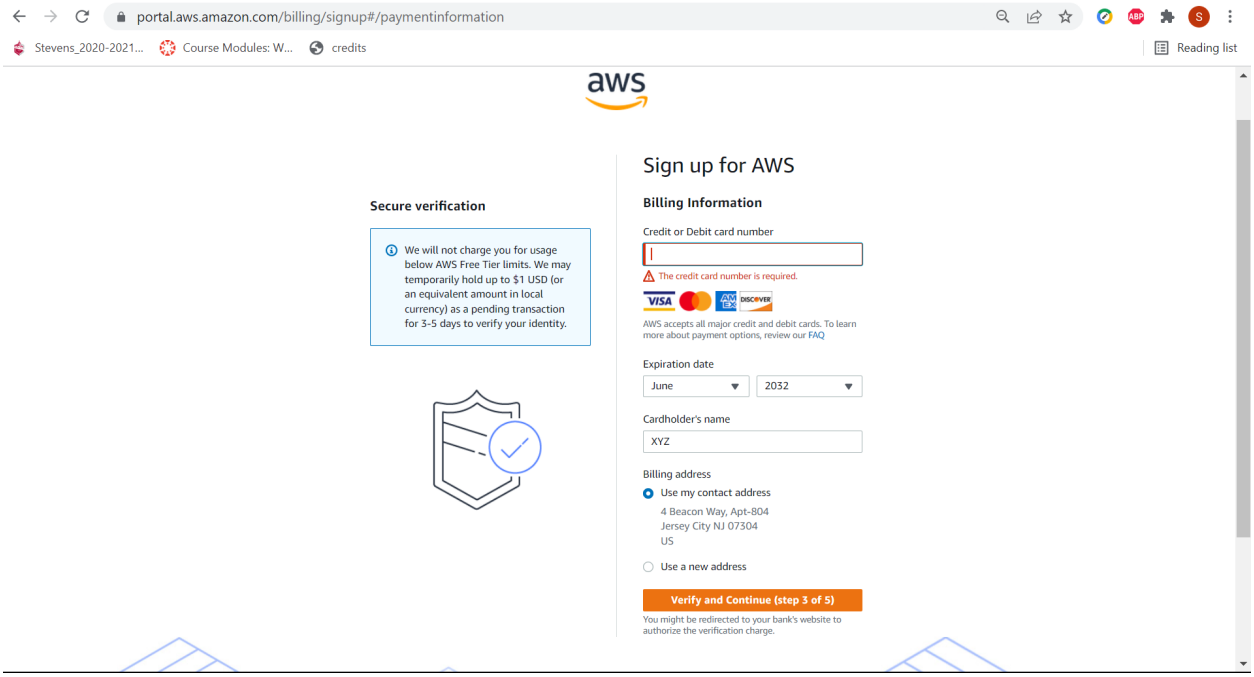
2.I set up the password for my account and confirmed it.



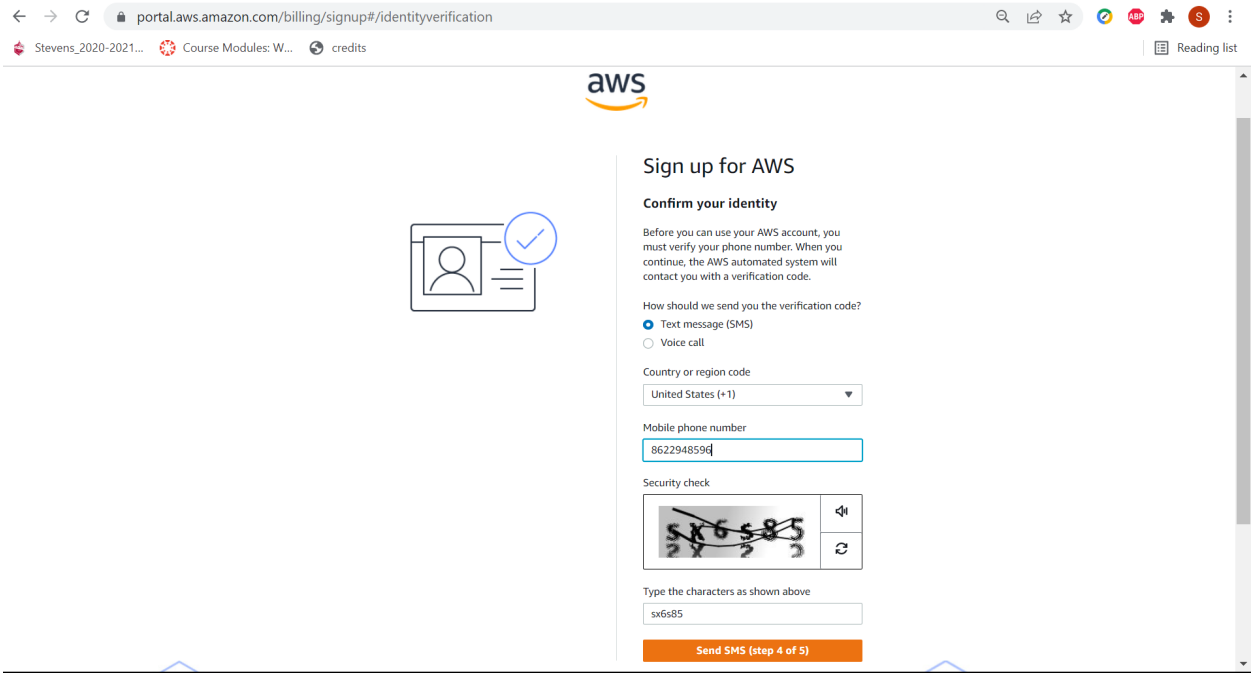
3. I entered the address for the account.



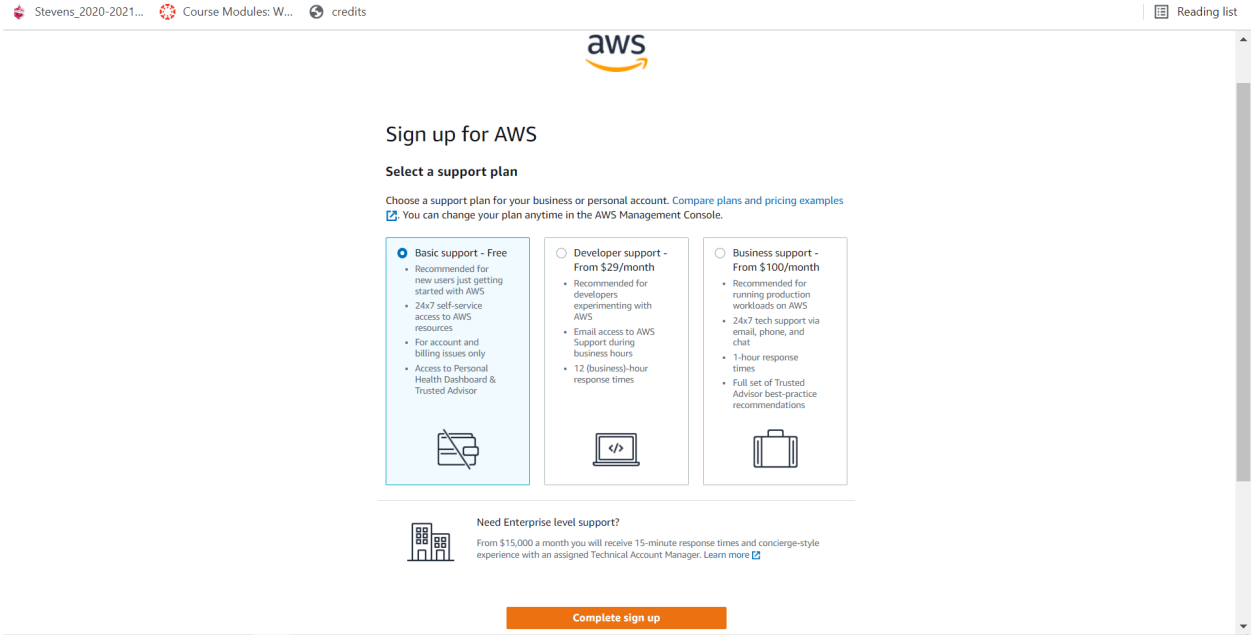
4. Next I entered my billing information.



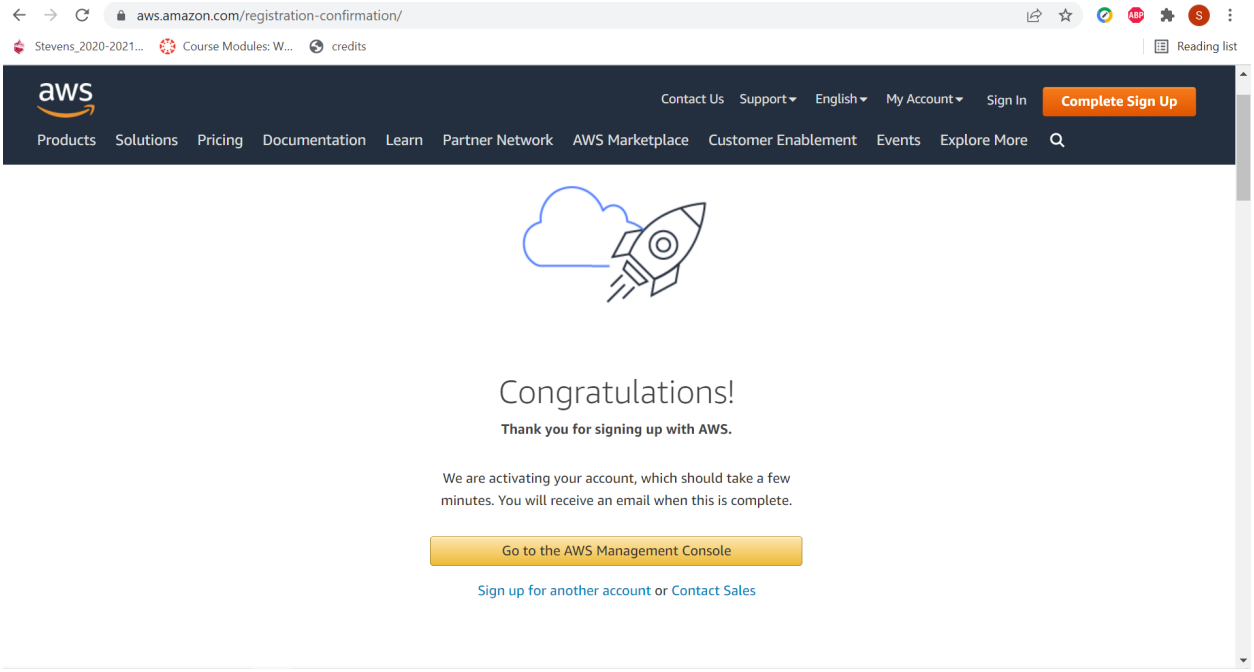
5. I used my phone number to confirm my identity then did a security check by entering captcha. I used the code that was received on my phone and went on to the next step.



6.I selected the free support plan to avoid charges.



7. My AWS account was successfully set up, free of charge.



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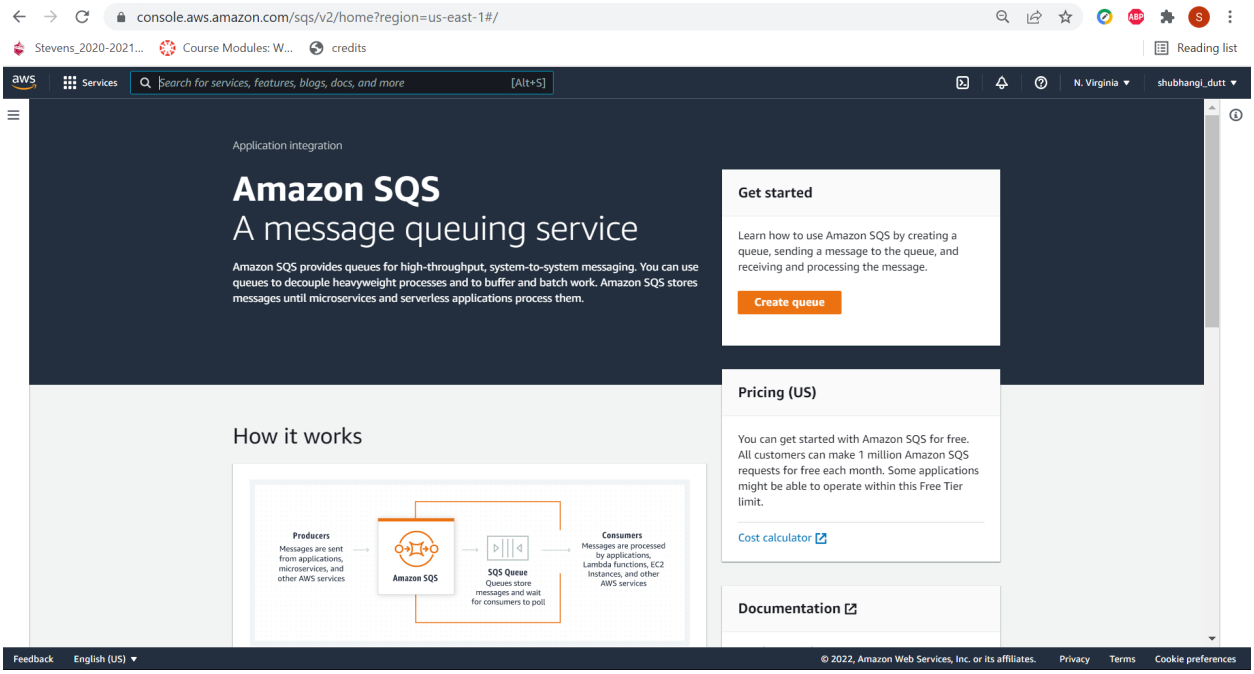
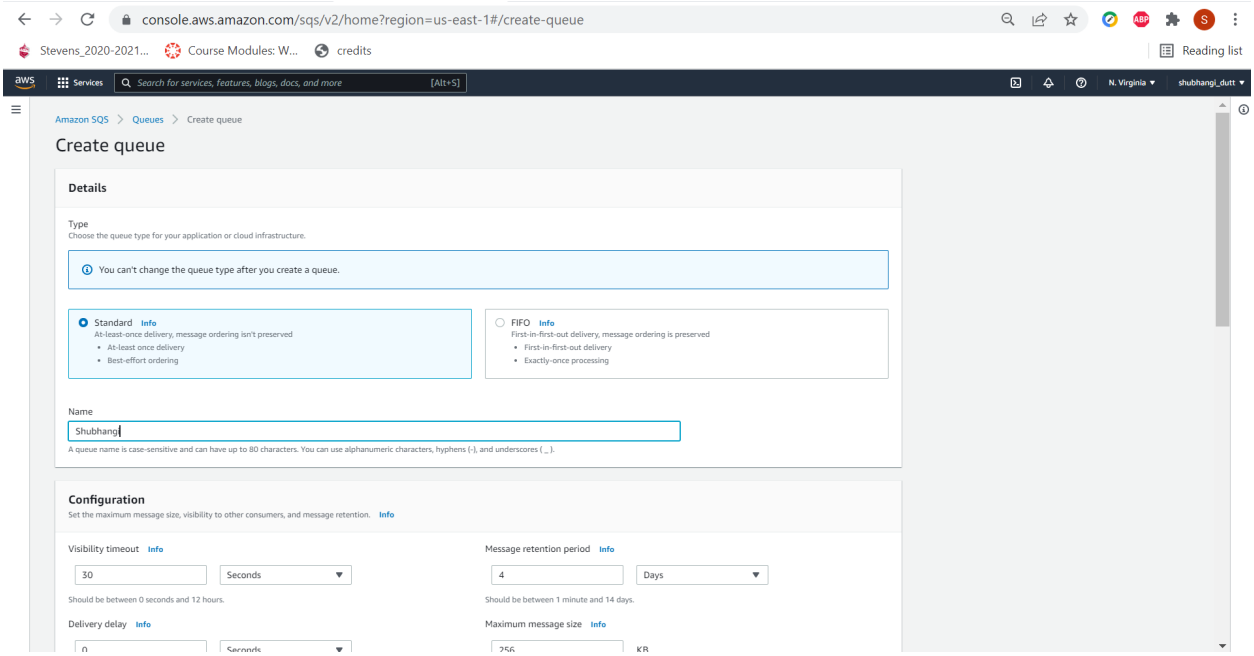
Creating a Queue

1. I went on to the AWS console and selected Amazon SQS. I selected the ‘Create Queue’ button.



2. I entered the details for creating a new queue. I entered my name **Shubhangi,** as the name of the queue and let the rest of the configurations be default.



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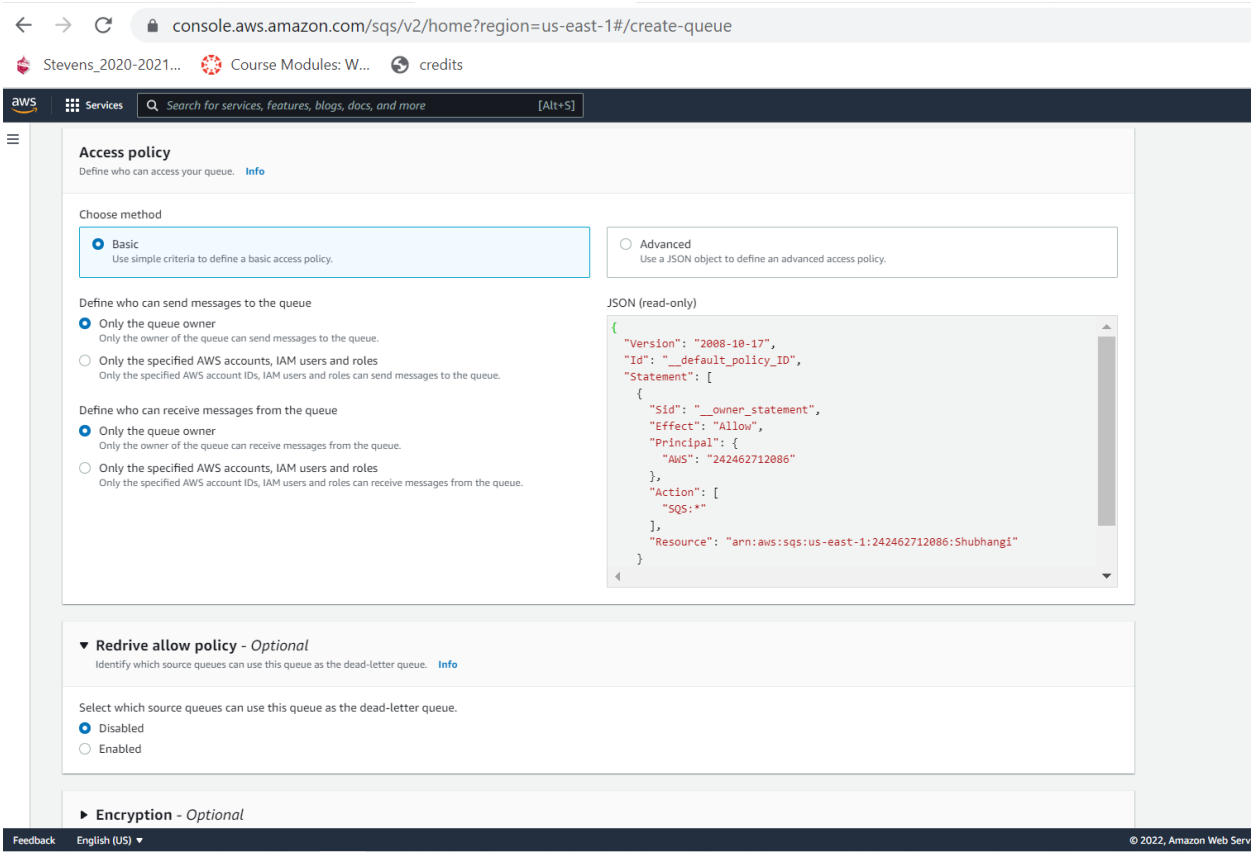
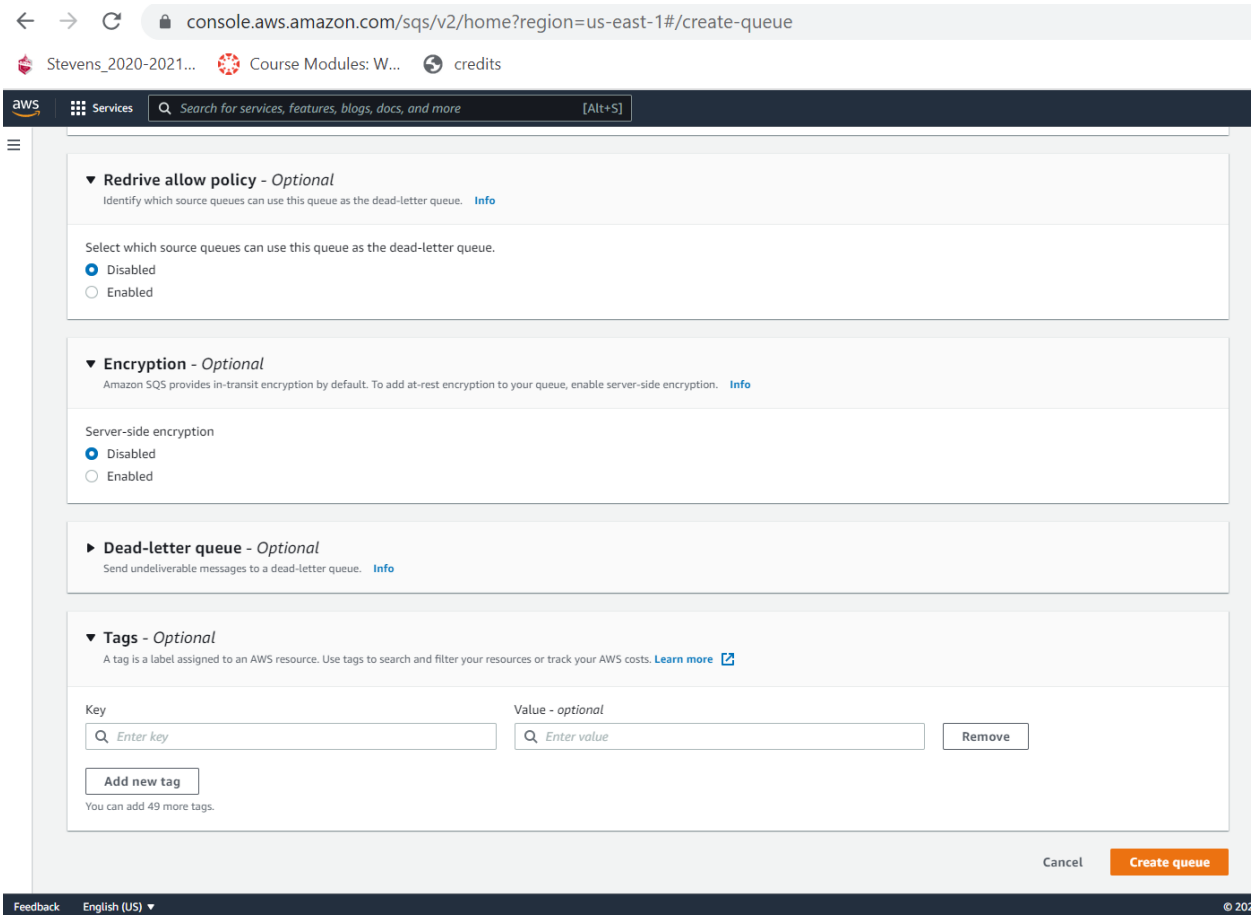
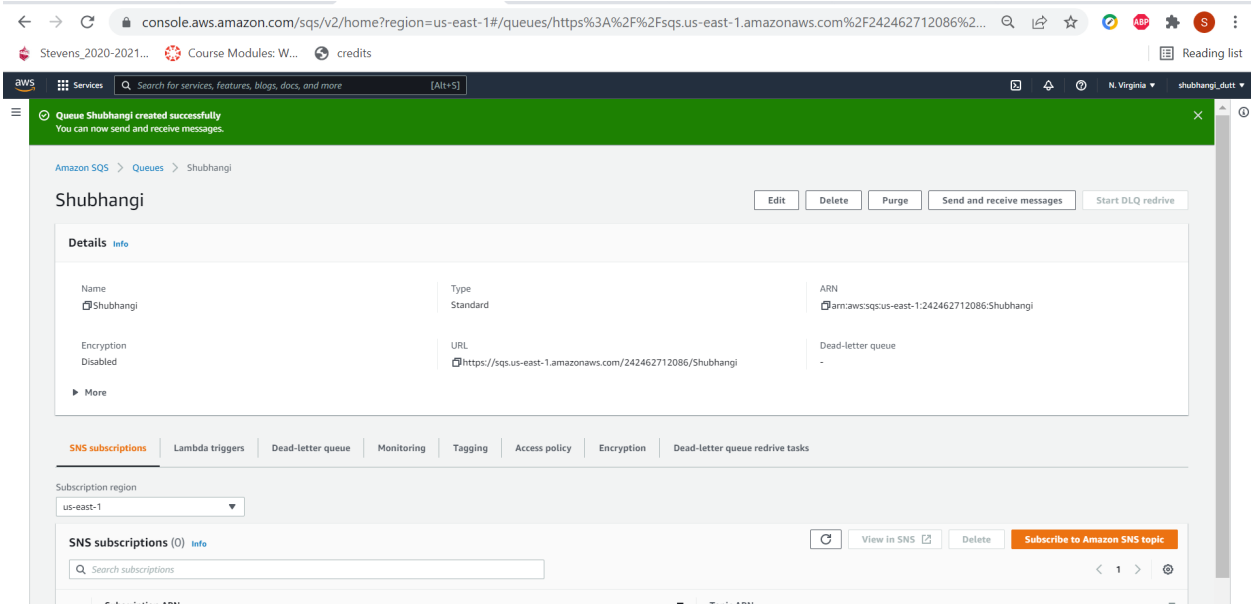


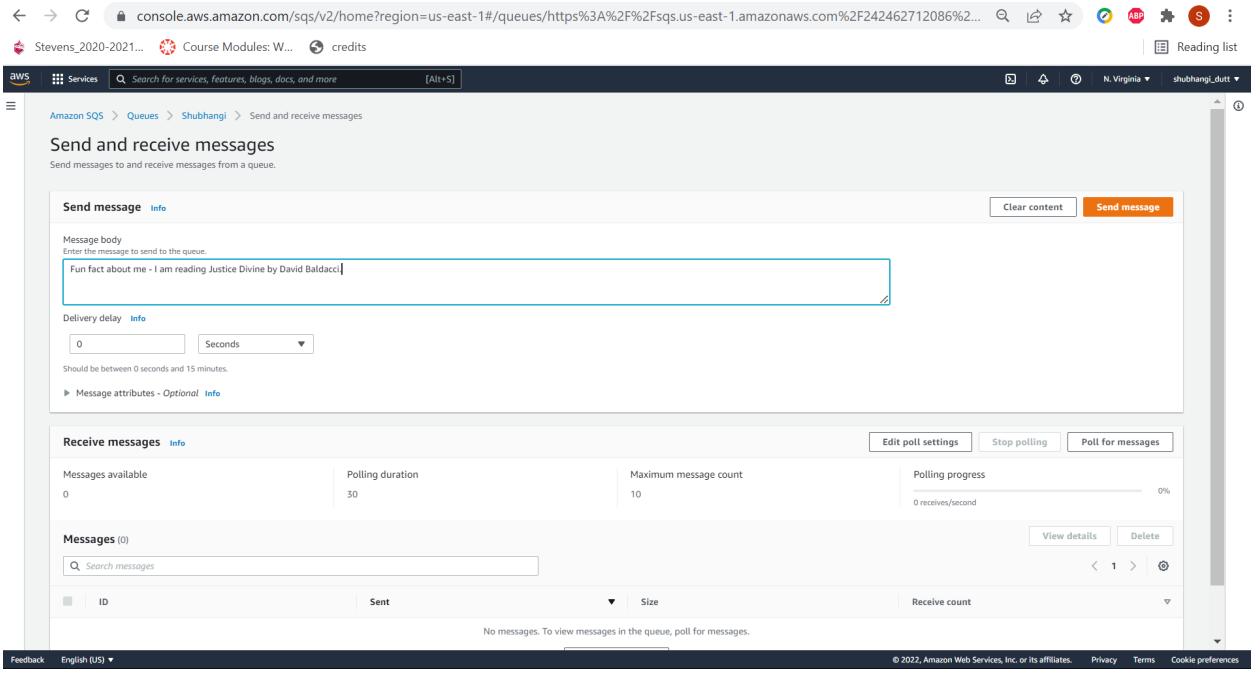
3. Upon confirming my details I selected the ‘Create Queue’ option. The next window that opened showed the queue that I created.



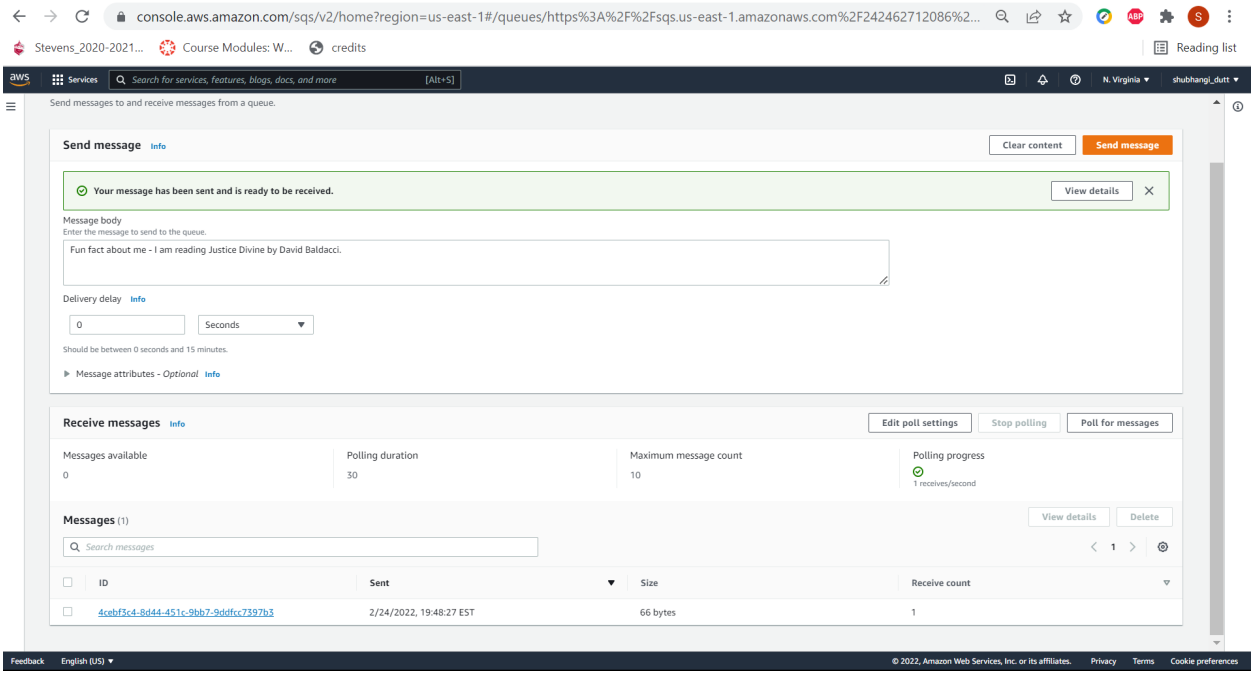
4. I selected the ‘Send and Receive messages’ option.



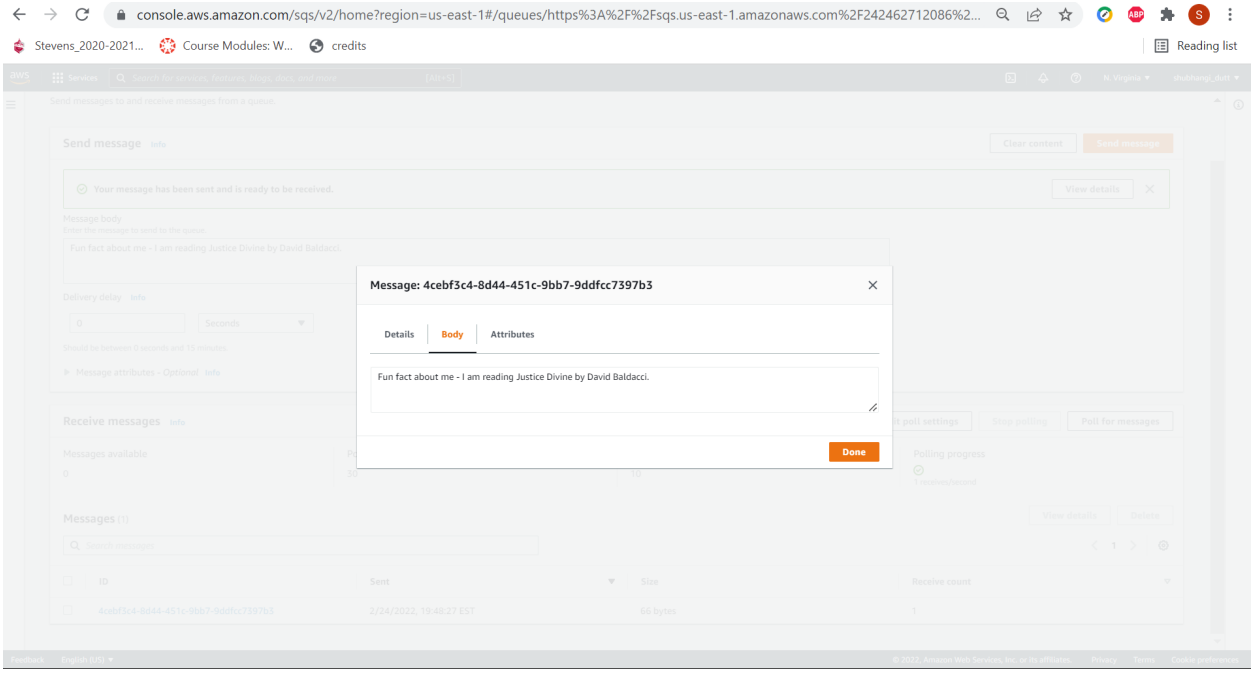
5. I entered the message body which was a fun fact about me and then pressed ‘Sent’.



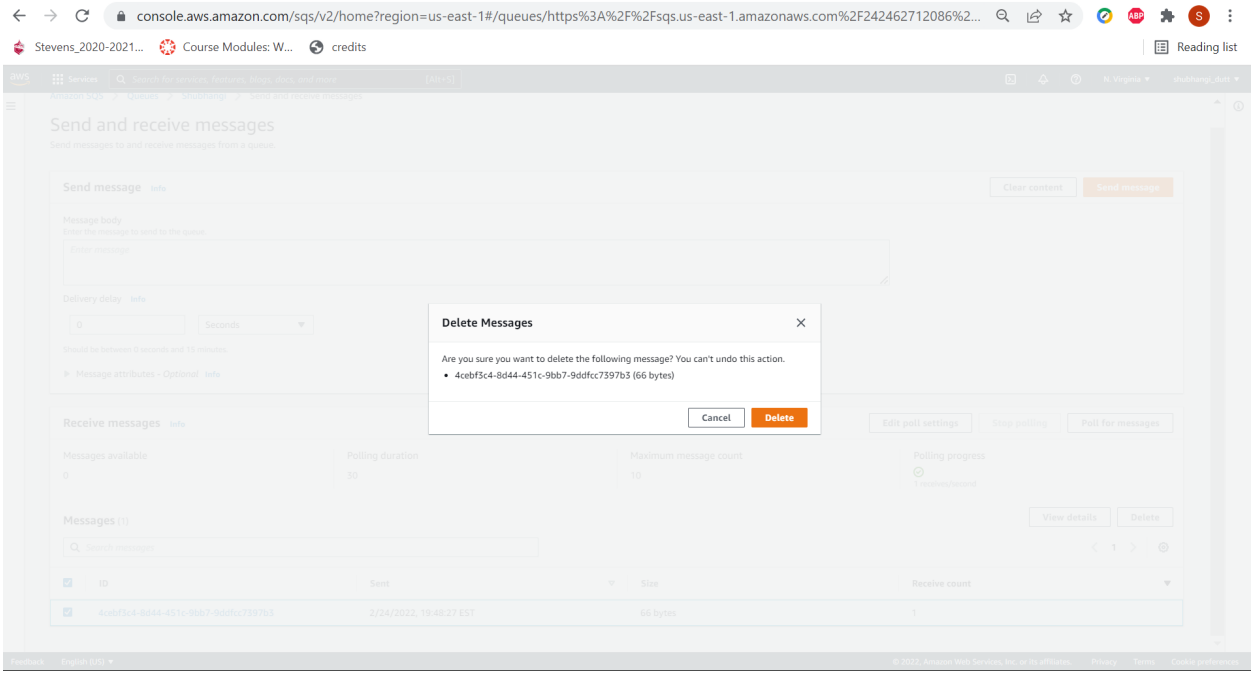
6. Once the confirmation of the message being sent was received as a prompt on the top of the page I selected the ‘Poll for message’ option and I could see the message list showing (1) message.



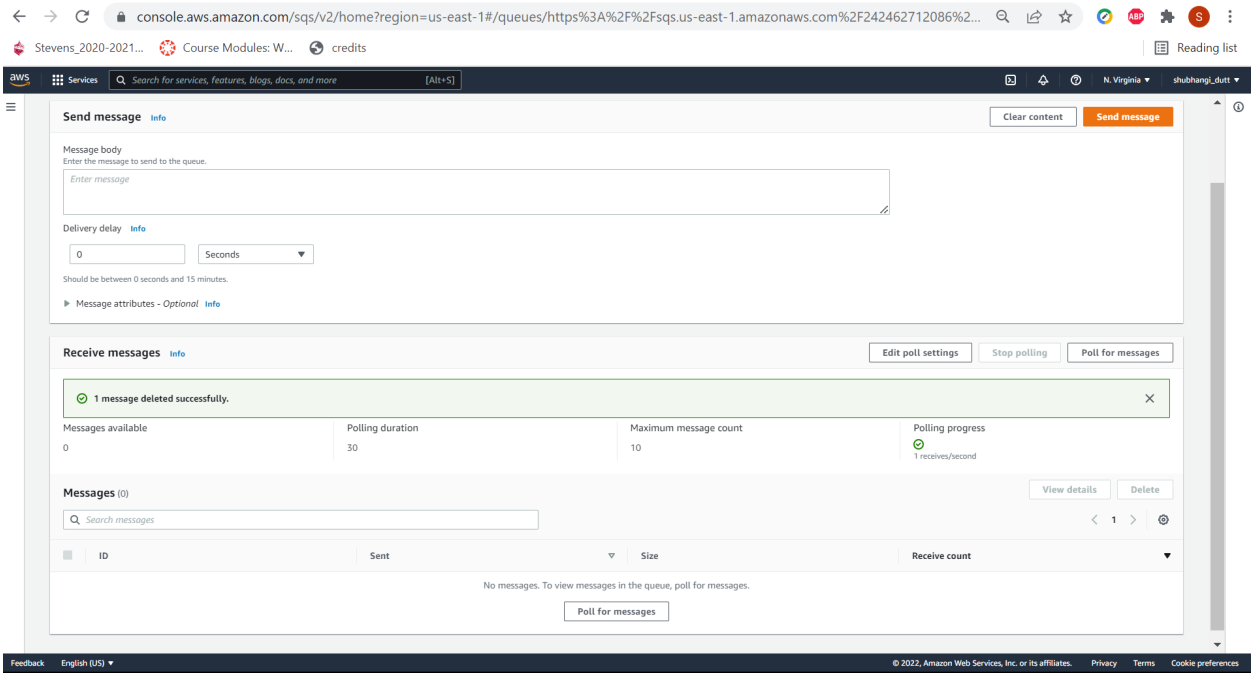
7. I selected the message and a dialogue box opened up with the message. After reading I pressed ‘Done’.



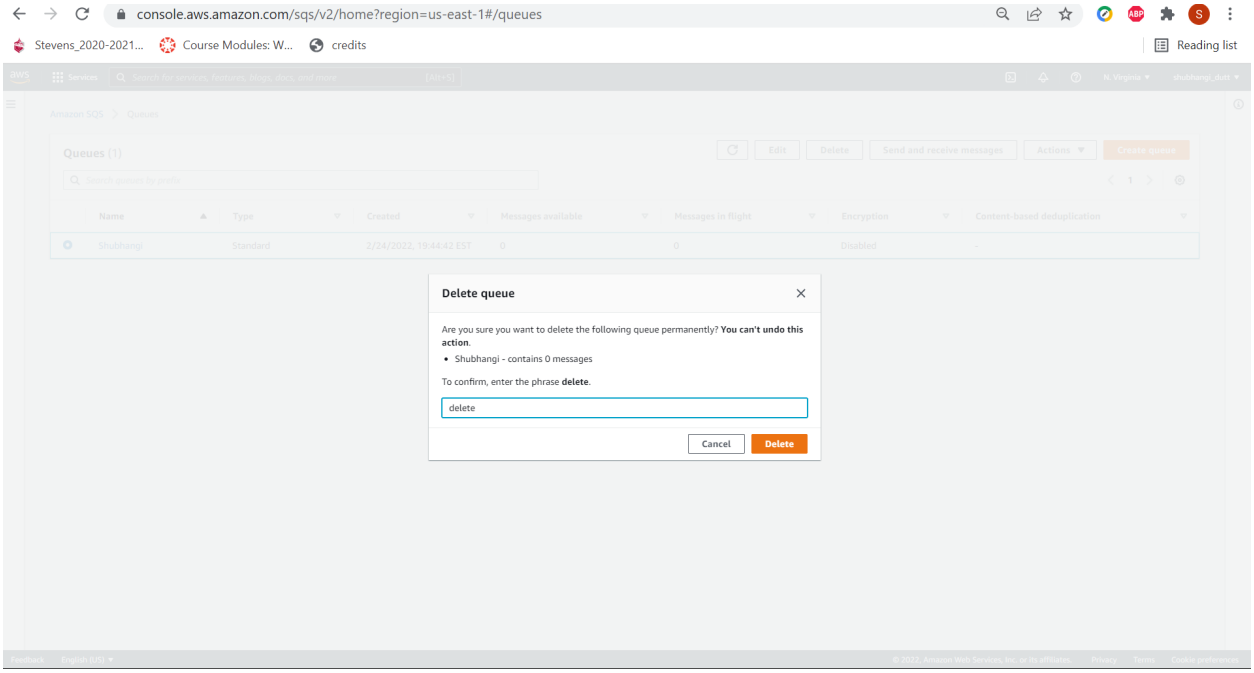
8. I then selected the message from the message list and clicked on the delete option. Upon which i got the dialogue box to delete the message.



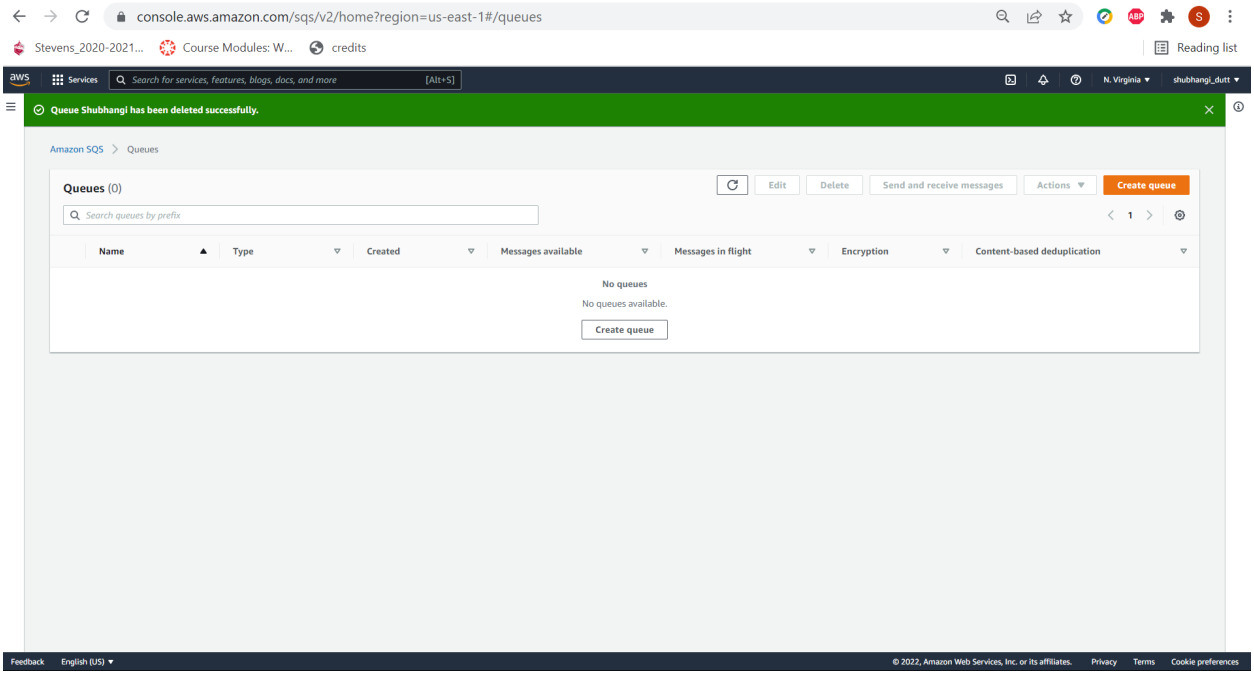
9. The message was deleted.



10. Next I deleted the queue by selecting the queue from the list and selecting ‘Actions’ →’Delete’. A dialogue box opened up and I entered the phrase ‘Delete’.



11. The queue was successfully deleted.



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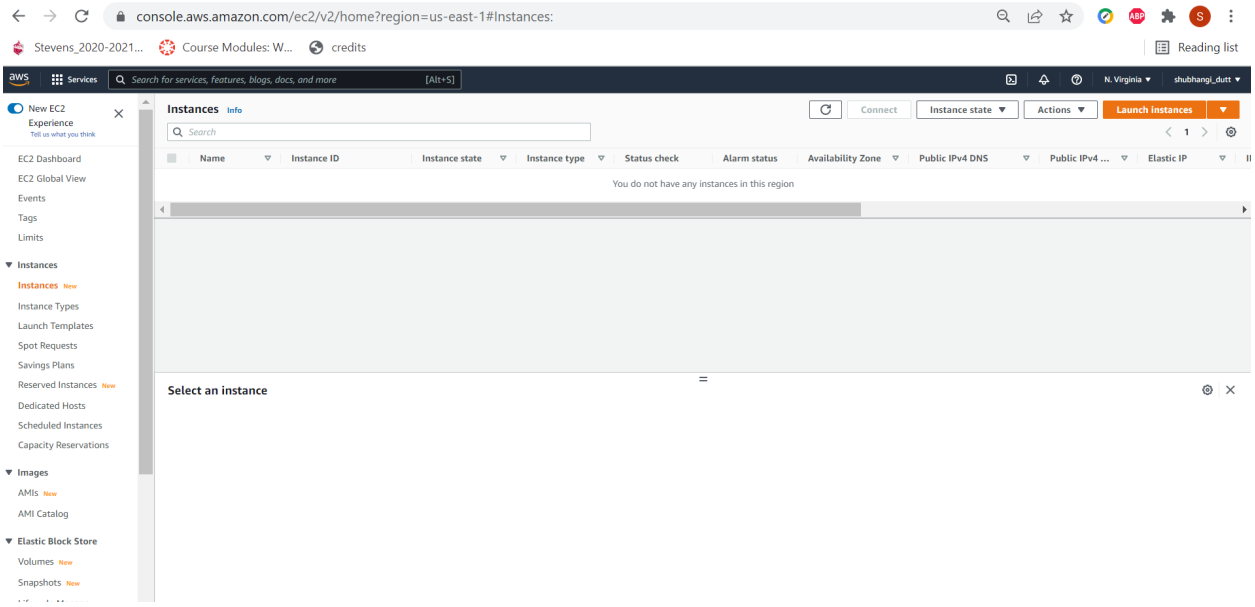
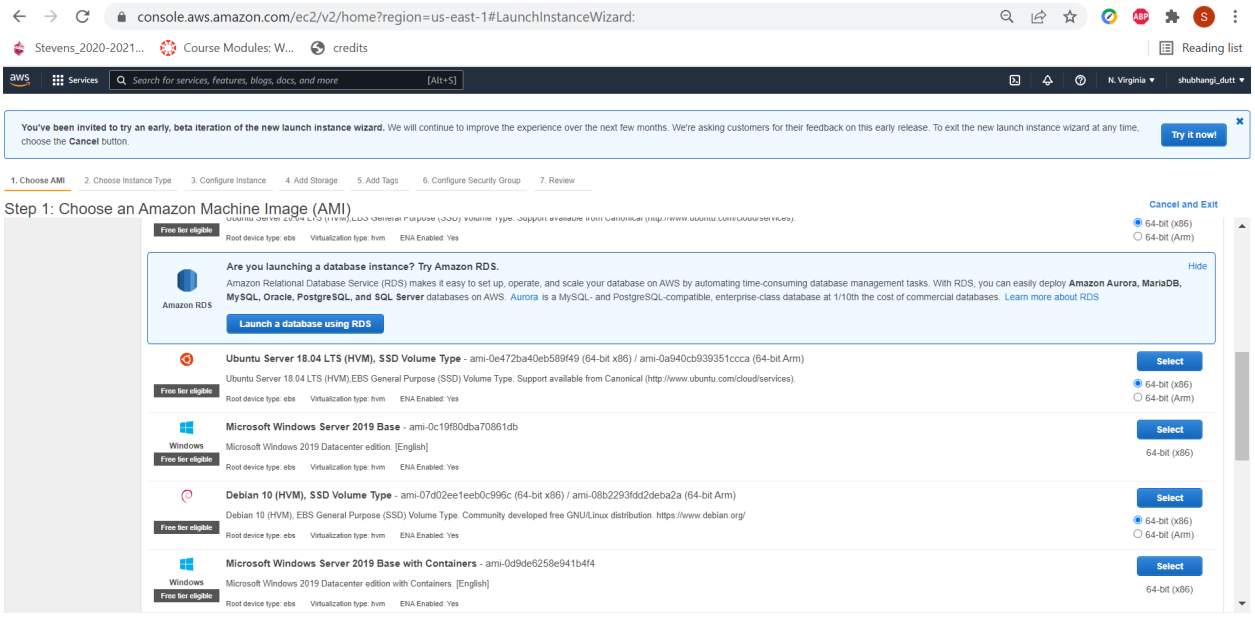
Creating an Instance

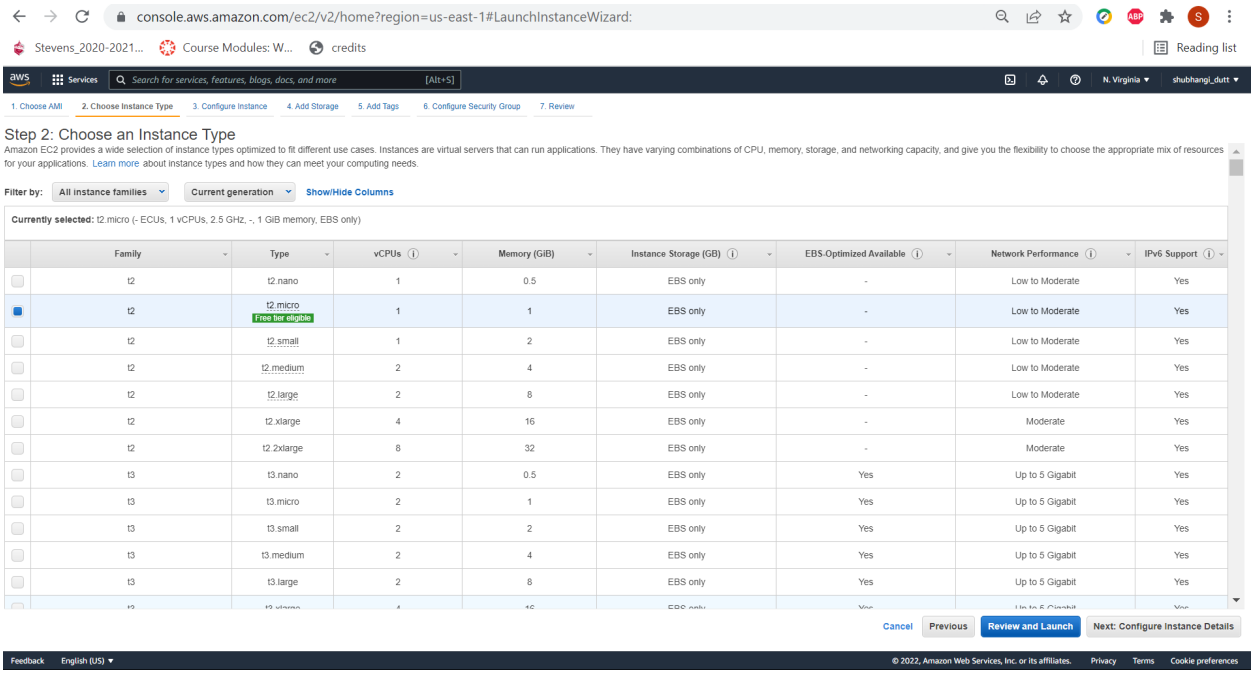
1. From the Console I selected EC2 and on the new page I selected ‘Launch Instance’.



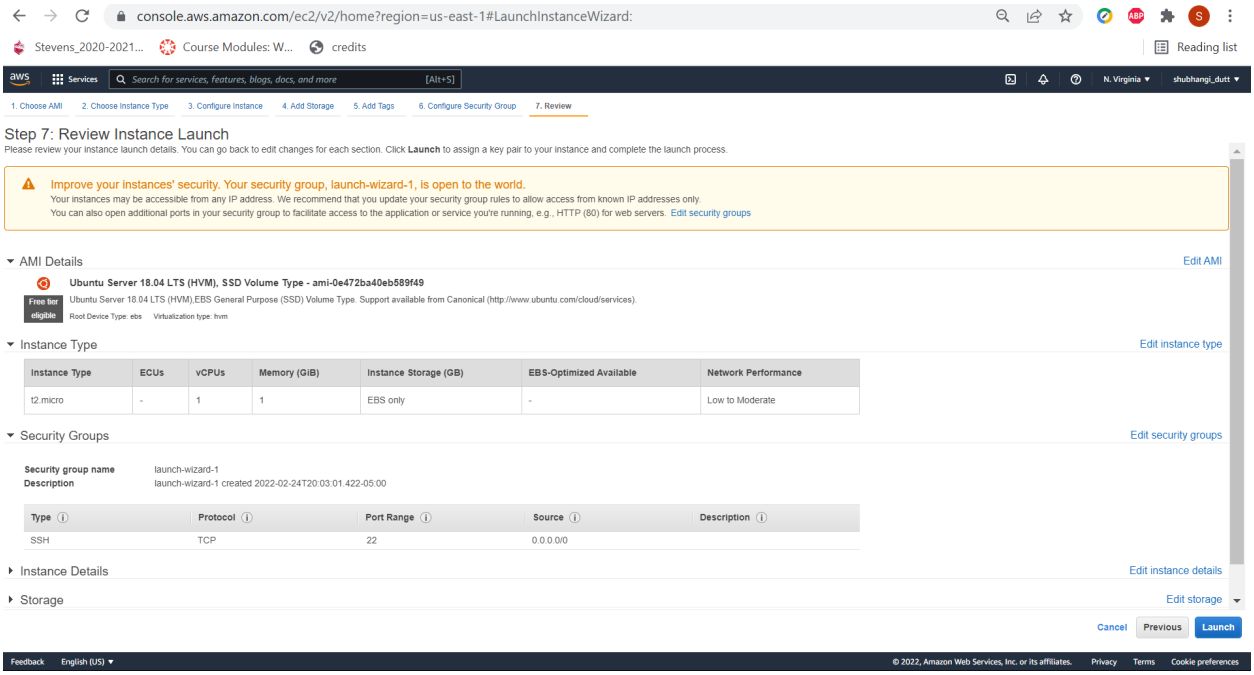
2. I selected the ‘Free-tier only’ filter and then went for Ubuntu 20.04 version.



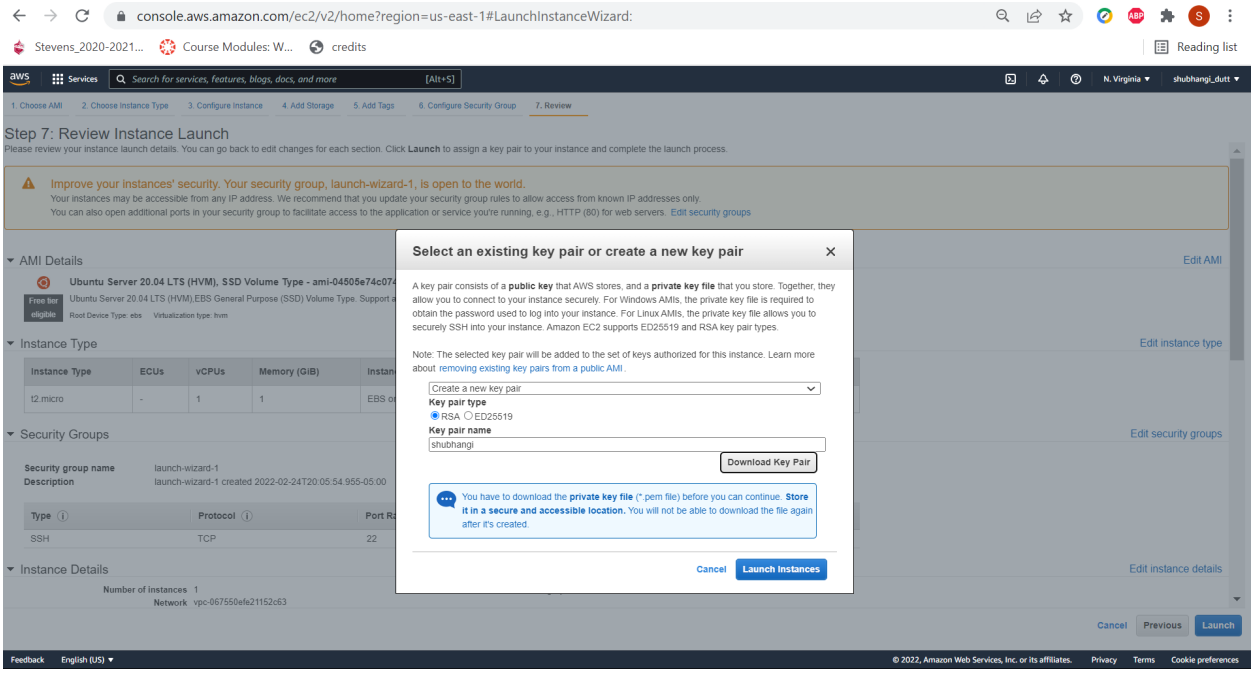
3. I then selected ‘Review and Launch’.



4. I selected the option to ‘Launch’.



5. A prompt opened up regarding ‘key pair’. I saved the key pair name as shubhangi and generated a new key pair. Then I selected launch instances.



6. I could see the new instance in the list of instances. I waited for the instance state to go from pending to running and the right clicked on the instance id, selected ‘connect’ and connected to the bash.

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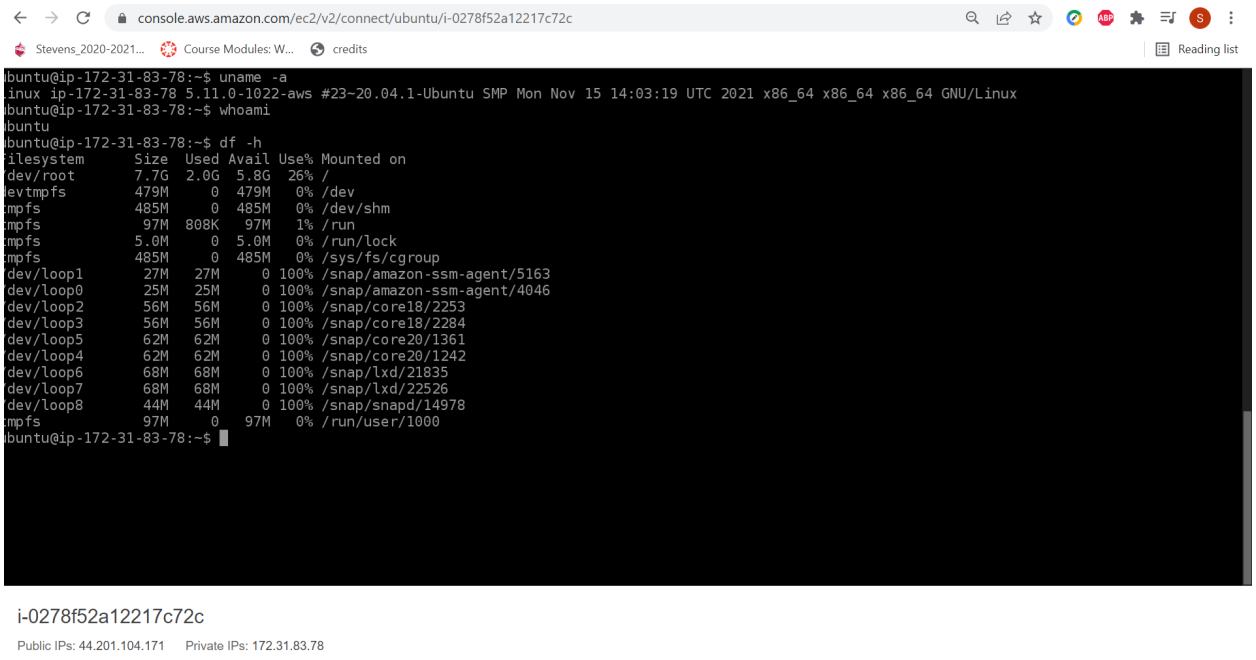
Running Commands

1. I ran the following commands on the bash
   uname -a
   whoami
   df -h
   ifconfig -a
   netstat



Uname - The uname command is used to find out about the processor architecture, system hostname, and kernel version operating on the system. It prints this system information.

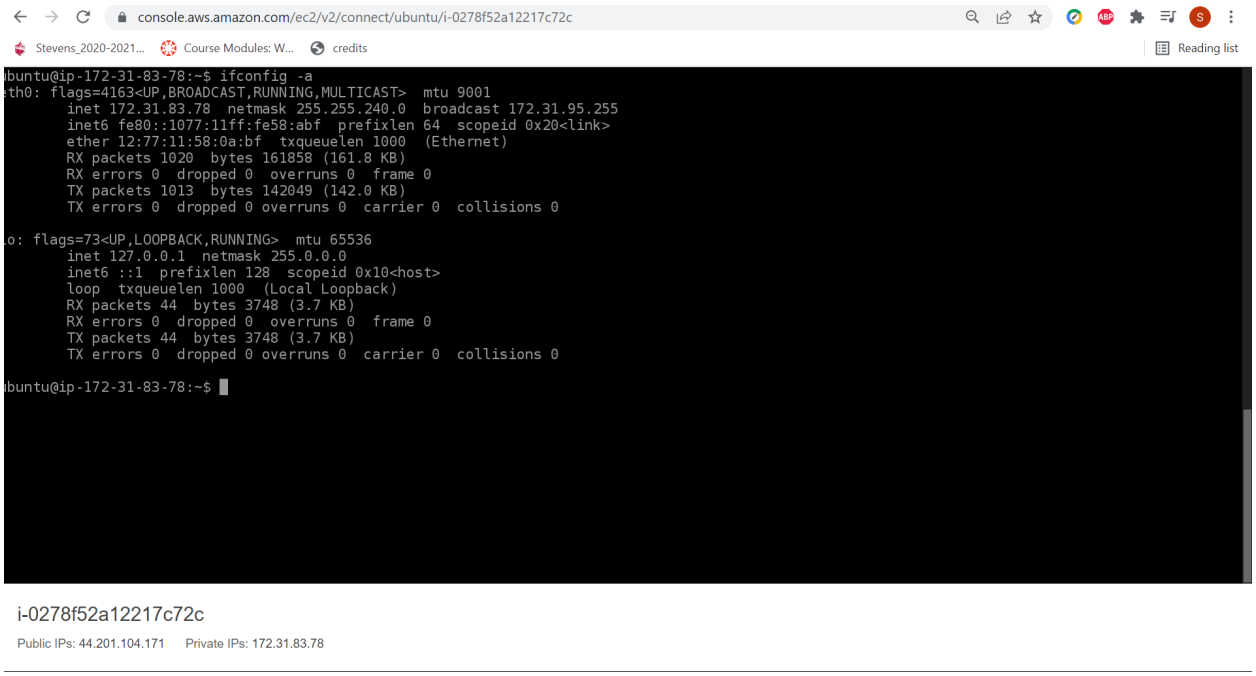
-a parameter is used with uname ‘uname -a’ to print all the system information available which includes kernel-name, node-name, kernel release, kernel-version, machine or hardware’s name and the processor information.

The output here is as follows :-
Kernel name -Linux
Node name -ip-172-31-83-78
Kernel Release -5.11.0-1022-aws
Kernel Version- #23~20.04.1-Ubuntu SMP Mon Nov 15 14:03:19 UTC 2021
Kernel Machine-x86_64

Whoami - The Whoami command is used to display the current user's username. It is a concatenation of the words 'who', 'am', 'I'. The output here is 'Ubuntu'.

Df - On a file system, the "df" command displays device name, total blocks, total disk space, utilized disk space, available disk space, and mount points.
The output in the image displays this information in the following columns-Filesystem, Size, Used, Avail, Use% and Mounted on. For example in the first row the information is as follows :-
Filesystem- dev/root
Size-7.7 Gb (gives total size available)
Used-2.0 Gb (gives total used size in human readable form)
Avail-5.8 Gb (gives available disk space in human readable form)
Use%-26% (gives used percentage of disk space)
Mounted on-/ (gives mount point information)

-h parameter prints data in human readable format. The df command usually prints data in bytes which is difficult to comprehend since we are accustomed to reading data in Megabytes and gigabytes etc. -h prints the information retrieved by df command in Kb, Gb, Mb etc.

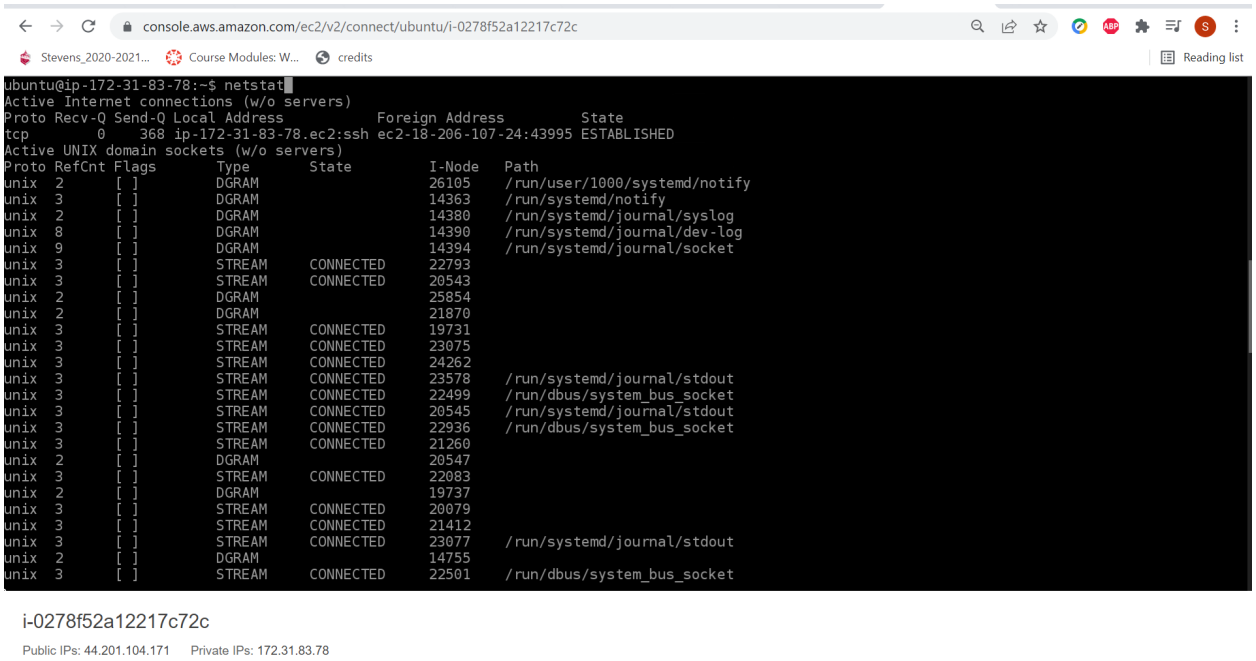


Ifconfig -The "ifconfig" command is used to show current network configuration information, configure a network interface with an ip address, netmask, or broadcast

address, create an alias for the network interface, configure hardware addresses, and enable or deactivate network interfaces.
-a parameter is used to include pseudo, duplicate, inaccessible file systems

Eth0- The Ethernet network card is represented by eth0, which is a physical interface. It allows us to communicate with other computers on our network and across the Internet.
L0- The loopback device is an unique virtual network interface. Loopback is mostly used for diagnostics and debugging, as well as connecting to local host services.

- Inet- displays IPv4 address which has been assigned to the interface.
- Inet6- displays IPv6 address which has been assigned to the interface
- RX packets- These are interface stats that display the number of packets recieved.
- RX bytes-These are interface stats that display the number of bytes recieved.
- RX frame- is a collection of mismatched frames, that is, frames whose length is not divisible by eight.
- TX packets-These are interface stats that display the number of packets transmitted.
- TX carrier-is a collection of packets that have undergone carrier loss. This is most common when the connection is flapping.
- TX collision-is the total number of packets that have been sent but have encountered Ethernet collisions.
- RX/TX errors-These are interface stats that indicates the total number of packets with errors received. Too-long frames, ring-buffer overflows, CRC issues, frame alignment faults, fifo overruns, and lost packets are all examples of this.
- RX/TX dropped-is the amount of packets lost as a result of unwanted VLAN tagging or receiving IPv6 frames on an interface that isn't set for IPv6.
- RX/TX overruns- is the number of received packets that encountered fifo overruns as a result of the kernel's inability to clear a buffer at a fast enough pace.



Netstat -The netstat command provides information on network connections, routing tables, interface statistics, masquerade connections, and multicast memberships, among other things. Netstat, which is formed from the terms "network" and "statistics," is a command-line software that is managed by instructions. It provides users with basic statistics on all network operations, as well as information on which ports and addresses the appropriate connections (TCP, UDP) are operating and which ports are available for tasks.

Proto-All of the connections on the system executing Netstat are listed in the first column (proto stands for protocol).
Recv-Q- List of received packets is displayed in this column.
Send-Q- List of sent packets is displayed in this queue.
LocalAddress- The machine's local IP address and port number appear in this column.
ForeignAddress- The remote or foreign address and port number appear in this column.
State- This column displays state of the connection.
Refcnt- It displays the number of users of the socket.
Flags-Represents the internal kernel flags holding the status of the socket.
Type- Displays information is passed end-to-end or dedicatedly via datagram or streams.
Path-Path is the bound path (if any) of the socket.

Resources:-
https://unix.stackexchange.com/questions/183140/what-is-the-meaning-of-the-contents-of-proc-net-unix

https://goinbigdata.com/demystifying-ifconfig-and-network-interfaces-in-linux/#:~:text=eth0%20is%20a%20physical%20interface,network%20interface%20called%20loopback%20device.
https://aws.amazon.com/console/
https://www.geeksforgeeks.org/whoami-command-linux-example/
https://www.computerweekly.com/tip/How-to-use-a-netstat-command-in-Windows-to-watch-open-ports#:~:text=The%20first%20column%20(proto%20stands,foreign%20address%20and%20port%20number.