

Cloud Computing Architecture - COS20019

Assignment 1 - Part A

Creating and deploying a Web Page

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Create Key: (Go to EC2 -> Key Pairs)

The screenshot shows two main windows from the AWS Management Console.

Search Results for 'ec2':

- Services:**
 - EC2** ☆ Virtual Servers in the Cloud
 - EC2 Image Builder** ☆ A managed service to automate build, customize and deploy OS images
 - Amazon Inspector** ☆ Continual vulnerability management at scale
 - AWS Firewall Manager** ☆ Central management of firewall rules
- Features:**
 - Dashboard** EC2 feature
 - Limits** EC2 feature
 - AMIs** EC2 feature
 - Elastic IPs** EC2 feature

EC2 Management Dashboard:

- Resources:** You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	0	Auto Scaling Groups	0	Dedicated Hosts	0
Elastic IPs	0	Instances	0	Key pairs	1
Load balancers	0	Placement groups	0	Security groups	1
Snapshots	0	Volumes	0		
- Launch instance:** Get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.
Buttons: Launch instance, Migrate a server.
- Scheduled events:** US East (N. Virginia)
Note: Your instances will launch in the US East (N. Virginia) Region.
- Migrate a server:** Use AWS Application Migration Service to simplify and expedite migration from physical, virtual, and cloud infrastructure to AWS.
Get started with AWS Application Migration Service.
- Service health:** Region: US East (N. Virginia), Status: This service is operating normally.
- Zones:**

Zone name	Zone ID
us-east-1a	use1-az1
us-east-1b	use1-az2
us-east-1c	use1-az4
us-east-1d	use1-az6
us-east-1e	use1-az3
us-east-1f	use1-az5
- Additional information:**
 - Amazon GuardDuty Malware Protection
 - Get Up to 40% Better Price Performance
 - Enable Best Price-Performance with AWS Graviton2
 - Getting started guide

Click "Create keypair"

The screenshot shows the AWS Management Console with the URL <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#KeyPairs>. The left sidebar is collapsed, and the main content area displays a table titled "Key pairs (1) Info". The table has columns: Name, Type, Created, Fingerprint, and ID. One row is listed: "vockey" (rsa), created on "2023/05/13 11:38 GMT+7", with a fingerprint "bea1:59:e4:ab:d0:28:46:31:e3:7a:71:25..." and an ID "key-0d81cf100c014f0fa". At the top right of the table is an orange "Create key pair" button.

Name: assign1a, Type: RSA, File format: .pem

The screenshot shows the "Create key pair" wizard, step 1: "Key pair". The title bar says "Create key pair | EC2 Management Console". The form fields are as follows:

- Name:** assign1a
- Key pair type:** RSA (selected)
- Private key file format:** pem (selected)
- Tags - optional:** No tags associated with the resource.
- Add new tag:** A button to add more tags.

At the bottom are "Cancel" and "Create key pair" buttons.

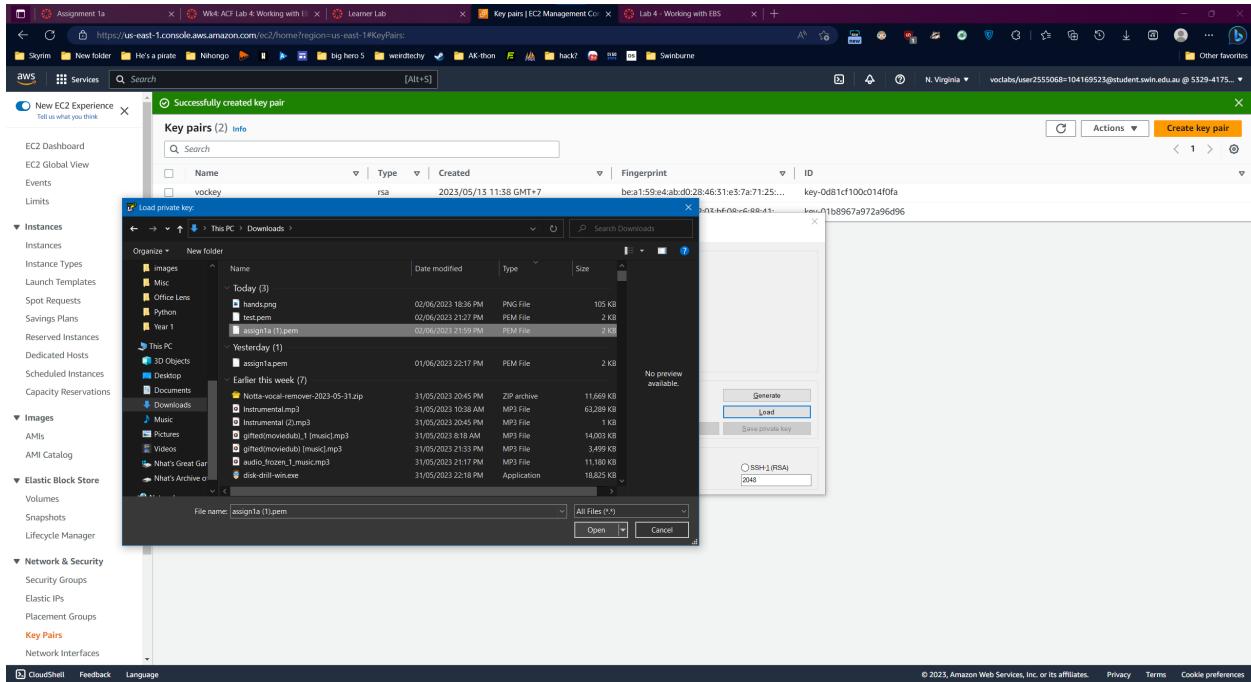
Keypair created successfully and saved.

The screenshot shows the AWS Management Console interface. The left sidebar navigation bar includes links for EC2 Dashboard, EC2 Global View, Events, Limits, Instances, Images, Elastic Block Store, Network & Security, and Key Pairs. The 'Key Pairs' link is highlighted in orange. The main content area displays a table titled 'Key pairs (2) Info'. The table has columns for Name, Type, Created, Fingerprint, and ID. It lists two entries: 'vokey' (rsa, 2023/05/13 11:38 GMT+7, fingerprint: bea1:59:e4:ab:d0:28:46:31:e3:7a:71:25..., ID: key-0d81cf100c014f0fa) and 'assign1a' (rsa, 2023/06/02 21:59 GMT+7, fingerprint: e5:10:5a:62:c1:33:b2:03:bf:08:c6:88:41..., ID: key-01b8967a972a96d96). A success message 'Successfully created key pair' is displayed at the top of the page. A download dialog box is visible in the top right corner, showing files 'assign1a (1).pem', 'Ssh2.pem', and 'test.pem'.

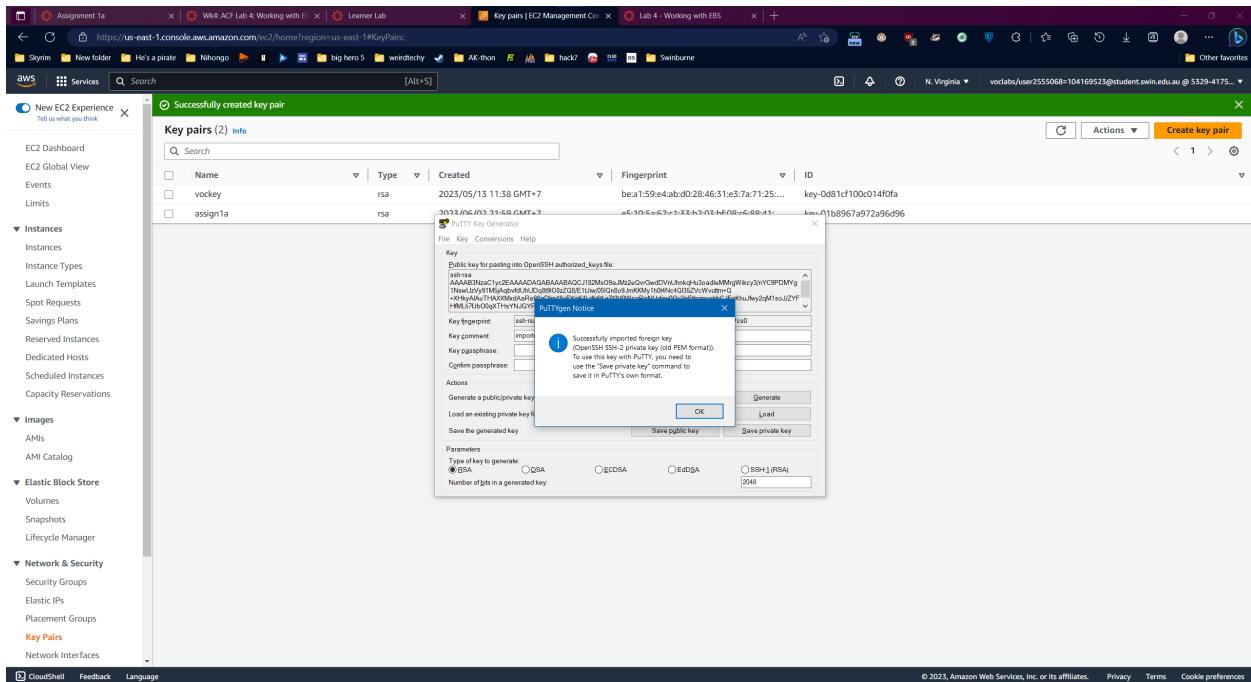
Open PuttyGen:

The screenshot shows the PuttyGen application window. The title bar indicates it is running on 'N. Virginia' with the command 'votabs/user2555068=104169523@student.swin.edu.au @ 5329-4175...'. The main window displays a table of key pairs: 'vokey' (rsa, 2023/05/13 11:38 GMT+7, fingerprint: bea1:59:e4:ab:d0:28:46:31:e3:7a:71:25..., ID: key-0d81cf100c014f0fa) and 'assign1a' (rsa, 2023/06/02 21:59 GMT+7, fingerprint: e5:10:5a:62:c1:33:b2:03:bf:08:c6:88:41..., ID: key-01b8967a972a96d96). Below the table, a 'PUTTY Key Generator' window is open. It shows a 'File' menu with options like 'Generate', 'Load', and 'Save public key'. Under 'Parameters', there are radio buttons for 'RSA' (selected), 'DSA', 'ECDSA', and 'ED25519(RSA)'. The 'Number of bits in a generated key:' field is set to '2048'. The bottom of the screen shows the AWS Management Console interface with the same key pair listing.

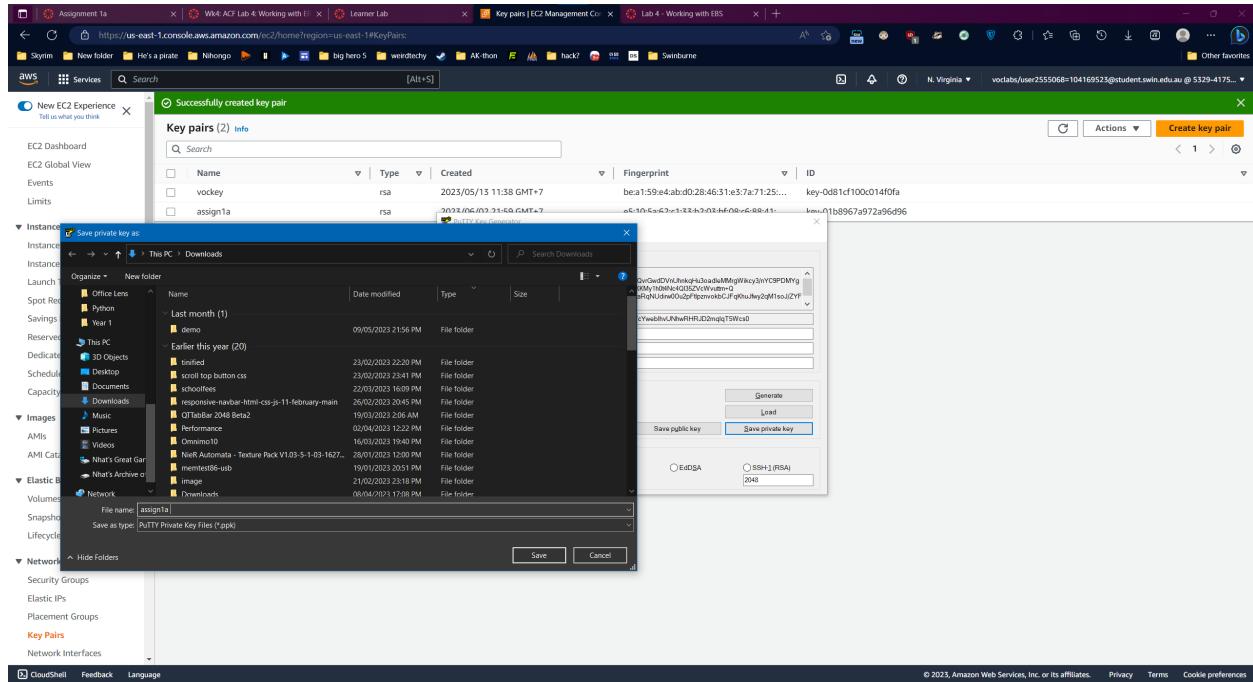
Choose “Load an existing private key file” -> “Load”. Select all files.



Load successful. Now choose “Save private key”

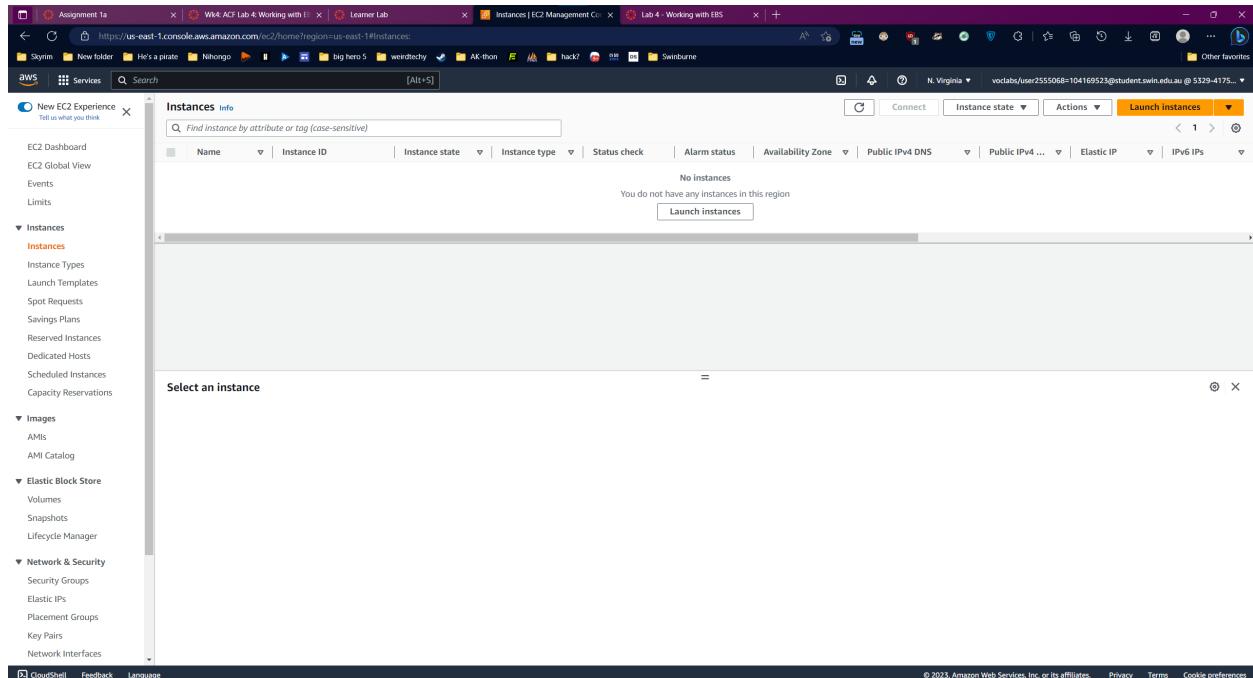


Save the file.



TASK 1 – Launch your own Linux EC2 instance

Choose EC2: -> Instances -> Launch Instances:



Amazon Machine Image: Amazon Linux 2 AMI (HVM), SSD Volume Type

The screenshot shows the AWS Lambda console with the following details:

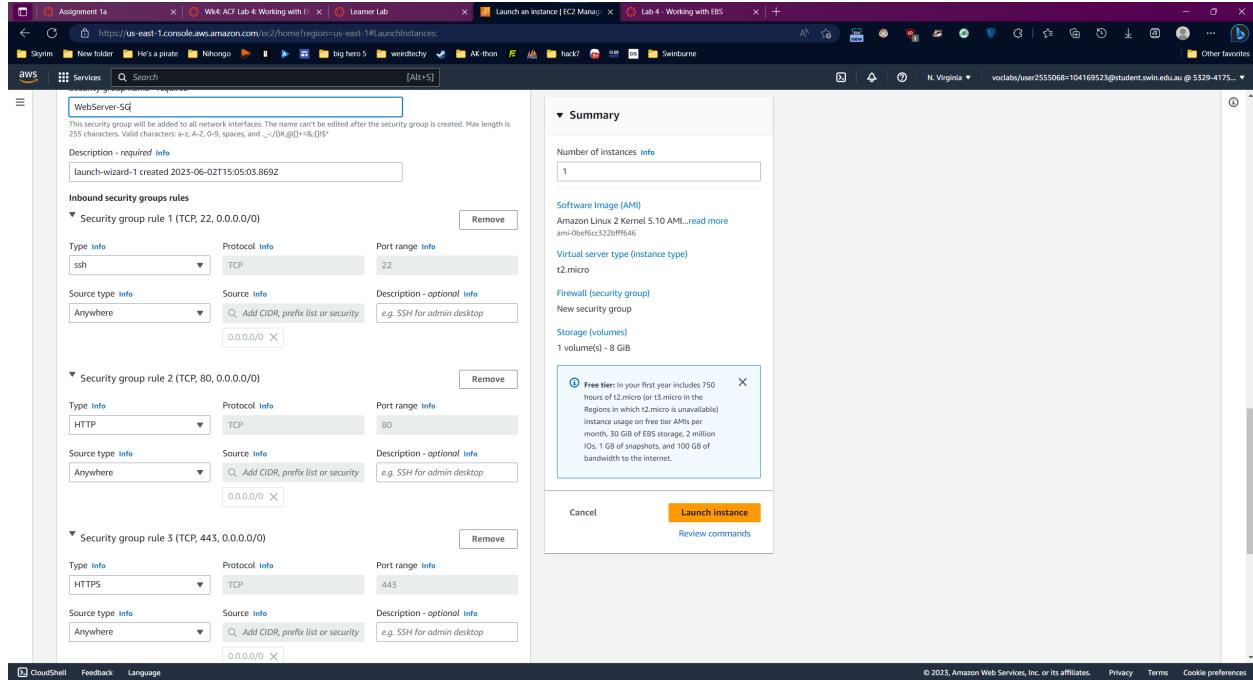
- Name and tags:** Assignment 1a
- Application and OS Images (Amazon Machine Image):** Amazon Linux 2 Kernel 5.10 AMI
- Quick Start:** Shows various AMI options like Amazon Linux, macOS, Ubuntu, Windows, Red Hat, etc.
- Description:** Amazon Linux 2 Kernel 5.10 AMI 2.0.20230515.0 x86_64 HVM gp2
- Architecture:** 64-bit (x86)
- AMI ID:** ami-0bef6cc322bfff646
- Verified provider:** Verified
- Summary:** Number of instances: 1
- Software Image (AMI):** Amazon Linux 2 Kernel 5.10 AMI
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** New security group
- Storage (volumes):** 1 volume(s) - 8 GiB
- Launch Instance:** Button

Instance type: **t2.micro**. Key pair: **assign1a** (we just created prior)

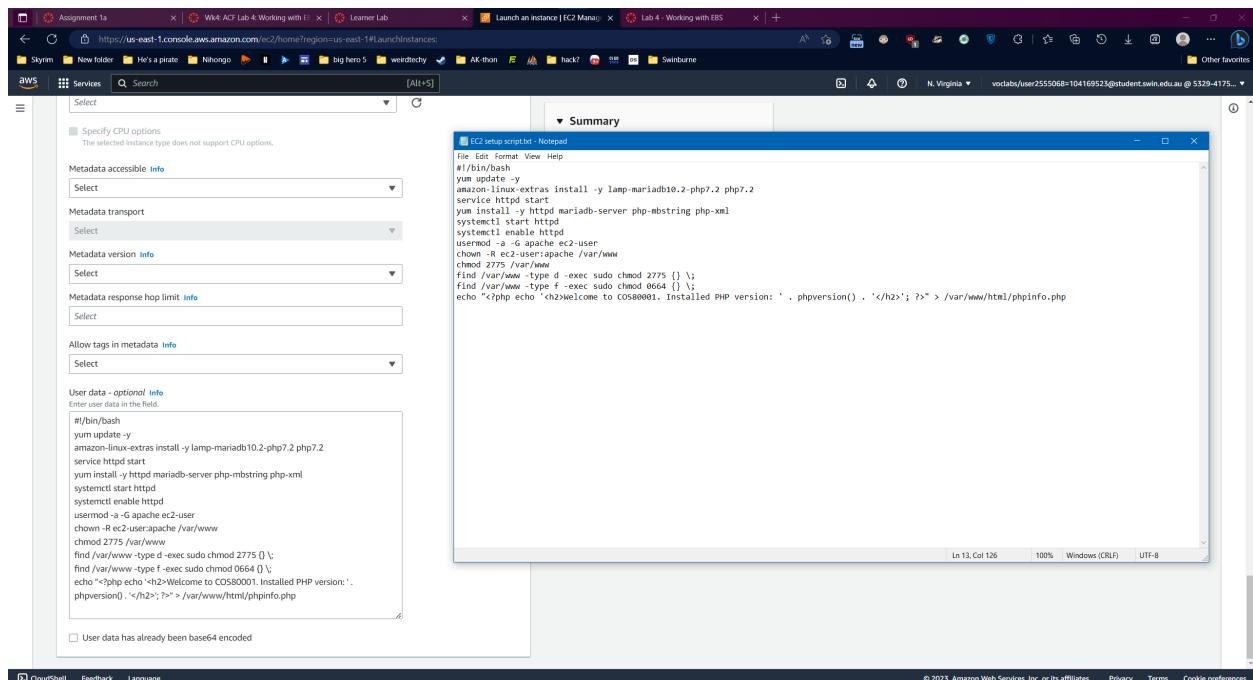
The screenshot shows the AWS Lambda console with the following details:

- Description:** Amazon Linux 2 Kernel 5.10 AMI 2.0.20230515.0 x86_64 HVM gp2
- Architecture:** 64-bit (x86)
- AMI ID:** ami-0bef6cc322bfff646
- Verified provider:** Verified
- Instance type:** t2.micro
- Key pair (login):** assign1a
- Network settings:** Network Info: vpc-0952baff13c8c5c06; Subnet Info: No preference (Default subnet in any availability zone); Auto-assign public IP: Info
- Summary:** Number of instances: 1
- Software Image (AMI):** Amazon Linux 2 Kernel 5.10 AMI
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** New security group
- Storage (volumes):** 1 volume(s) - 8 GiB
- Launch Instance:** Button

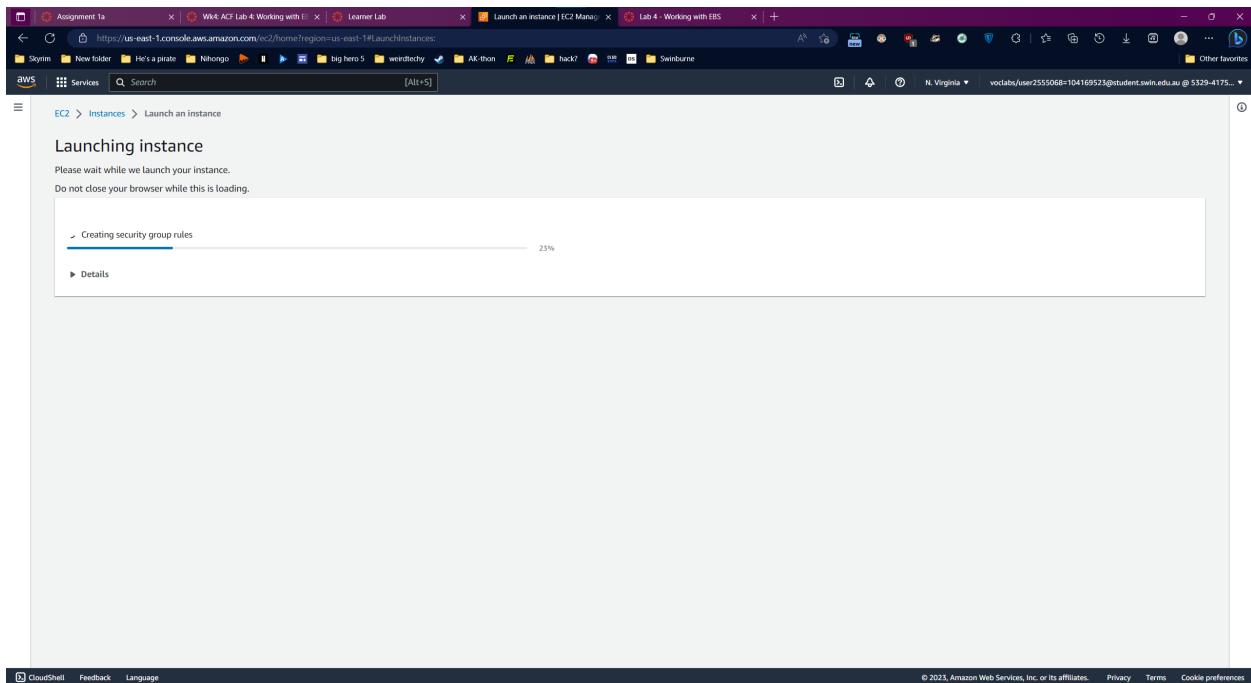
New security group named “*WebServer-SG*” that allows only necessary traffic types (SSH, HTTP, HTTPS) to reach the instance from anywhere.



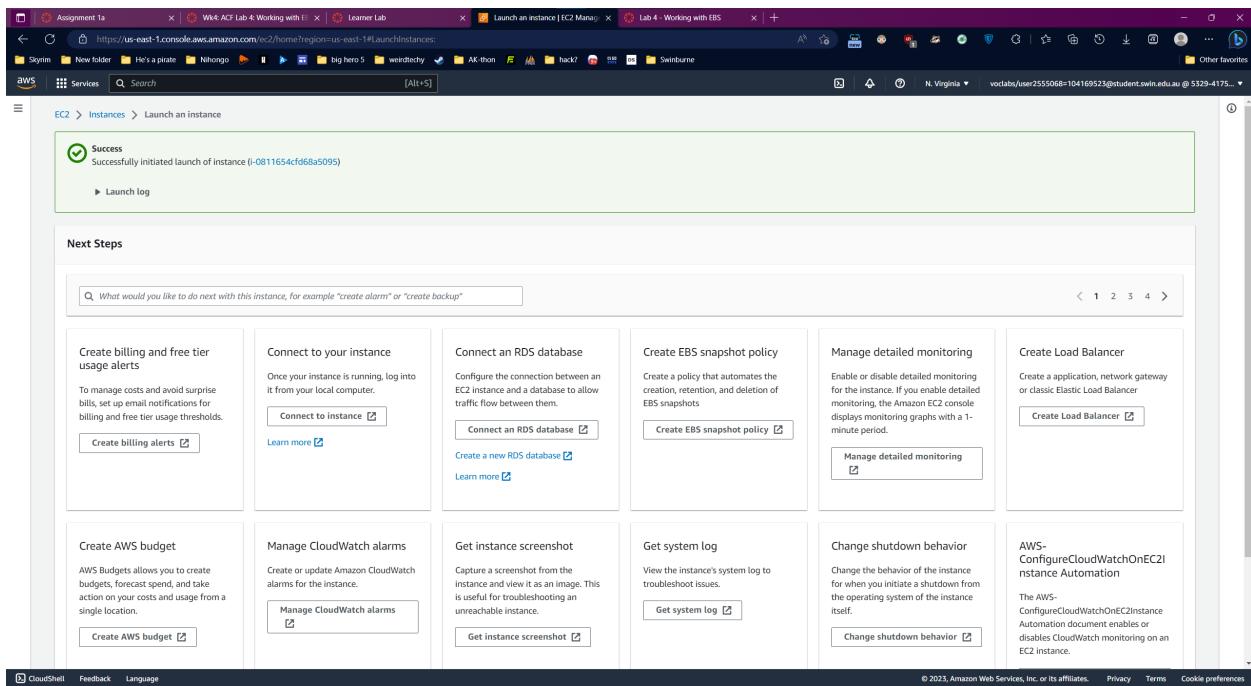
Advanced Details – User data: Use the script in [Auto Setup EC2 with script.pdf](#) file to automatically set up and configure the Apache server, PHP, and MySQL at launch.



Launch instance:



Success message:



2/2 checks passed. Select the instance, look at the public IPv4 DNS and visit <http://your.public.dns.amazonaws.com/phpinfo.php> (replace your.public.dns with the IPv4 DNS we just saw)

The screenshot shows the AWS EC2 Management Console interface. On the left, there's a navigation sidebar with sections like EC2 Dashboard, EC2 Global View, Events, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces, and IAM Roles. The main content area is titled 'Instances (1/1)'. It lists a single instance: 'Assignment 1a' (Instance ID: i-0811654cf68a5095). The instance is 'Running' (status check: 2/2 checks passed), type t2.micro, in us-east-1b, with a Public IPv4 DNS of ec2-3-86-94-221.compute-1.amazonaws.com and a Public IPv4 IP of 3.86.94.221. There are buttons for 'Connect', 'Actions', and 'Launch instances'. Below this, a detailed view for 'Instance: i-0811654cf68a5095 (Assignment 1a)' is shown, with tabs for Details, Security, Networking, Storage, Status checks, Monitoring, and Tags. Under 'Details', it shows the instance summary: Instance ID i-0811654cf68a5095 (Assignment 1a), Instance state Running, Private IP: ip-172-31-81-107.ec2.internal, Instance type t2.micro, VPC ID vpc-0952baff13c8c5c06, and Subnet ID subnet-06c7277e5ecd8f2d9. It also lists Public IPv4 address 3.86.94.221, Private IPv4 address 172.31.81.107, Public IPv4 DNS ec2-3-86-94-221.compute-1.amazonaws.com, and Elastic IP addresses.

Visiting the page:

The screenshot shows a web browser window with the URL 'http://ec2-3-86-94-221.compute-1.amazonaws.com/phpinfo.php'. The page displays the PHP version as '7.2.34' and the message 'Welcome to COS80001.' The browser status bar indicates 'Waiting for us-east-1.prod.analytics.console.aws.a2z.com...' and shows several other tabs open, including 'Assignment 1a', 'Wikki ACF Lab 4: Working with E...', 'Learner Lab', 'EC2 Management Console', and 'Lab 4 - Working with EBS'.

TASK 2 – Create a PHP website (Photo Album)

Use the sample code provided and separate into two .php files:

```
<!-- photolookup.php -->
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8" />
    <title>Photo Album</title>
</head>
<body>
    <h2>Photo Lookup</h2>
    <form name="upload" id="upload">
        <fieldset>
            <dd>
                <dt><label for="phototitle">Photo title: </label></dt>
                <dd><input type="text" name="phototitle" id="phototitle" size="25" /></dd>
            </dd>
            <dd>
                <dt><label for="keyword">Keyword: </label></dt>
                <dd><input type="text" name="keyword" id="keyword" size="25" /></dd>
            </dd>
            <dd>
                <dt><label for="fromdate">From Date: </label></dt>
                <dd><input type="date" name="fromdate" id="fromdate" /></dd>
            </dd>
            <dd>
                <dt><label for="todate">To Date: </label></dt>
                <dd><input type="date" name="todate" id="todate" /></dd>
            </dd>
            <dd><input type="submit" value="Search" /> <!-- Submit Button --></dd>
        </fieldset>
    </form>
    <p><a href="photouploader.php" title="Photo Uploader">Photo Uploader</a></p>
</body>
</html>
```

```
<!-- photouploader.php -->
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8" />
    <title>Photo Album</title>
</head>
<body>
    <h2>Photo Uploader</h2>
    <form name="upload" id="upload">
        <fieldset>
            <dd>
                <dt><label for="phototitle">Photo title: </label></dt>
                <dd><input type="text" name="phototitle" id="phototitle" size="25" /></dd>
            </dd>
            <dd>
                <dt><label for="keyword">Keyword: </label></dt>
                <dd><input type="text" name="keyword" id="keyword" size="25" /></dd>
            </dd>
            <dd>
                <dt><label for="selectphoto">Select a photo: </label></dt>
                <dd><input type="file" name="selectphoto" id="selectphoto" /></dd>
            </dd>
            <dd>
                <dt><label for="fromdate">From Date: </label></dt>
                <dd><input type="date" name="fromdate" id="fromdate" /></dd>
            </dd>
            <dd>
                <dt><label for="todate">To Date: </label></dt>
                <dd><input type="date" name="todate" id="todate" /></dd>
            </dd>
            <dd><input type="submit" value="Search" /> <!-- Submit Button --></dd>
        </fieldset>
    </form>
</body>
</html>
```

Assignment 1a Website Code Samples.txt - Notepad

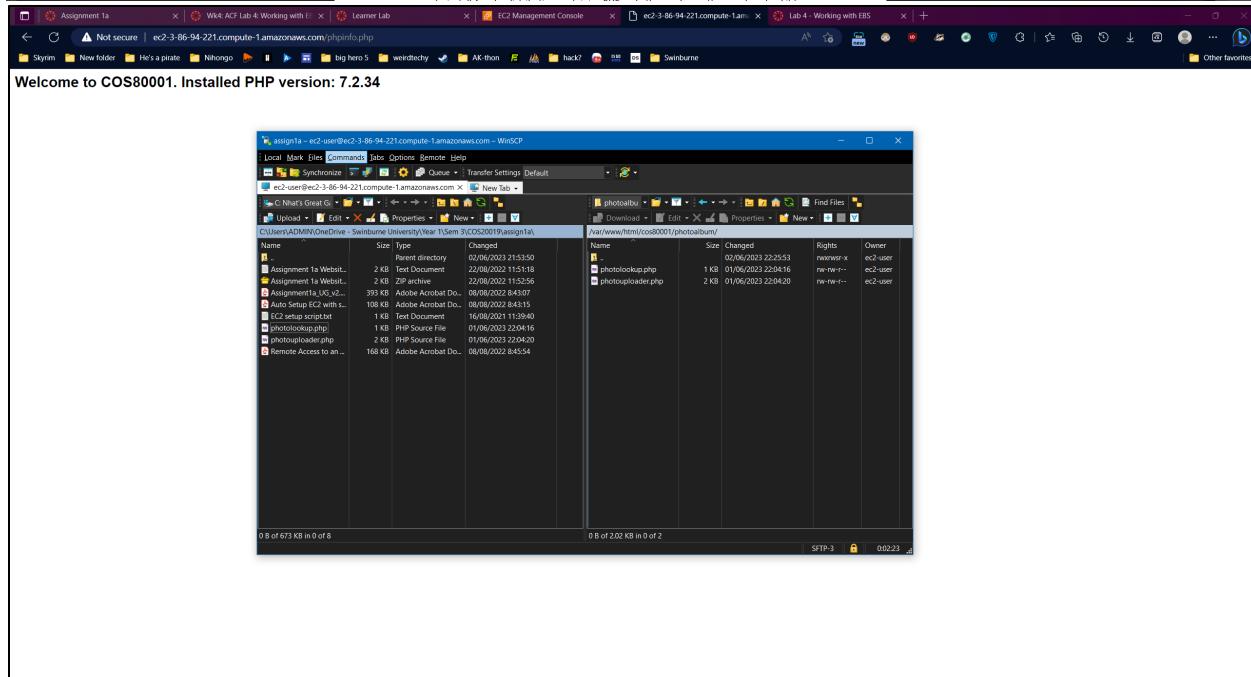
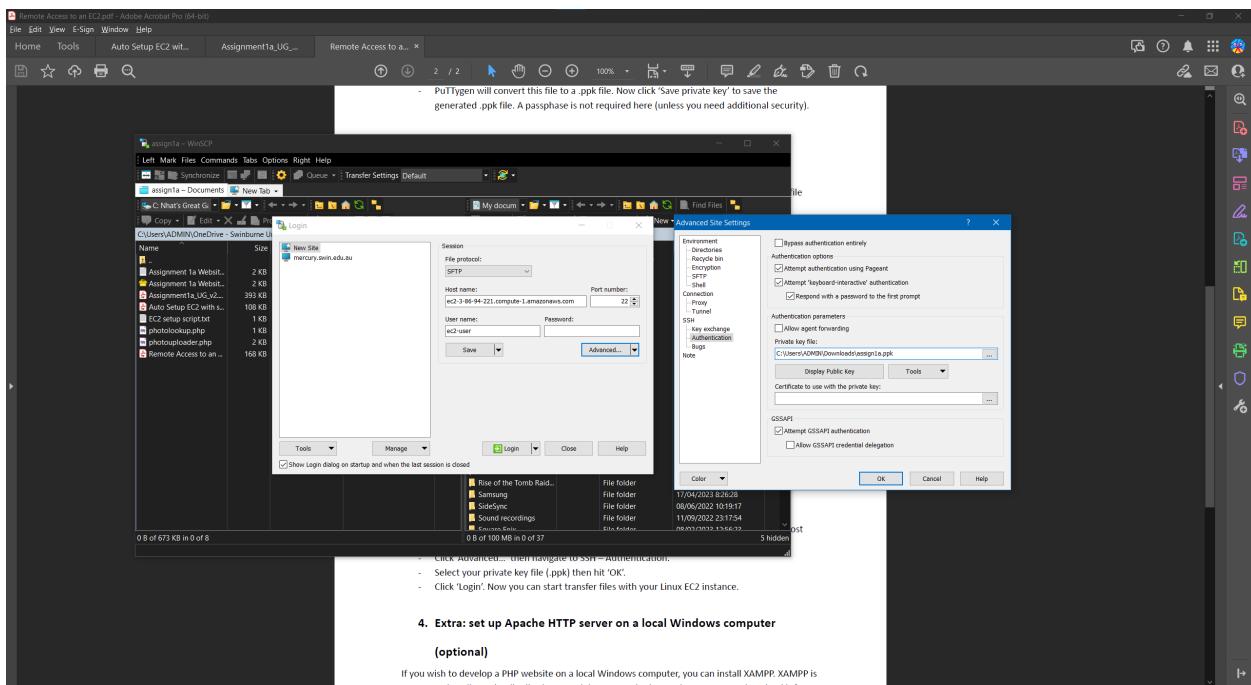
C:\Users\ADMINI... OneDrive - Swinburne University > Year 1 > Sem 3 > COS2019 > assign1a

8 items | 1 item selected 1.11 KB | Available on this device

Cloud Computing Architecture 1

Open WinSCP to login:

- Host name: the IPv4 address “ec2-3-86-94-221.compute-1.amazonaws.com”
- User name: ec2-user
- Add private key: click Advanced -> SSH -> Authentication -> Authentication Parameter -> Private key file -> ...
- Select the keyfile (.ppk) we generated with PuttyGen earlier.
- Click ok -> Login
- If asked “Continue connecting to an unknown server and add its host key to a cache” click “Yes” and proceed.
- We are currently in folder /home/. Exit and go to var/www/html/
- Create cos80001/photoalbum/ (create new directory by pressing F7)
- Place the two PHP file there.
- Now test by going to <http://ec2-3-86-94-221.compute-1.amazonaws.com/cos80001/photoalbum/photouploader.php>



Here are the two webpages:

Photo uploader

Photo title:

Select a photo: Choose File No file chosen

Description:

Date: dd/mm/yyyy

Keywords (comma-delimited e.g. keyword1; keyword 2, ...):

[Photo Lookup](#)

Photo lookup

Photo title:

Keyword:

From Date: dd/mm/yyyy

To Date: dd/mm/yyyy

[Photo Uploader](#)