

# Atria Institute of Technology



## **Department of Information Science and Engineering**

### **Big Data Analytics (18CS72)**

### **Assignment-1**

#### **SUBMITTED BY**

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Submission Date: 26 Dec, 2023

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## Table of contents

Sl. No	Description
1	<p>1. create an <b>EC2 Linux</b> instance in AWS Cloud /Any cloud <b>INSTANCE NAME - YOUR NAME</b> <b>INSTANCE TYPE - t2.micro/any other also.</b> key pair name- your name storage - 10 GB Take the screenshot of instance running status Mention the private IP address and Public IP address. (Execute this program/concept and take a screenshot of the output)</p>
2	<p>Execute the basic Linux commands/ simple program on the instance (Execute this program and take a screenshot of the output)</p>
3	<p>Create the <b>GitHub</b> Account with your credentials, Same things stored in public repository in Github. Share the assignment in github link.</p>

### Note:

1. Minimum 10 Screenshots with proper explanation
  2. Minimum no of pages – 10
  3. Submit your Assignment soft copy (Word & PDF) to [anandakumar.ks@atria.edu](mailto:anandakumar.ks@atria.edu).
- Subject Line in mail:** Student\_Name\_USN\_BDA\_Assignment1
4. Share your assignment Github link in Assignment Document.
  5. Submit Assignment on or before **27<sup>th</sup> Dec 2023**.

# Instance Creation-01

## Virtual Machine Instance created in Amazon AWS

### Step:1 Creating a Virtual Machine

The screenshot shows the AWS EC2 Dashboard in a web browser. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, 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 Load Balancing. The main content area displays the 'Resources' section with a summary of current resources: 0 Instances (running), 0 Auto Scaling Groups, 0 Dedicated Hosts, 0 Elastic IPs, 0 Instances, 0 Key pairs, 0 Load balancers, 0 Placement groups, 0 Security groups, and 0 Snapshots. Below this is the 'Launch instance' section, which includes a 'Launch instance' button and a note that instances will launch in the Asia Pacific (Mumbai) Region. To the right, there's a 'Service health' section showing the AWS Health Dashboard and a 'Zones' section listing three availability zones: ap-south-1a (Zone ID: aps1-az1), ap-south-1b (Zone ID: aps1-az3), and ap-south-1c (Zone ID: aps1-az2). Further right are sections for 'EC2 Free Tier' (offers for all AWS Regions), 'Offer usage (monthly)' (Linux EC2 Instances at 84%, 117 hours remaining), 'Storage space on EBS' (21.61 GB remaining), and 'Account attributes' (Default VPC: vpc-0c12d70cea4bd0727). The bottom of the page includes links for CloudShell, Feedback, and various AWS terms like Privacy, Terms, and Cookie preferences.

## Step:2 Filling the basic details

The screenshot shows the 'Specify application details' step of creating a new AWS application. The 'Application name' field is filled with 'Sajan Adhikari'. The 'Application description - optional' field contains the text 'To create a virtual machine for the assignment purpose'. The 'Next' button is highlighted in orange at the bottom right.

Screenshot description: A screenshot of a web browser showing the AWS CloudFormation 'Create application' wizard. The current step is 'Specify application details'. The 'Application name' field is populated with 'Sajan Adhikari'. The 'Application description - optional' field contains the text 'To create a virtual machine for the assignment purpose'. At the bottom, there are 'Cancel', 'Skip to Review and create', and 'Next' buttons, with 'Next' being the active one.

The screenshot shows the 'Create key pair' dialog box. It displays a note about selecting a key pair, two options ('Create new key pair' and 'Proceed without key pair'), a key pair name input field ('saran\_adhikari\_keyvaluepair'), a key pair type selection ('RSA' is selected), and a note about storing the private key securely. The 'Create key pair' button is highlighted in orange at the bottom right.

Screenshot description: A screenshot of a web browser showing the AWS CloudFormation 'Launch an instance' wizard. The current step is 'Create key pair'. The dialog box contains a note about selecting a key pair, two radio button options ('Create new key pair' and 'Proceed without key pair'), a 'Key pair name' input field with the value 'saran\_adhikari\_keyvaluepair', a 'Key pair type' section with 'RSA' selected, and a note about storing the private key securely. At the bottom, there are 'Cancel' and 'Create key pair' buttons, with 'Create key pair' being the active one.

The screenshot shows the 'Create application' wizard in the AWS Lambda console. It is on Step 1: Specify application details. The 'Region' is set to 'ap-south-1' and the 'Name' is 'Sajan\_Adhikari'. The 'Description' is 'To create a virtual machine for the assignment purpose'. Step 2: Add existing resources is shown below, indicating 'No resources selected'. At the bottom, there are 'Cancel', 'Previous', and 'Create application' buttons.

## Step:3 Network Interface

The screenshot shows the 'Launch an instance' wizard in the AWS Lambda console. It is on Step 1: Network settings. The 'Network' section shows 'vpc-0c12d70cea4bd0727'. The 'Subnet' section shows 'No preference (Default subnet in any availability zone)'. The 'Auto-assign public IP' section is 'Enable'. The 'Firewall (security groups)' section shows a button to 'Create security group'. A note says: 'We'll create a new security group called 'launch-wizard-1' with the following rules:'. Underneath are three checkboxes: 'Allow SSH traffic from Anywhere', 'Allow HTTPS traffic from the internet', and 'Allow HTTP traffic from the internet'. A warning message states: 'Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.' The 'Summary' section shows 'Number of instances: 1', 'Software Image (AMI): Amazon Linux 2023 AMI 2023.3.2...read more', 'Virtual server type (instance type): t2.micro', 'Firewall (security group): New security group', and 'Storage (volumes): 1 volume(s) - 8 GiB'. A callout box for the free tier says: 'Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.' At the bottom are 'Cancel', 'Launch instance', and 'Review commands' buttons.

## Step:4 Configuring manage option for the VM

The screenshot shows the AWS EC2 instance creation wizard at the 'Summary' step. The left sidebar lists 'Application and OS Images (Amazon Machine Image)', 'Quick Start' (with various OS icons), and 'Instance type'. The main area displays the following details:

- Number of instances:** 1
- Software Image (AMI):** Amazon Linux 2023 AMI 2023.3.2... (ami-0a0f1259dd1c90938)
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** New security group
- Storage (volumes):** 1 volume(s) - 8 GiB

A callout box highlights the 'Free tier' information: "In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet."

At the bottom right are 'Cancel', 'Launch instance', and 'Review commands' buttons.

## Step:5 Configuring monitoring option for the Virtual Machine

The screenshot shows the AWS EC2 instance creation wizard at the 'Network settings' step. The left sidebar lists 'Network' and 'Configure storage'. The main area displays the following details:

- Network:** vpc-0c12d70cea4bd0727
- Subnet:** No preference (Default subnet in any availability zone)
- Auto-assign public IP:** Info
- Enable:**
- Firewall (security groups):** Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Options include:

  - Create security group** (selected)
  - Select existing security group**

We'll create a new security group called 'launch-wizard-1' with the following rules:

  - Allow SSH traffic from** Helps you connect to your instance **Anywhere** **0.0.0.0/0**
  - Allow HTTPS traffic from the internet** To set up an endpoint, for example when creating a web server
  - Allow HTTP traffic from the internet** To set up an endpoint, for example when creating a web server

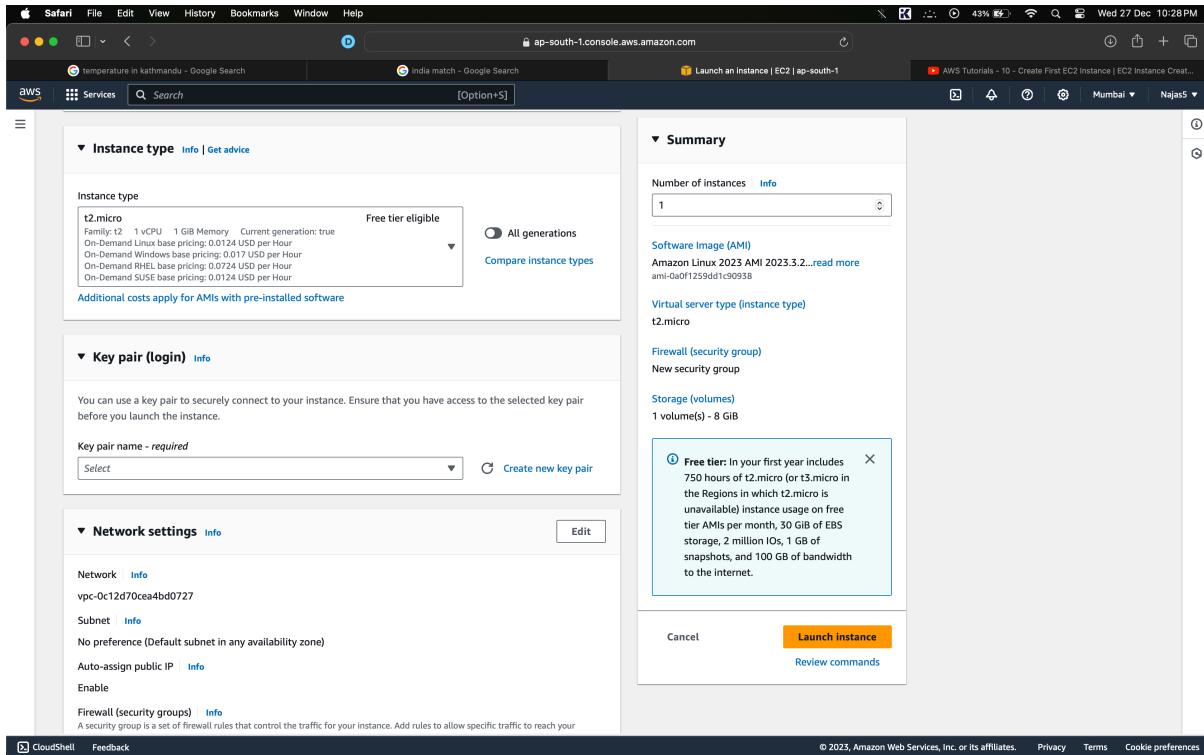
A warning message states: "Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only."

**Configure storage:** Advanced

Root volume (Not encrypted): 1x 8 GiB gp3

At the bottom right are 'Cancel', 'Launch instance', and 'Review commands' buttons.

## Step:7 creating tags. Tags are the name value pair.



## Microsoft Azure Dashboard

# Running sample Program on Linux Instance

Commands executed are:

1. mkdir
2. cd
3. pwd
4. ls
5. echo
6. rmdir

```
[ec2-user@ip-172-31-39-116 ~]$ whoami
ec2-user
[ec2-user@ip-172-31-39-116 ~]$ ls
SajanAdhikari
[ec2-user@ip-172-31-39-116 ~]$ pwd
/home/ec2-user
[ec2-user@ip-172-31-39-116 ~]$ echo
[ec2-user@ip-172-31-39-116 ~]$ mkdir lat20is081
[ec2-user@ip-172-31-39-116 ~]$ cd file
-bash: cd: file: No such file or directory
[ec2-user@ip-172-31-39-116 ~]$ rmdir lat20is081
[ec2-user@ip-172-31-39-116 ~]$ ls
SajanAdhikari
[ec2-user@ip-172-31-39-116 ~]$
```

i-0df23caeda6dac1fd (Sajan Adhikari)  
PublicIPs: 13.127.242.26 PrivateIPs: 172.31.39.116

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1. Ls: The ls command lists the files in the current directory. It is one of the most basic and simple command.
2. Mkdir: create one or more directories specified by the Directory parameter.
3. Pwd: prints the full name (the full path) of current/working directory.
4. Echo: The echo command in Linux is a built-in command that allows users to display lines of text or strings that are passed as arguments.
5. Rmdir: removes the directory, specified by the Directory parameter, from the system.
6. Cd: can be used to change into a subdirectory, move back into the parent directory, move all the way back to the root directory or move to any given directory.

Assignment link:

<https://github.com/nayaTrick/bda.git>