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Branch - CBA Batch - 71

CCE Practical 6

Scenario : Zara and her Team Members are associated with a start-up company as a solution architects which provides consultancy solutions on AWS Cloud Platform. They got their project and details as follows :

They have users who are going to work on their project. Task is to create an isolated network for their project using VPC. In three tier architecture there is one web server and one database server given to their team. As per the requirement of Project, they need 2 networks in a single VPC as per below where they want to have 4 different subnets. [2 Public + 2 Private Subnets].

Web Server – 10.0.0.0/24: Public

Database – 10. 0.1.0/24: Private

Additional Subnets must be created for VPC that spans multiple Availability Zones as per below :

Web Server Backup – 10.0.2.0/24: Public

Database Backup – 10. 0.3.0/24: Private

Tasks to be done :

1. Create a VPC & Subnets as per attachments.

2. Create and configure security group for a) Web Server & b) DB Server.

3. Manage inbound traffic for security

Screenshots :

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The screenshot shows the AWS VPC creation interface. On the left, under 'VPC settings', the 'Resources to create' section is set to 'VPC and more'. Other options like 'VPC only' and 'CloudWatch Metrics' are shown with red boxes around them. Below this, 'Name tag auto-generation' is checked, and the name 'project' is entered. Under 'IPv4 CIDR block', the range '10.0.0.0/24' is selected. In the 'Tenancy' section, 'Default' is chosen. The 'Number of Availability Zones (AZs)' section shows a dropdown with '1', '2', and '3' options, with '3' highlighted by a red box. At the bottom, there are buttons for 'CloudShell' and 'Feedback'.

VPC settings

Resources to create [Info](#)
Create only the VPC resource or the VPC and other networking resources.
 VPC only VPC and more

Name tag auto-generation [Info](#)
Enter a value for the Name tag. This value will be used to auto-generate Name tags for all resources in the VPC.
 Auto-generate
project

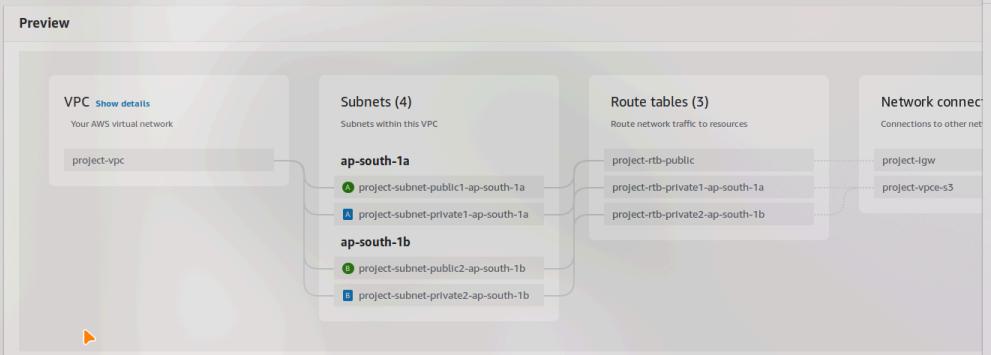
IPv4 CIDR block [Info](#)
Determine the starting IP and the size of your VPC using CIDR notation.
10.0.0.0/24 256 IPs
CIDR block size must be between /16 and /28.

IPv6 CIDR block [Info](#)
 No IPv6 CIDR block
 Amazon-provided IPv6 CIDR block

Tenancy [Info](#)
Default

Number of Availability Zones (AZs) [Info](#)
Choose the number of AZs in which to provision subnets. We recommend at least two AZs for high availability.
1 2 3

CloudShell Feedback



This screenshot shows the continuation of the VPC creation interface. It includes sections for 'Number of Availability Zones (AZs)', 'Number of public subnets', 'Number of private subnets', 'NAT gateways (\$)', 'VPC endpoints', 'DNS options', and 'DNS options' again. The 'Number of public subnets' section has '2' selected, and the 'Number of private subnets' section has '2' selected. The 'NAT gateways (\$)' section has 'None' selected. The 'VPC endpoints' section has 'None' selected. The 'DNS options' section has 'Enable DNS hostnames' checked. At the bottom, there are buttons for 'CloudShell' and 'Feedback'.

Number of Availability Zones (AZs) [Info](#)
Choose the number of Availability Zones (AZs) in which to provision subnets. We recommend at least two AZs for high availability.
1 2 3

Number of public subnets [Info](#)
The number of public subnets to add to your VPC. Use public subnets for web applications that need to be publicly accessible over the internet.
0 1 2

Number of private subnets [Info](#)
The number of private subnets to add to your VPC. Use private subnets to secure backend resources that don't need public access.
0 1 2 3

NAT gateways (\$) [Info](#)
Choose the number of Availability Zones (AZs) in which to create NAT gateways. Note that there is a charge for each NAT gateway.
None In 1 AZ 1 per AZ

VPC endpoints [Info](#)
Endpoints can help reduce NAT gateway charges and improve security by accessing S3 directly from the VPC. By default, full access policy is used. You can customize this policy at any time.
None S3 Gateway

DNS options [Info](#)
 Enable DNS hostnames

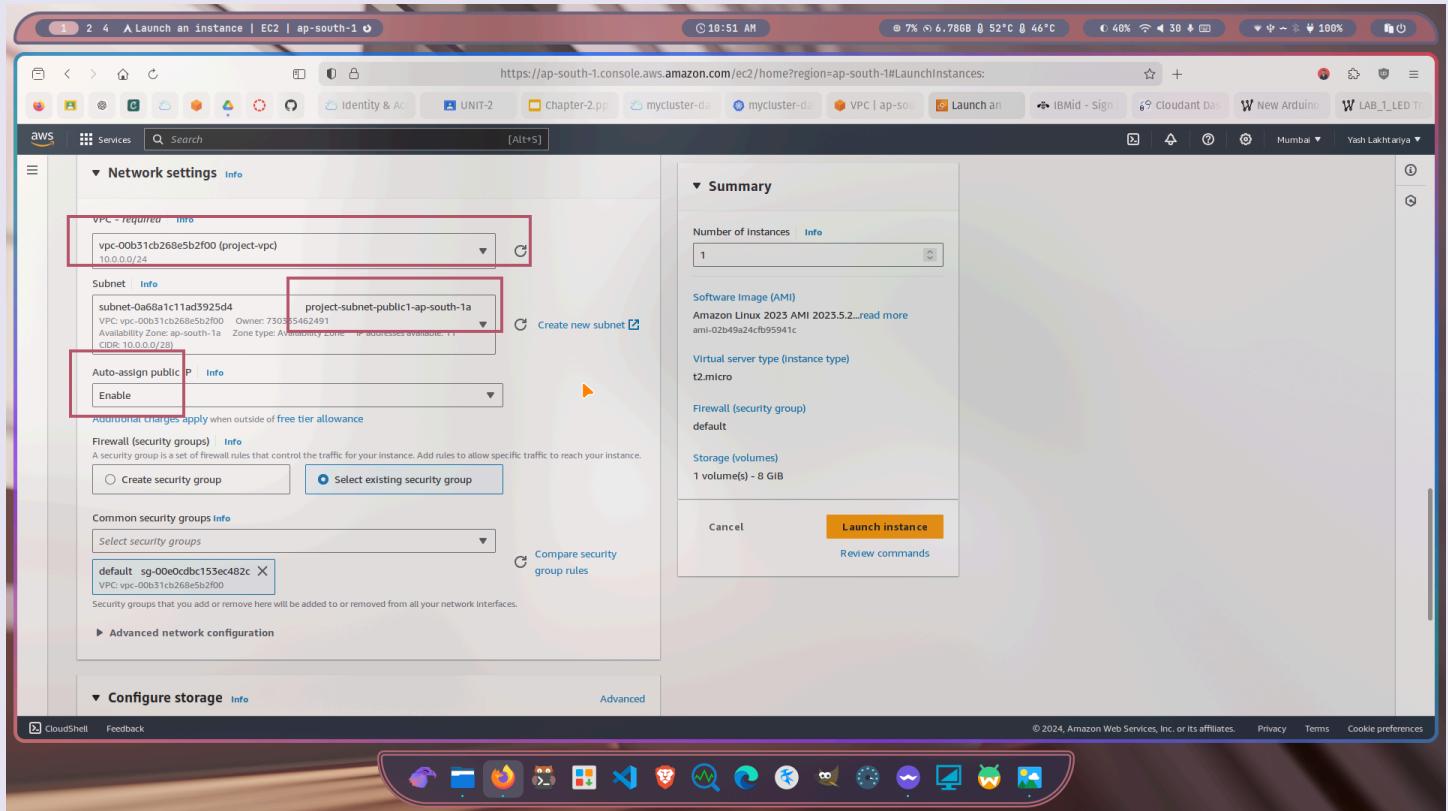
CloudShell Feedback

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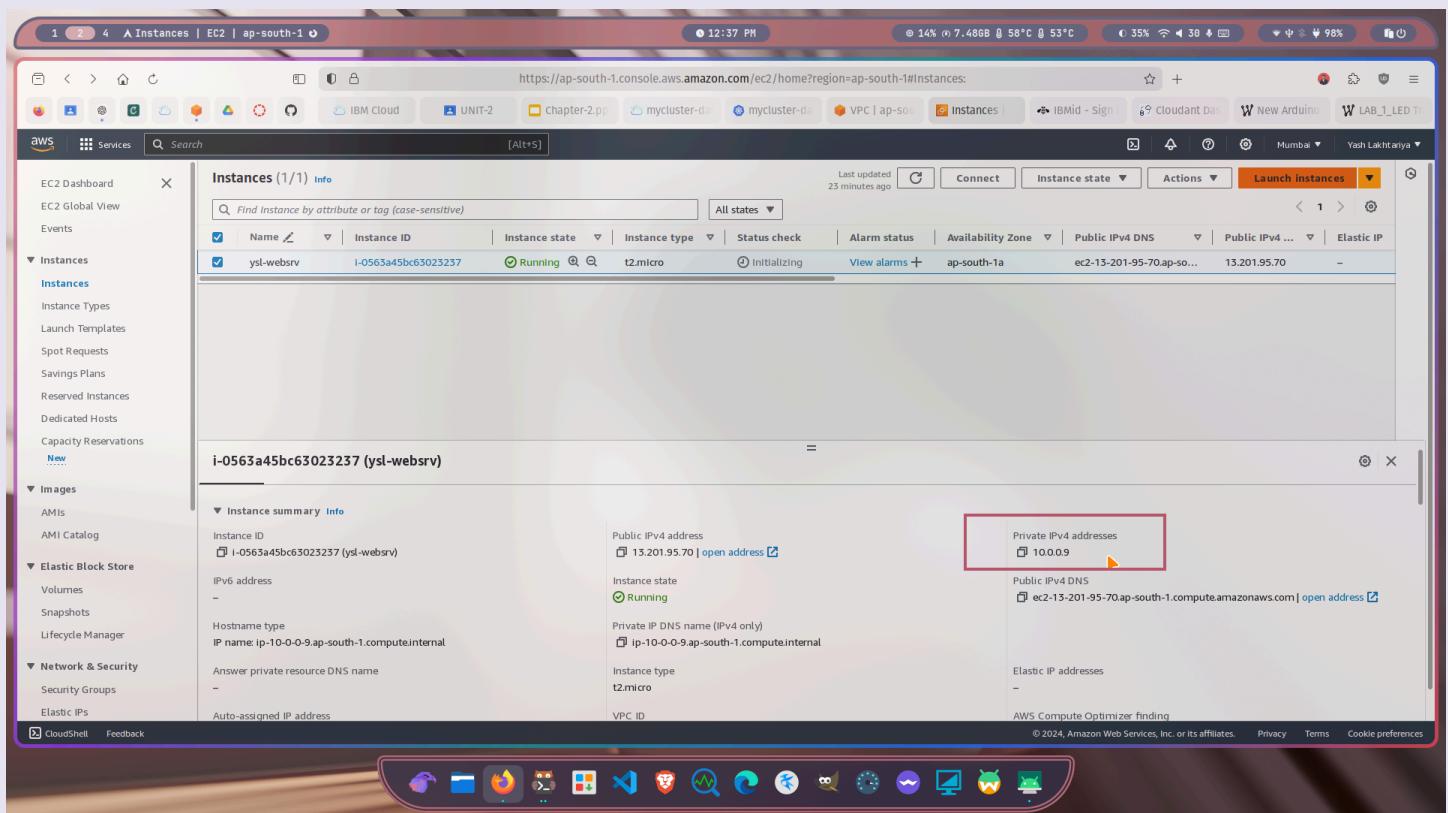
The screenshot shows a browser window for the AWS VPC console at <https://ap-south-1.console.aws.amazon.com/vpcconsole/home?region=ap-south-1#CreateVpcWizard>. The title bar indicates it's 10:44 AM. The main content area is titled "Create VPC workflow" and shows a "Success" message with a green checkmark. A detailed list of 24 successful steps is provided, including creating the VPC, enabling DNS hostnames and resolution, verifying the VPC creation, creating multiple subnets, and associating route tables. At the bottom right of the main panel, there are links for "CloudShell", "Feedback", and "Cookie preferences". The footer of the browser window includes links for "Privacy", "Terms", and "Cookie preferences".

The screenshot shows a browser window for the AWS EC2 console at <https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances>. The title bar indicates it's 10:48 AM. The main content area is titled "Launch an instance" under the "EC2 > Instances" section. It shows a "Summary" panel where the user has selected "1" instance. The "Name and tags" section has "ysh-websrv" entered in the "Name" field. The "Application and OS Images (Amazon Machine Image)" section shows "Amazon Linux 2023 AMI 2023.5.2..." as the selected AMI. Other options like "macOS", "Ubuntu", "Windows", "Red Hat", and "SUSE" are listed. The "Launch instance" button is prominently displayed in the bottom right of the summary panel. The footer of the browser window includes links for "CloudShell", "Feedback", and "Cookie preferences".

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The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. The 'Network settings' step is selected. A red box highlights the VPC dropdown, which is set to 'vpc-00b31cb268e5b2f00 (project-vpc)'. Another red box highlights the 'Subnet' dropdown, which is set to 'subnet-0060a1c11ad3925d4 project-subnet-public1-ap-south-1a'. Below these, the 'Auto-assign public IP' checkbox is checked and labeled 'Enable'. To the right, the 'Summary' section shows 'Number of Instances' set to 1, 'Software Image (AMI)' as Amazon Linux 2023 AMI 2025.5.2..., 'Virtual server type (instance type)' as t2.micro, and 'Firewall (security group)' as default. A large orange 'Launch instance' button is prominent.



The screenshot shows the 'Instances' page in the AWS Management Console. The left sidebar shows navigation options like EC2 Dashboard, Instances, Images, and Elastic Block Store. The main area displays a table of instances. A red box highlights the 'Name' column for the first instance, 'ysl-websrv'. The instance details show it's 'Running' with 'Public IPv4 address' 13.201.95.70 and 'Private IP address' 10.0.0.9. A red box also highlights the 'Private IP address' field. Other columns include Instance ID (i-0563a45bc63023237), Instance state (Running), Status check (Initializing), Alarm status, Availability Zone (ap-south-1a), Public IPv4 DNS (ec2-13-201-95-70.ap-south-1.compute.amazonaws.com), and Public IPv4 (13.201.95.70). An orange 'Launch instances' button is visible at the top right of the table.

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The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. The 'Name and tags' section has a single tag named 'ysl-db'. The 'Software image (AMI)' is set to 'Amazon Linux 2023 AMI 2023.5.2...'. The 'Virtual server type (instance type)' is 't2.micro'. Under 'Storage (volumes)', there is 1 volume(s) - 8 GiB. The 'Launch instance' button is highlighted in orange.

This screenshot shows the 'Network settings' section of the 'Launch an instance' wizard. It includes a dropdown for the VPC ('vpc-00b31cb268e5b2f00 (project-vpc)') and a dropdown for the subnet ('subnet-072fb1a32bf7b0745'). The 'Auto-assign public IP' option is set to 'Enable'. In the 'Summary' panel, the 'Launch instance' button is again highlighted in orange.

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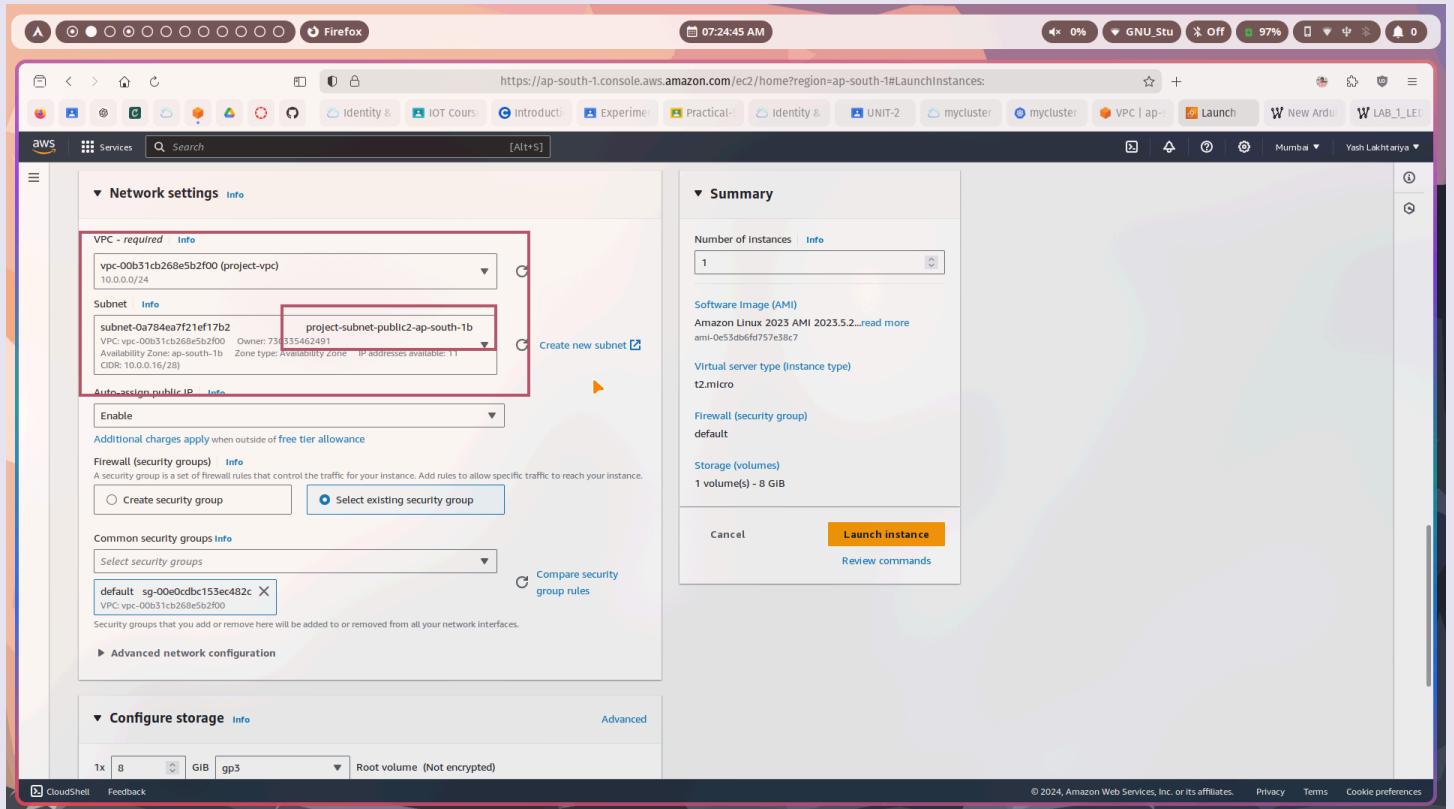
The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links like EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, and Images. The main content area displays two instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP
ysl-db	i-09f7ee7381b393fdb	Running	t2.micro	Initializing	View alarms	ap-south-1a	ec2-3-111-196-15.ap-so...	3.111.196.15	-
ysl-websrv	i-0563a45bc6302327	Stopped	t2.micro	-	View alarms	ap-south-1a	-	-	-

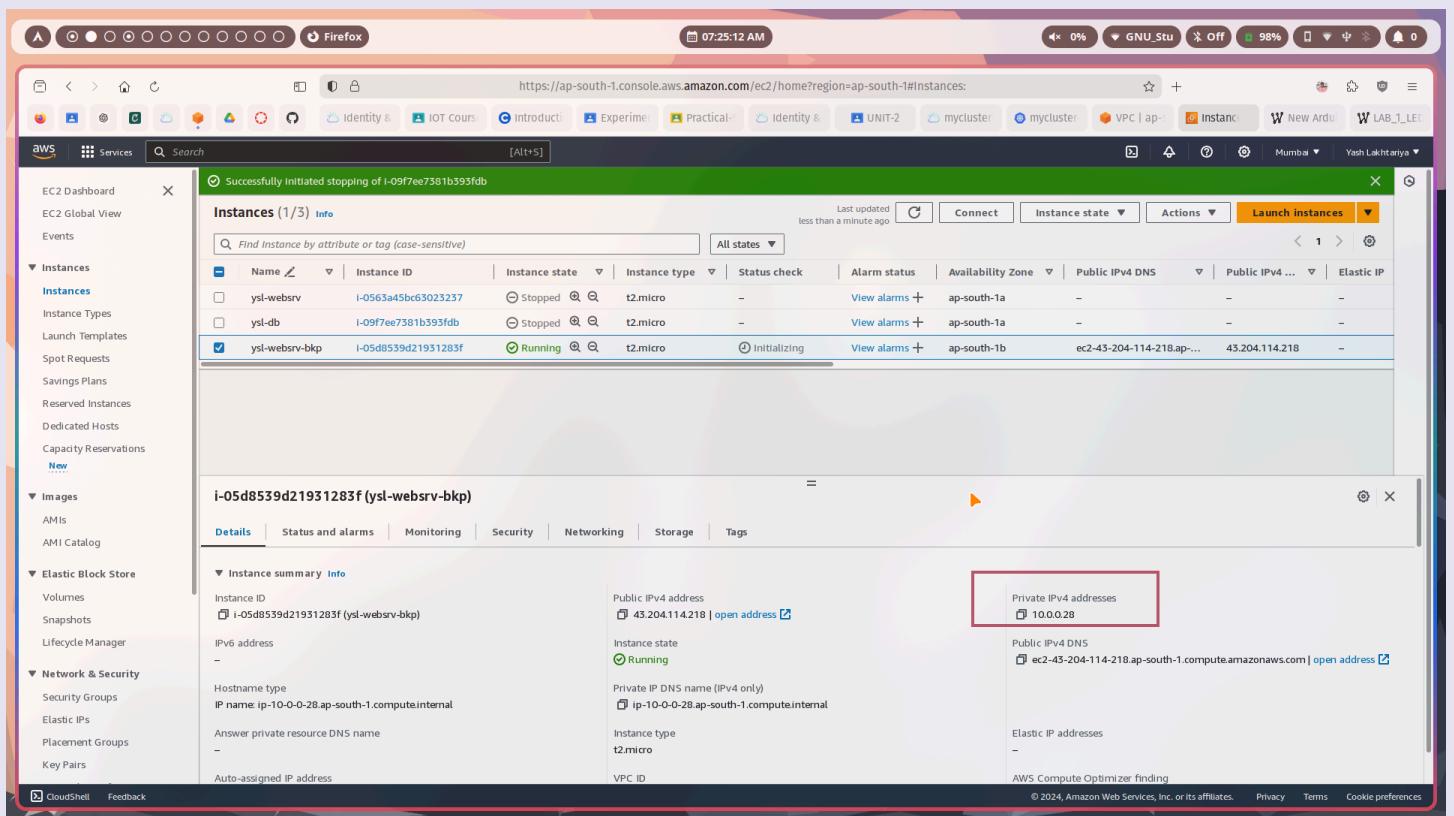
A modal window is open for the instance i-09f7ee7381b393fdb (ysl-db), showing details like Public IPv4 address (3.111.196.15), Instance state (Running), and Instance type (t2.micro). It also lists Private IPv4 addresses (10.0.0.136) and Public IPv4 DNS (ip-10-0-0-136.ap-south-1.compute.internal).

The screenshot shows the "Launch an instance" wizard. The first step, "Name and tags", has a red box around the "Name" field where "ysl-websrv-bkp" is entered. The second step, "Application and OS Images (Amazon Machine Image)", shows a search bar and a grid of AMI icons for Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE. The third step, "Summary", shows the configuration: 1 instance, Amazon Linux 2023 AMI, t2.micro instance type, and a new security group. A large orange "Launch instance" button is at the bottom.

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The screenshot shows the 'Network settings' step of the EC2 Launch Instances wizard. It includes fields for VPC (selected: project-vpc), Subnet (selected: project-subnet-public2-ap-south-1b), and Auto-assign public IP (set to 'Enable'). Under Firewall (security groups), 'Select existing security group' is chosen, and the 'default' security group is selected. In the 'Configure storage' section, a single 8 GiB gp3 root volume is specified. On the right, the 'Summary' pane shows 1 instance being launched with the Amazon Linux 2023.5.2 AMI.



The screenshot shows the EC2 Instances page with three instances listed: 'ysl-websrv' (Stopped, t2.micro), 'ysl-db' (Stopped, t2.micro), and 'ysl-websrv-bkp' (Running, t2.micro). The 'ysl-websrv-bkp' instance is selected. Below it, a detailed view for 'i-05d8539d21931283f (ysl-websrv-bkp)' is shown. The 'Details' tab is active, displaying information such as Public IPv4 address (43.204.114.218), Private IPv4 address (10.0.0.28), and Public IPv4 DNS (ec2-43-204-114-218.ap-south-1.compute.amazonaws.com).

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The screenshot shows the AWS EC2 console at the 'Launch an instance' step. In the 'Name and tags' section, the 'Name' field is highlighted with a red box and contains the value 'ysl-db-bkp'. The 'Software Image (AMI)' section shows 'Amazon Linux 2023 AMI 2023.5.2...'. The 'Virtual server type (Instance type)' is set to 't2.micro'. The 'Storage (volumes)' section indicates 1 volume(s) - 8 GiB. At the bottom right, there are 'Launch instance' and 'Review commands' buttons.

The screenshot shows the AWS EC2 console at the 'Launch an instance' step. In the 'VPC - required' section, the 'Subnet' dropdown is highlighted with a red box and shows 'subnet-07e7a5bf2d57b7961'. The 'Auto-assign public IP' section has 'Enable' selected. The 'Summary' section on the right shows 1 instance, 'Amazon Linux 2023 AMI 2023.5.2...', 't2.micro' instance type, and 8 GiB storage. The 'Launch instance' button is visible.

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The screenshot shows the AWS EC2 Instances page. At the top, a notification bar indicates "Successfully initiated stopping of i-05d8539d21931283f". Below this, the "Instances (1/4) Info" section displays a table of four instances. One instance, "ysl-db-bkp", is highlighted and shown in a detailed modal window.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
ysl-websrv	i-0563a45bc63023237	Stopped	t2.micro	-	View alarms	ap-south-1a	-	-	-
ysl-db	i-09f7ee7381b393fdb	Stopped	t2.micro	-	View alarms	ap-south-1a	-	-	-
ysl-websrv-bkp	i-05d8539d21931283f	Stopping	t2.micro	-	View alarms	ap-south-1b	ec2-43-204-114-218.ap...	43.204.114.218	-
ysl-db-bkp	i-072712d919ce72fbe	Running	t2.micro	Initializing	View alarms	ap-south-1b	ec2-13-232-213-236.ap...	13.232.213.236	-

The detailed view for "i-072712d919ce72fbe (ysl-db-bkp)" shows the following information:

- Details** tab selected.
- Instance summary**:
 - Instance ID: i-072712d919ce72fbe (ysl-db-bkp)
 - Instance state: Running
 - Private IP4 address: 10.0.0.158
 - Public IP4 DNS: ec2-13-232-213-236.ap-south-1.compute.amazonaws.com
 - Private IP4 addresses: 13.232.213.236
 - Public IP4 DNS: 43.204.114.218
- Status and alarms**, **Monitoring**, **Security**, **Networking**, **Storage**, and **Tags** tabs are also present.