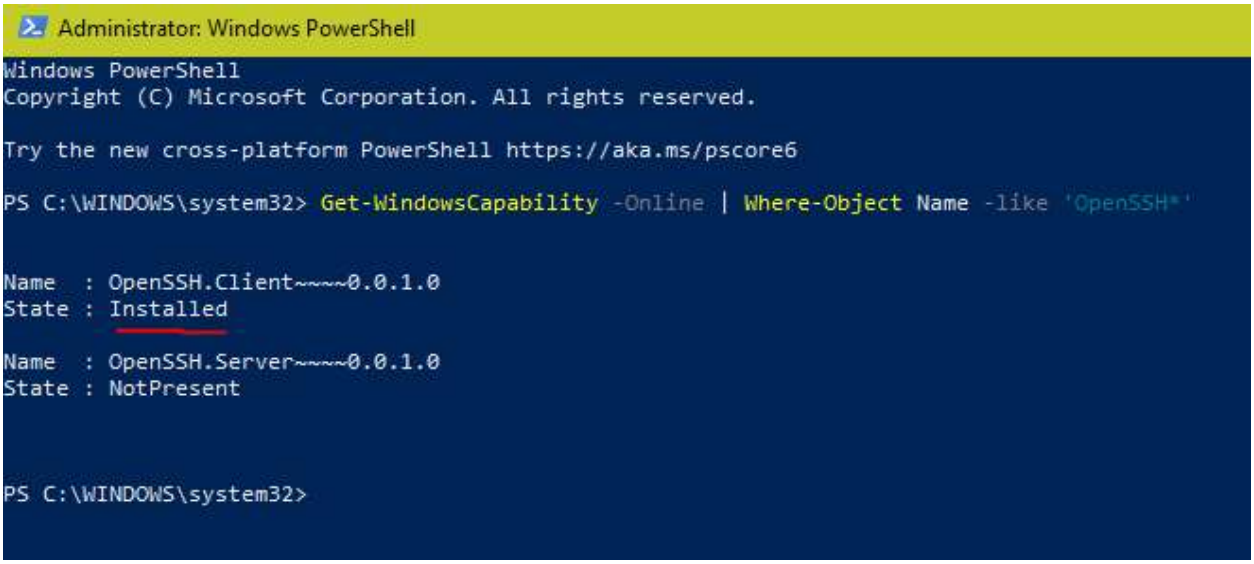
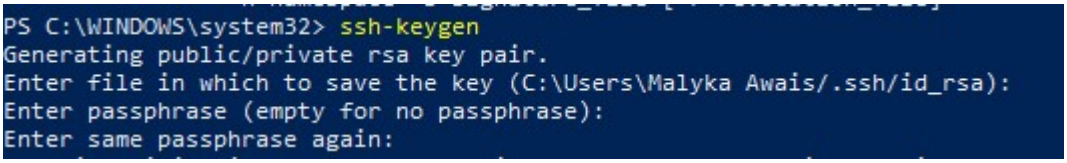
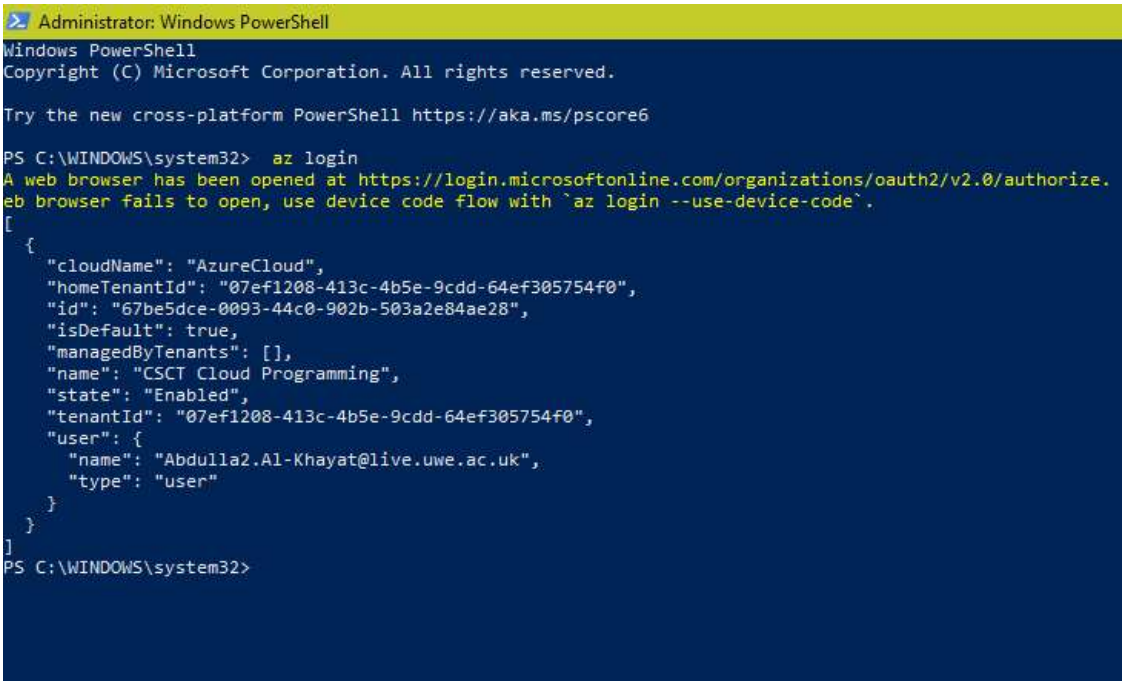
1) Install Azure CLI.
2) Install Open SSH Client



3) Type the command to get the SSH keys.



4) Login to azure:



5) Change Permissions:

```
OpenSSH_for_Windows_8.1p1, LibreSSL 3.0.2
Bad owner or permissions on C:\\Users\\Malyka Awais/.ssh/config
PS C:\WINDOWS\system32> icacls "C:\Users\malyka awais\.ssh\config" /inheritance:r /grant:r "malyka awais:(R)"
processed file: C:\Users\malyka awais\.ssh\config
Successfully processed 1 files; Failed processing 0 files
```

6) **az ssh vm --ip csctcloud.uwe.ac.uk**

```
PS C:\WINDOWS\system32>  az ssh vm --ip csctcloud.uwe.ac.uk
OpenSSH_for_Windows_8.1p1, LibreSSL 3.0.2
The authenticity of host 'csctcloud.uwe.ac.uk (51.141.74.169)' can't be established.
ECDSA key fingerprint is SHA256:iNbchN5cwS5ZjS6rBCya9iWA8OWr9satVi0fVeaeC8M.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'csctcloud.uwe.ac.uk,51.141.74.169' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-1034-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Sat Mar 18 17:23:55 GMT 2023

  System load:    0.01               Processes:             302
  Usage of /home: 99.6% of 599.99GB  Users logged in:       0
  Memory usage:   8%                 IPv4 address for eth0: 10.0.90.5
  Swap usage:     0%

  => /home is using 99.6% of 599.99GB

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

 * Introducing Expanded Security Maintenance for Applications.
   Receive updates to over 25,000 software packages with your
   Ubuntu Pro subscription. Free for personal use.

     https://ubuntu.com/azure/pro

Expanded Security Maintenance for Applications is not enabled.

9 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

14 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

New release '22.04.2 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


Last login: Thu Feb  2 17:04:52 2023 from 164.11.203.52
```

7) `abdulla2.al-khayat@live.uwe.ac.uk@csctcloud:~$`

8) SSH Key saved:

```
abdulla2.al-khayat@live.uwe.ac.uk@csctcloud:~$ nano .ssh/authorized_keys
```

9) Whenever it gives bad owner or permission denied:
   Run this command:
   icacls "C:\Users\malyka awais\.ssh\config" /inheritance:r /grant:r "malyka awais:(R)"

```
PS C:\WINDOWS\system32> icacls "C:\Users\malyka awais\.ssh\config" /inheritance:r /grant:r "malyka awais:(R)"
processed file: C:\Users\malyka awais\.ssh\config
Successfully processed 1 files; Failed processing 0 files
PS C:\WINDOWS\system32>
```

10) ssh abdulla2.al-khayat@live.uwe.ac.uk@csctcloud.uwe.ac.uk

All TASKS Screen shots

```
[32] print(encode_morse("Abdullah"))

.- -... -.. ..- .-.. .-.. .- ....
```

```
[80] print(decode_morse(".... . .-.. .-.. --- / .... --- .-- / .- .-. . / -.-- --- ..-"))

HELLO HOW ARE YOU
```

```
!python /content/drive/MyDrive/morse_unit.py

..
----------------------------------------------------------------------
Ran 2 tests in 0.000s

OK
```

```
[20] !python /content/drive/MyDrive/morse_unit2.py

......
----------------------------------------------------------------------
Ran 6 tests in 0.000s

OK
```

```
[30] decode_bt(".--")

'W'
```

```
[57] encoded_message = encode_ham('sender', 'receiver', 'abdullahalkhayat')
     print(encoded_message)

.-. . -.-. . .. ...- . .-.   -.. .   ... . -. -.. . .-.   -...-   .- -... -.. ..- .-..
```

```
[58] sender, receiver, message = decode_ham(encoded_message)
     print(sender, receiver, message)

     decoded_msg: receiver  de  sender  *  abdullahalkhayat  *
     receiver   sender     abdullahalkhayat  *
```

```
COMMAND     PID                                USER   FD   TYPE  DEVICE SIZE/OFF NODE NAME
node    1300943 abdulla2.al-khayat@live.uwe.ac.u   30u  IPv6 2820519      0t0  TCP *:5162
 (LISTEN)
```

```
abdulla2.al-khayat@live.uwe.ac.uk@csctcloud:~/webdevelopment/iot_starter$ source /home/ab
dulla2.al-khayat/webdevelopment/iot_starter/iot_env/bin/activate
(iot_env) abdulla2.al-khayat@live.uwe.ac.uk@csctcloud:~/webdevelopment/iot_starter$ node
/home/abdulla2.al-khayat/webdevelopment/iot_starter/iot_env/client.js
WebSocket connection opened
Message from server: <Buffer 48 65 6c 6c 6f 20 57 65 62 53 6f 63 6b 65 74 20 63 6c 69 65
6e 74 21>
python task1worksheet3.py
```

```
(iot_env) abdulla2.al-khayat@live.uwe.ac.uk@csctcloud:~/webdevelopment/iot_starter$ pytho
n /home/abdulla2.al-khayat/webdevelopment/iot_starter/iot_env/bin/task1worksheet3.py
Base64: b'CgAqACEAyztXZWxjb21lIHRvIElvVCBVRFAgU2VydmVy'
Server Sent: b'\n\x00*\x00!\x00\xcb;Welcome to IoT UDP Server'
Decoded Packet:
Source Port: 10
Dest Port: 42
Data Length: 33
Checksum: 15307
Payload: Welcome to IoT UDP Server
```