Practical-2 Platform as a service using AWS.

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Q1) Writeup:-

- Platform as a service:

Platform as a Service (PaaS) is a cloud computing model that provides a platform allowing customers to develop, run, and manage applications without dealing with the complexities of building and maintaining the infrastructure typically associated with software development. In a PaaS model, the underlying infrastructure, including servers, storage, and networking, is managed by the service provider, allowing developers to focus solely on their applications and business logic.

PaaS offerings typically include development tools, middleware, database management systems, and other resources needed to support the complete lifecycle of application development and deployment. This enables developers to rapidly develop, test, deploy, and scale applications, reducing time-to-market and operational overhead.

- Elastic Beanstalk

Elastic Beanstalk is a Platform as a Service (PaaS) offering from Amazon Web Services (AWS) that simplifies the process of deploying and managing applications in the cloud. It supports multiple programming languages and frameworks, including Java, .NET, Node.js, Python, Ruby, Go, and Docker, allowing developers to choose the tools and technologies that best suit their needs.

One of the most popular PaaS offerings is Elastic Beanstalk, provided by the cloud giant Amazon Web Services (AWS). It simplifies application deployment and management, allowing you to focus on your code rather than the underlying infrastructure.

- Components of beanstalk

Application: An application in Elastic Beanstalk represents the logical container for the various components of your application. It can contain one or more environments.

Environment: An environment is an instance of your application running in Elastic Beanstalk. Each environment

consists of resources such as Amazon EC2 instances, load balancers, databases, and networking configurations.

Versions and Deployments: Elastic Beanstalk allows you to deploy different versions of your application, making

it easy to roll back to previous versions if needed. It supports both single and multiple deployment strategies, allowing for continuous deployment and integration workflows.

Configuration: Elastic Beanstalk provides configuration options that allow you to customize various aspects of

your environment, including instance types, scaling settings, load balancer configurations, security settings, and environment

variables.

Monitoring and Logging: Elastic Beanstalk integrates with Amazon CloudWatch, allowing you to monitor the

health and performance of your applications in real-time. It also provides access to logs, metrics, and events to help you

troubleshoot issues and optimize performance.

- IAM: (The Gatekeeper of Security)

IAM (Identity and Access Management) is a web service provided by AWS that helps you securely control access

to AWS resources. IAM allows you to manage users, groups, roles, and permissions, enabling you to grant or deny access to specific resources or actions within your AWS account.

IAM enables you to create and manage user identities, assign permissions using policies, and set up multi-factor authentication (MFA) for added security. With IAM, you can follow the principle of least privilege, ensuring that users have only the permissions they need to perform their tasks, thereby reducing the risk of unauthorized access or accidental misuse of resources.

IAM, adds another layer of security to your Elastic Beanstalk applications. It lets you control who can access your resources and what actions they can perform. Think of it as a bouncer at a nightclub, ensuring only authorized users get in and preventing unwanted guests from causing trouble.

With IAM, you can:

- Create users and groups with specific permissions.
- Define roles that grant access to specific resources and actions.
- Use temporary credentials for short-lived tasks.
- Monitor user activity and identify potential security threats.

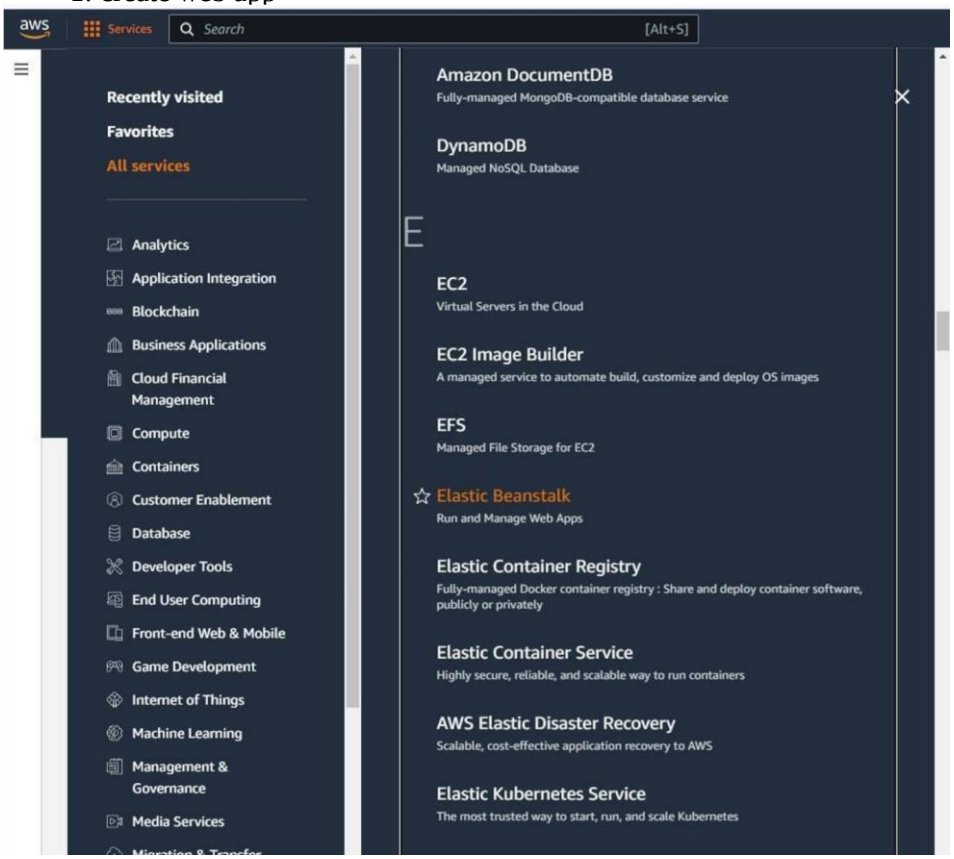
By integrating IAM with Elastic Beanstalk, you can ensure that your applications are secure and only authorized users can access and modify them.

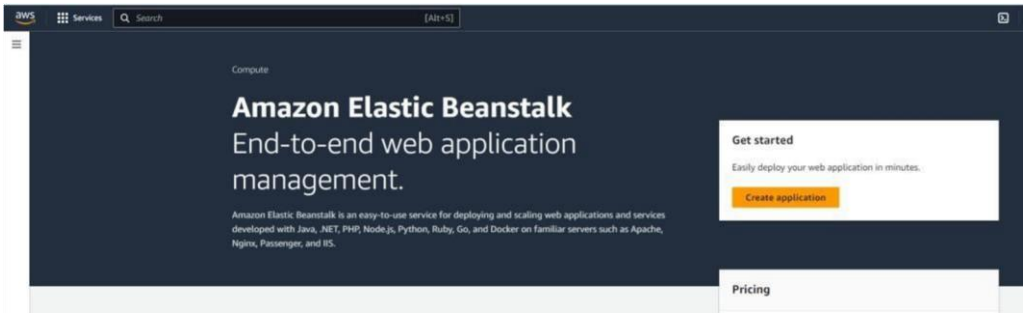
Q.2) Implement paas using elastic beanstalk for the following.

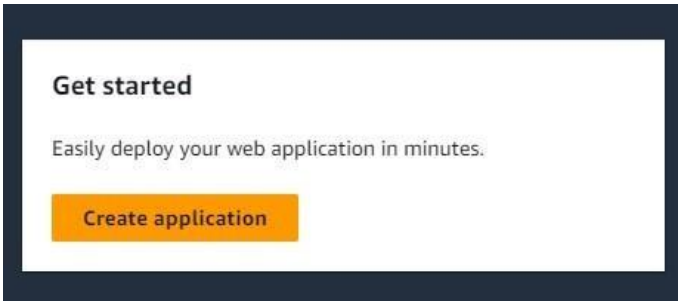
Step

1. Server
2. Java
3. Python
4. Node.js

1: create web app

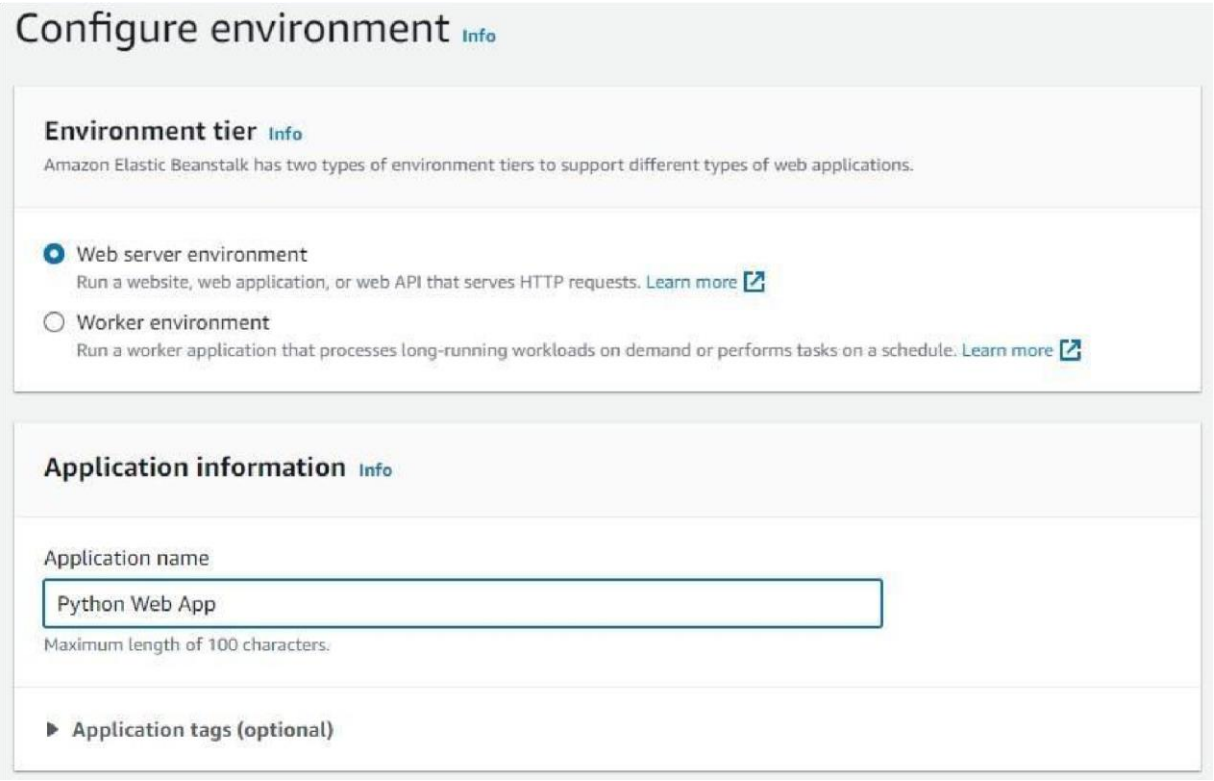




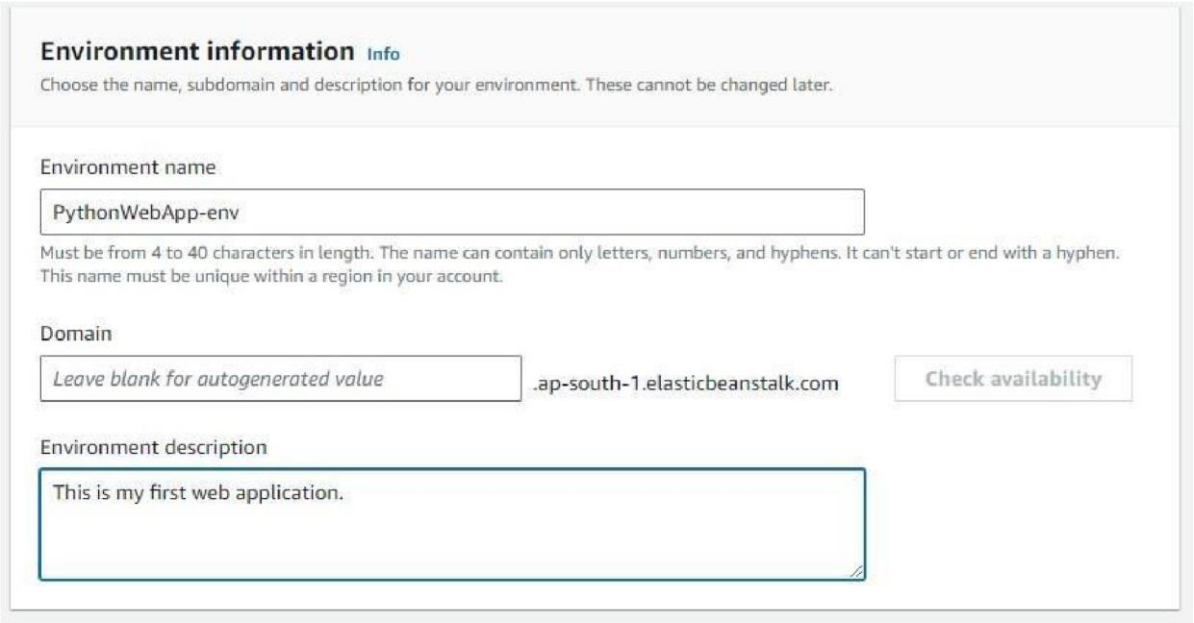


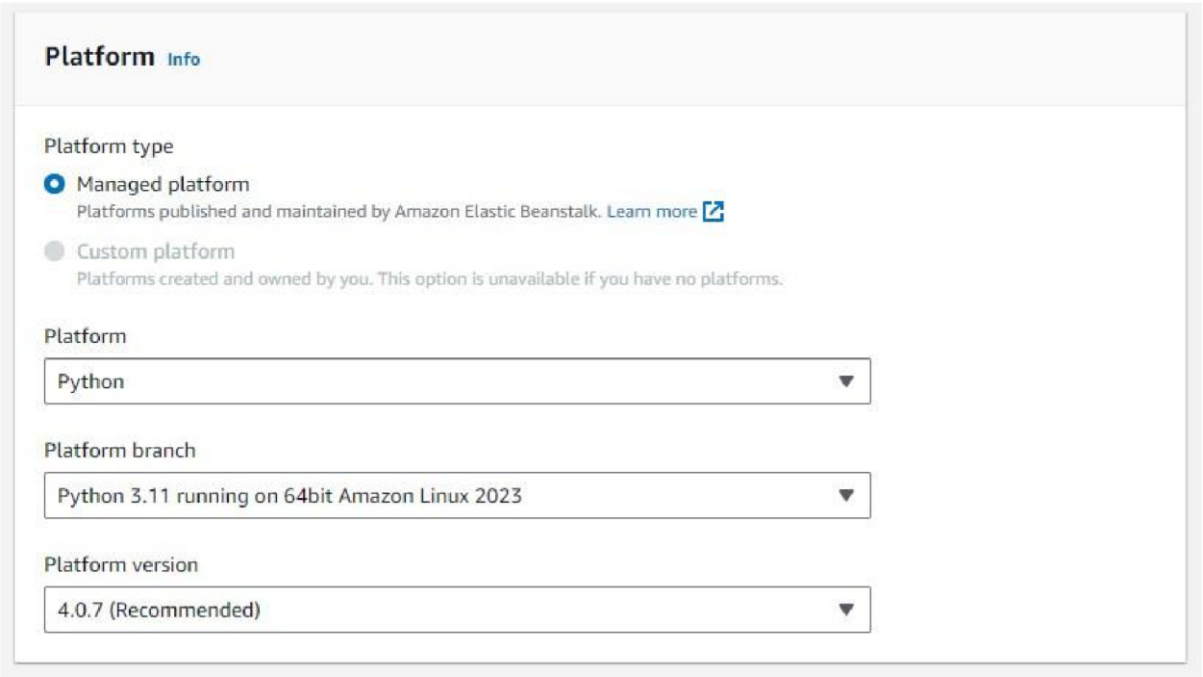
Step

2: Name your application

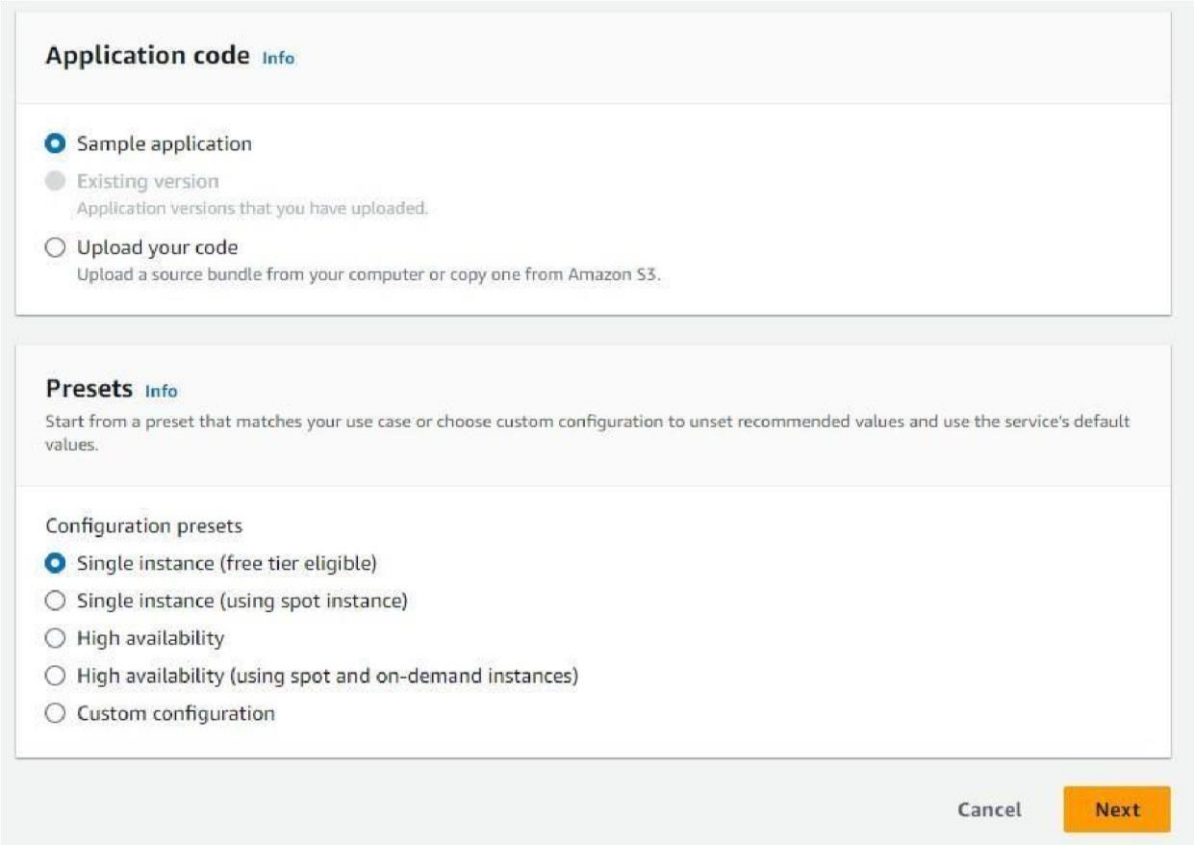


Step 3:Give environment name and add a short description for example 4:Select Platform on which you want your application and the versions



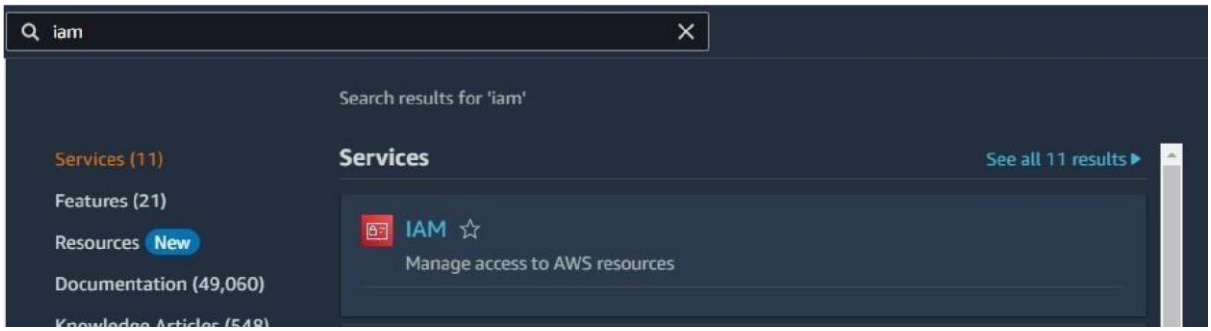

Platform Info
Platform type
Managed platform
Platforms published and maintained by Amazon Elastic Beanstalk. Learn more
Custom platform
Platforms created and owned by you. This option is unavailable if you have no platforms.
Platform
Python
Platform branch
Python 3.11 running on 64bit Amazon Linux 2023
Platform version
4.0.7 (Recommended)

Step 5:


Application code Info
Sample application
Existing version
Application versions that you have uploaded.
Upload your code
Upload a source bundle from your computer or copy one from Amazon S3.
Presets Info
Start from a preset that matches your use case or choose custom configuration to unset recommended values and use the service's default values.
Configuration presets
Single instance (free tier eligible)
Single instance (using spot instance)
High availability
High availability (using spot and on-demand instances)
Custom configuration
Cancel
Next

Step

Step 6:Create a role. (open new tab and then perform , keep previous tab as it is we want to work on it later)



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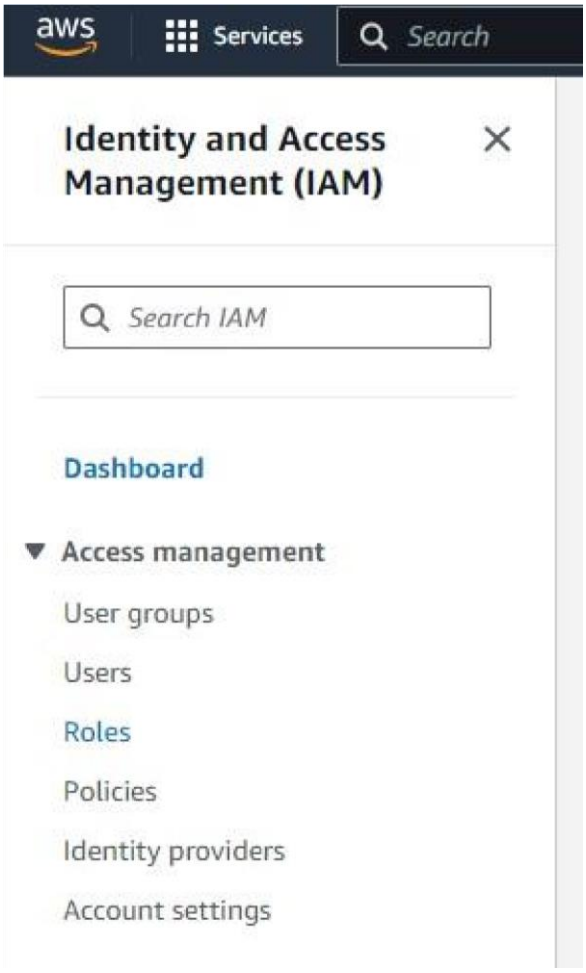

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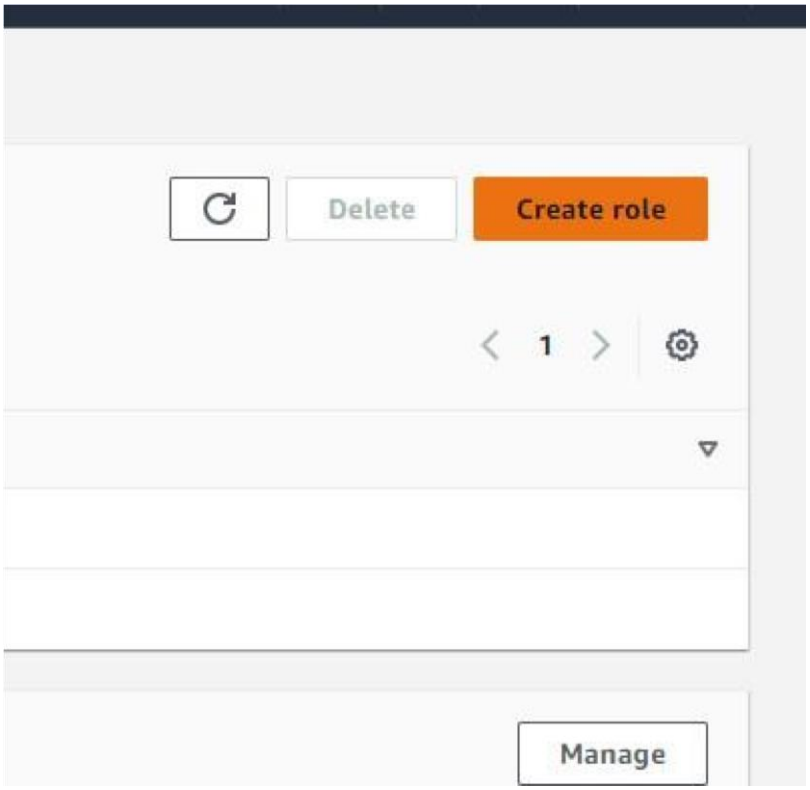
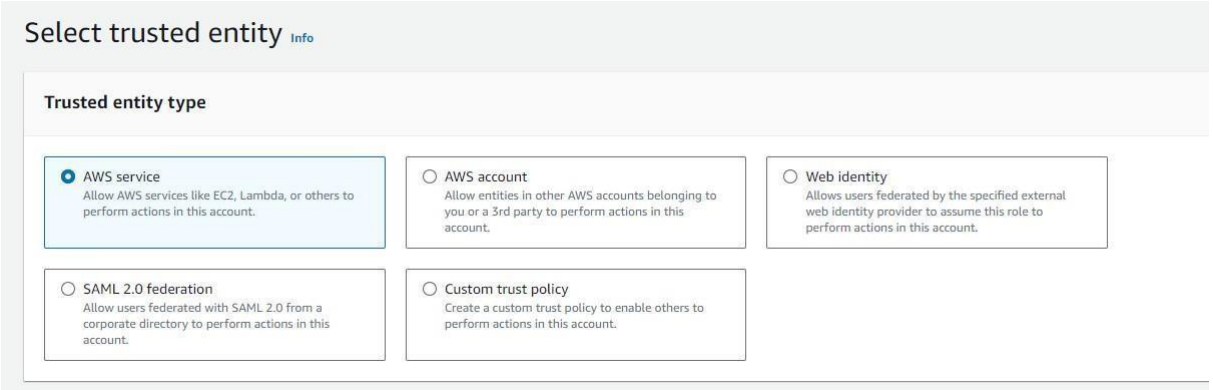
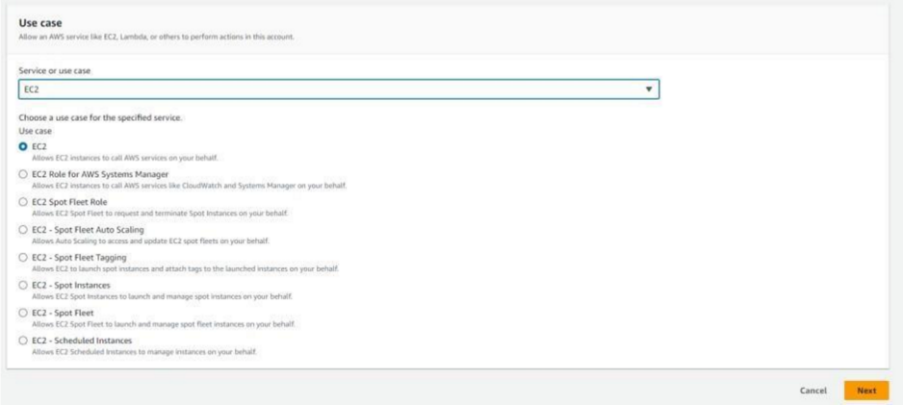


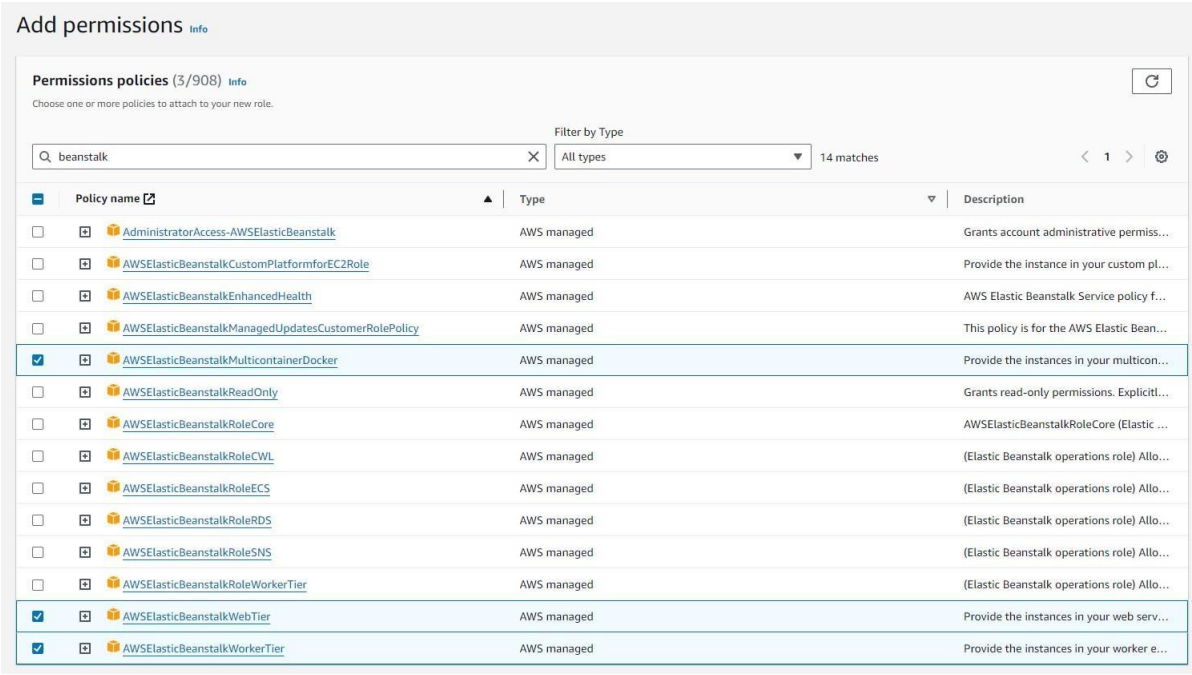
Step 9:Select entity



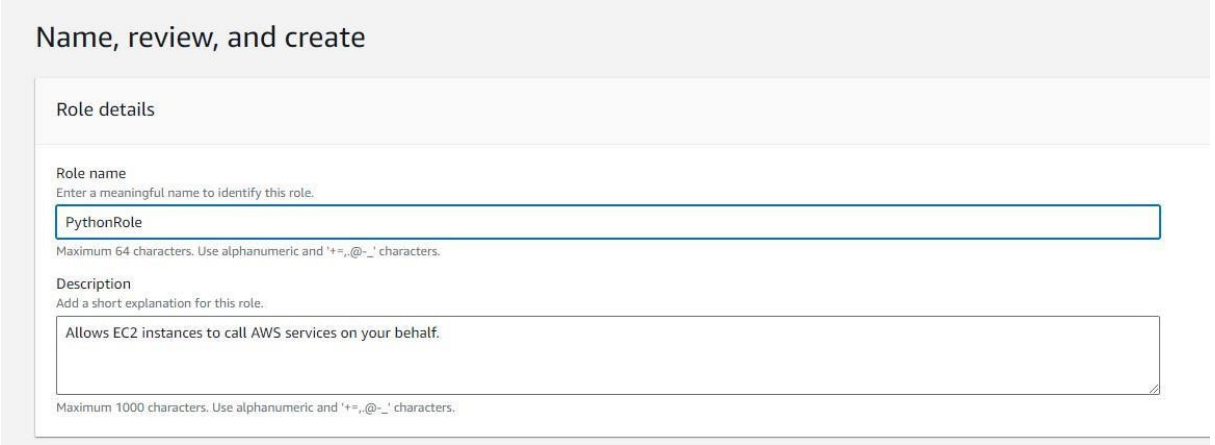
Step 10:Select use case



Step 11:Toggle permission’s

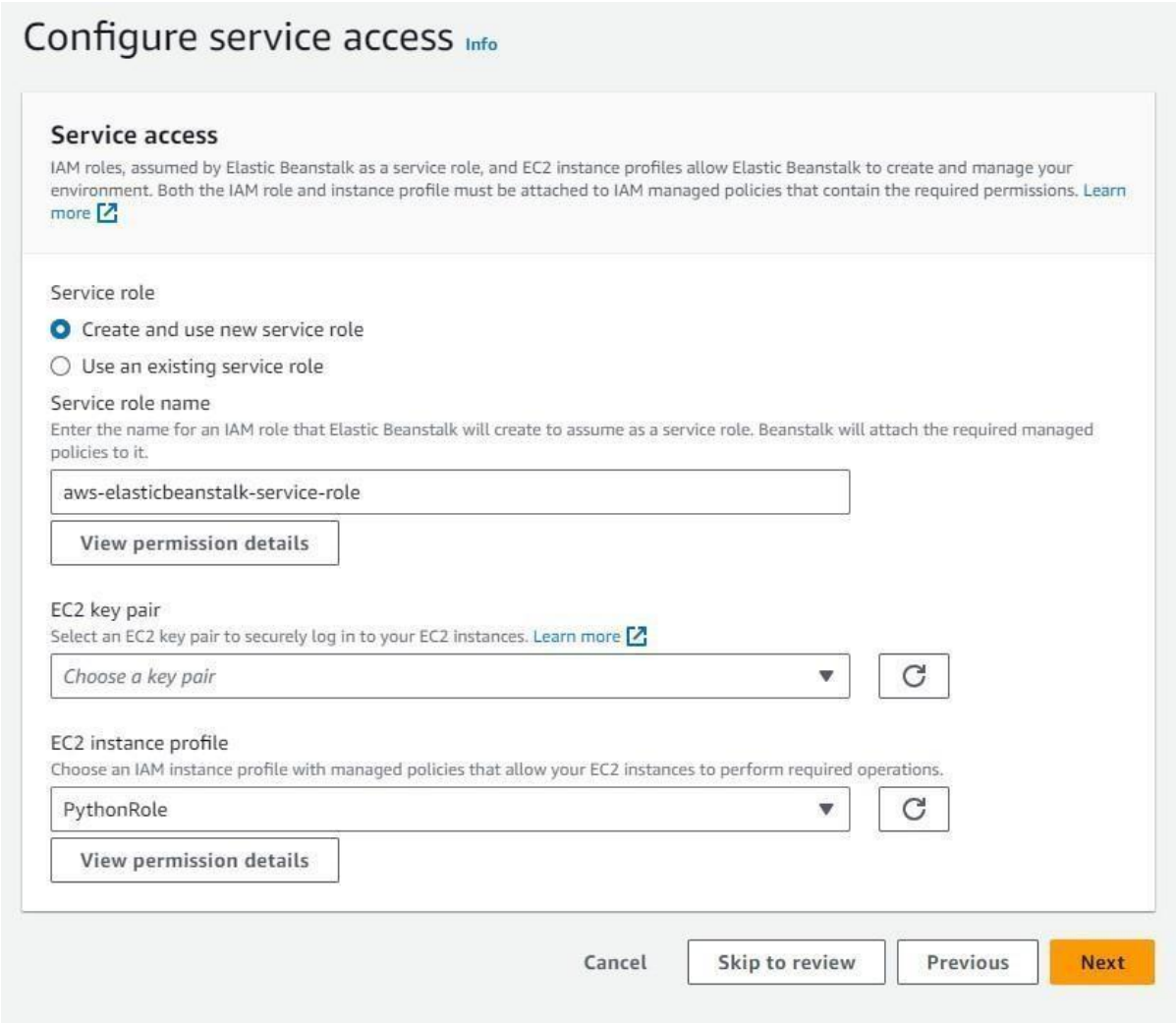


Step 12: Give name to role

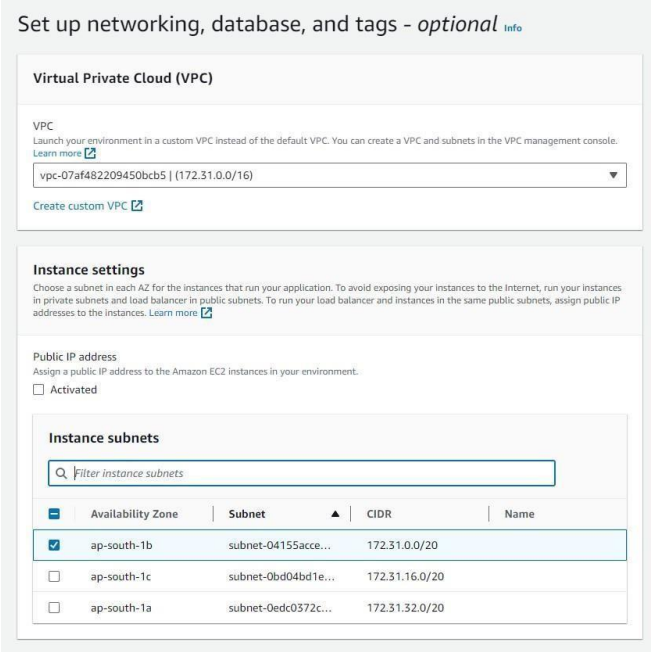


Step 13:

Step 14: Select role in previous working page



Step 15:Select database



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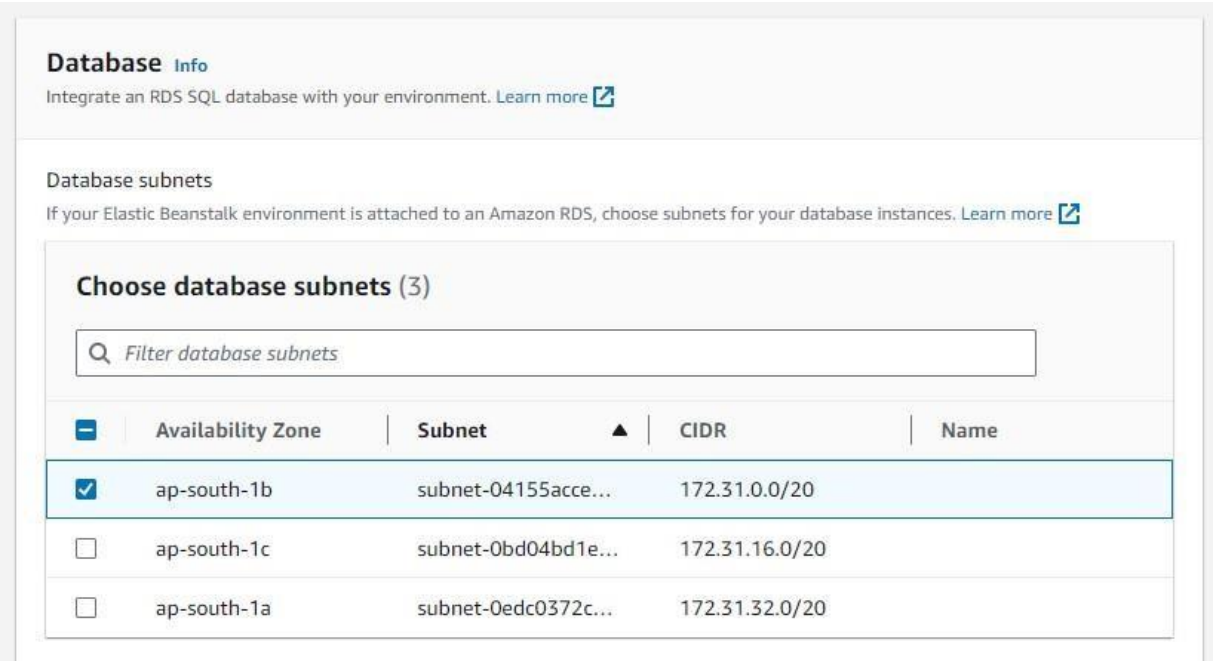

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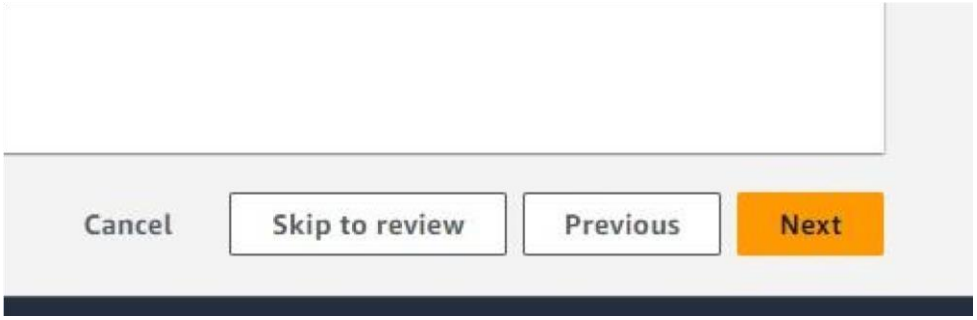
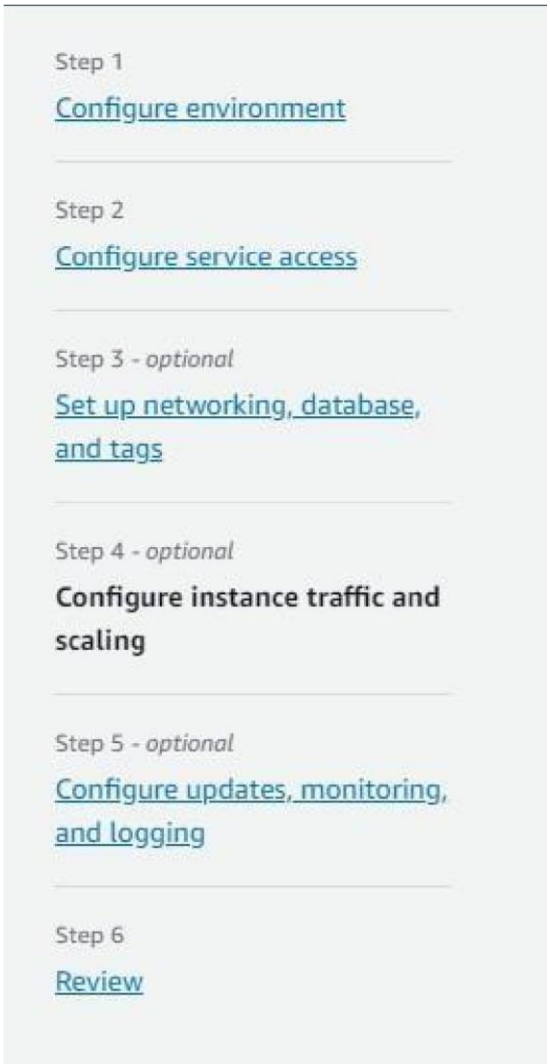


Step 18:

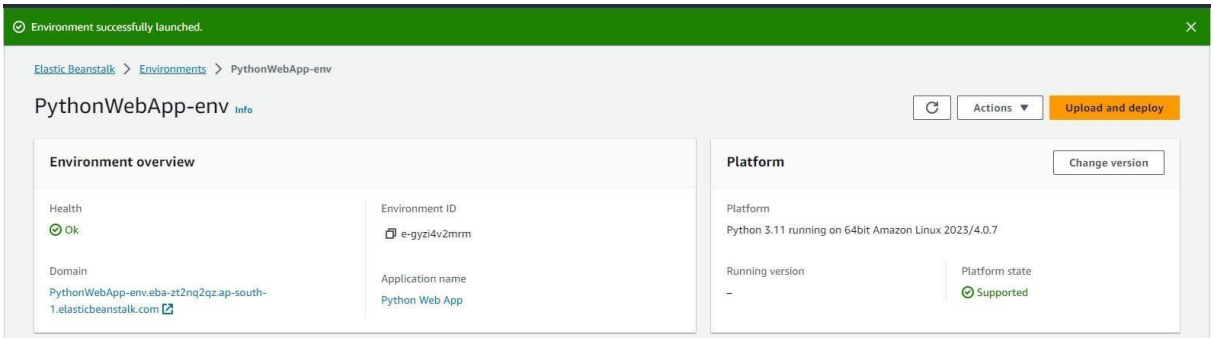
Skip Step 4: Keep as it is



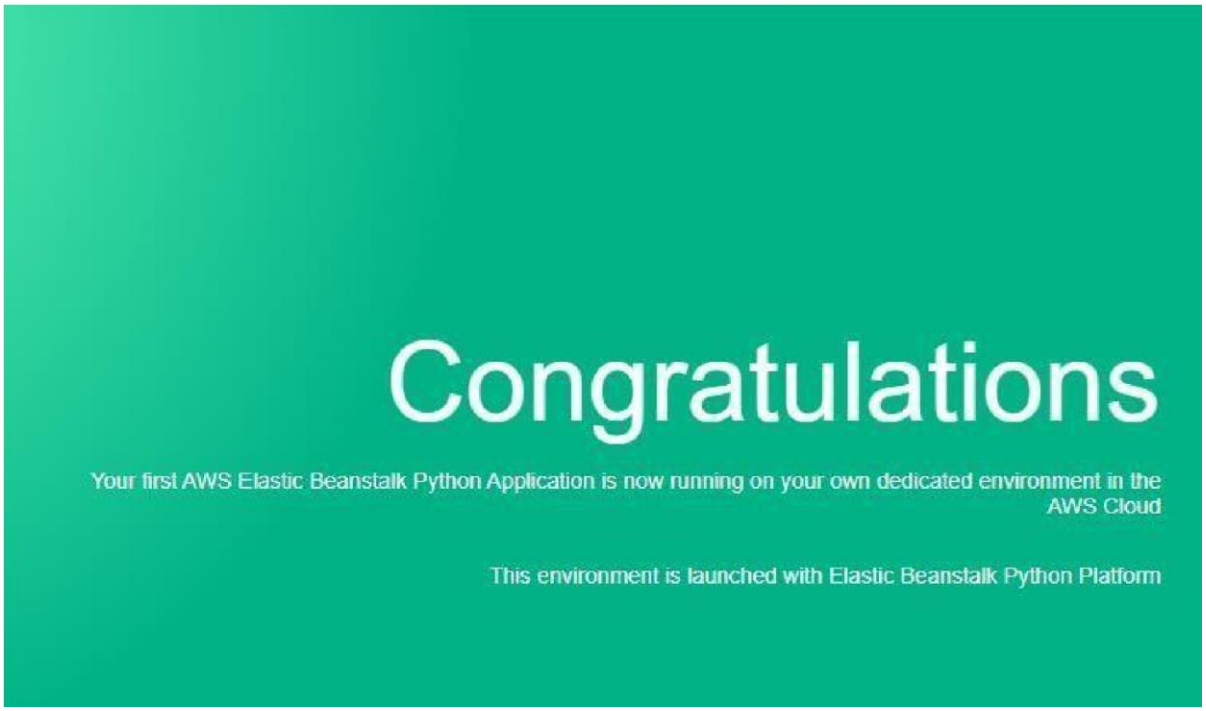
Step 19:

Step 5 : Keep as it is and submit

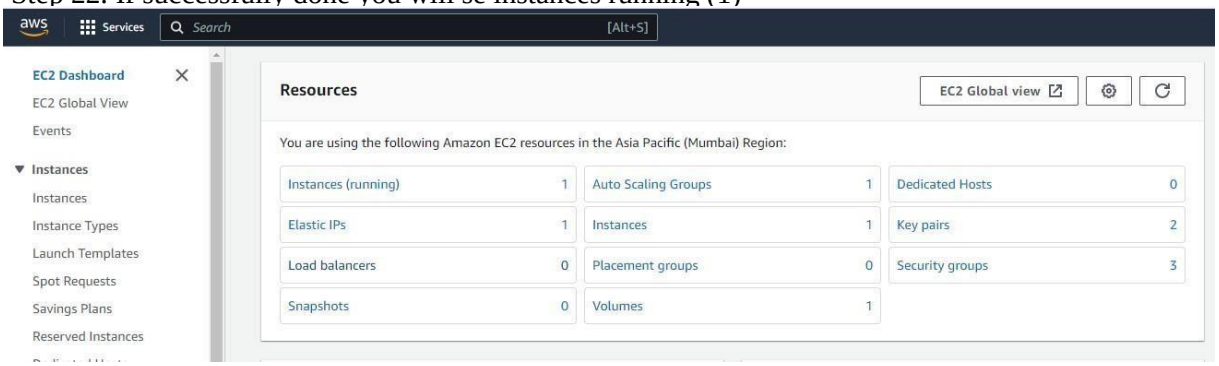
Step 20: Launching environment

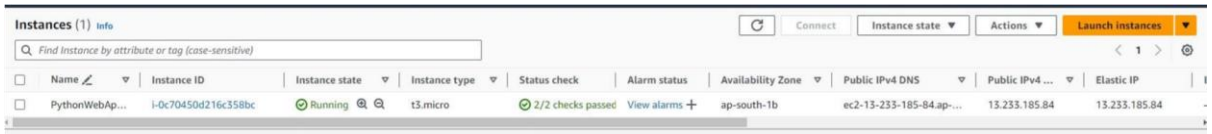


Step 21: Successfully launched our application



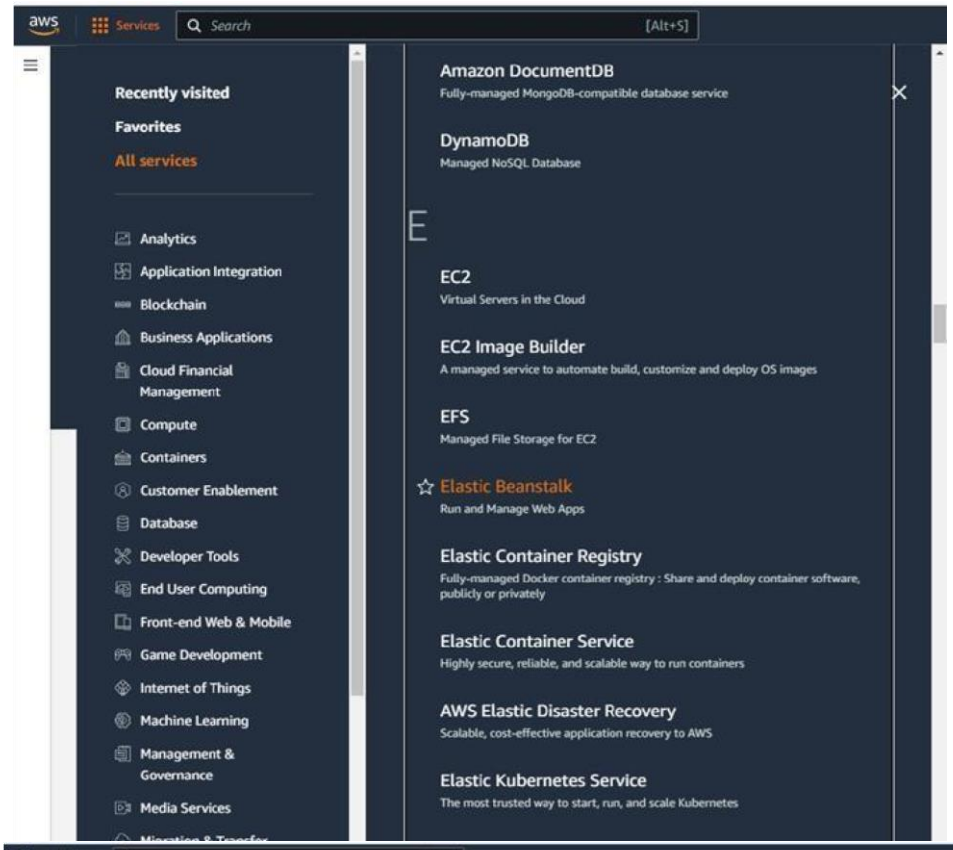
Step 22: If successfully done you will se instances running (1)

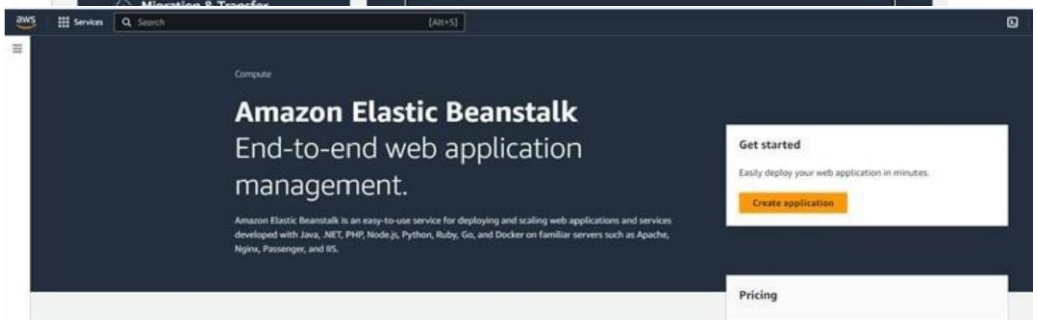


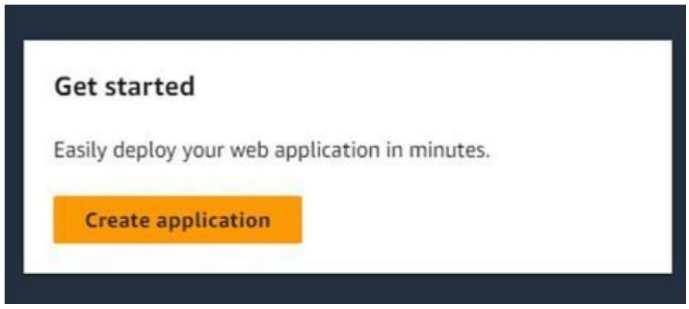


For Java:

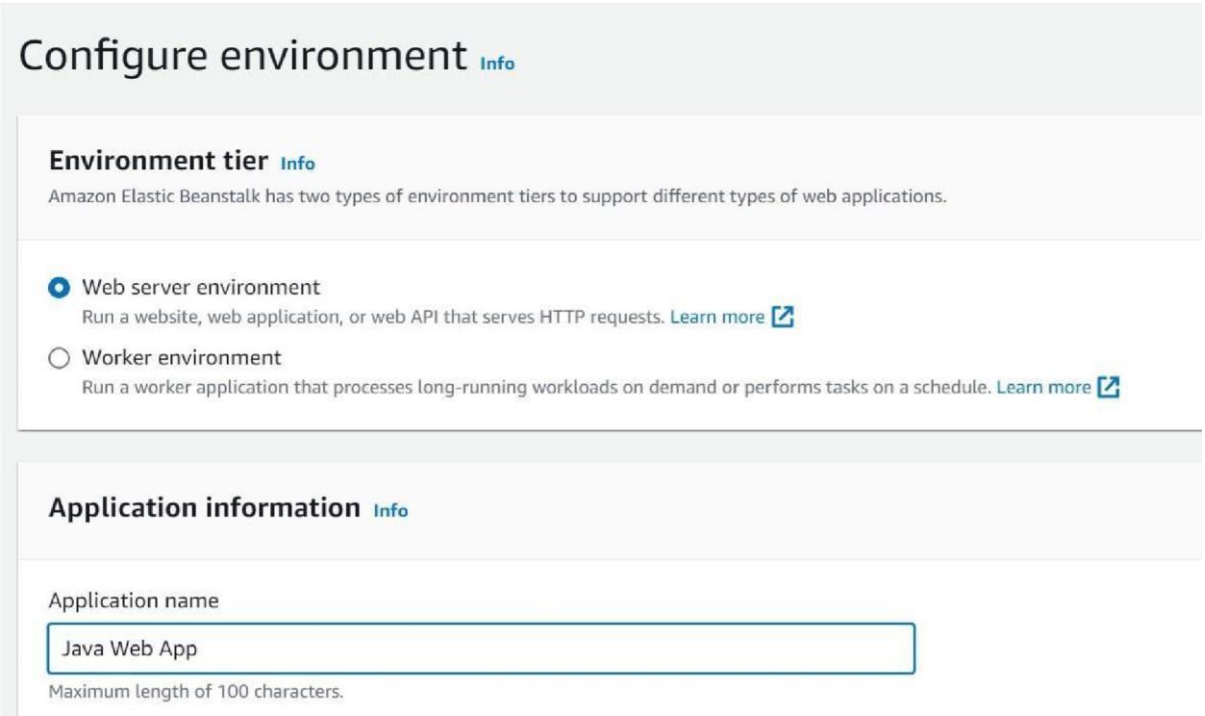
Step 1: create web app



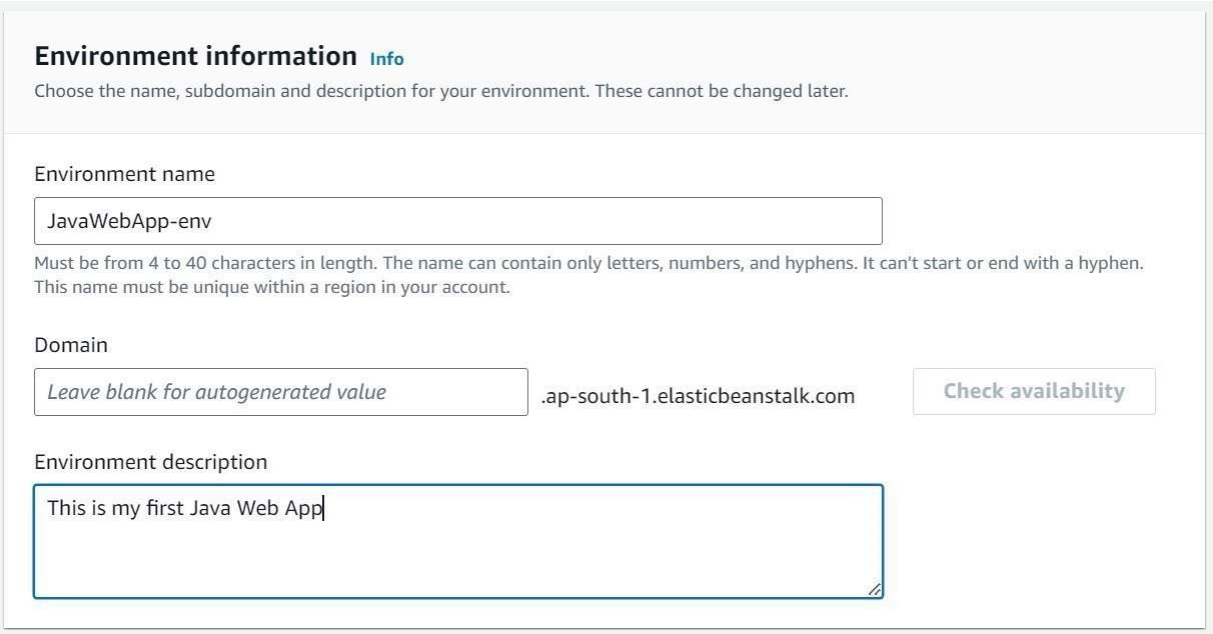




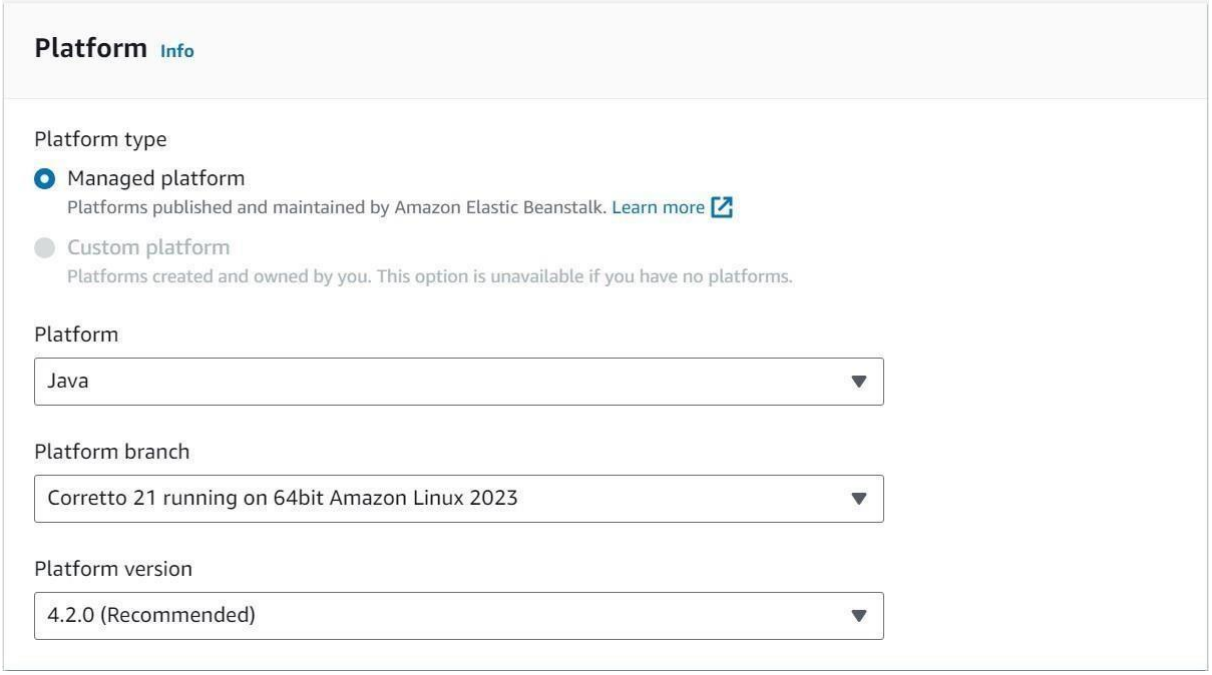
Step 2: Name your application



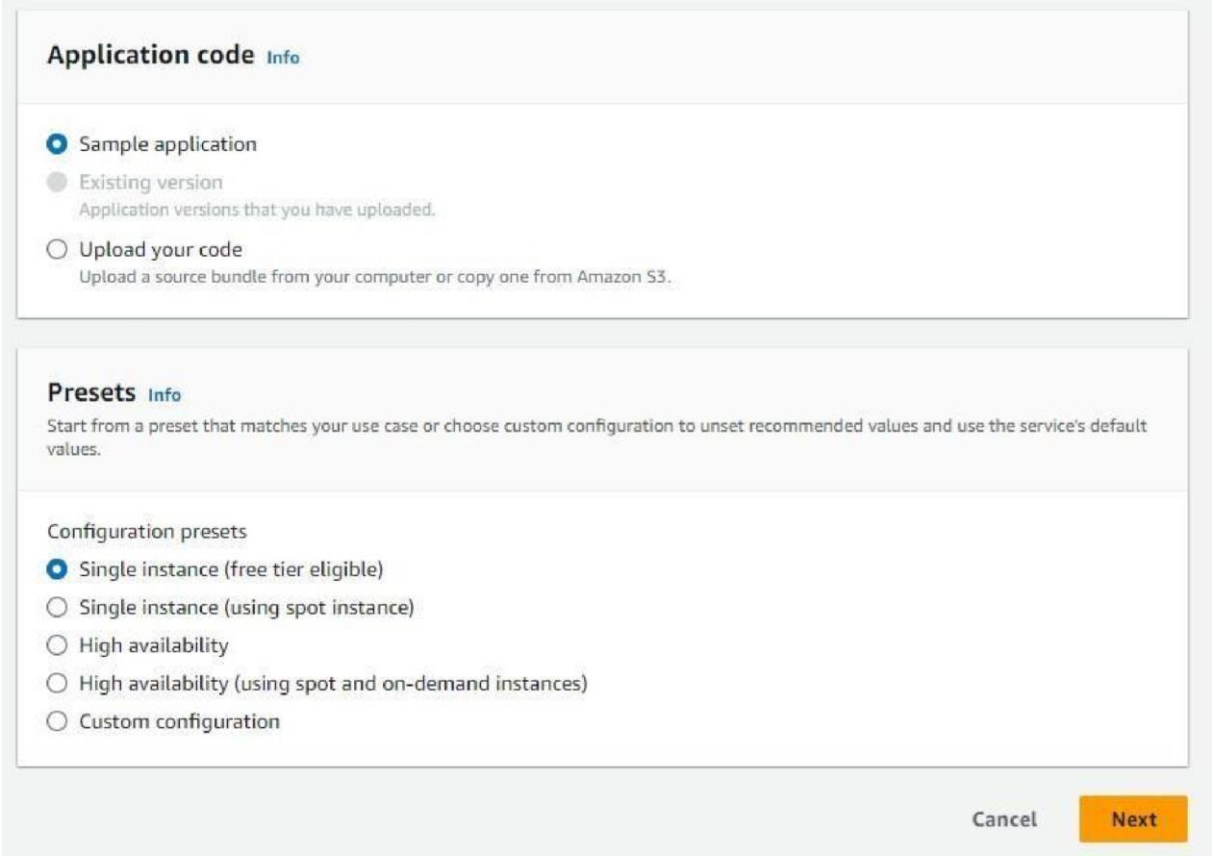
Step 3



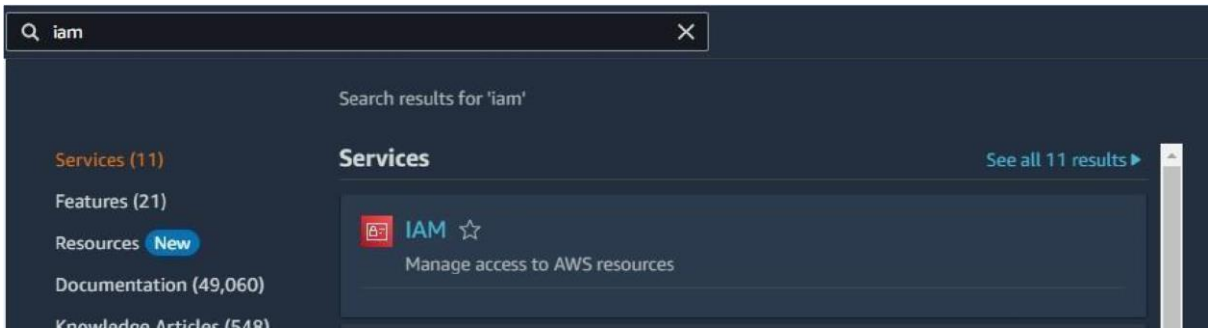
Step 4:Select Platform on which you want your application and the versions



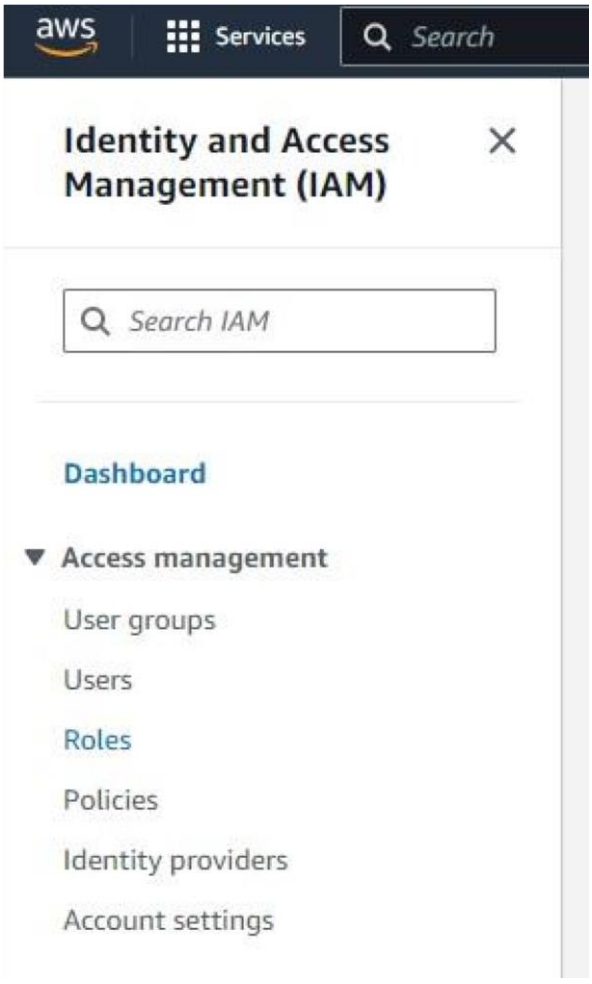
Step 5:



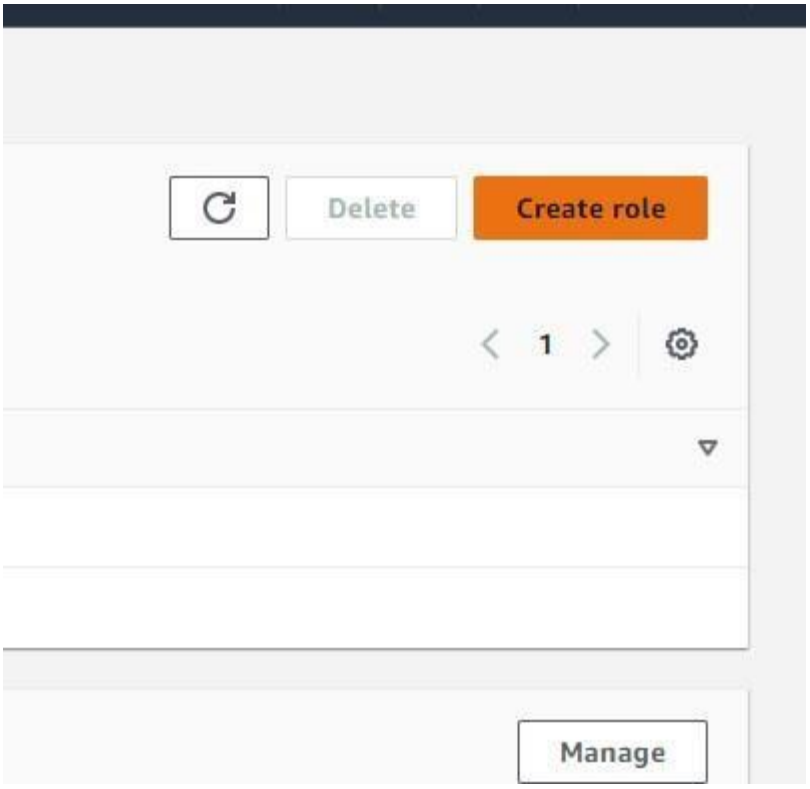
Step 6:Create a role. (open new tab and then perform , keep previous tab as it is we want to work on it later)


iam
Search results for 'iam'
Services (11)
Features (21)
Resources New
Documentation (49,060)
Services
See all 11 results
IAM
Manage access to AWS resources

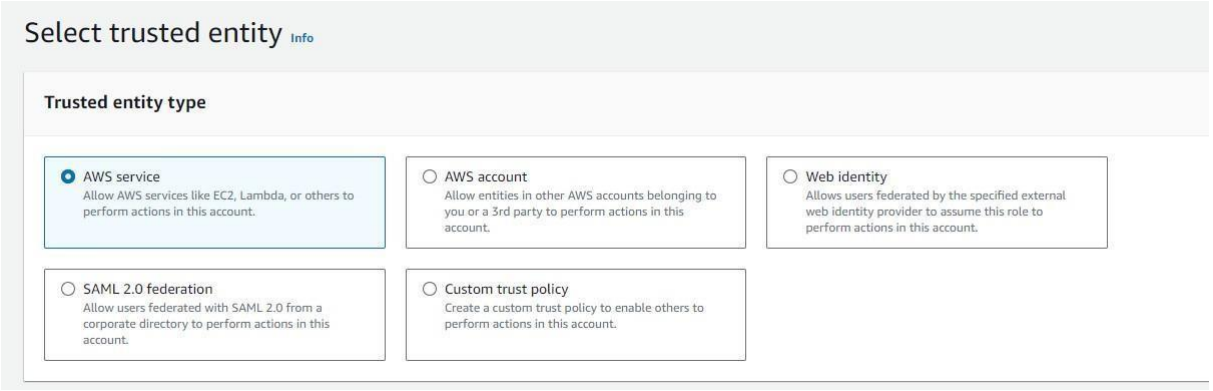
Step 7:


aws
Services
Search
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings

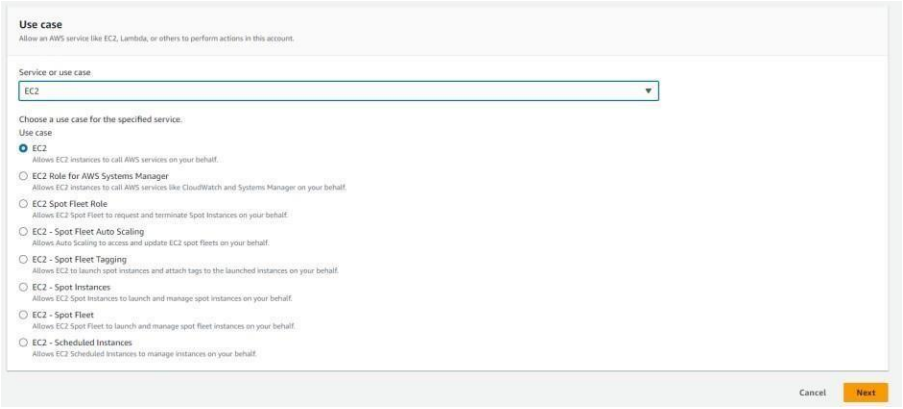
Step 8:



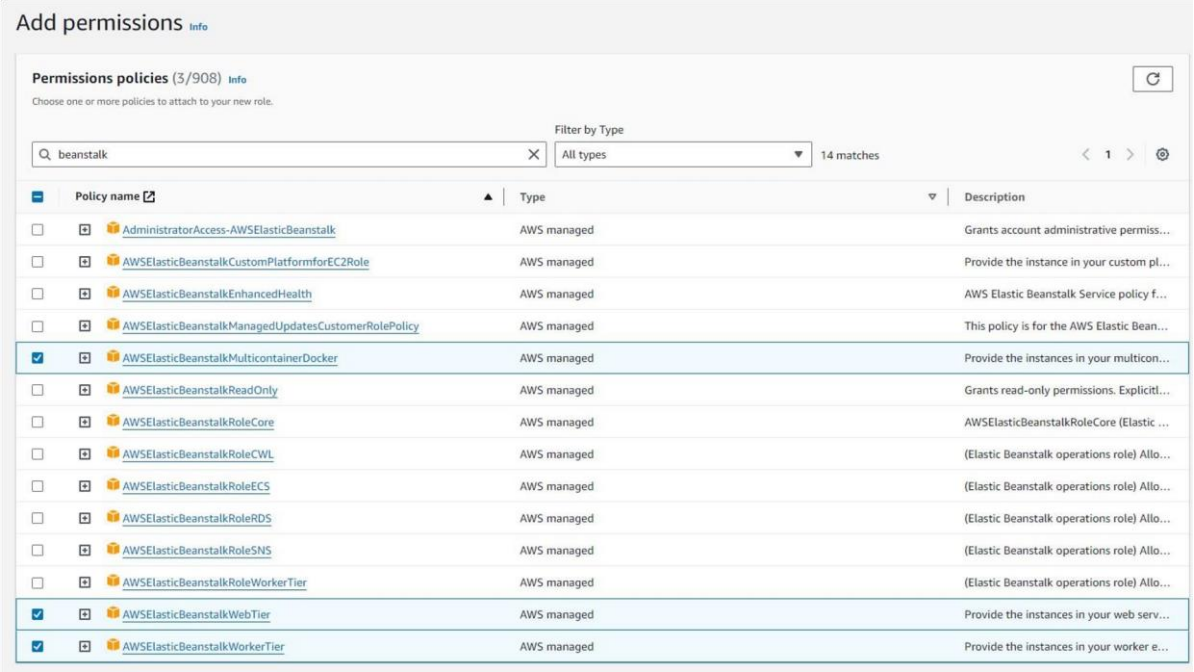
Step 9:Select entity



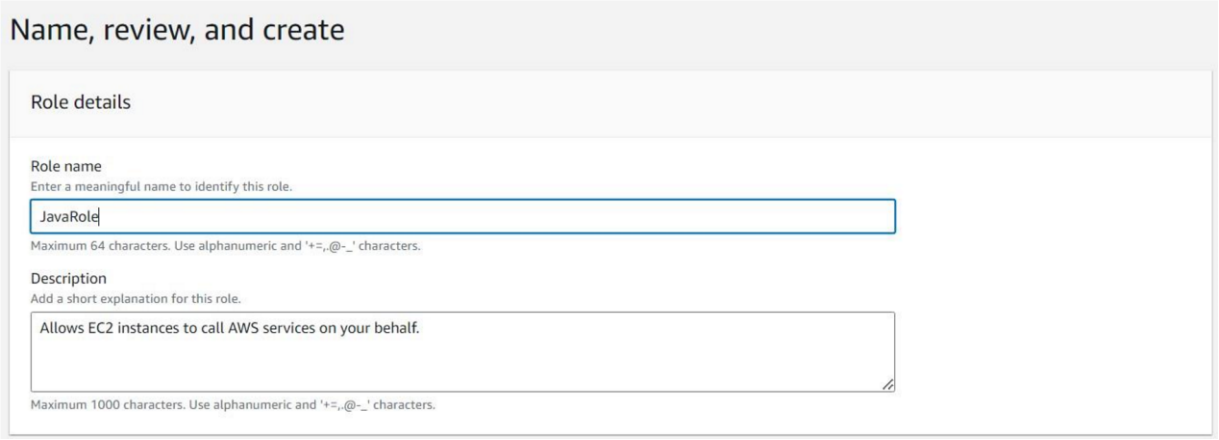
Step 10:Select use case



Step 11:Toggle permission’s

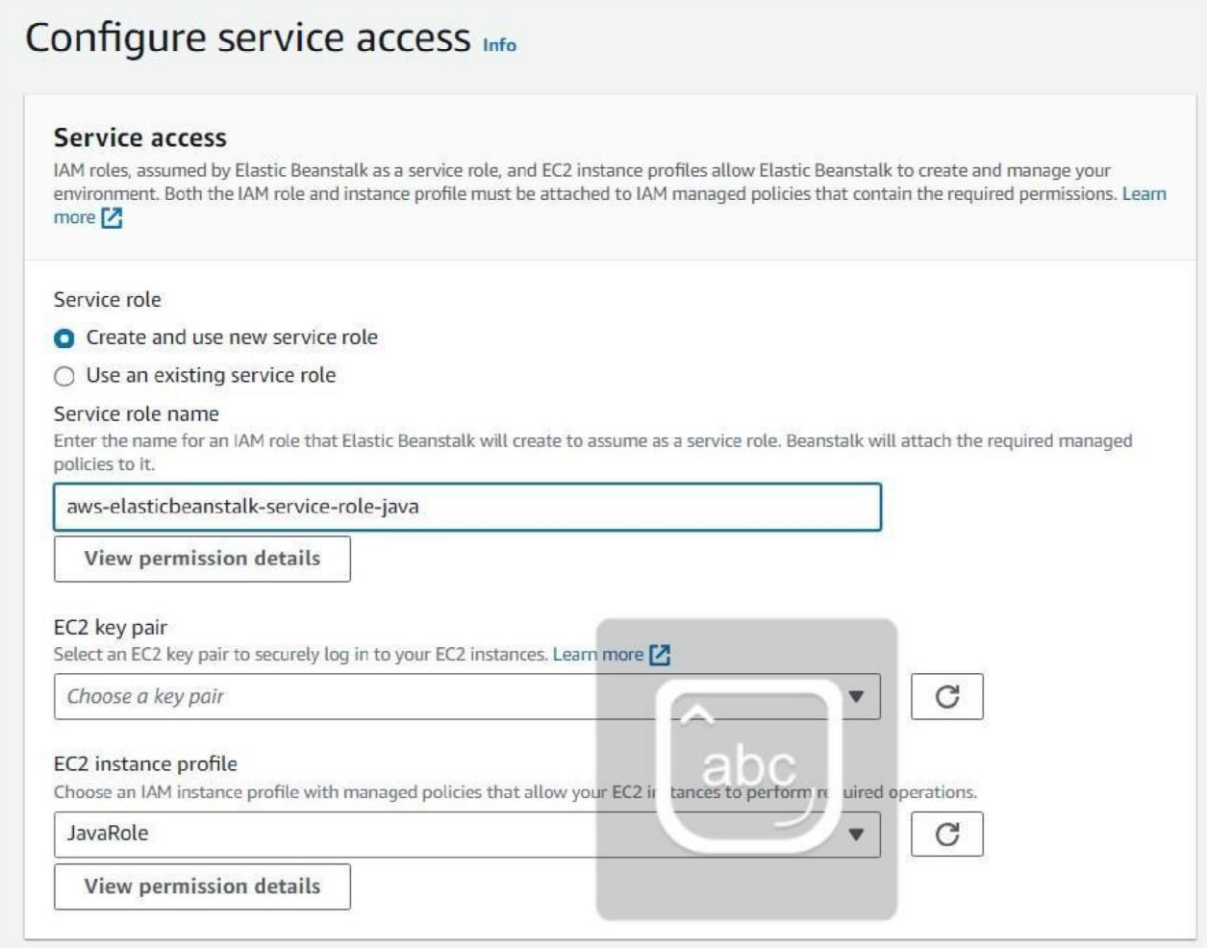


Step 12: Give name to role

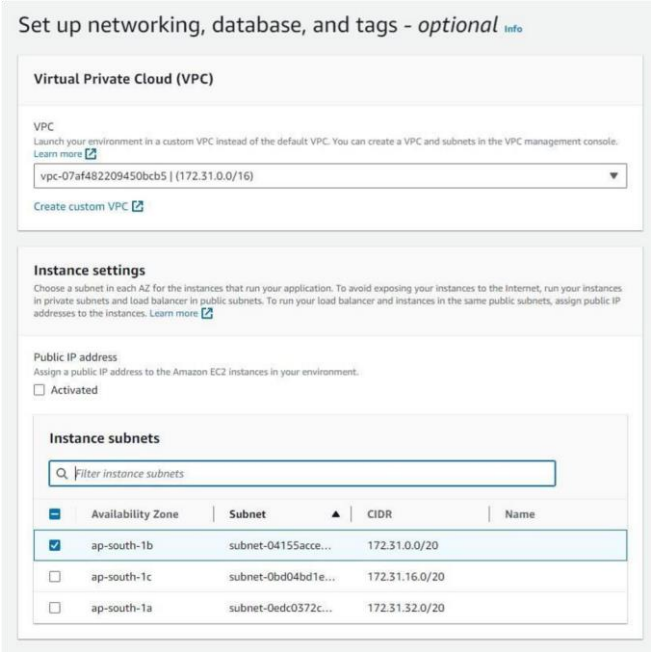


Step 13:

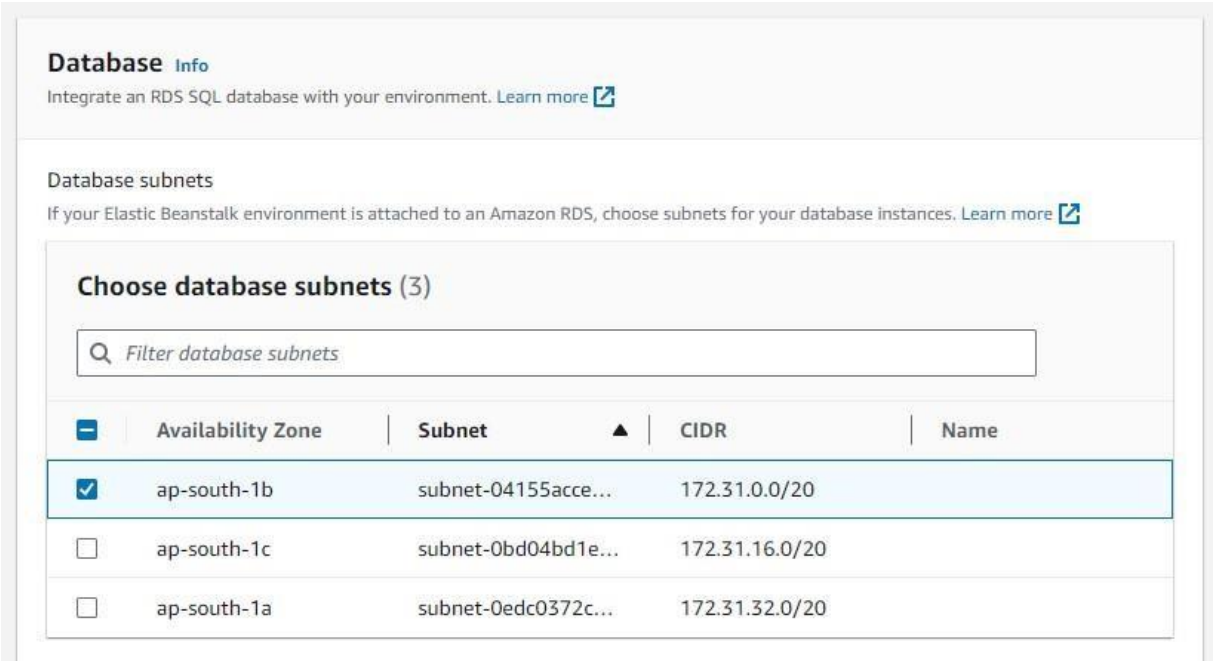
Step 14: Select role in previous working page



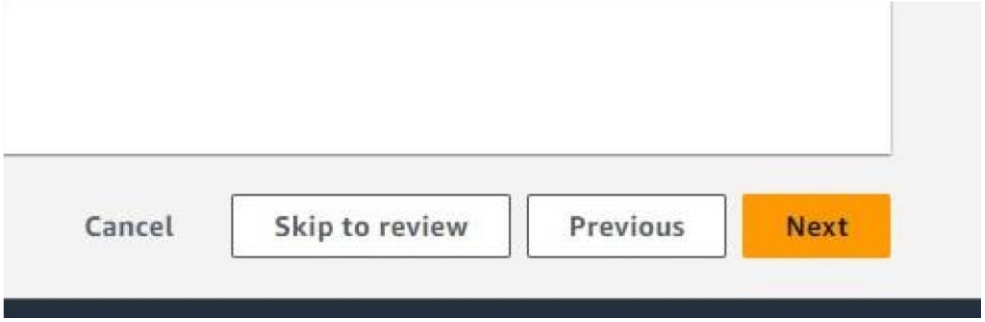
Step 15:Select database



Step 16:

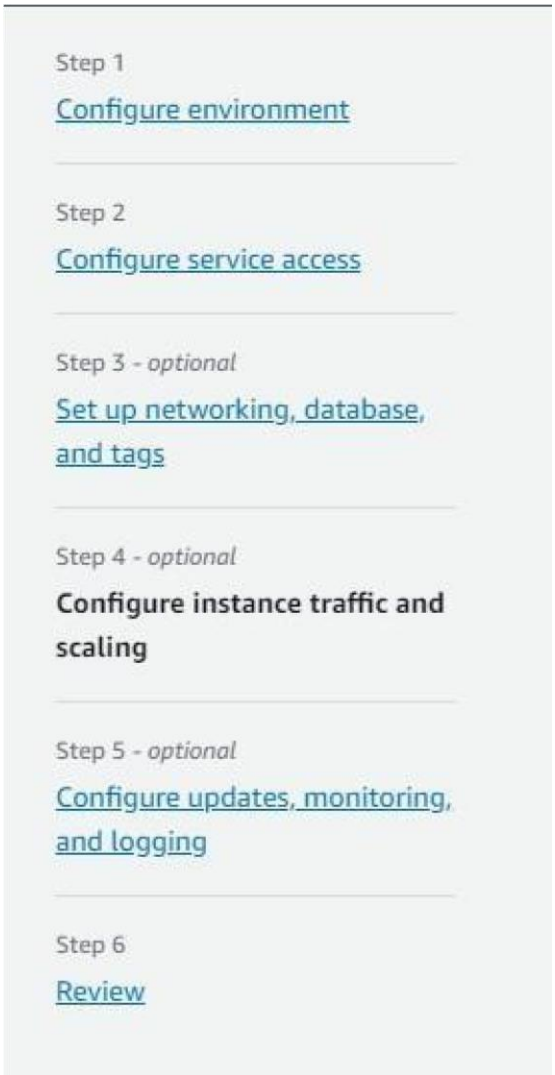


Step 17:



Step 18:

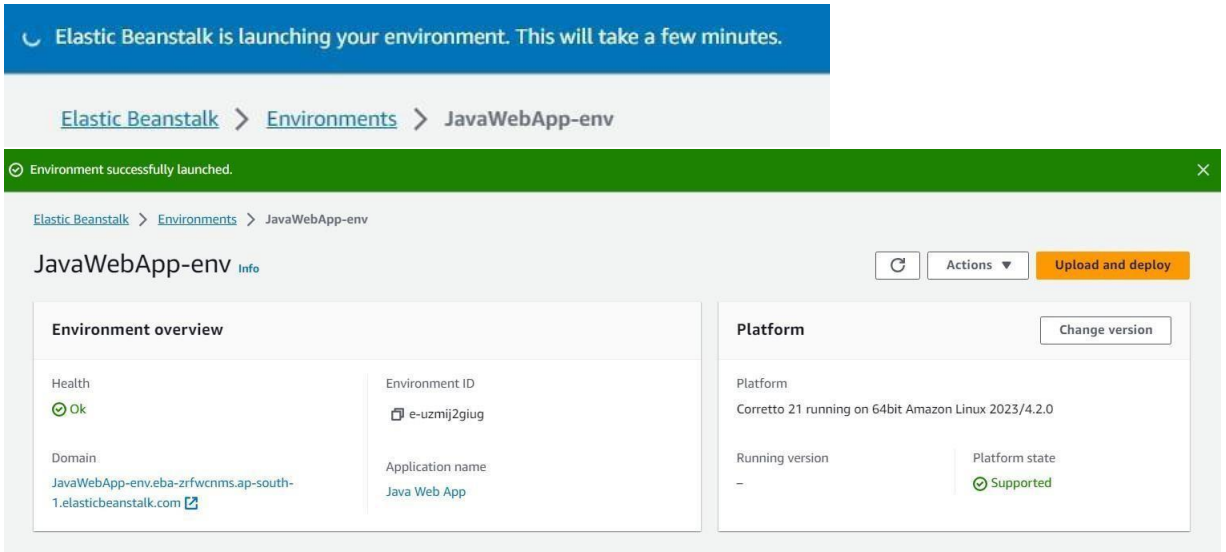
Skip Step 4: Keep as it is



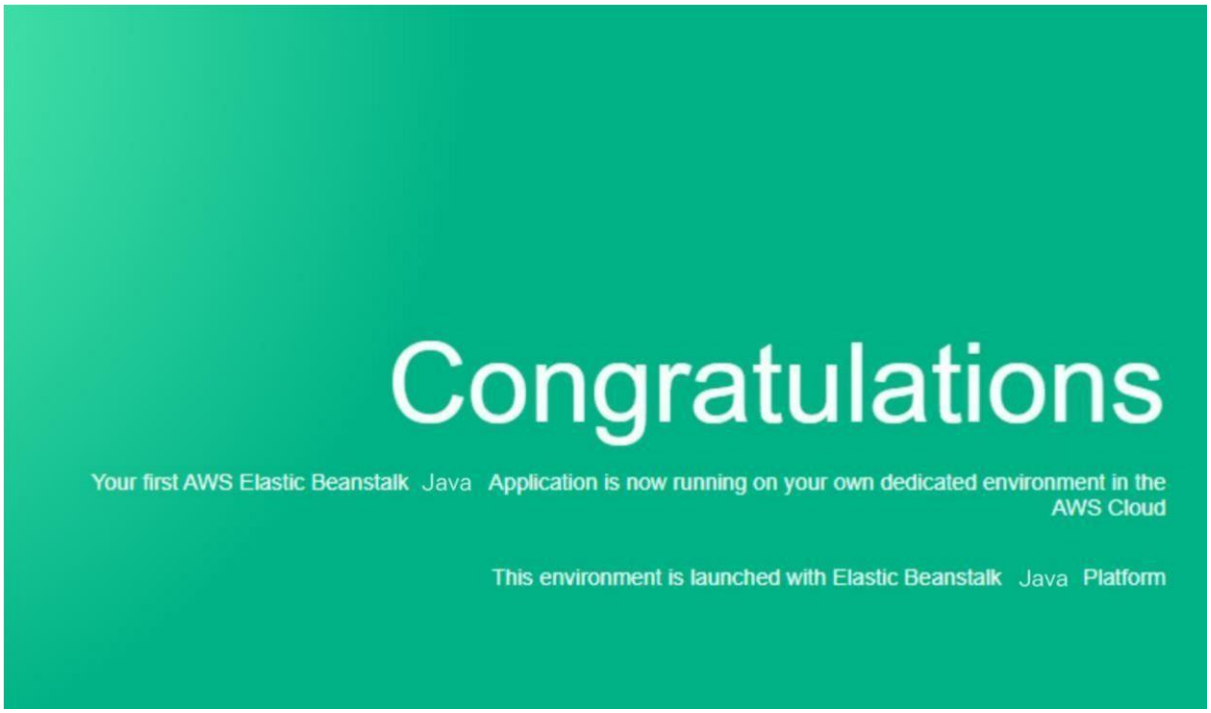
Step 19:

Step 5 : Keep as it is and submit

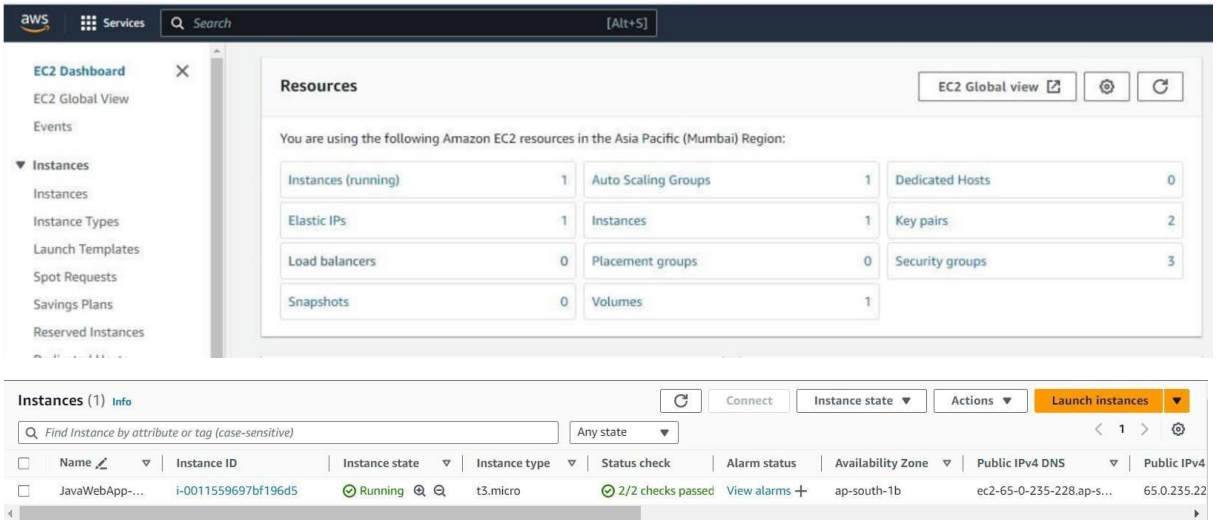
Step 20: Launching environment



Step 21: Successfully launched our application

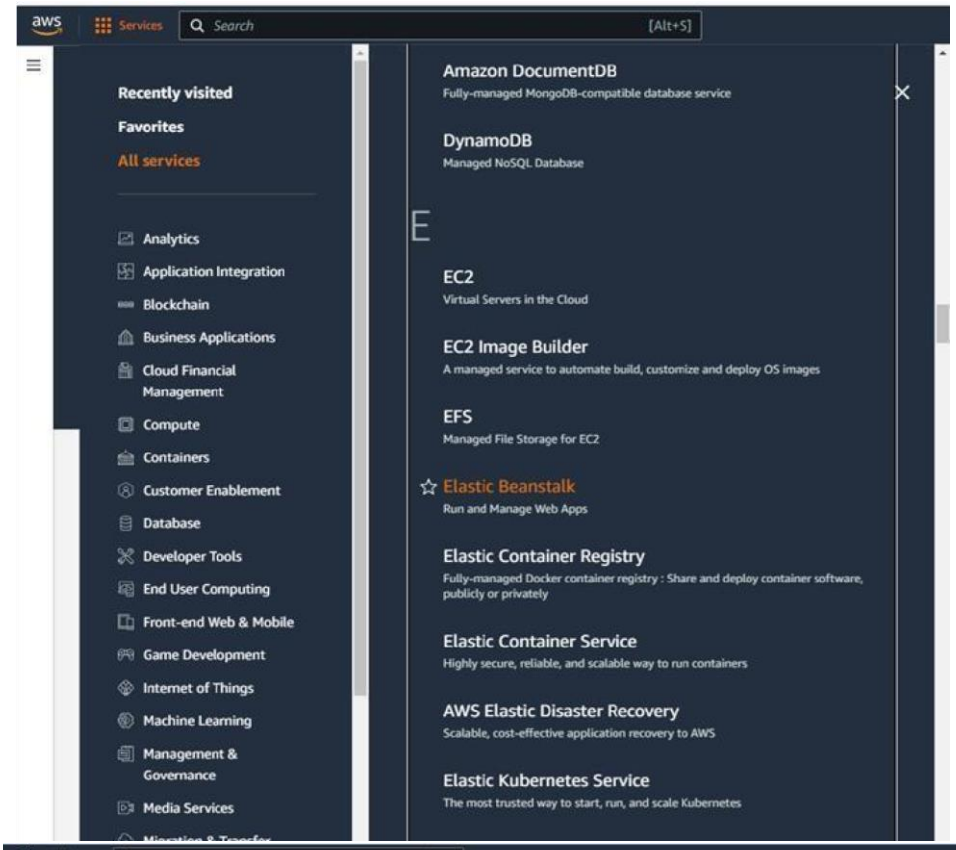


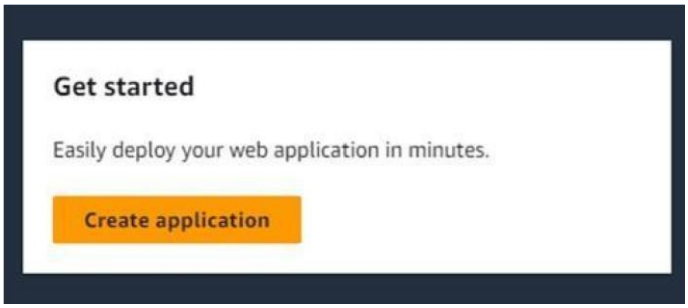
Step 22: If successfully done you will se instances running (1)



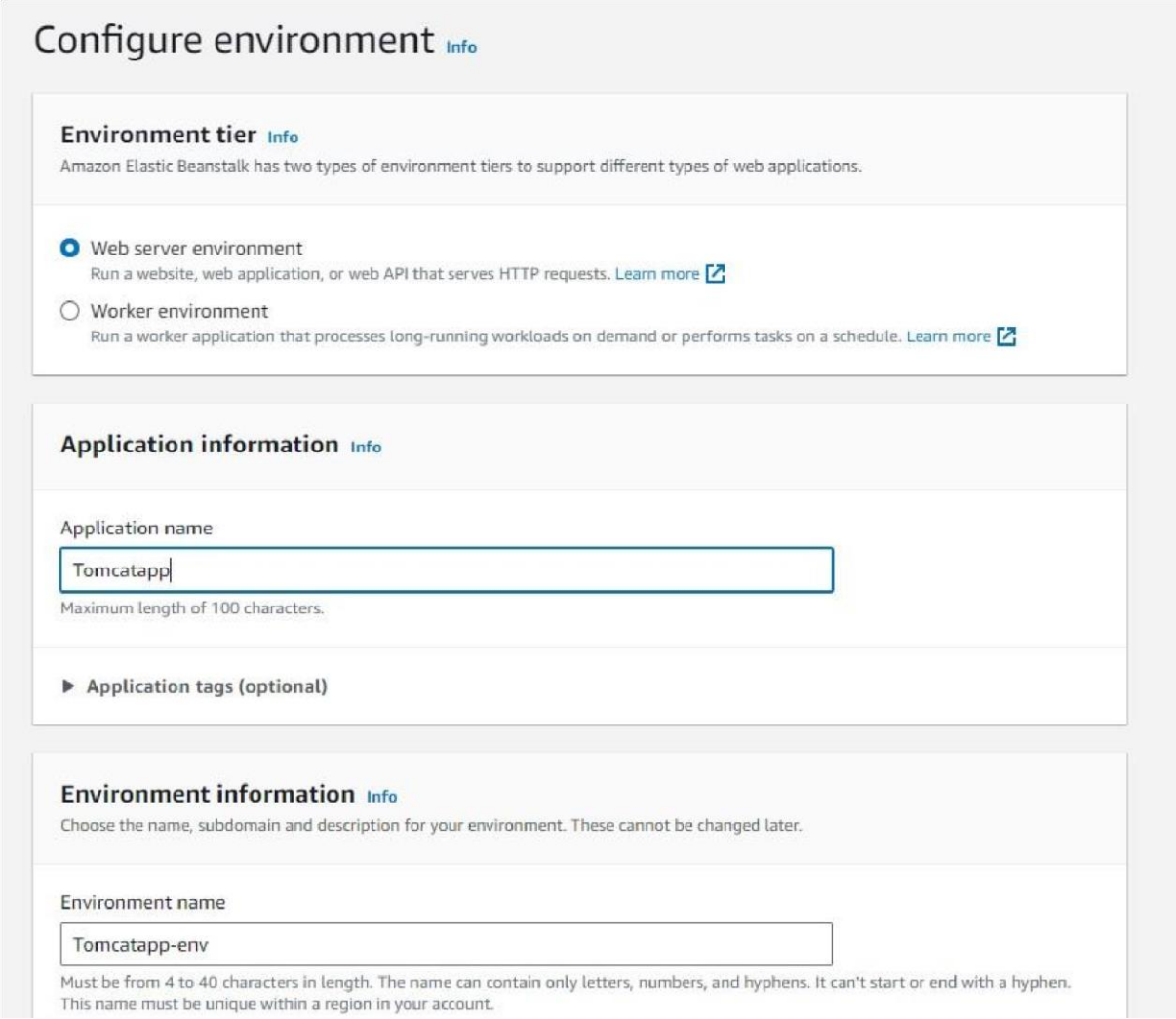
Implement PaaS using elastic beanstalk with Tomcat Applicatio

Step 1: create web app

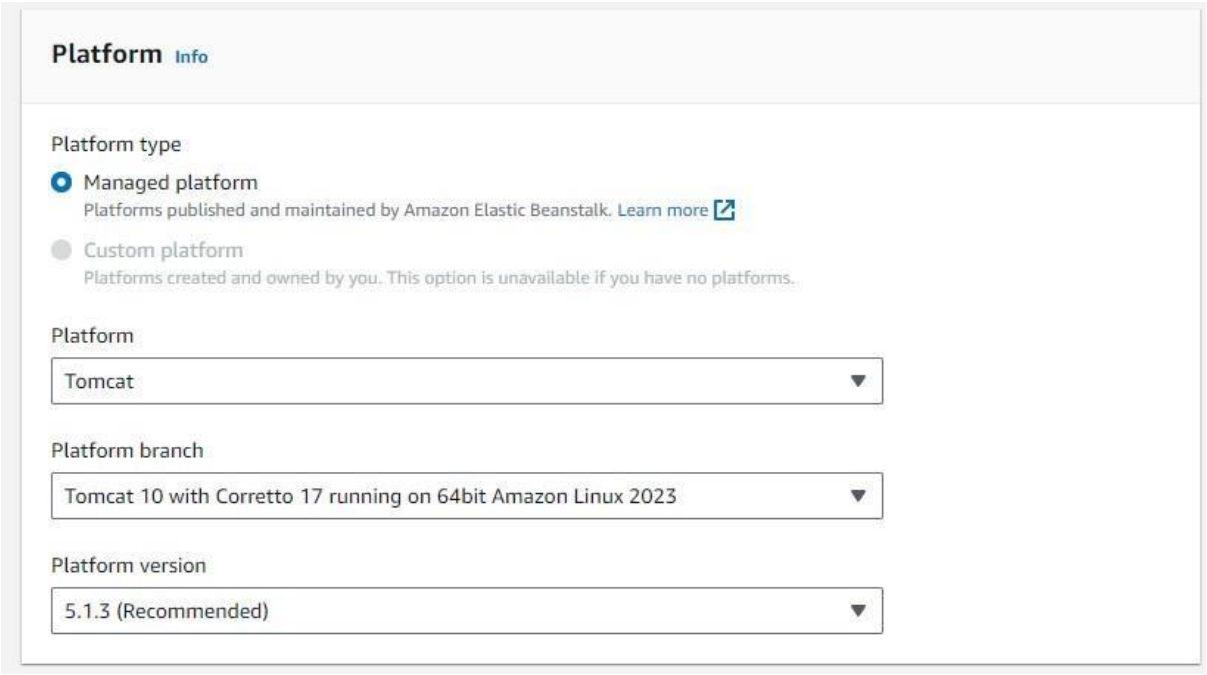




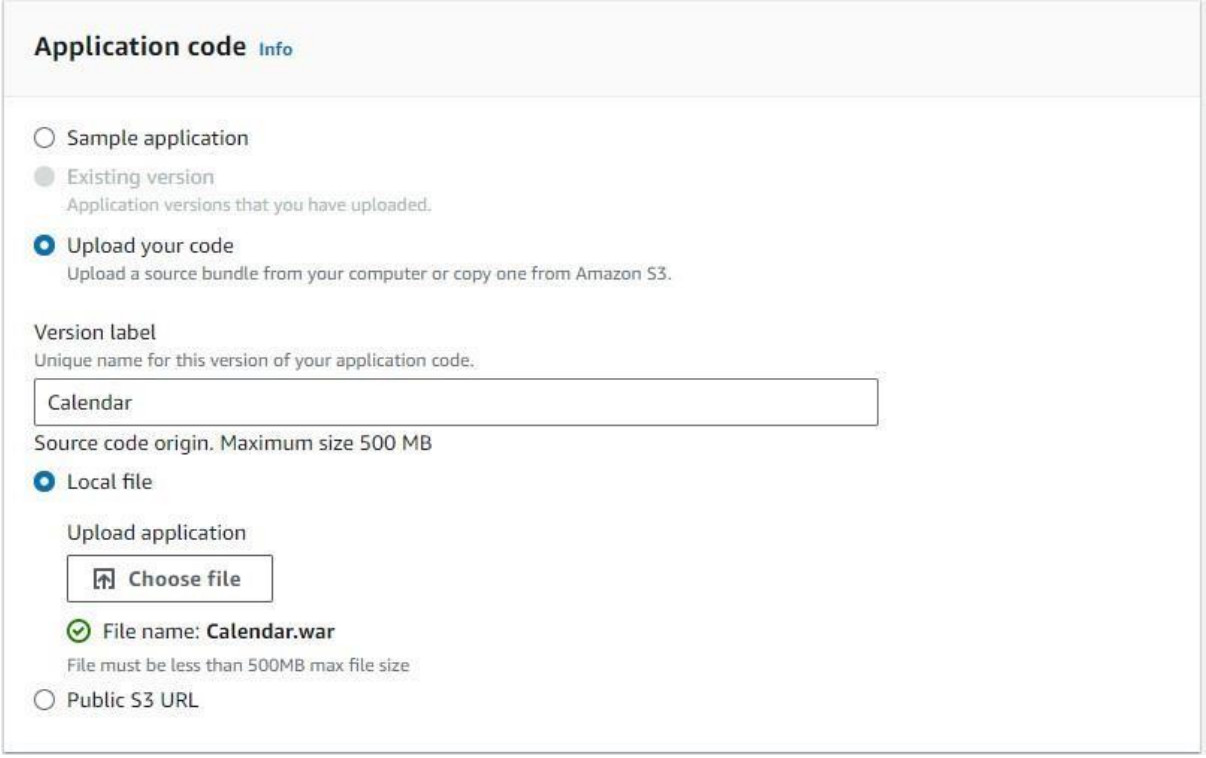
Step 2: Name your application



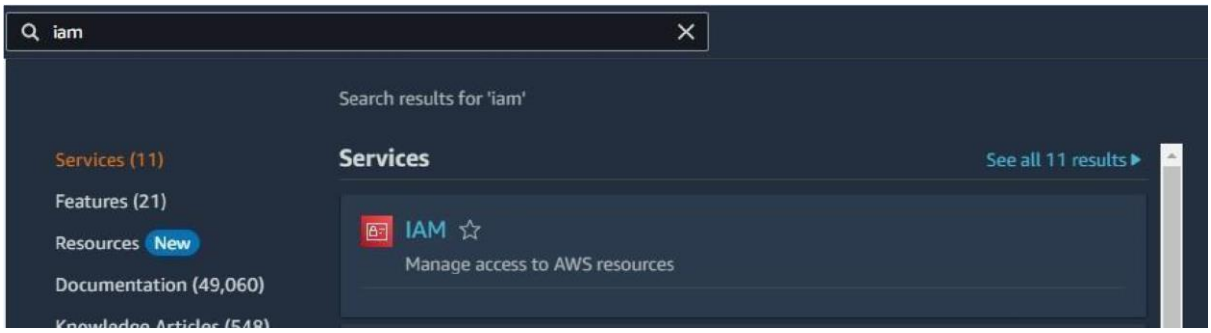
Step 4: Select Platform on which you want your application and the versions



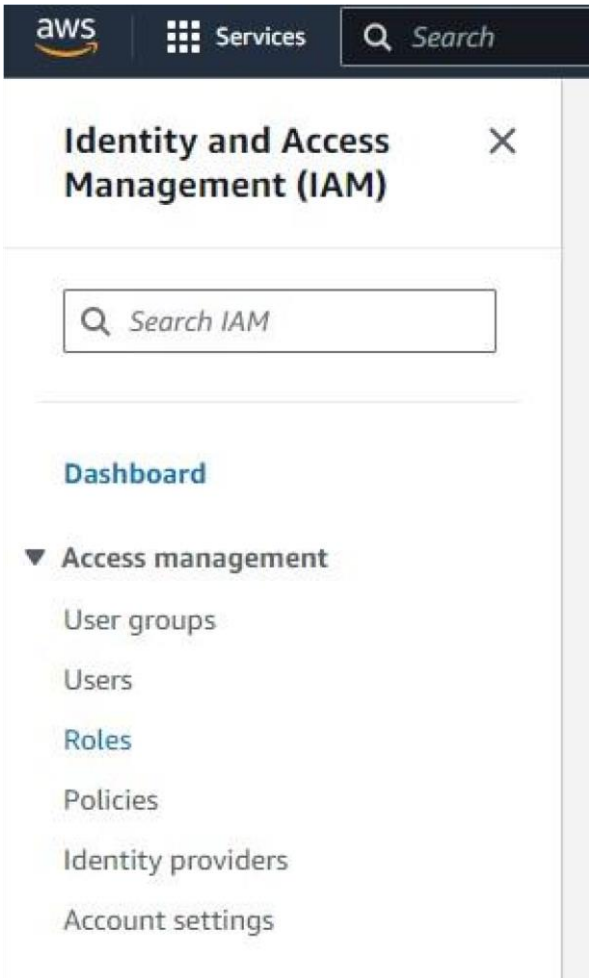
Step 5: Upload the Calendar.war file.



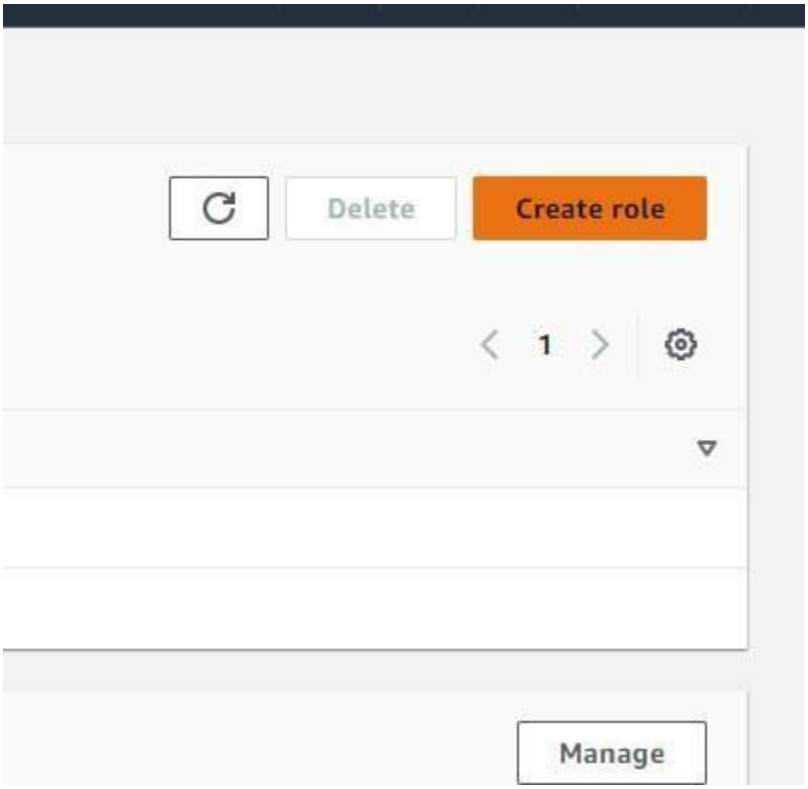
Step 6: Create a role. (open new tab and then perform, keep previous tab as it is we want to work on it later)



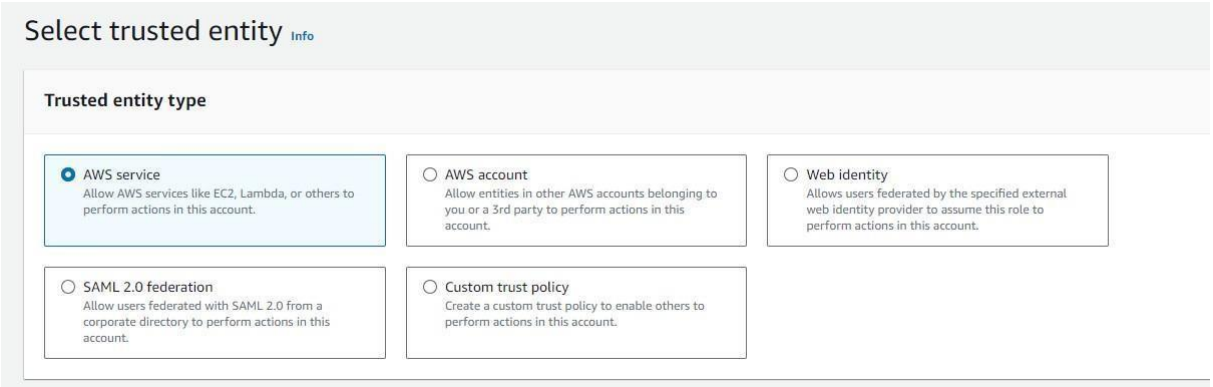
Step 7:


aws
Services
Search
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings

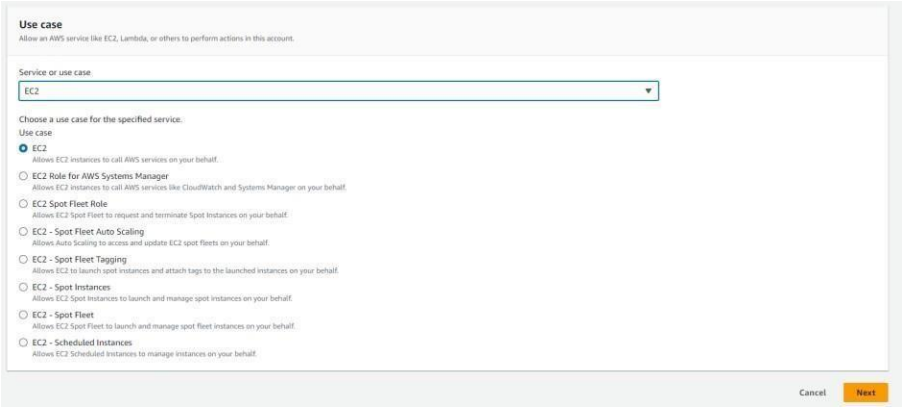
Step 8:


Delete
Create role
1
Manage

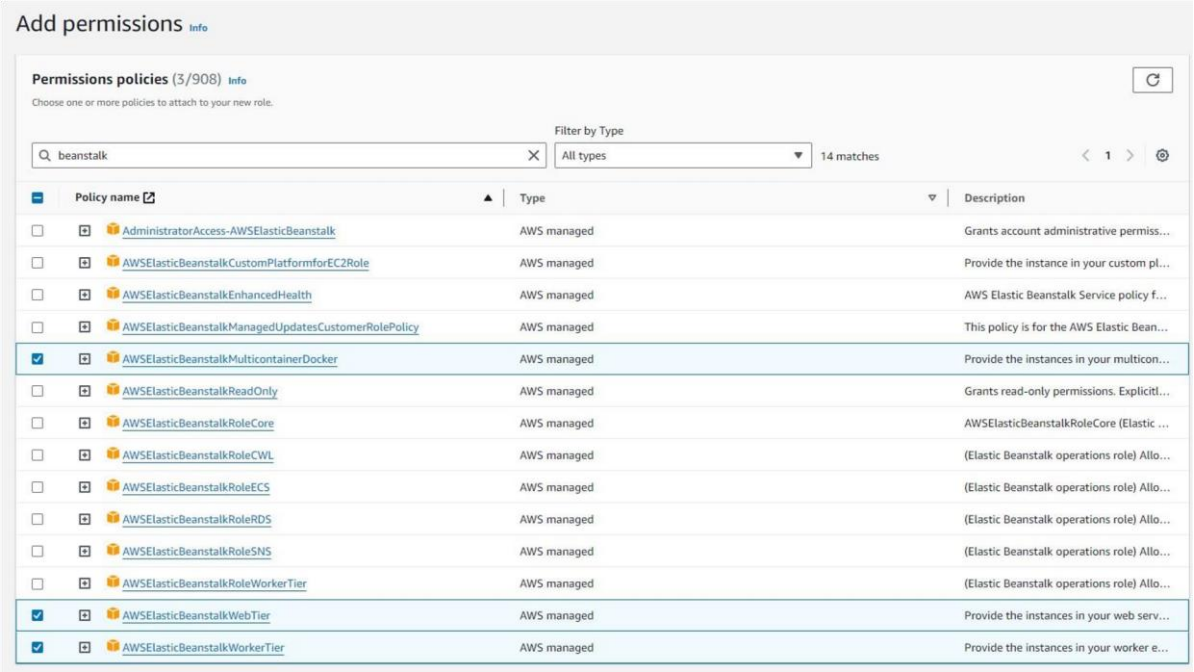
Step 9: Select entity



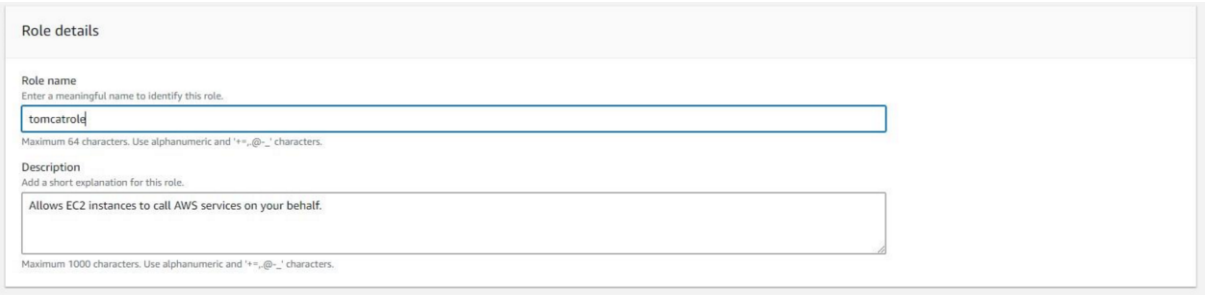
Step 10: Select use case



Step 11: Toggle permission's

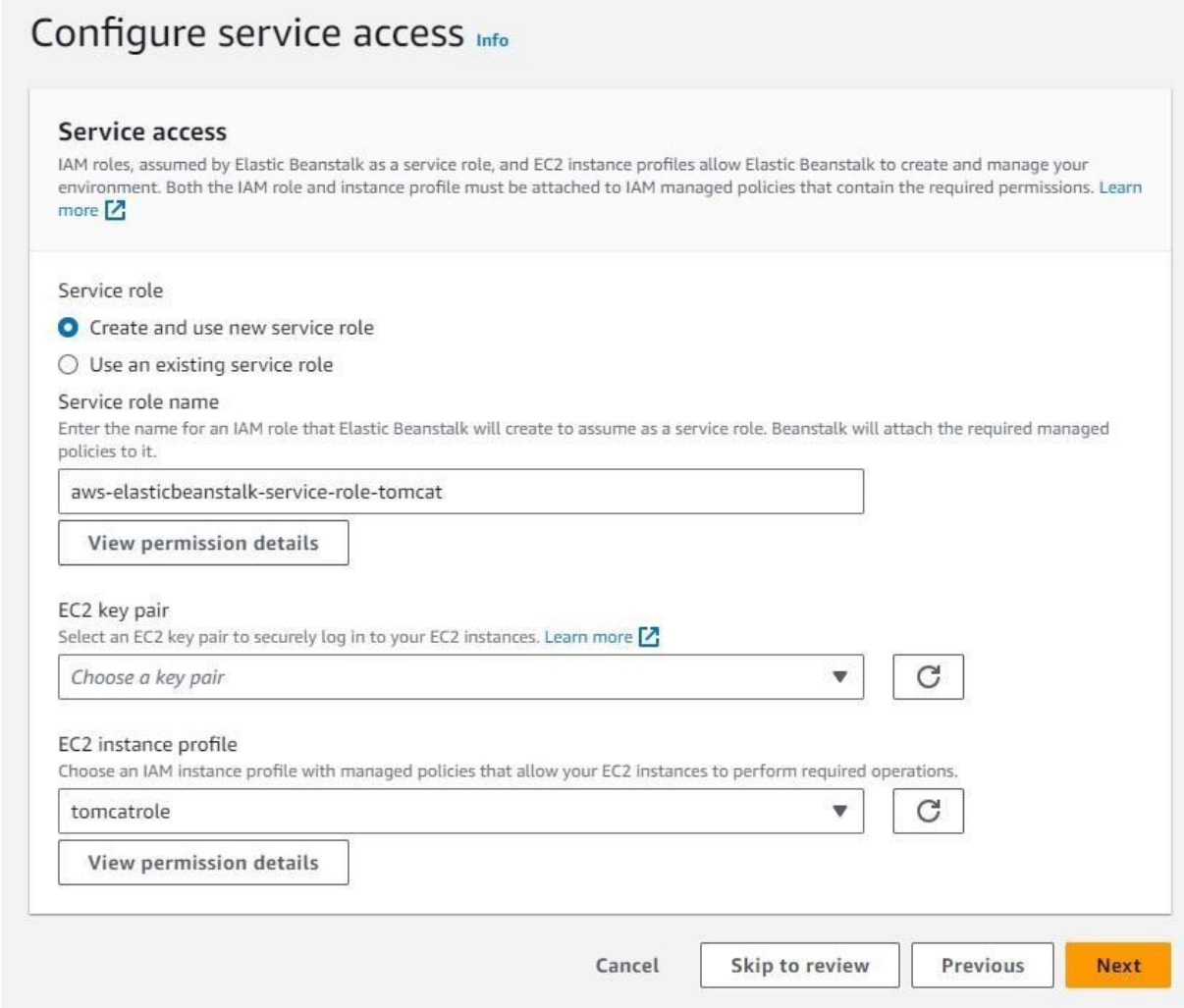


Step 12: Give name to role

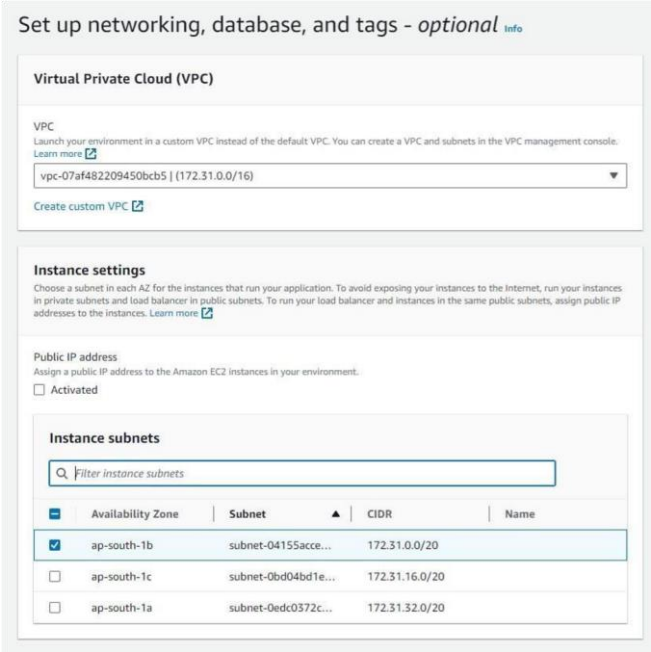


Step 13:

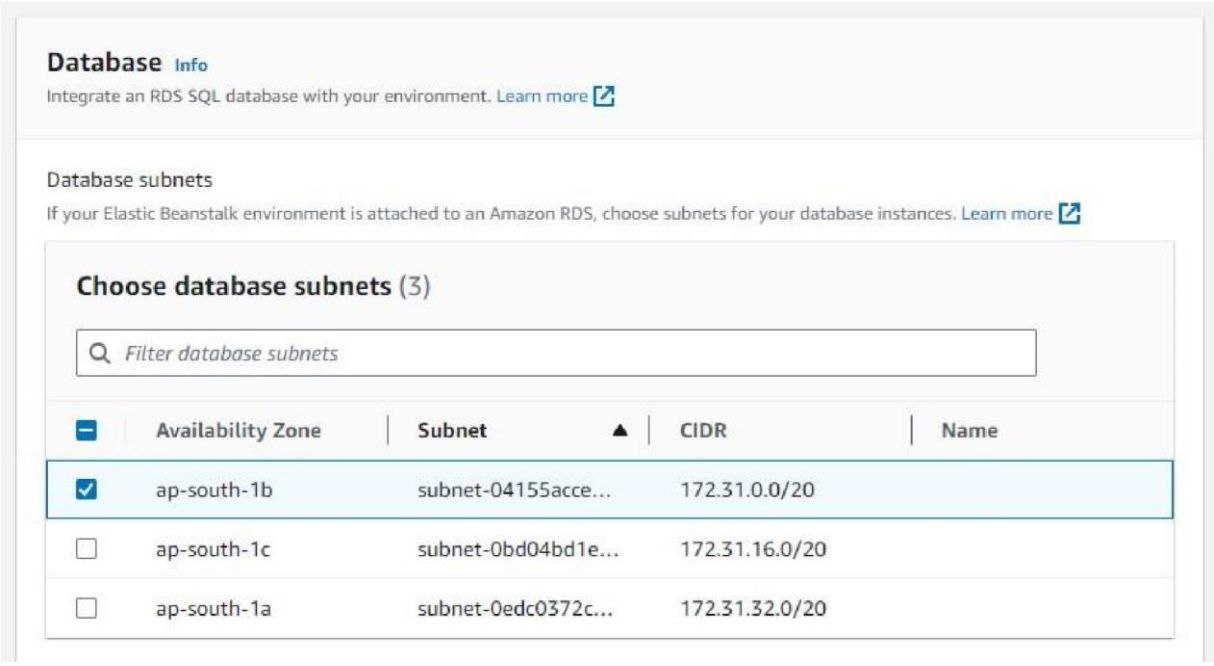
Step 14: Select role in previous working page



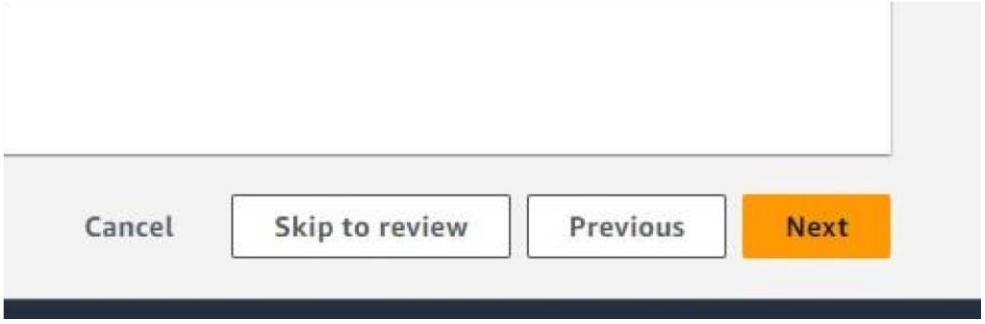
Step 15: Select database



Step 16:

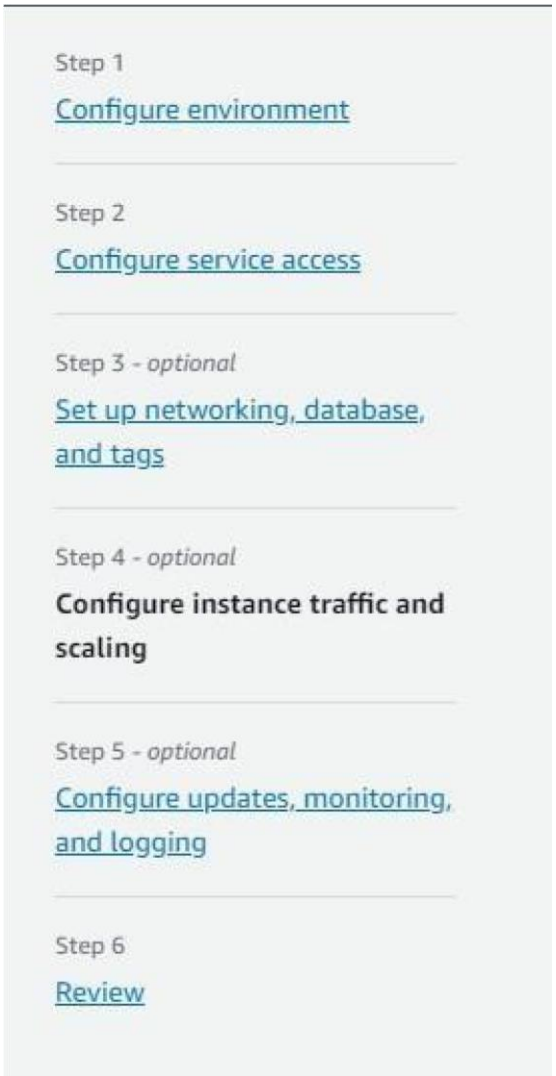


Step 17: Click Next



Step 18:

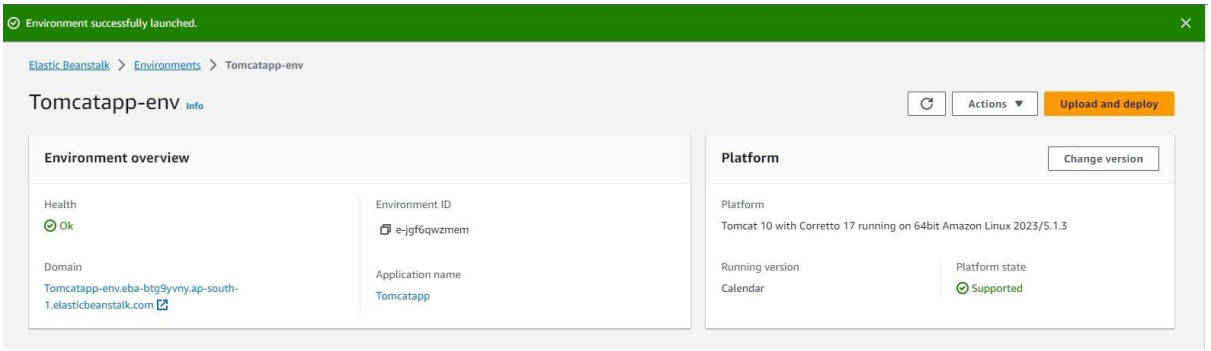
Skip Step 4: Keep as it is

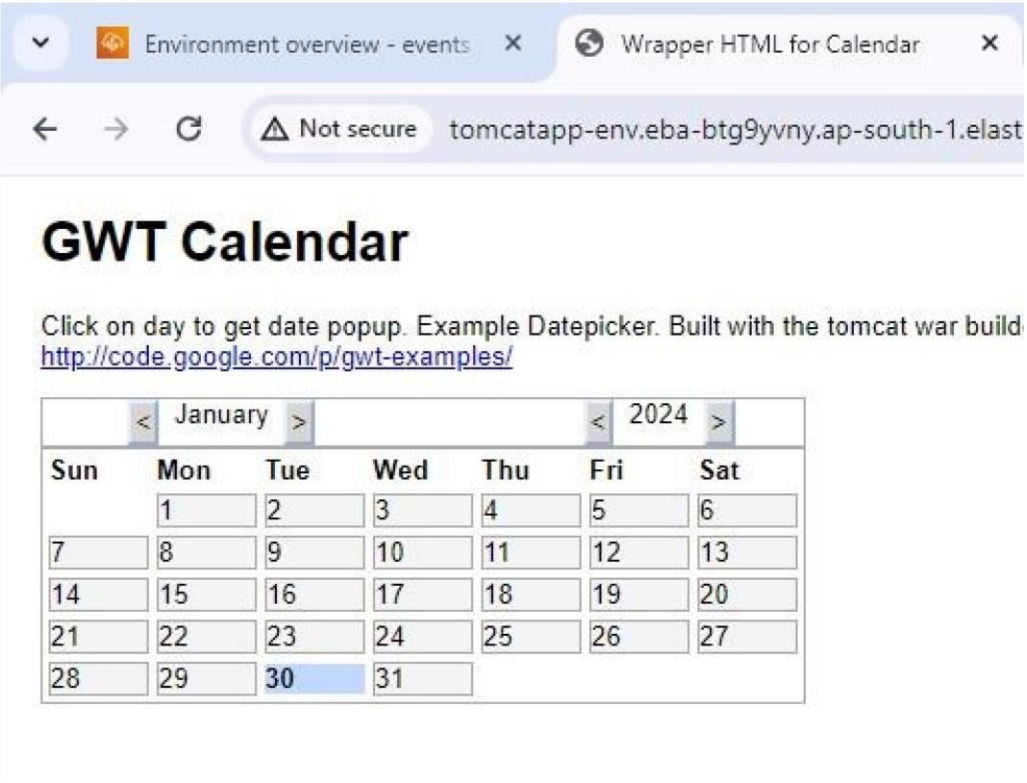


Step 19:

Step 5: Keep as it is and submit

Step 20: Launched


Environment successfully launched.
Elastic Beanstalk > Environments > Tomcatapp-env
Tomcatapp-env Info
Actions
Upload and deploy
Environment overview
Health
Ok
Environment ID
e-jgf6qwzmem
Domain
Tomcatapp-env.eba-btg9yvny.ap-south-1.elasticbeanstalk.com
Application name
Tomcatapp
Platform
Change version
Platform
Tomcat 10 with Corretto 17 running on 64bit Amazon Linux 2023/5.1.3
Running version
Calendar
Platform state
Supported


Environment overview - events
Wrapper HTML for Calendar
Not secure
tomcatapp-env.eba-btg9yvny.ap-south-1.elast
GWT Calendar
Click on day to get date popup. Example Datepicker. Built with the tomcat war build
http://code.google.com/p/gwt-examples/
January
2024
Sun Mon Tue Wed Thu Fri Sat