

##Challenge 1

To create 3 tier architecture in AWS:-

1. Create Virtual private cloud
2. Create an internet gateway
3. Attach VPC to internet gateway
4. Create public and private subnets
5. Create public and private route tables → public and private subnets need to be associated with public and private route tables respectively.
6. Create NAT gateway
7. Create an autoscaling group

##Challenge 2

Write a code that will query the metadata of an instance within AWS and provide json formatted output.

```
import requests
```

```
import json
```

```
metadata_url= 'http://169.254.169.254/latest/'
```

```
def expand_tree(url, arr):
```

```
    output = {}
```

```
    for item in arr:
```

```
        new_url = url + item
```

```
        r = requests.get(new_url)
```

```
        text = r.text
```

```
        if item[-1] == "/":
```

```
            list_of_values = r.text.splitlines()
```

```
            output[item[:-1]] = expand_tree(new_url, list_of_values)
```

```
        elif is_json(text):
```

```
            output[item] = json.loads(text)
```

```
        else:
```

```
            output[item] = text
```

```
    return output
```

```
def get_metadata():
```

```
    initial = ["meta-data/"]
```

```
    result = expand_tree(metadata_url, initial)
```

```
    return result
```

```
def get_metadata_json():
```

```
metadata = get_metadata()
metadata_json = json.dumps(metadata, indent=4, sort_keys=True)
return metadata_json
```

```
def is_json(myjson):
    try:
        json.loads(myjson)
    except ValueError:
        return False
    return True
```

```
if __name__ == '__main__':
    print(get_metadata_json())
```

##Challenge 3

We have a nested object, we would like a function that you pass in the object and a key and get back the value.

Since this question is from Advanced python programming language, I am unable to attempt it. My technical expertise is more into Azure DevOps and Cloud Azure automation, I am still learning AWS and its concepts. I will try to attempt this once I will improve my programming logic. Thanks.