

Homework Assignment 2

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Homework Tasks

Task 1: Log in to AWS

Log in to AWS, screenshot the AWS landing page (the page you see after login).

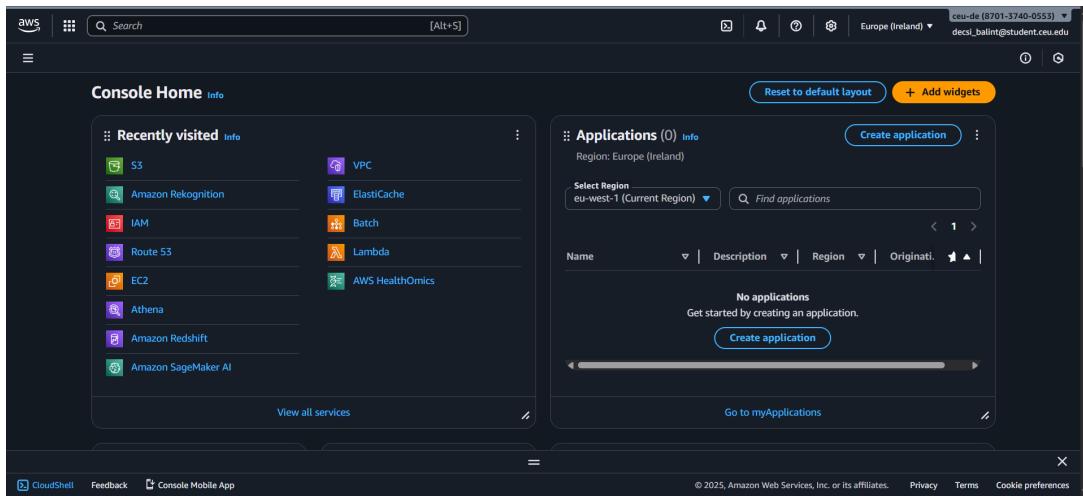


Figure 1: AWS Landing Page

Task 2: Create a Security Group

Create a Security Group and configure it (add SSH and HTTP ports). Call the group “secgroup-*your student id*-homework”.

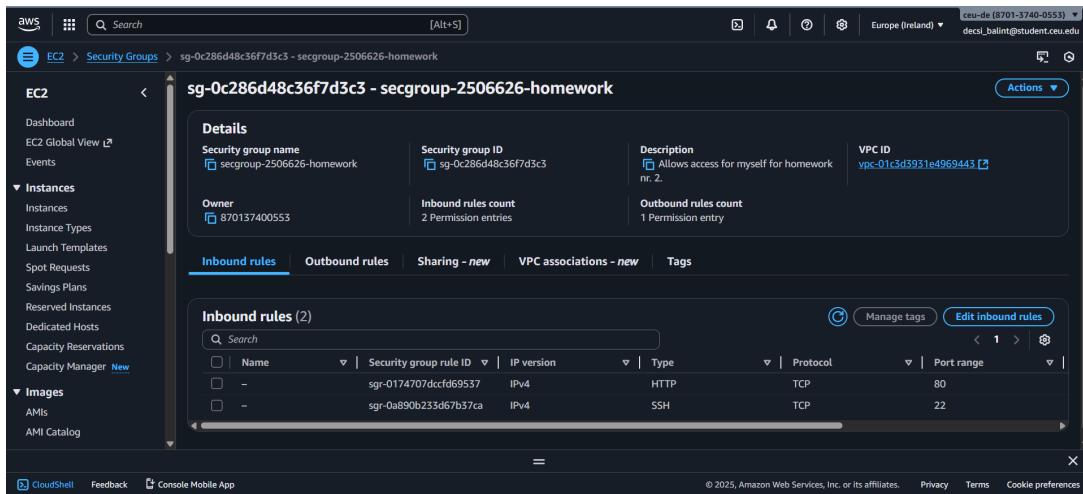


Figure 2: Security Group Configuration

Task 3: Upload your public key

Upload your public key.

The screenshot shows the AWS EC2 Key Pairs page. The left sidebar lists various EC2 services like Instances, Images, and Events. The main area displays a table titled 'Key pairs (1/1) Info' with one entry: 'key-2506626-homework' (rsa type, created 2025/12/02 19:59 GMT+1). The table includes columns for Name, Type, Created, Fingerprint, and ID. A 'Actions' dropdown and a 'Create key pair' button are at the top right. The bottom of the page includes standard AWS navigation links like CloudShell, Feedback, and Console Mobile App.

Figure 3: Uploaded Public Key

Task 4: Start creating a t4g.nano instance

Start creating a t4g.nano instance using the Ubuntu AMI we used in the class.

The screenshot shows the 'Launch an instance' page. It starts with an 'Amazon Machine Image (AMI)' section for 'Ubuntu Server 24.04 LTS (HVM), SSD Volume Type'. Below it is an 'Instance type' section for 't4g.nano'. On the right, there's a 'Summary' panel showing 'Number of instances' (1), 'Software Image (AMI)' (Canonical, Ubuntu, 24.04, arm64 noble image), 'Virtual server type (instance type)' (t4g.nano), and 'Storage (volumes)' (1 volume(s) - 8 GiB). At the bottom are 'Cancel', 'Launch instance', and 'Preview code' buttons. The bottom of the page includes standard AWS navigation links.

Figure 4: Creating t4g.nano Ubuntu Instance

Task 5: Check the price

Check the price of this instance on ec2instances.info.

t4g.nano	20,304.569	N/A	0.5 GiB	2 vCPUs	EBS only	Up to 5 Gigabit	\$0.0046 hourly	\$0.0029 hourly	\$0.0018 hourly
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Figure 5: Instance Price on ec2instances.info

Task 6: Select Security Group

On the Create Instance Page: Select your security group.

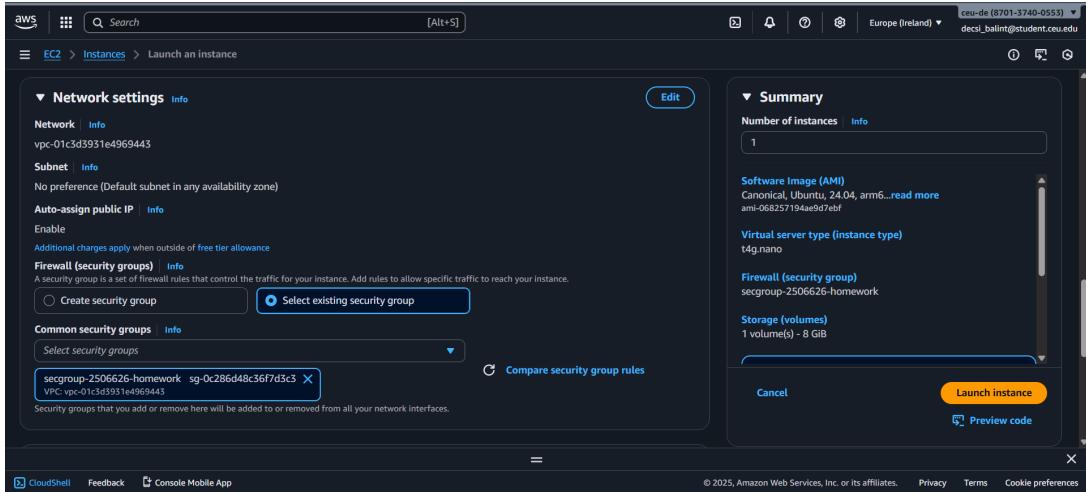


Figure 6: Selecting Security Group

Task 7: Select Key Pairs and Start

Create Instance Page: Select your key pairs and start the instance.

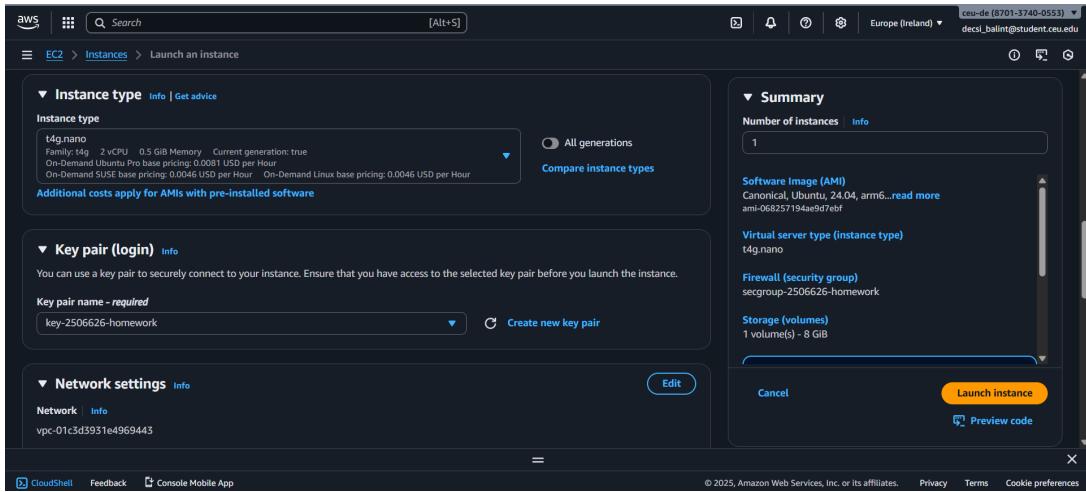


Figure 7: Selecting Key Pair and Starting Instance

Task 8: Instance Details

Go to the instance page of your instance (screenshot the page showing the instance's details).

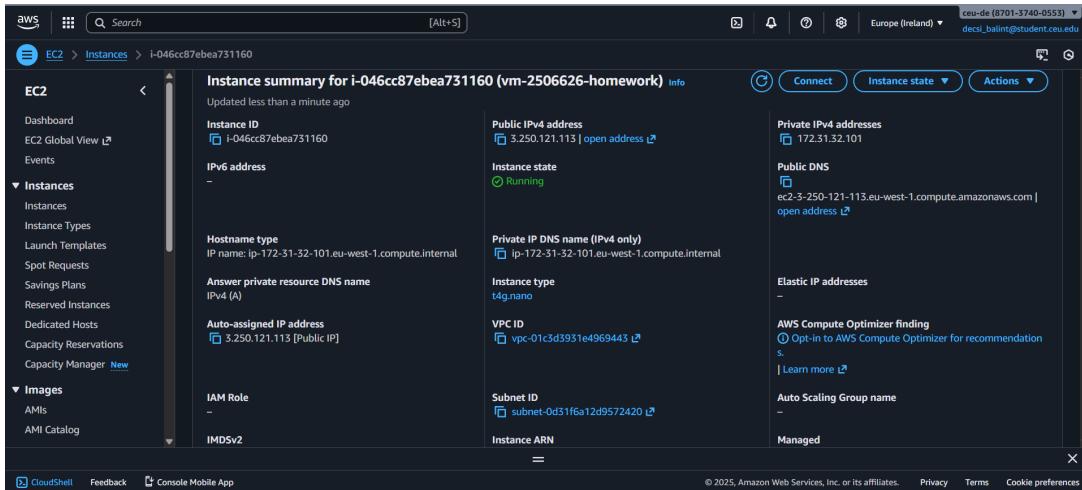


Figure 8: Instance Details Page

Task 9: SSH via Codespace

Use Codespace to SSH into your instance (create a screenshot of the Codespace terminal once you are logged in).

```
balintdeci@DESKTOP-PAJCMQA:/> ./repos/ceu/ECBS-5147-Data-Engineering-Cloud-Computing-Managed-AI-Services/assignment/2$ ssh -i "key-2506626-homework.pem" ubuntu@ec2-3-250-121-113.eu-west-1.compute.amazonaws.com
The authenticity of host 'ec2-3-250-121-113.eu-west-1.compute.amazonaws.com (3.250.121.113)' can't be established.
ED25519 key fingerprint is SHA256:RssSImtm3WUjDlW3zJukCt0MdtlijWBeQM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-3-250-121-113.eu-west-1.compute.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1015-aws aarch64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Tue Dec 2 19:05:58 UTC 2025

 System load: 0.0              Temperature:          -273.1 C
 Usage of /: 26.1% of 6.71GB   Processes:                 152
 Memory usage: 51%             Users logged in:        0
 Swap usage: 0%                IPv4 address for ens5: 172.31.32.101

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-32-101:~$ |
```

Figure 9: SSH Session in Codespace

Task 10: Streamlit Execution

Update the system, install, and execute Streamlit. Screenshot the terminal (Codespace) once Streamlit has started.

```
ubuntu@ip-172-31-32-101:~$ sudo streamlit hello --server.port 80 --server.address 0.0.0.0
Collecting usage statistics. To deactivate, set browser.gatherUsageStats to false.

Welcome to Streamlit. Check out our demo in your browser.
URL: http://0.0.0.0:80
Ready to create your own Python apps super quickly?
Head over to https://docs.streamlit.io
May you create awesome apps!
```

Figure 10: Streamlit Running in Terminal

Task 11: Create Subdomain in Route 53

Create a subdomain for this website with your name or any other name you like (like zoltan.ceu-data.com), in Route 53.

The screenshot shows the AWS Route 53 service in the AWS Management Console. The left sidebar shows navigation options like Dashboard, Hosted zones, Global Resolver, VPC Resolver, and Domains. Under Domains, 'ceu-data.com' is selected. The main area shows a table of records for the 'ceu-data.com' zone. A modal window at the top indicates that a record for '2506626-homework.ceu-data.com' was successfully created. The table lists several records, including one for '2506626-homework.ceu-data.com' which has been selected. The right panel displays detailed information for this selected record, including its name (2506626-homework.ceu-data.com), type (A), value (3.250.121.113), TTL (300 seconds), and routing policy (Simple). The record details panel also shows the record name (2506626-homework.ceu-data.com), record type (A), value (3.250.121.113), alias (No), and TTL (300).

Figure 11: Route 53 Subdomain Creation

Task 12: Access via Domain

Open a browser and open your EC2 instance by connecting to its domain (the screenshot must show both the URL and the streamlit page).

The screenshot shows a web browser window with the URL '2506626-homework.ceu-data.com'. The page content is a Streamlit application. It features a sidebar titled 'Pages' with links to 'Hello', 'DataFrame demo', 'Plotting demo', 'Mapping demo', and 'Animation demo'. The main content area has a title 'Welcome to Streamlit!' with a hand icon. Below it, there's a brief description of Streamlit as an open-source app framework for machine learning and data science projects. A callout text says 'Select a demo from the sidebar to see some examples of what Streamlit can do!'. There are sections for 'Want to learn more?' and 'See more complex demos', each containing a bulleted list of links or descriptions.

Figure 12: Streamlit App Accessed via Domain

Task 13: Delete Route 53 Record

Delete the record in Route 53.

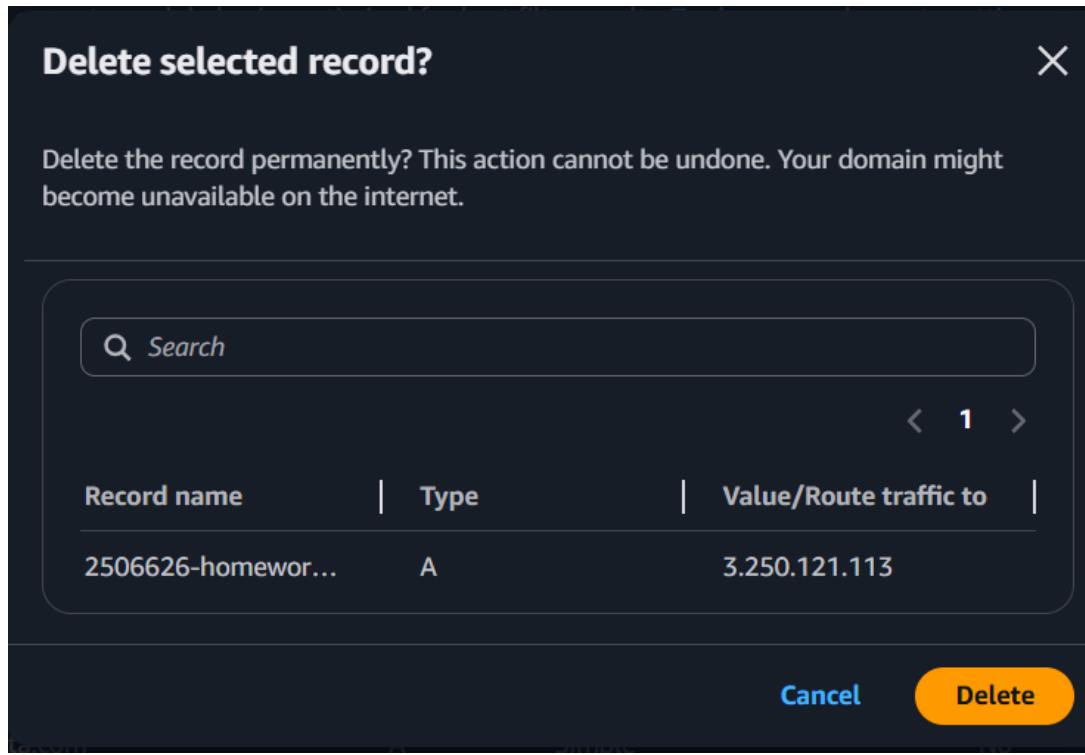


Figure 13: Route 53 Record Deletion

Task 14: Terminate Instance

Terminate the instance.

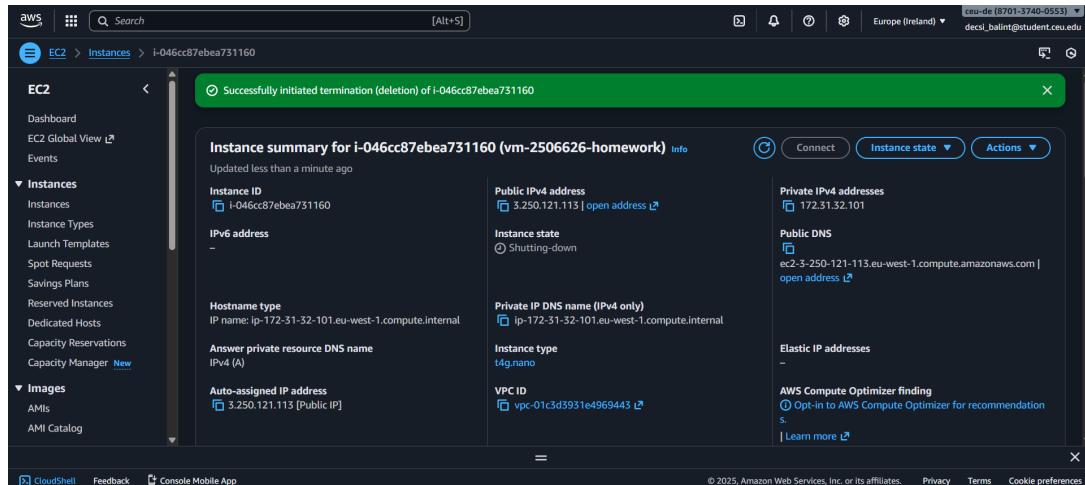


Figure 14: Instance Termination

Task 15: Delete Security Group

Delete the security group.

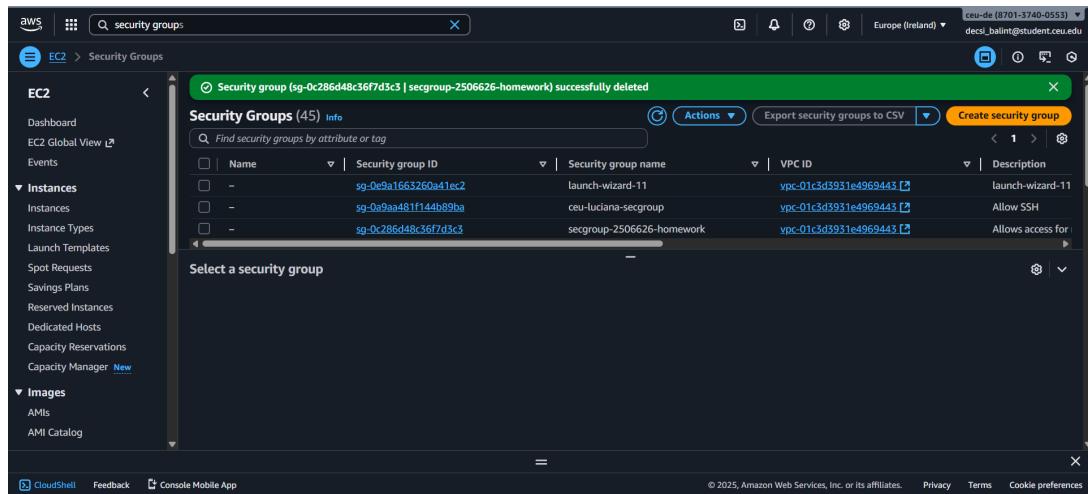


Figure 15: Security Group Deletion

Task 16: Delete Key Pair

Delete the key pair.

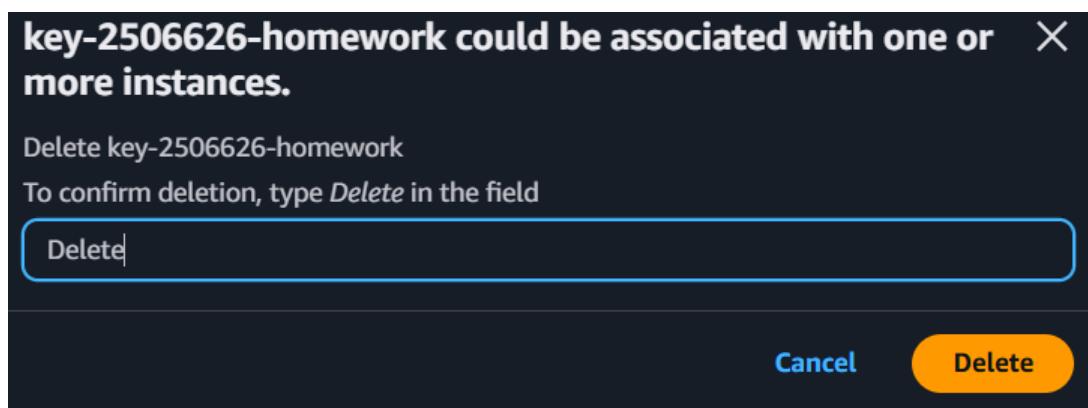


Figure 16: Key Pair Deletion