

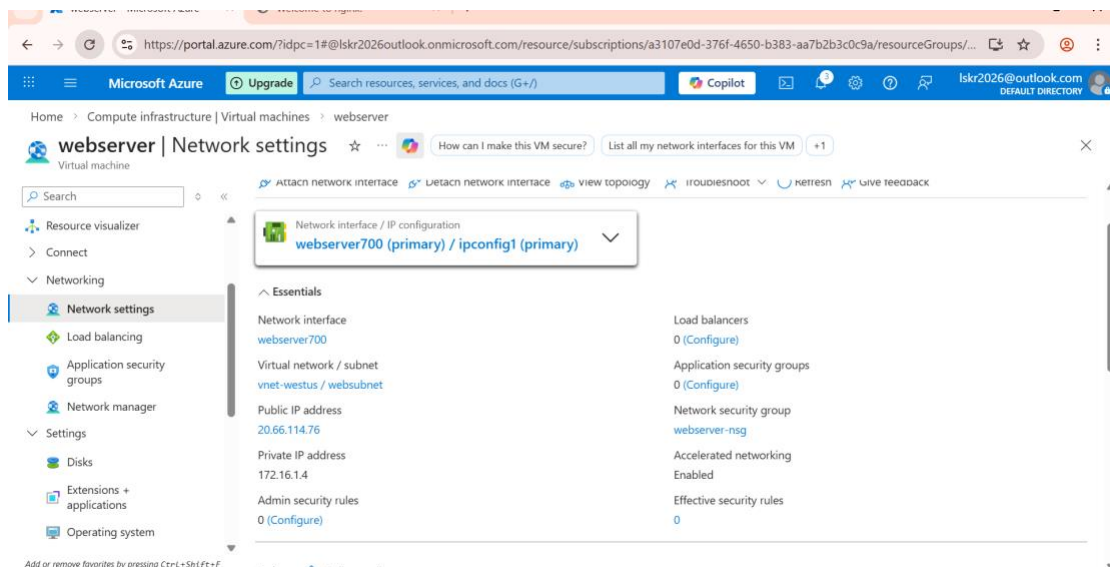
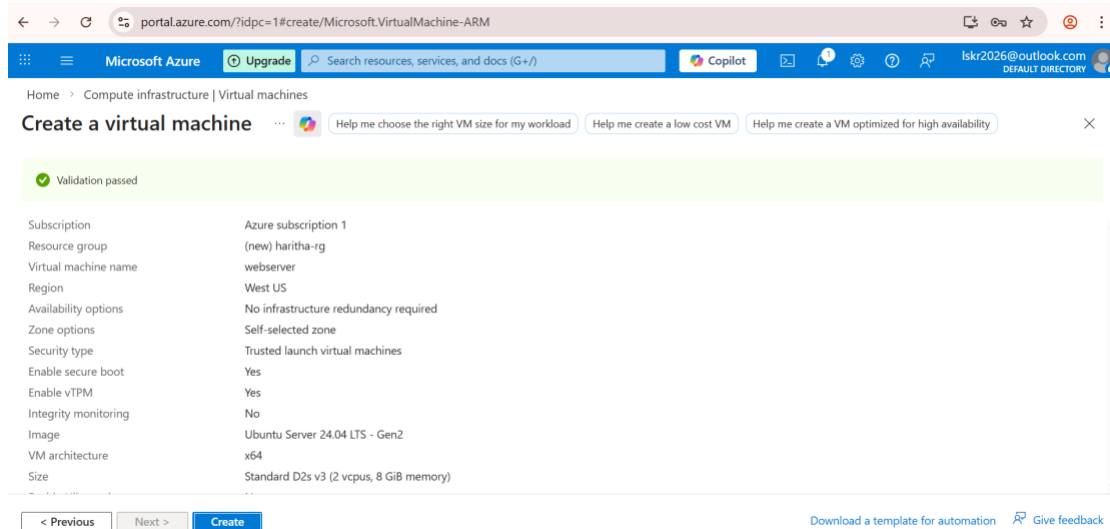
3-tier Architecture

Name: M.Nandhini

Architecture Overview:

- Webserver layer:Nginx (virtual machine with publicsubnet)
- Appserver layer:Tomcat (virtual machine by using ip address)
- Database layer:MYSQL(virtual machine by using ip address)

Steps to create the 3-tier Architecture



Microsoft Azure portal showing the Network settings for a virtual machine named 'webserver'. The page displays the Network security group 'webserver-nsg' and its associated port rules. The left sidebar shows the navigation menu with options like 'Diagnose and solve problems', 'Resource visualizer', 'Connect', 'Networking', 'Network settings', 'Load balancing', 'Application security groups', 'Network manager', 'Settings', 'Disks', and 'Extensions + applications'. The main content area shows the 'Network security group webserver-nsg' details, including a search bar, filters, and a table of port rules.

Prio...	Name	Port	Protocol	Source	Destination	Ac
Inbound port rules (5)						
300	SSH	22	TCP	Any	Any	
310	80	80	Any	Any	Any	
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	
65001	AllowAzureLoadBalancerInB...	Any	Any	AzureLoadBalancer	Any	
65500	DenyAllInBound	Any	Any	Any	Any	
Outbound port rules (3)						

Below the Azure portal screenshot, a browser window shows the 'Welcome to nginx!' page, indicating that the nginx web server is successfully installed and working. The page includes instructions for further configuration and links to online documentation and support.

To create a virtual machine for (appserver)

Microsoft Azure portal showing the 'Create a virtual machine' wizard. The page displays the configuration details for a new virtual machine named 'appserver'. The left sidebar shows the navigation menu with options like 'Diagnose and solve problems', 'Resource visualizer', 'Connect', 'Networking', 'Network settings', 'Load balancing', 'Application security groups', 'Network manager', 'Settings', 'Disks', and 'Extensions + applications'. The main content area shows the 'Create a virtual machine' wizard, including a validation status and a list of configuration options.

Configuration Option	Value
Resource group	haritha-rg
Virtual machine name	appserver
Region	West US
Availability options	No infrastructure redundancy required
Zone options	Self-selected zone
Security type	Trusted launch virtual machines
Enable secure boot	Yes
Enable vTPM	Yes
Integrity monitoring	No
Image	Ubuntu Server 24.04 LTS - Gen2
VM architecture	x64
Size	Standard D2s v3 (2 vcpus, 8 GiB memory)
Enable Hibernation	No

At the bottom of the wizard, there are buttons for '< Previous', 'Next >', and 'Create'. Additionally, there are links for 'Download a template for automation' and 'Give feedback'.

To connect a appserver by using these commands

Ssh username@webpvti

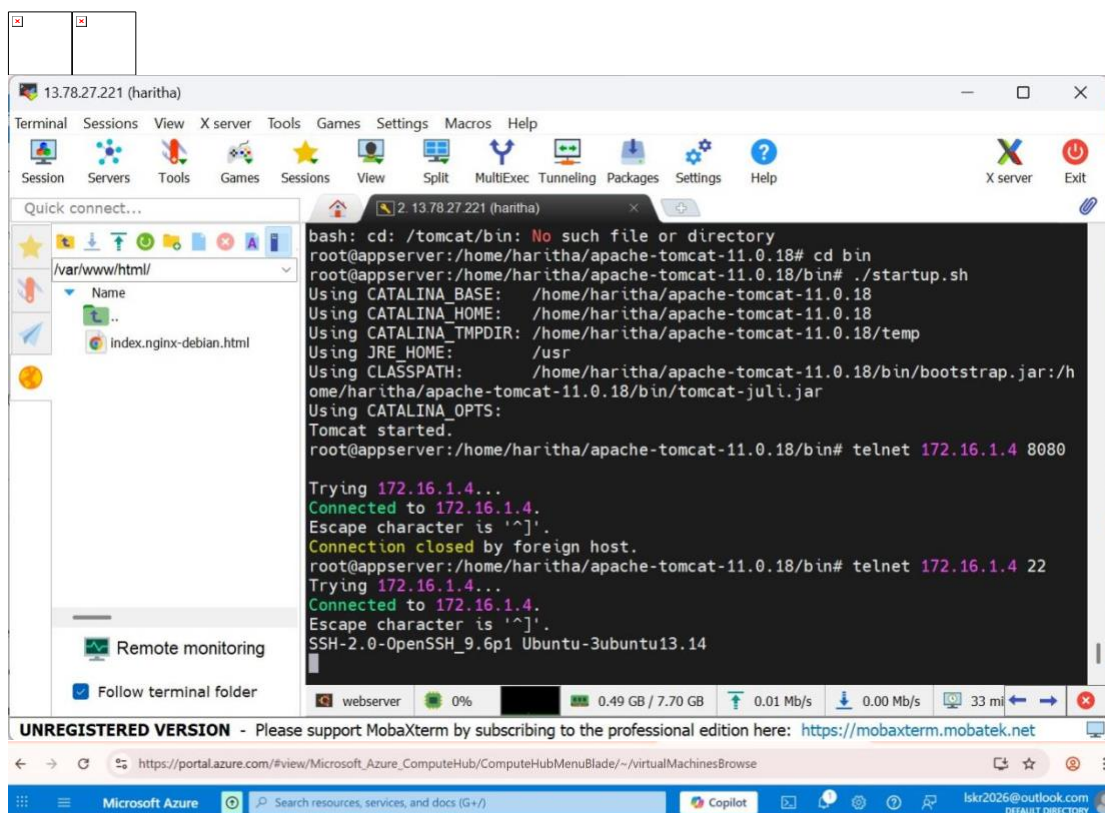
To install tomcat

Sudo su

Apt update

Apt install default-jdk -y

Java-version



```
bash: cd: /tomcat/bin: No such file or directory
root@appserver:/home/haritha/apache-tomcat-11.0.18# cd bin
root@appserver:/home/haritha/apache-tomcat-11.0.18/bin# ./startup.sh
Using CATALINA_BASE:   /home/haritha/apache-tomcat-11.0.18
Using CATALINA_HOME:   /home/haritha/apache-tomcat-11.0.18
Using CATALINA_TMPDIR: /home/haritha/apache-tomcat-11.0.18/temp
Using JRE_HOME:        /usr
Using CLASSPATH:        /home/haritha/apache-tomcat-11.0.18/bin/bootstrap.jar:/home/haritha/apache-tomcat-11.0.18/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
root@appserver:/home/haritha/apache-tomcat-11.0.18/bin# telnet 172.16.1.4 8080

Trying 172.16.1.4...
Connected to 172.16.1.4.
Escape character is '^]'.
Connection closed by foreign host.
root@appserver:/home/haritha/apache-tomcat-11.0.18/bin# telnet 172.16.1.4 22
Trying 172.16.1.4...
Connected to 172.16.1.4.
Escape character is '^]'.
SSH-2.0-OpenSSH_9.6p1 Ubuntu-3ubuntu13.14
```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

Microsoft Azure

Home > Compute infrastructure

Compute infrastructure | Virtual machines

Virtual machines

Filter for any field... Subscription equals all Type equals all Resource Group equals all Location equals all Add filter

	Name ↑	Subscription	Resource Group	Location	Status	Operating syst...	Size
<input type="checkbox"/>	appserver	Azure subscript...	haritha	Japan East	Running	Linux	Standard_D2s_v
<input type="checkbox"/>	dbserver	Azure subscript...	haritha-01	West US	Running	Linux	Standard_D2s_v
<input type="checkbox"/>	web-server01	Azure subscript...	nandhini	Central India	Running	Linux	Standard_D2s_v
<input type="checkbox"/>	web-server02	Azure subscript...	nandhini	Central India	Running	Linux	Standard_D2s_v
<input type="checkbox"/>	webserver	Azure subscript...	haritha	Japan East	Running	Linux	Standard_D2s_v

Showing 1 - 5 of 5. Display count: auto

20.237.140.119 (haritha)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

/home/haritha/

- Name
- ..
- .cache
- .ssh
- .bash_logout
- .bashrc
- .profile
- .Xauthority

Remote monitoring

Follow terminal folder

Process: 4501 ExecStartPre=/usr/share/mysql/mysql-systemd-start pre (code=)

Main PID: 4510 (mysqld)

Status: "Server is operational"

Tasks: 39 (limit: 9432)

Memory: 382.8M (peak: 384.8M)

CPU: 3.027s

CGroup: /system.slice/mysql.service

└─4510 /usr/sbin/mysqld

Jan 28 07:42:18 dbserver systemd[1]: Starting mysql.service - MySQL Community

Jan 28 07:42:19 dbserver systemd[1]: Started mysql.service - MySQL Community S

lines 1-14/14 (END)

[1]+ Stopped systemd status mysql

root@dbserver:/home/haritha# systemctl restart mysql

root@dbserver:/home/haritha# telnet 172.16.1.4 3306

Trying 172.16.1.4...

telnet: Unable to connect to remote host: Connection refused

root@dbserver:/home/haritha# telnet 172.16.1.4 8080

Trying 172.16.1.4...

Connected to 172.16.1.4.

Escape character is '^'.

Connection closed by foreign host.

root@dbserver:/home/haritha#

dbserver 0% 0.89 GB / 7.71 GB 0.01 Mb/s 0.00 Mb/s 82 min

UNDETECTED VERSION - Please support MahoTerm by subscribing to the professional edition here: <https://mahoterm.mahatai.net>