**Lab 4: Resource deployment using APIs**

**THIS LAB WILL BE ASSESSED on 16-17 November 2022**

## *Learning Outcomes:*

***Ensure you have completed Lab 3 before proceeding.***

After completing the exercises in this lab you should be able to:

* Deploy a virtual machine using Azure’s REST API

## *Organisation*

Please attempt this lab individually.

## *Lab Assessment - 30% of overall Module*

Continuous assessment is based on ongoing assessment throughout the module. There are 2 parts to this weeks assessment. Personal circumstances will be considered on a case by case basis with supporting evidence.

Part A. – Assessed bybefore you leave the grading lab. Marks are allocated for completion of parts, but you must provide evidence of completion where feasible. (***Grading is 0-90***). You must review your lab progress before you leave the lab. Failure to do so may result in a score of 0.

Part B. – Assessed before the next lab. you must upload your report before the end of the day. Late reports are not graded. If you have not attended then report also not graded. (***Grading is 0-10 but obligatory to receive credit for the lab grade***)

# *Part A – In Lab*

## *Deploy virtual machines (90 Marks)*

* 1. Use the following resources to deploy a public IP address, Network interface card and Virtual machine, modifying the relevant pieces of code from the sample below, using the REST APIs :
     1. [https://learn.microsoft.com/en-us/rest/api/virtualnetwork/public-ip-addresses/create-or-update?tabs=HTTP#code-try-0](https://learn.microsoft.com/en-us/rest/api/virtualnetwork/public-ip-addresses/create-or-update?tabs=HTTP" \l "code-try-0) (20 marks)
     2. [https://learn.microsoft.com/en-us/rest/api/virtualnetwork/network-interfaces/create-or-update?tabs=HTTP#code-try-0](https://learn.microsoft.com/en-us/rest/api/virtualnetwork/network-interfaces/create-or-update?tabs=HTTP" \l "code-try-0) (20 marks)
     3. [https://learn.microsoft.com/en-us/rest/api/compute/virtual-machines/create-or-update?tabs=HTTP&tryIt=true&source=docs#code-try-0](https://learn.microsoft.com/en-us/rest/api/compute/virtual-machines/create-or-update?tabs=HTTP&tryIt=true&source=docs" \l "code-try-0) (30 marks)
  2. Deploy the same resources using a script, e.g. python/js/similar (20)
  3. Push any code and config changes to GitHub (obligatory)
  4. IPAddress:
     1. PUT <https://management.azure.com/subscriptions/5faca297-4fe2-4138-89f2-c852ef0b364e/resourceGroups/pis_group/providers/Microsoft.Network/publicIPAddresses/test-ip?api-version=2022-05-01>
     2. {

"properties": {

"publicIPAllocationMethod": "Static",

"idleTimeoutInMinutes": 10,

"publicIPAddressVersion": "IPv4"

},

"sku": {

"name": "Basic"

},

"location": "westeurope"

}

* 1. Network Interface
     1. PUT <https://management.azure.com/subscriptions/5faca297-4fe2-4138-89f2-c852ef0b364e/resourceGroups/pis_group/providers/Microsoft.Network/networkInterfaces/pis80?api-version=2022-05-01>
     2. .

{

"properties": {

"ipConfigurations": [

{

"name": "ipconfig1",

"properties": {

"publicIPAddress": {

"id": "/subscriptions/5faca297-4fe2-4138-89f2-c852ef0b364e/resourceGroups/pis\_group/providers/Microsoft.Network/publicIPAddresses/test-ip"

},

"subnet": {

"id": "/subscriptions/5faca297-4fe2-4138-89f2-c852ef0b364e/resourceGroups/pis\_group/providers/Microsoft.Network/virtualNetworks/pis\_group-vnet/subnets/default"

}

}

}

]

},

"location": "westeurope"

}

* 1. VM:
     1. PUT <https://management.azure.com/subscriptions/5faca297-4fe2-4138-89f2-c852ef0b364e/resourceGroups/pis_group/providers/Microsoft.Compute/virtualMachines/test?api-version=2022-08-01>
     2. .

{

"id": "/subscriptions/5faca297-4fe2-4138-89f2-c852ef0b364e/resourceGroups/pis\_group/providers/Microsoft.Compute/virtualMachines/myVM",

"type": "Microsoft.Compute/virtualMachines",

"properties": {

"osProfile": {

"adminUsername": "paul",

"secrets": [

],

"computerName": "myVM",

"linuxConfiguration": {

"ssh": {

"publicKeys": [

{

"path": "/home/paul/.ssh/authorized\_keys",

"keyData": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCsxP2gmr2VhefmSeB07WtVpOP3IquuVmGgx23jjW7ihA+rJjsUnEA/uf5a9Qr5tvA3fDlaADTKOn8A54j2KVut1My4soro4YL5ziyiIYjzcn9CCI7EUscB41f1vNQqGuhvJot2UB4mKRLDgJgtCUzM5jm5Su32yJQa1Zybl9uxyU/BFnK3JFiynoMl30ADbZYBz6owc4+yFJDy46l0SiAiOJRKlPQmrH10YMnWQyiFrON07b2RJRyPr80QXt9t+ynWGwJeO5nv1WQZirNVuzze1yWCQtQ8L3ySFSj9LA3Xw2n34NEWUvK6PMGmJf1+FnxjVzC6KxExKkglXXfcv8N9 paul@paul "

}

]

},

"disablePasswordAuthentication": true

}

},

"networkProfile": {

"networkInterfaces": [

{

"id": "/subscriptions/5faca297-4fe2-4138-89f2-c852ef0b364e/resourceGroups/pis\_group/providers/Microsoft.Network/networkInterfaces/pis80",

"properties": {

"primary": true

}

}

]

},

"storageProfile": {

"imageReference": {

"sku": "16.04-LTS",

"publisher": "Canonical",

"version": "latest",

"offer": "UbuntuServer"

},

"dataDisks": [

]

},

"hardwareProfile": {

"vmSize": "Standard\_D1\_v2"

},

"provisioningState": "Creating"

},

"name": "test",

"location": "westeurope"

}

# *Part B–Report*

## *Submit Lab Report (10Marks, but obligatory to receive a grade for this lab)*

* 1. Provide a link to your Docker Hub Repo and also your GitHub repo again
  2. Include screenshots of progress for the record
  3. Explain in 1-5 sentences what you changed in the app for part V
  4. Optionally, any or all of the following:
     + Explain any areas of difficulty in this week’s lab (100 words or less)
     + Explain what went well in this week’s lab (100 words or less)
     + Any other comments?