

DevOps Project

Celebal Summer Internship'24

Name – Harsh Kiran Kore

Domain - DevOps

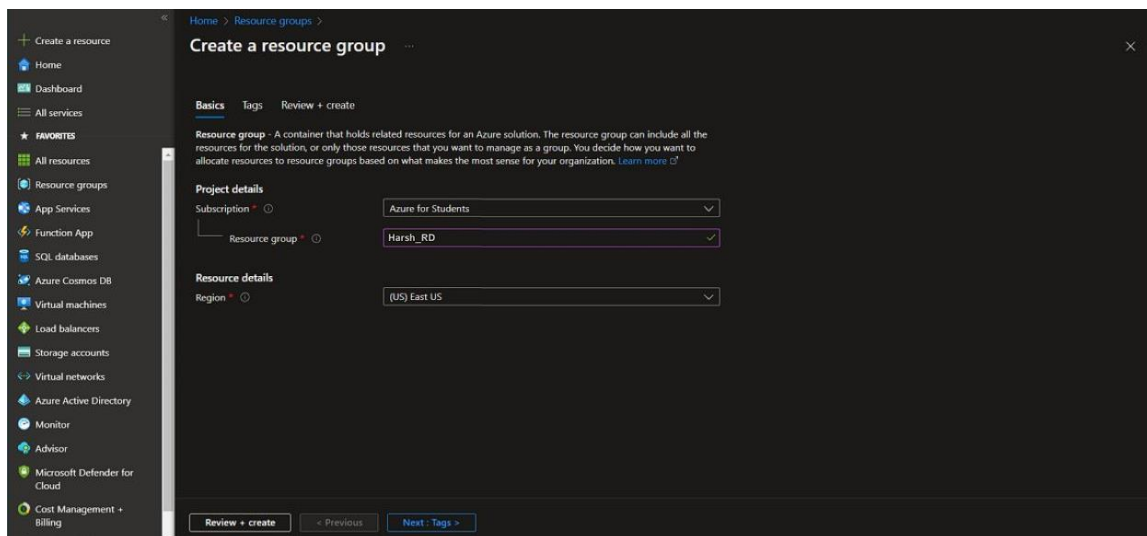
Batch – 21st May to 20th July 2024

CSI ID - CT_CSI_DV_2094

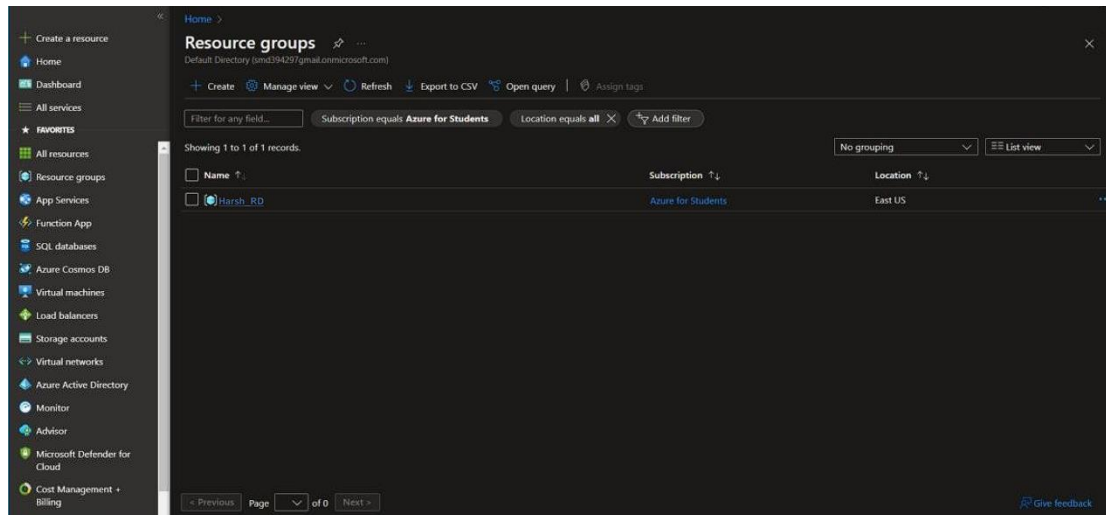
1. Load balancing using Azure Load balancer.

The following steps are given below: -

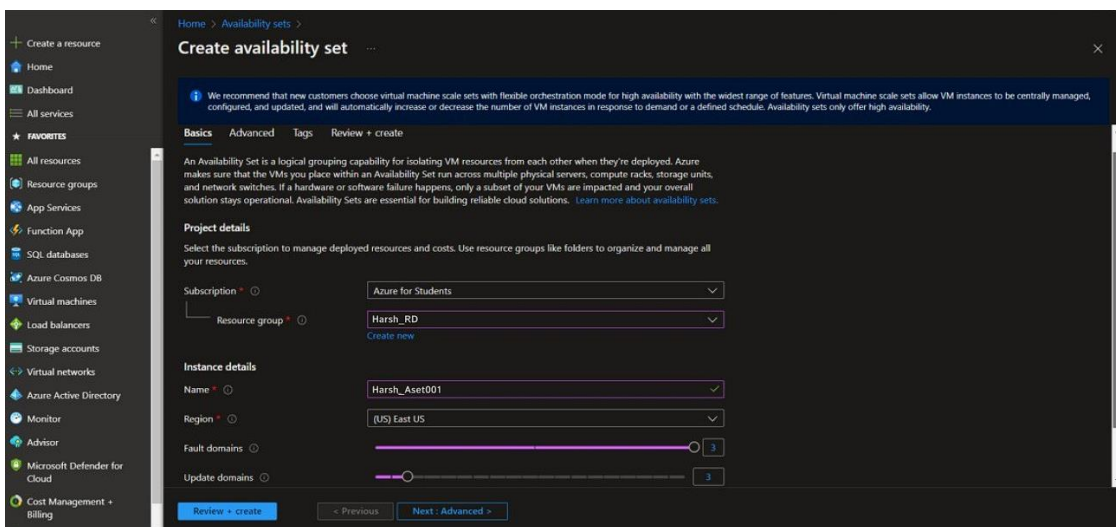
- Step 1 - Go to Microsoft azure portal then Azure home page will appear.
- Step 2 - Click on Resource groups to create a Resource group.
- Step 3 - Fill the Projects details and Resource details in Basics.



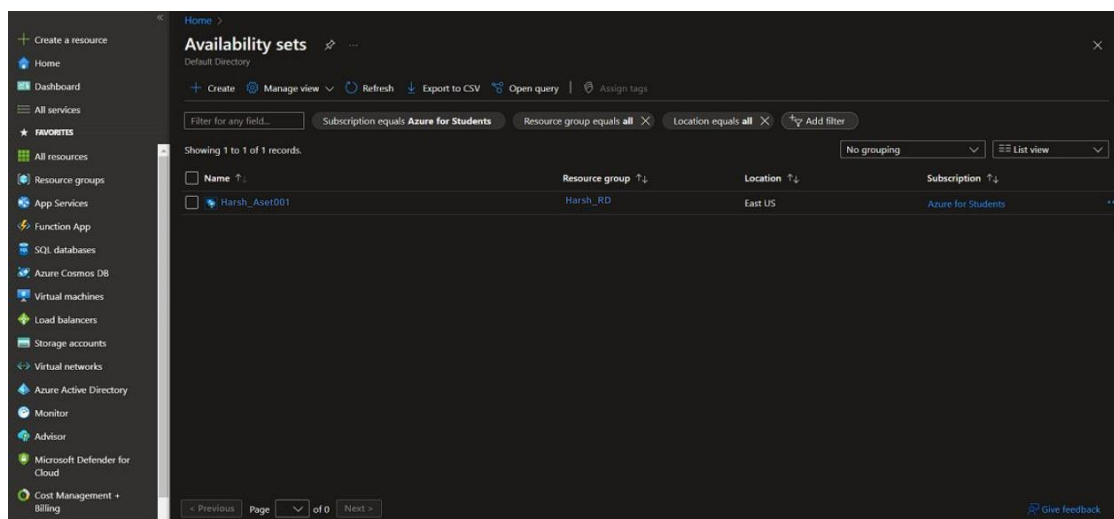
- Step 4 - Click on Review + create, after the Validation is passed click on create-to-create Resource group (Harsh_RD)



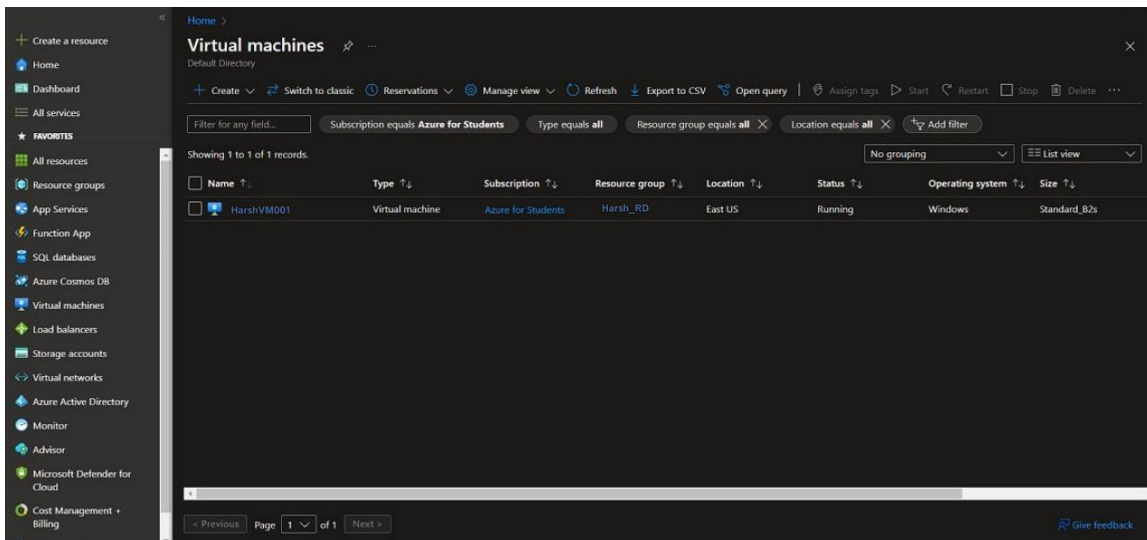
- Step 5 - Go to Availability sets to create one Availability sets.
- Step 6 - Fill the Projects details and Instance details in Basics.



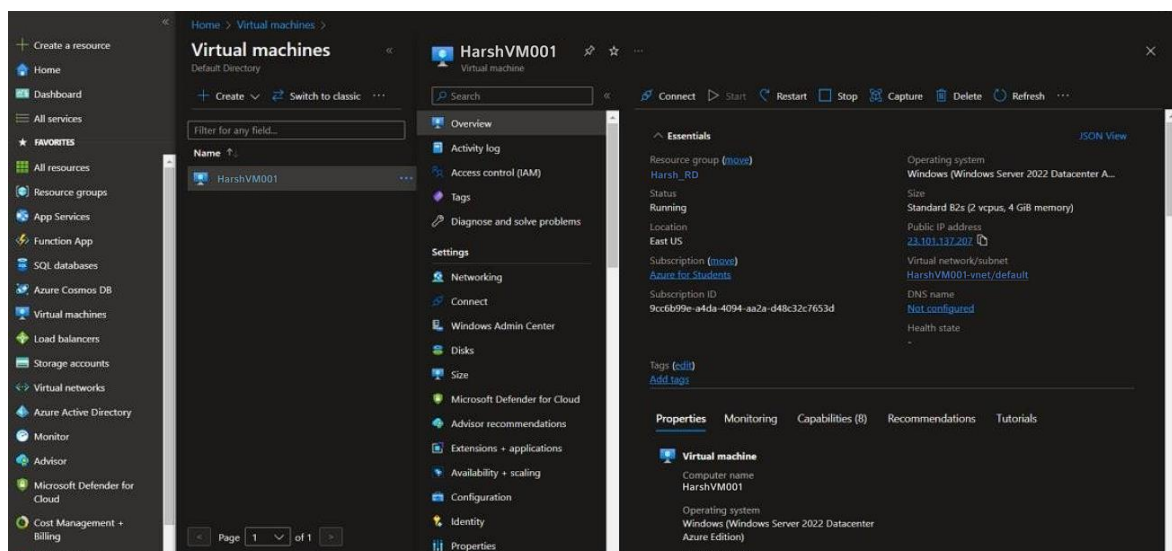
- Step 7 - Click on Review + create, after the Validation is passed click on create-to-create availability set (Harsh_Aset001)



- Step 8 - Go to Virtual machine and click on create-to-create virtual machine.
- Step 9 - Fill the project details, Instance details, Administrator account and Inbound port rules in Basics.
- Step 10 - Click on Review + create, after validation is passed click on create-to-create virtual machine, after deployment gets completed, the virtual machine is created (HarshVM001).



- Step 11 - Click on first virtual machine to see details of first virtual machine.

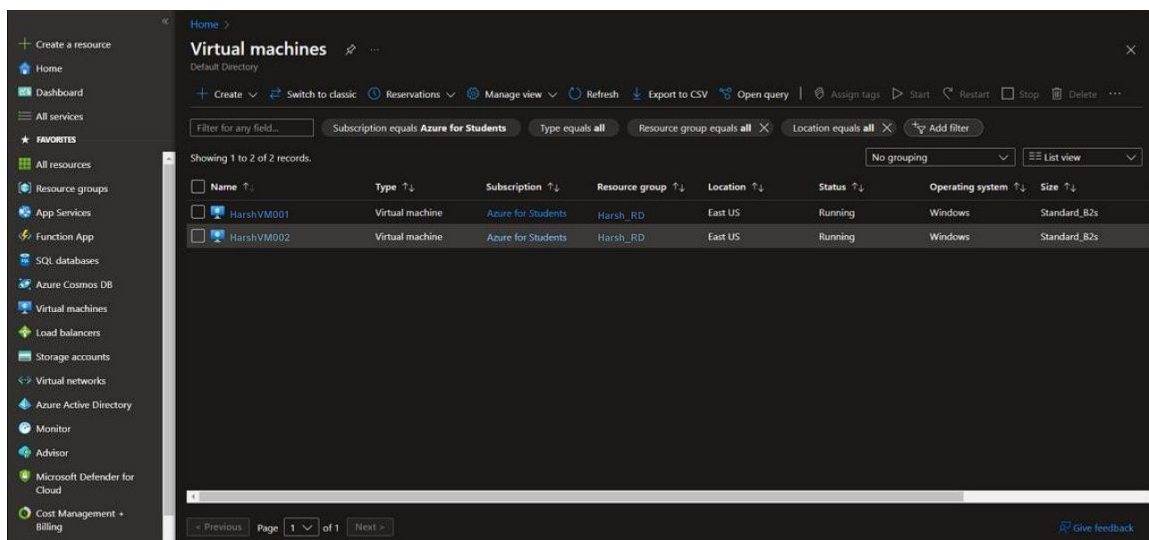


- Step 12 - Copy the Public IP address (23.101.137.207) of the first virtual machine.
- Step 13 - Open Remote Desktop Connection in your system and paste the copied public IP address then click on connect then enter the username and password to proceed.

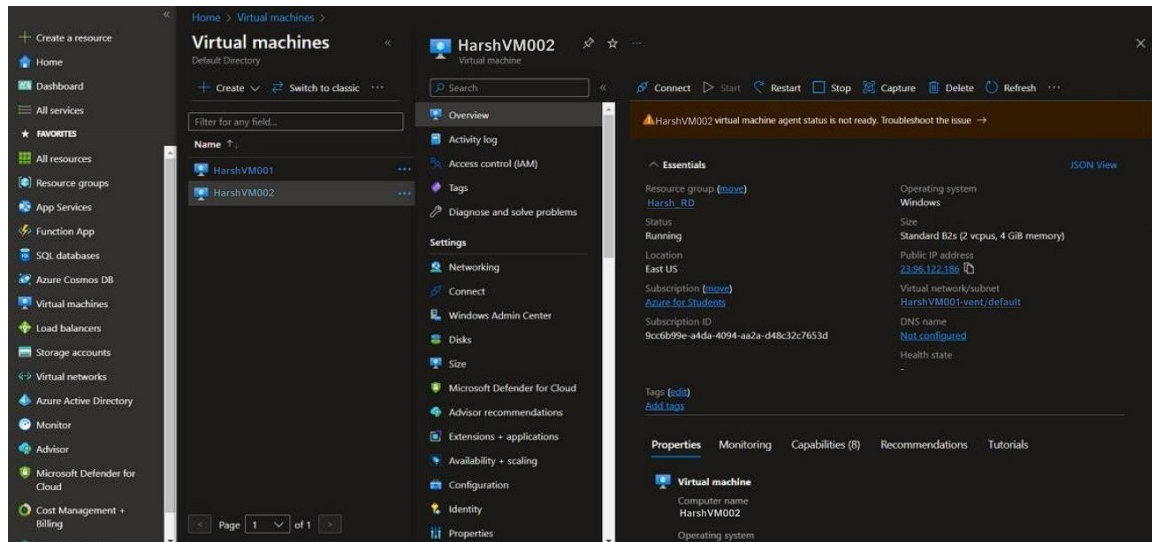
- Step 14 - The virtual machine will start with that IP address then Open Server manager.
- Step 15 - Click on Add roles and features to install IIS server.
- Step 16 - Build a custom page, write “Hi, This is HarshVM001” on that page.
- Step 17 - Paste the IP address on the new tab of your browser, then we can see the custom page will appear.



- Step 18 - Create one more virtual machine.
- Step 19 - Fill the project details, Instance details, Administrator account and Inbound port rules in Basics.
- Step 20 - Click on Review + create, after validation is passed click on create-to-create virtual machine, after deployment gets completed, the virtual machine is created (HarshVM002).



- Step 21 - Click on second virtual machine to see details of second virtual machine.



- Step 22 - Copy the Public IP address (23.96.122.186) of the second virtual machine.
- Step 23 - Open Remote Desktop Connection in your system and paste the copied public IP address then click on connect then enter the username and password to proceed.
- Step 24 - The virtual machine will start with that IP address then Open Server manager.
- Step 25 - Click on Add roles and features to install IIS server.
- Step 26 - Build a custom page, write “Hi, This is HarshVM002” on that page.
- Step 27 - Paste the IP address on the new tab of your browser, then we can see the custom page will appear.



- Step 28 - Go to Load Balancer to Create Load balancer (Harsh_LB001).
- Step 29 - Fill the Basics and click on next.

Home > Load balancing | Load Balancer >

Create load balancer

Basics Frontend IP configuration Backend pools Inbound rules Outbound rules Tags Review + create

Azure load balancer is a layer 4 load balancer that distributes incoming traffic among healthy virtual machine instances. Load balancers uses a hash-based distribution algorithm. By default, it uses a 5-tuple (source IP, source port, destination IP, destination port, protocol type) hash to map traffic to available servers. Load balancers can either be internet-facing where it is accessible via public IP addresses or internal where it is only accessible from a virtual network. Azure load balancers also support Network Address Translation (NAT) to route traffic between public and private IP addresses. [Learn more.](#)

Project details

Subscription * Azure for Students

Resource group * Harsh_RD

[Create new](#)

Instance details

Name * Harsh_LB001

Region * East US

SKU * Basic

Standard Gateway Basic

Microsoft recommends Standard SKU load balancer for production workload; Basic SKU will be retired on September 30, 2025. [Learn more.](#)

[Review + create](#) [Previous](#) [Next: Frontend IP configuration >](#) [Download a template for automation](#) [Give feedback](#)

- Step 30 - Add Frontend IP Configuration and click on Review + create.

Home > Load balancing | Load Balancer >

Create load balancer

Basics Frontend IP configuration Backend pools Inbound rules Outbound rules Tags Review + create

A frontend IP configuration is an IP address used for inbound and/or outbound communication as defined within load balancing, inbound NAT, and

[Add a frontend IP configuration](#)

Name	IP address
harsh_ip	hk_ip (To be created)

[Review + create](#) [Previous](#) [Next: Backend pools >](#) [Download a template for automation](#) [Give feedback](#)

harsh_ip

Type Public

Public IP address * (New) hk_ip

[Create new](#)

Used by

The list of load balancing rules, inbound NAT rules, inbound NAT pools, and outbound rules using this IP address.

Name	Type
Not used	

[Save](#) [Cancel](#)

- Step 31 - Load balancer will be created (Harsh_LB001)

Home > Load balancing

Load balancing | Load Balancer

[Create](#) [Manage view](#) [Refresh](#) [Export to CSV](#) [Open query](#) [Assign tags](#)

Overview [Filter for any field...](#) [Subscription equals Azure for Students](#) [Resource group equals all](#) [Location equals all](#) [Add filter](#)

Load Balancing Services

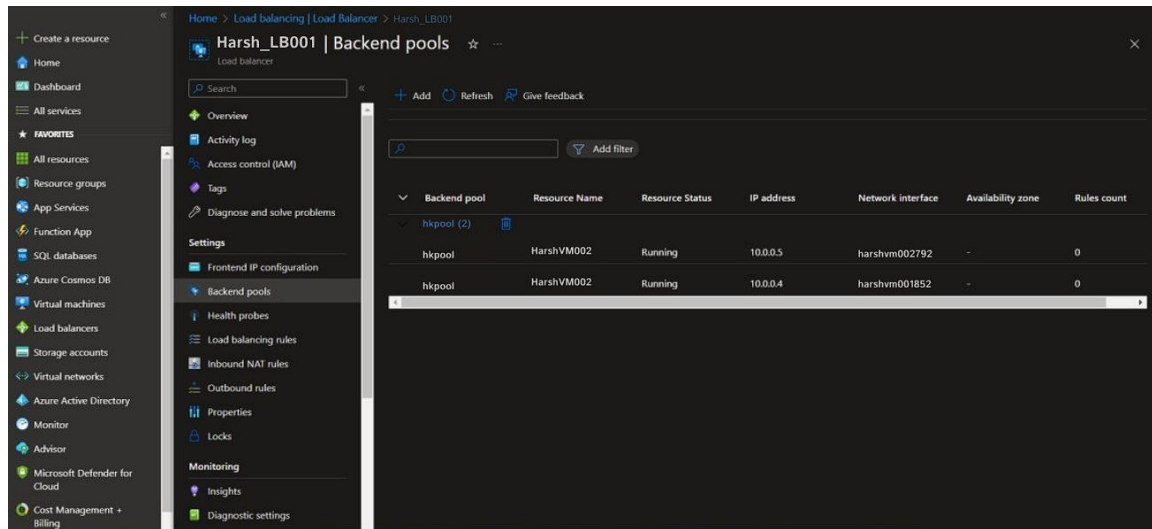
- Application Gateway
- Front Door and CDN profiles
- Load Balancer
- Traffic Manager

Showing 1 to 1 of 1 records.

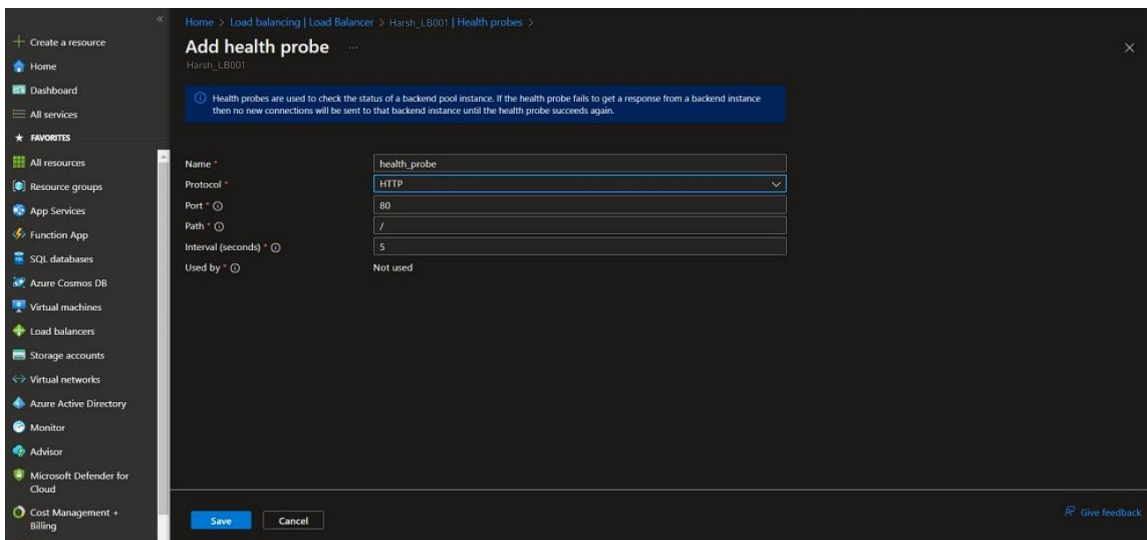
Name	Resource group	Location	Subscription
Harsh_LB001	Harsh_RD	East US	Azure for Students

[Previous](#) [Page 1 of 1](#) [Next >](#) [Give feedback](#)

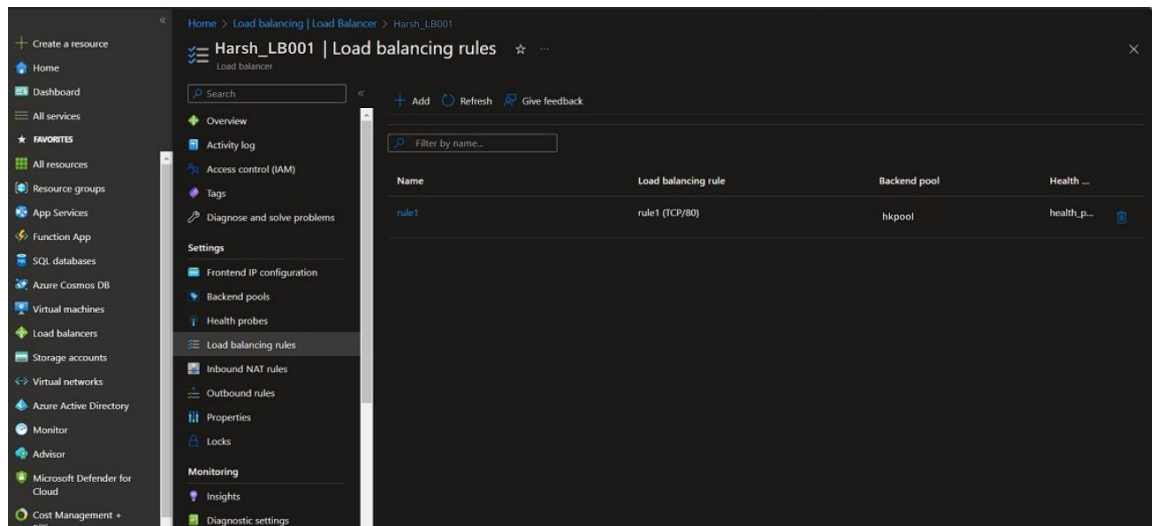
- Step 32 - Click on first load balancer and add Backend pools and select that two virtual machine.



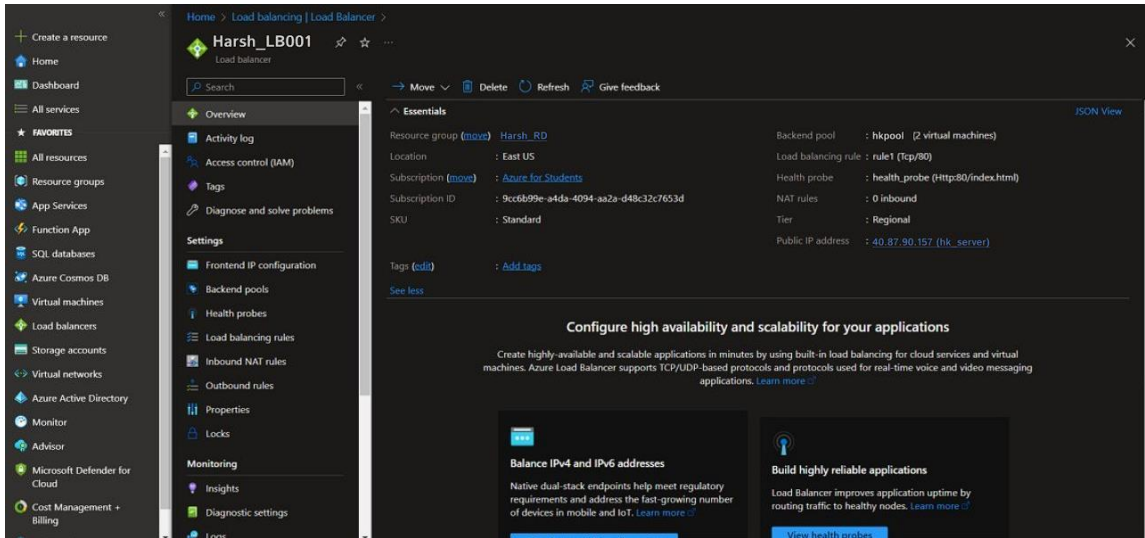
- Step 33 - Add Health Probes.



- Step 34 - Add Load balancing rules (rule1).



- Step 35 - Click on Overview and copy the public IP address of Load balancer (40.87.90.157).



- Step 36 - Paste the load balancer public IP address in new tab of your browser, we can see the first page (Hi, This is HarshVM001) then after reloading the page we can see the second page (Hi, This is HarshVM002).



2. Application Gateway

The following steps are given below: -

- Step 1 - Go to Application gateway and click on create-to-create application gateway.
- Step 2 - Fill the Basics.

The screenshot shows the 'Create application gateway' wizard in the Azure portal. The 'Basics' tab is selected, and the following details are filled in:

- Project details:**
 - Subscription: Azure for Students
 - Resource group: Harsh_RD
- Instance details:**
 - Application gateway name: Harsh_appgateway
 - Region: East US
 - Tier: Standard V2
 - Enable autoscaling: Yes
 - Minimum instance count: 0
 - Maximum instance count: 10

The 'Next: Frontends >' button is visible at the bottom.

- Step 3 - Add Subnet from the subnet option in the basics (hk_subnet).

The screenshot shows the 'Subnets' page for the virtual network 'Harsh_VM001-vnet'. The table below lists the available subnets:

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
default	10.0.0/24	-	249	-	-	-
hk_subnet	10.0.1.0/24	-	251	-	-	-

The 'hk_subnet' is highlighted in the table.

- Step 4 - Select that subnet (hk_subnet) in the subnet option in the basics and click on next.

Home > Load balancing | Application Gateway >

Create application gateway

Instance details

Application gateway name:

Region:

Tier:

Enable autoscaling: ☒ Yes ☐ No

Minimum instance count:

Maximum instance count:

Availability zone:

HTTP2: ☐ Disabled ☒ Enabled

Configure virtual network

Virtual network:

Subnet:

Previous Next: Frontends >

- Step 5 - Fill the Frontend and click on next.

Home > Load balancing | Application Gateway >

Create application gateway

✓ Basics **Frontends** ⓘ Backends ⓘ Configuration ⓘ Tags ⓘ Review + create

Traffic enters the application gateway via its frontend IP address(es). An application gateway can use a public IP address, private IP address, or one of each type.

Frontend IP address type: ☒ Public ☐ Private ☐ Both

Public IP address:

Previous Next: Backends >

- Step 6 - Select the Backend and click on next.

Home > Load balancing | Application Gateway >

Create application gateway

✓ Basics ✓ Frontends **Backends** ⓘ Configuration ⓘ Tags ⓘ Review + create

A backend pool is a collection of resources to which your application gateway can send traffic. A backend pool can contain virtual machines, virtual machine scale sets, app services, IP addresses, or fully qualified domain names (FQDN).

Add a backend pool

Backend pool	Targets
hk_pool	> 2 targets

Previous Next: Configuration >

- Step 7 - Add Backend setting and add a routing rule in configuration and click on next.

Add Backend setting

← Discard changes and go back to routing rules

Backend settings name:

Backend protocol: ☒ HTTP ☐ HTTPS

Backend port:

Additional settings

Cookie-based affinity: ☐ Enable ☒ Disable

Connection draining: ☐ Enable ☒ Disable

Request time-out (seconds):

Override backend path:

Host name

By default, the Application Gateway sends the same HTTP host header to the backend as it receives from the client. If your backend application/service requires a specific host value, you can override it using this setting.

Override with new host name: ☐ Yes ☒ No

Create custom probes: ☐ Yes ☒ No

Buttons: Previous, Next: Tags >, Add, Cancel

Add a routing rule

Configure a routing rule to send traffic from a given frontend IP address to one or more backend targets. A routing rule must contain a listener and at least one backend target.

Rule name:

Priority:

Listener

Choose a backend pool to which this routing rule will send traffic. You will also need to specify a set of Backend settings that define the behavior of the routing rule.

Target type: ☒ Backend pool ☐ Redirection

Backend target:

Backend settings:

Path-based routing

You can route traffic from this rule's listener to different backend targets based on the URL path of the request. You can also apply a different set of Backend settings based on the URL path.

Path	Target name	Backend setting name	Backend pool
No additional targets to display			

Buttons: Previous, Next: Tags >, Add, Cancel

- Step 8 - After the validation is passed then click on create, after the deployment gets completed the application gateway will be created (Harsh_appgateway).

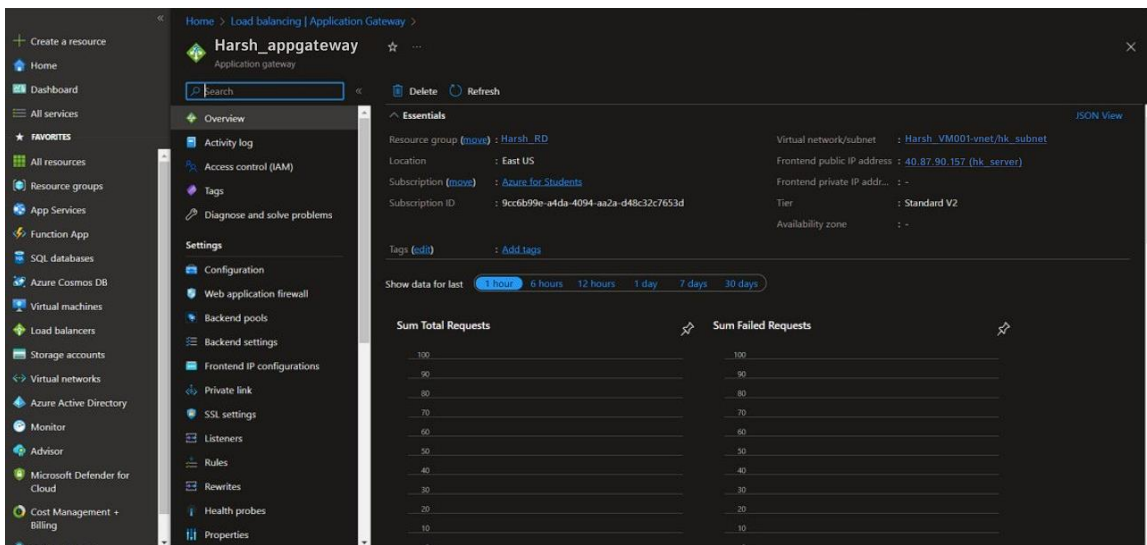
Load balancing | Application Gateway

Showing 1 to 1 of 1 records.

Name	Public IP	Private IP	Resource group	Location	Subscription
Harsh_appgateway	40.87.93.157	-	Harsh_RD	East US	Azure for Students

Buttons: Previous, Page 1 of 1, Next, Give feedback

- Step 9 - Click on that application gateway and copy the frontend IP address (40.87.90.157).



- Step 10 - Paste that copied IP address in the new tab of your browser, we can see the page of first virtual machine (Hi, This is HarshVM001).



- Step 11 - Reload the page then we can see the page of second virtual machine (Hi, This is HarshVM002).



THE END