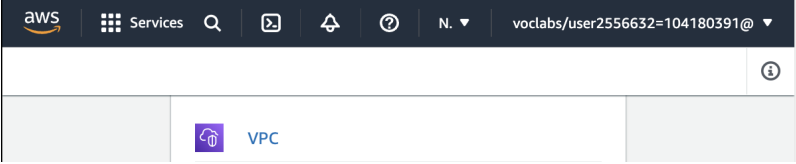
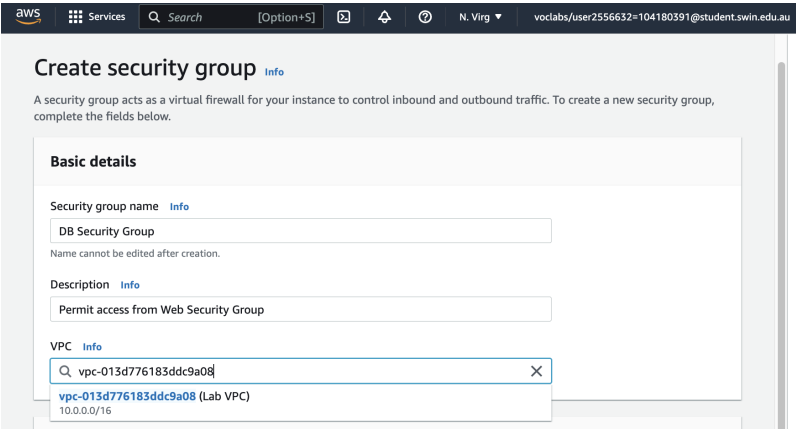
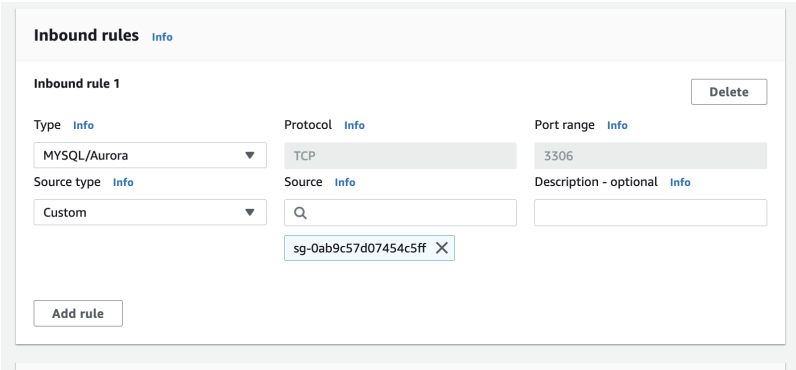
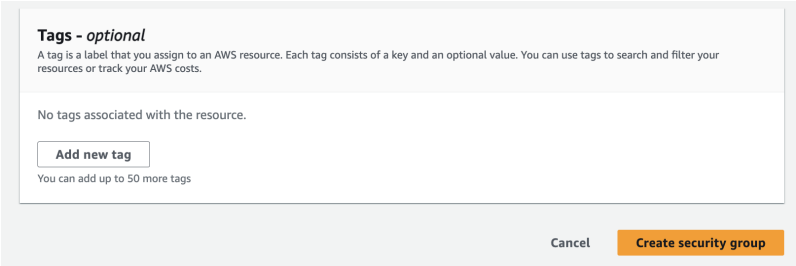


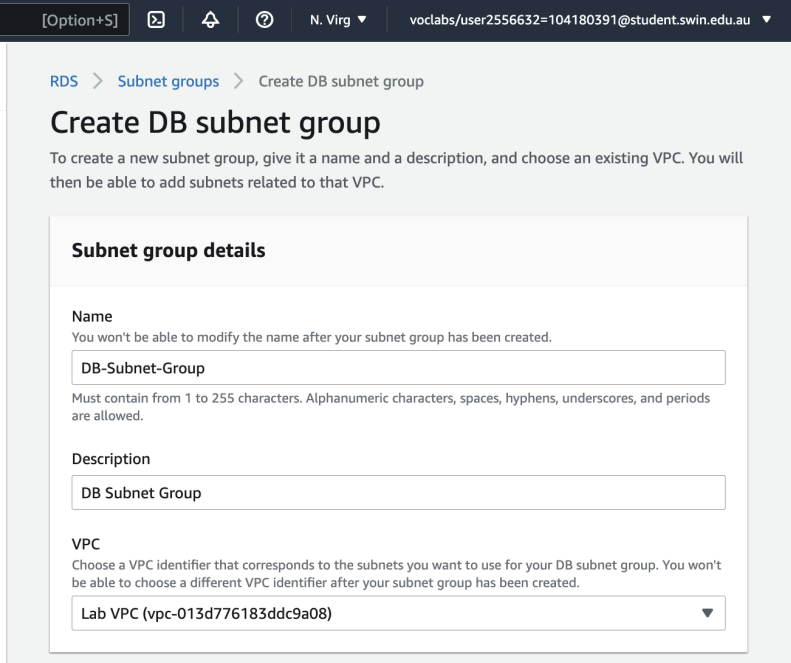
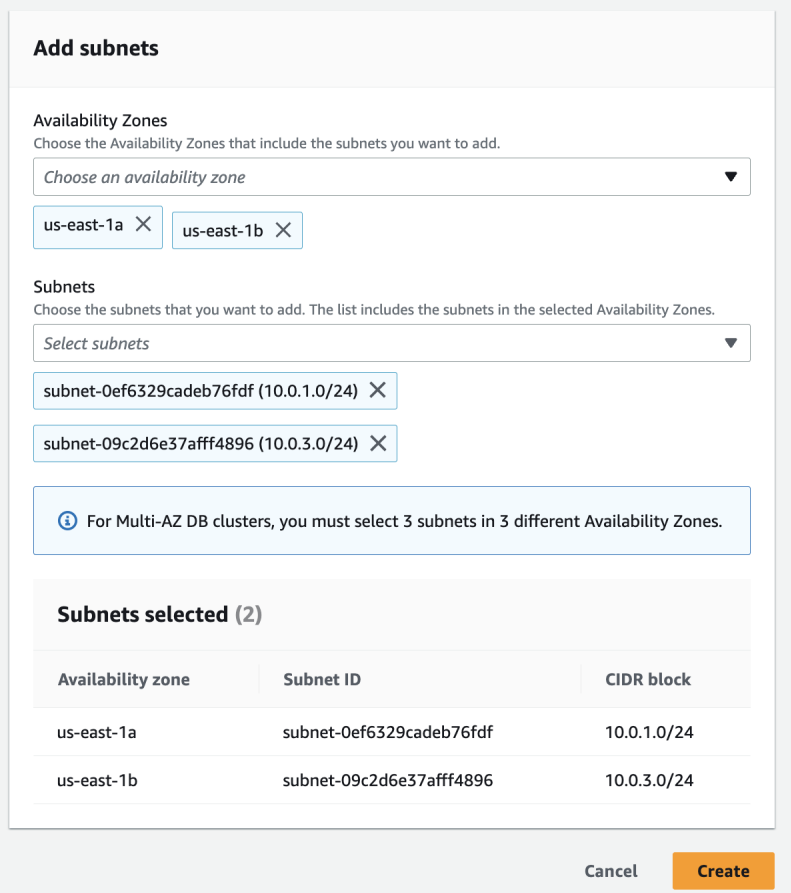


## **ACF Lab 5: Build Your DB Server and Interact With Your DB Using an App**

June 11, 2023

Luu Tuan Hoang  
Student ID: 104180391

Step	Description	Screenshot
1	In the AWS Management Console, on the <b>Services</b> menu, choose <b>VPC</b> .	
2	In the left navigation pane, choose <b>Security Groups</b> . Choose <b>Create security group</b> and then configure: <ul style="list-style-type: none"> <li>- <b>Security group name:</b> DB Security Group</li> <li>- <b>Description:</b> Permit access from Web Security Group</li> <li>- <b>VPC:</b> Lab VPC</li> </ul>	
3	In the <b>Inbound rules</b> pane, choose <b>Add rules</b> . Configure the following settings: <ul style="list-style-type: none"> <li>- <b>Type:</b> MySQL/Aurora (3306)</li> <li>- <b>Source:</b> Select <b>Web Security Group</b>.</li> </ul>	
4	Choose <b>Create security group</b> .	

5	<p>On the <b>Services</b> menu, choose <b>RDS</b>. In the left navigation pane, choose <b>Subnet groups</b>. Choose <b>Create DB Subnet Group</b> then configure:</p> <ul style="list-style-type: none"> <li>- <b>Name:</b> DB-Subnet-Group</li> <li>- <b>Description:</b> DB Subnet Group</li> <li>- <b>VPC:</b> Lab VPC</li> </ul>	 <p>[Option+S] ⓘ 🔔 ⓘ N. Virg ▼ voclabs/user2556632=104180391@student.swin.edu.au ▼</p> <p>RDS &gt; Subnet groups &gt; Create DB subnet group</p> <h3>Create DB subnet group</h3> <p>To create a new subnet group, give it a name and a description, and choose an existing VPC. You will then be able to add subnets related to that VPC.</p> <div> <h4>Subnet group details</h4> <p><b>Name</b> You won't be able to modify the name after your subnet group has been created. DB-Subnet-Group <small>Must contain from 1 to 255 characters. Alphanumeric characters, spaces, hyphens, underscores, and periods are allowed.</small></p> <p><b>Description</b> DB Subnet Group</p> <p><b>VPC</b> Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group has been created. Lab VPC (vpc-013d776183ddc9a08) ▼</p> </div>									
6	<p>Scroll down to the <b>Add Subnets</b> section. Expand the list of values under <b>Availability Zones</b> and select the first two zones: <b>us-east-1a</b> and <b>us-east-1b</b>. Expand the list of values under <b>Subnets</b> and select the subnets associated with the CIDR ranges <b>10.0.1.0/24</b> and <b>10.0.3.0/24</b>. Choose <b>Create</b>.</p>	 <h3>Add subnets</h3> <p><b>Availability Zones</b> Choose the Availability Zones that include the subnets you want to add. Choose an availability zone ▼ us-east-1a ✕ us-east-1b ✕</p> <p><b>Subnets</b> Choose the subnets that you want to add. The list includes the subnets in the selected Availability Zones. Select subnets ▼ subnet-0ef6329cadeb76fdf (10.0.1.0/24) ✕ subnet-09c2d6e37afff4896 (10.0.3.0/24) ✕</p> <p>ⓘ For Multi-AZ DB clusters, you must select 3 subnets in 3 different Availability Zones.</p> <div> <h4>Subnets selected (2)</h4> <table> <thead> <tr> <th>Availability zone</th><th>Subnet ID</th><th>CIDR block</th></tr> </thead> <tbody> <tr> <td>us-east-1a</td><td>subnet-0ef6329cadeb76fdf</td><td>10.0.1.0/24</td></tr> <tr> <td>us-east-1b</td><td>subnet-09c2d6e37afff4896</td><td>10.0.3.0/24</td></tr> </tbody> </table> </div> <p>Cancel Create</p>	Availability zone	Subnet ID	CIDR block	us-east-1a	subnet-0ef6329cadeb76fdf	10.0.1.0/24	us-east-1b	subnet-09c2d6e37afff4896	10.0.3.0/24
Availability zone	Subnet ID	CIDR block									
us-east-1a	subnet-0ef6329cadeb76fdf	10.0.1.0/24									
us-east-1b	subnet-09c2d6e37afff4896	10.0.3.0/24									

7 In the left navigation pane, choose **Databases**. Choose **Create database**. Select **MySQL** under **Engine Options**.

### Create database


#### Choose a database creation method [Info](#)


☒ **Standard create**  
You set all of the configuration options, including ones for availability, security, backups, and maintenance.


☐ **Easy create**  
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

#### Engine options

##### Engine type [Info](#)

☐ **Aurora (MySQL Compatible)**  


☐ **Aurora (PostgreSQL Compatible)**  


☒ **MySQL**  


8 Under **Templates** choose **Dev/Test**. Under **Availability and durability** choose **Multi-AZ DB instance**.

aws

Services

Search

[Option+S]

N. Virg

voclabs/user2556632+104180391@student.swin.edu.au

### Templates

Choose a sample template to meet your use case.

☐ **Production**  
Use defaults for high availability and fast, consistent performance.

☒ **Dev/Test**  
This instance is intended for development use outside of a production environment.

☐ **Free tier**  
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. [Info](#)

### Availability and durability

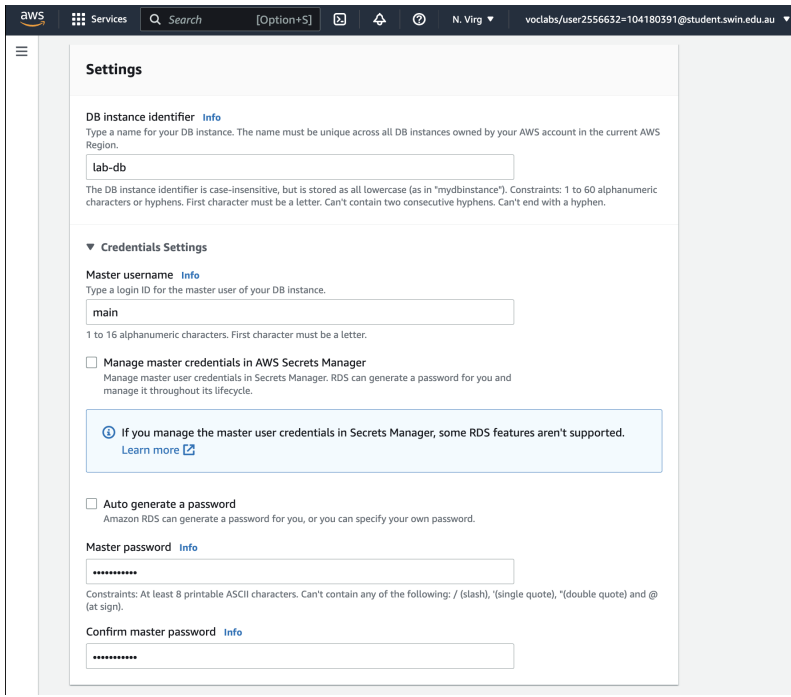
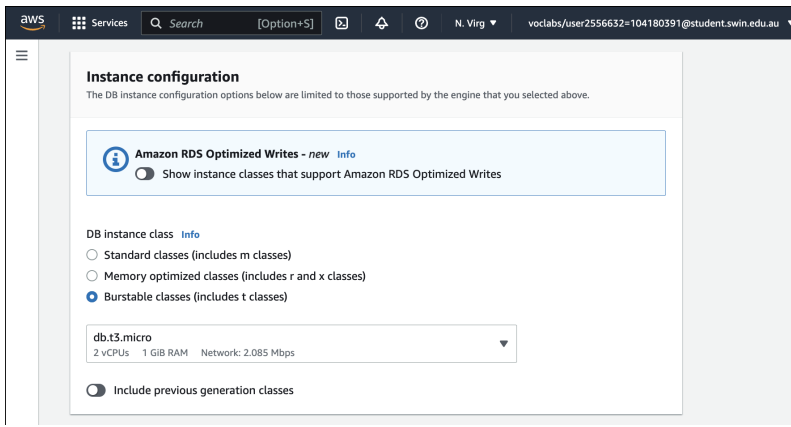
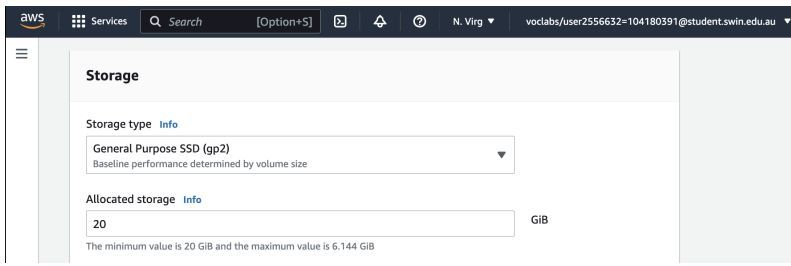
#### Deployment options [Info](#)

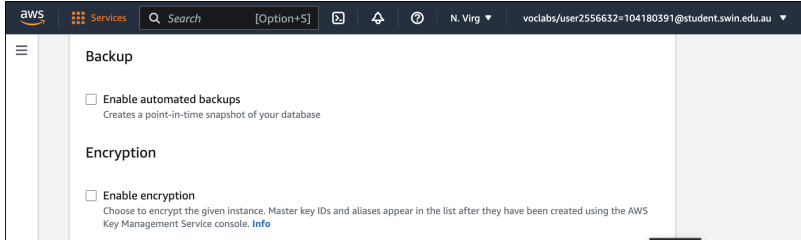
The deployment options below are limited to those supported by the engine you selected above.

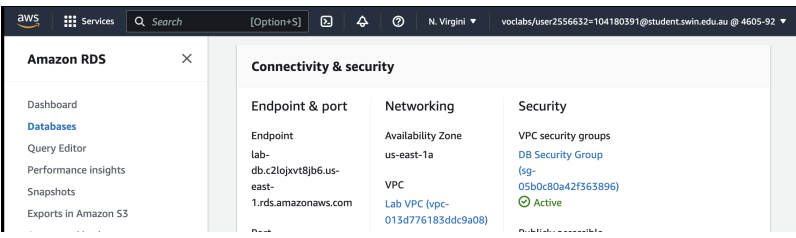
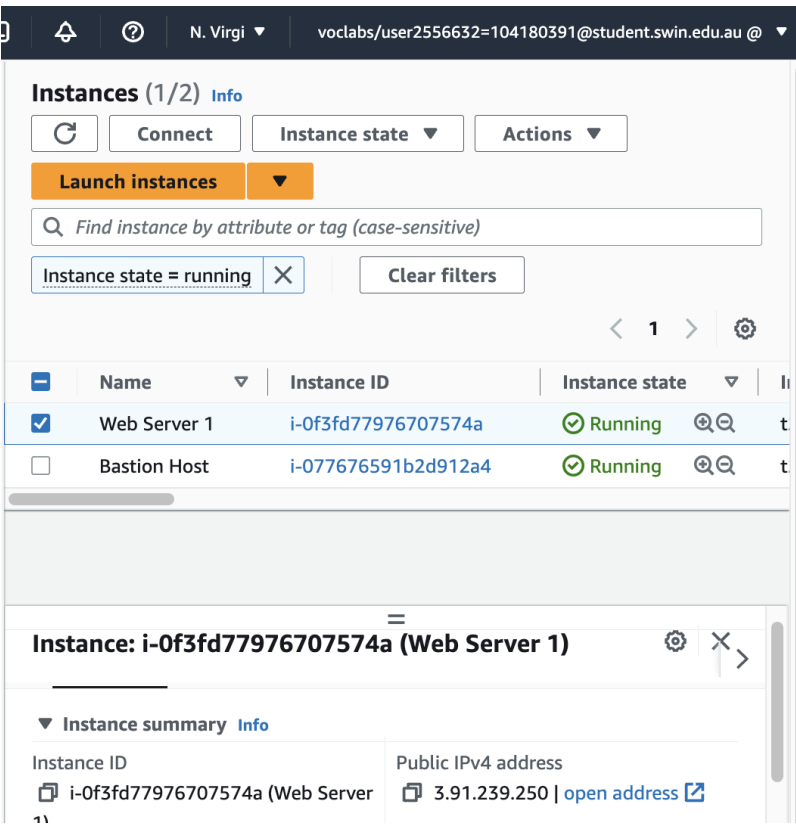
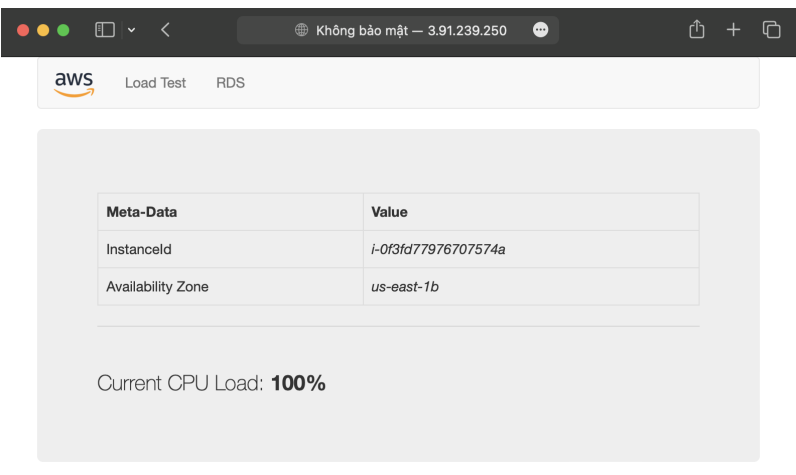
☐ **Multi-AZ DB Cluster - new**  
Creates a DB cluster with a primary DB instance and two readable standby DB instances, with each DB instance in a different Availability Zone (AZ). Provides high availability, data redundancy and increases capacity to serve read workloads.

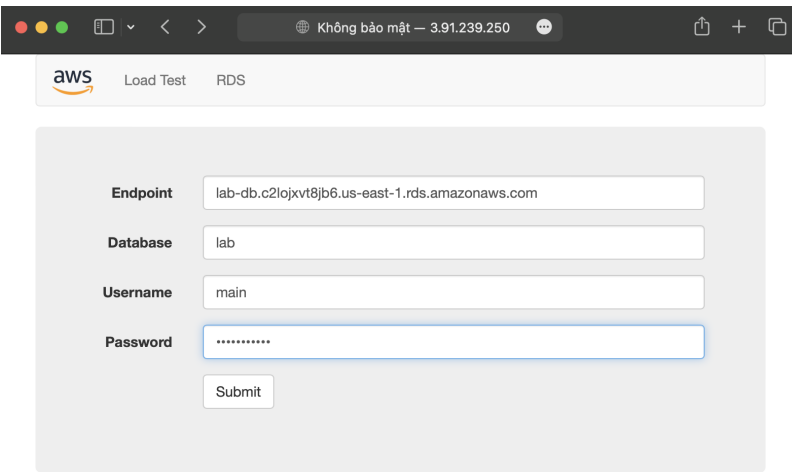
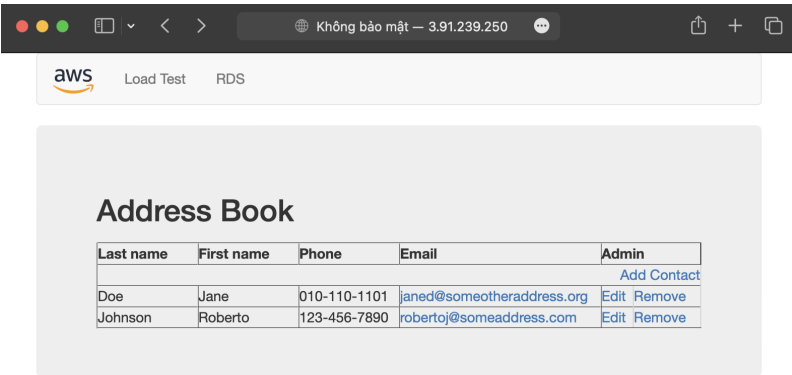
☒ **Multi-AZ DB instance**  
Creates a primary DB instance and a standby DB instance in a different AZ. Provides high availability and data redundancy, but the standby DB instance doesn't support connections for read workloads.

☐ **Single DB instance**  
Creates a single DB instance with no standby DB instances.

9	<p>Under <b>Settings</b>, configure:</p> <ul style="list-style-type: none"> <li>- <b>DB instance identifier:</b> lab-db</li> <li>- <b>Master username:</b> main</li> <li>- <b>Master password:</b> lab-password</li> <li>- <b>Confirm password:</b> lab-password</li> </ul>	
10	<p>Under <b>DB instance class</b>, configure:</p> <ul style="list-style-type: none"> <li>- Select <b>Burstable classes (includes t classes)</b>.</li> <li>- Select <b>db.t3.micro</b></li> </ul>	
11	<p>Under <b>Storage</b>, configure:</p> <ul style="list-style-type: none"> <li>- <b>Storage type:</b> General Purpose (SSD)</li> <li>- <b>Allocated storage:</b> 20</li> </ul>	

12	<p>Under <b>Connectivity</b>, configure:</p> <ul style="list-style-type: none"> <li>- <b>Compute resource</b>: Don't connect to an EC2 compute resource.</li> <li>- <b>Virtual Private Cloud (VPC)</b>: Lab VPC.</li> </ul>	 <p><b>Connectivity</b> <a href="#">Info</a></p> <p><b>Compute resource</b> Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.</p> <p><input checked="" type="radio"/> <b>Don't connect to an EC2 compute resource</b> Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.</p> <p><input type="radio"/> <b>Connect to an EC2 compute resource</b> Set up a connection to an EC2 compute resource for this database.</p> <p><b>Virtual private cloud (VPC)</b> <a href="#">Info</a> Choose the VPC. The VPC defines the virtual networking environment for this DB instance.</p> <p>Lab VPC (vpc-013d776183ddc9a08) 4 Subnets, 2 Availability Zones</p> <p>Only VPCs with a corresponding DB subnet group are listed.</p>
14	<p>Under <b>Existing VPC security groups</b>, from the dropdown list:</p> <ul style="list-style-type: none"> <li>- Choose <b>DB Security Group</b>.</li> <li>- Deselect <b>default</b>.</li> </ul>	 <p><b>VPC security group (firewall)</b> <a href="#">Info</a> Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.</p> <p><input checked="" type="radio"/> <b>Choose existing</b> Choose existing VPC security groups</p> <p><input type="radio"/> <b>Create new</b> Create new VPC security group</p> <p><b>Existing VPC security groups</b> Choose one or more options</p> <p>DB Security Group X</p>
15	<p>Expand <b>Additional configuration</b>, then configure <b>Initial database name</b>: lab</p>	 <p><b>Additional configuration</b> Database options, encryption turned on, backup turned on, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.</p> <p><b>Database options</b></p> <p>Initial database name <a href="#">Info</a> lab</p> <p>If you do not specify a database name, Amazon RDS does not create a database.</p>
16	<p>Uncheck <b>Enable Enhanced monitoring</b>.</p>	 <p><b>Monitoring</b></p> <p><b>Monitoring</b></p> <p><input type="checkbox"/> <b>Enable Enhanced monitoring</b> Enabling Enhanced monitoring metrics are useful when you want to see how different processes or threads use the CPU.</p>
17	<p>Uncheck <b>Enable automatic backups</b>. Uncheck <b>Enable encryption</b>.</p>	 <p><b>Backup</b></p> <p><input type="checkbox"/> <b>Enable automated backups</b> Creates a point-in-time snapshot of your database</p> <p><b>Encryption</b></p> <p><input type="checkbox"/> <b>Enable encryption</b> Choose to encrypt the given instance. Master key IDs and aliases appear in the list after they have been created using the AWS Key Management Service console. <a href="#">Info</a></p>

18	Choose <b>lab-db</b> . Scroll down to the <b>Connectivity &amp; security</b> section and copy the <b>Endpoint</b> field.	 <p>The screenshot shows the Amazon RDS console. On the left, there's a sidebar with 'Amazon RDS' and a list of links: Dashboard, Databases, Query Editor, Performance insights, Snapshots, and Exports in Amazon S3. The main panel is titled 'Connectivity &amp; security' and has three tabs: 'Endpoint &amp; port', 'Networking', and 'Security'. The 'Endpoint &amp; port' tab is active, showing the 'Endpoint' field with the value 'lab-db.c2lojxvt8jb6.us-east-1.rds.amazonaws.com'.</p>
19	Choose on the <b>Details</b> drop down menu above these instructions, and then choose <b>Show</b> and copy the <b>Web Server</b> IP address.	 <p>The screenshot shows the AWS Management Console. At the top, there's a header with 'N. Virgi' and a user profile. Below that, there's a section for 'Instances (1/2)' with buttons for 'Connect', 'Instance state', and 'Actions'. A search bar is present with the text 'Find instance by attribute or tag (case-sensitive)'. Below the search bar, there's a table with columns 'Name', 'Instance ID', and 'Instance state'. Two instances are listed: 'Web Server 1' with ID 'i-0f3fd77976707574a' and state 'Running', and 'Bastion Host' with ID 'i-077676591b2d912a4' and state 'Running'. Below the table, there's a section for 'Instance: i-0f3fd77976707574a (Web Server 1)' with a summary of its details, including the Public IPv4 address '3.91.239.250'.</p>
20	Connect to Web Server IP address. The web application will be displayed, showing information about the EC2 instance. Choose the <b>RDS</b> link at the top of the page to configure the application to connect to the database.	 <p>The screenshot shows the AWS Load Test console. At the top, there's a header with 'aws', 'Load Test', and 'RDS'. Below that, there's a table with columns 'Meta-Data' and 'Value'. The table contains two rows: 'InstanceId' with value 'i-0f3fd77976707574a' and 'Availability Zone' with value 'us-east-1b'. Below the table, there's a section for 'Current CPU Load: 100%'.</p>

21	<p>Configure the following settings:</p> <ul style="list-style-type: none"> <li>- <b>Endpoint:</b> Paste the Endpoint copied earlier.</li> <li>- <b>Database:</b> lab</li> <li>- <b>Username:</b> main</li> <li>- <b>Password:</b> lab-password</li> </ul> <p>Choose <b>Submit</b>.</p>	
22	<p>A message will appear explaining that the application is running a command to copy information to the database. After a few seconds the application will display an <b>Address Book</b>. The <b>Address Book</b> application is using the RDS database to store information.</p>	
23	<p>Test the web application by adding, editing and removing contacts.</p>	