**Challenge-1**

**Three tier architecture**

Three-tier architecture, which separates applications into three logical and physical computing tiers, is the software architecture for traditional client-server applications.

It is divided into three parts:

* Web tier – user facing phase.
* Application tier – collected information processing phase.
* Db tier – used to store processed information by app tier.

Three tier architecture is deployed on Azure and will be having below components:

1. VNet – address space for resources/virtual machines.
2. Subnets - to allocate resources to them.
3. VMs- we will deploy two Vms per tier, so total 6 Virtual machines.
4. External load balancer – to inbound traffic to azure resources.
5. Internal load balancer – to internally transfer the information from web tier to app tier.

We can user Azure CLI and ARM templates to deploy the resources on Azure.

For using Azure CLI, AZ module should be installed on our machine or else we do it by using below Powershell command.

**Install-Module -Name Az -AllowClobber**

Else we can deploy resources using ARM templates – by visual studio code

Please find attached ‘.txt’file for ARM template.

**Challenge -2**

To get the output as a JSON format for metadata of an instance in Azure, we can use IMDS service for Azure windows VM.  
Azure instance metadata service gives output/information about currently running VMs.

We can use it to manage and configure our virtual machines.

Attached .txt file for the code and output as JSON.

**Challenge-3**

In powershell, we can use hashtable to parse the values in key-value pairs.