

Ex. No: 3

Date:

Create, Deploy and Manage Java Web Application in AWS

AIM

To create, deploy and manage Java web application in Amazon Web Services.

SCENARIO

You are a junior cloud engineer in a tech company, and your manager has assigned you the task of creating, deploying, and managing a Java web application on Amazon Web Services (AWS). The application will be used by the development team for testing new features before production deployment.

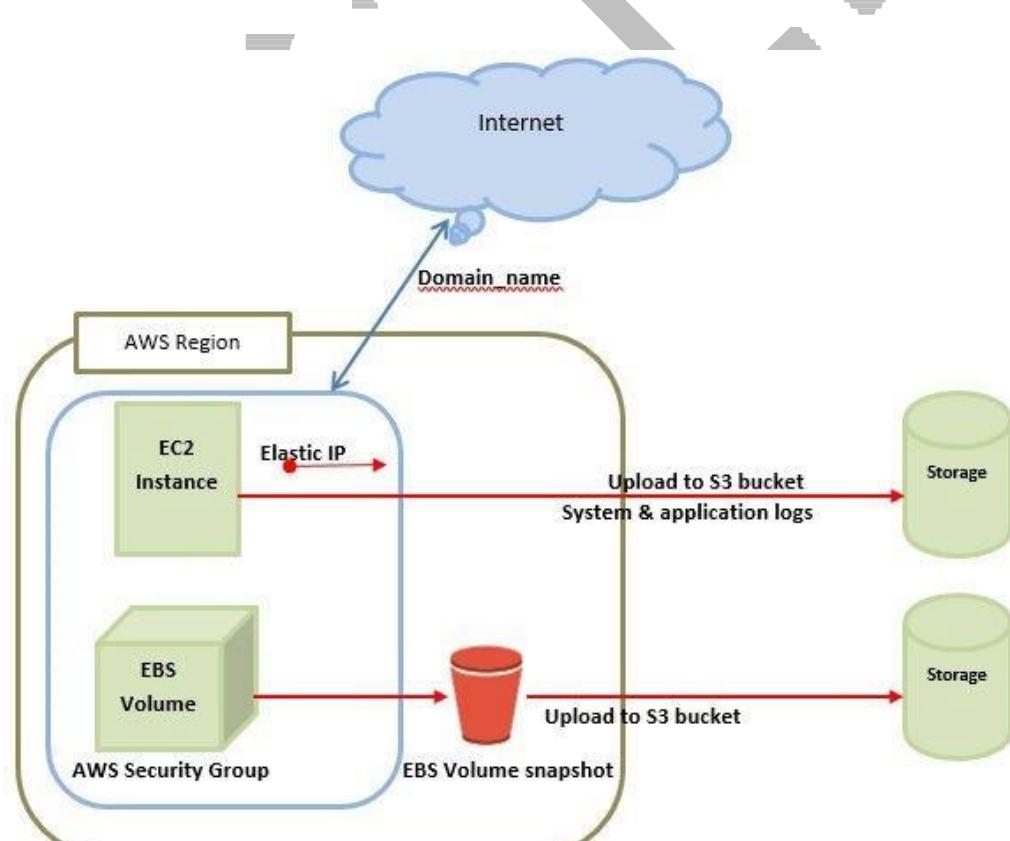
DESCRIPTION

AMAZON WEB SERVICES (AWS)

Amazon Web Services (AWS) is Amazon's cloud web hosting platform that offers flexible, reliable, scalable, easy-to-use, and cost-effective solutions. This tutorial covers various important topics illustrating how AWS works and how it is beneficial to run your website on Amazon Web Services.

AWS Basic Architecture

AWS EC2, where EC2 stands for Elastic Compute Cloud. EC2 allows users to use virtual machines of different configurations as per their requirement. It allows various configuration options, mapping of individual server, various pricing options, etc. We will discuss these in detail in AWS Products section.



Note – In the above diagram **S3** stands for Simple Storage Service. It allows the users to store and retrieve various types of data using API calls. It doesn't contain any computing element. We will discuss this topic in detail in AWS products section.

AWS Elastic Beanstalk

AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

User can simply upload the code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring. At the same time, user can retain full control over the AWS resources powering the application and can access the underlying resources at any time.

There is no additional charge for Elastic Beanstalk - user can pay only for the AWS resources needed to store and run your applications.

AWS Elastic Beanstalk is an orchestration service offered by Amazon Web Services for deploying applications which orchestrates various AWS services, including EC2, S3, Simple Notification Service (SNS), CloudWatch, autoscaling, and Elastic Load Balancers. Deployment requires several components to be defined: an 'application' as a logical container for the project, a 'version' which is a deployable build of the application executable, a 'configuration template' that contains configuration information for both the Beanstalk environment and for the product. Finally, an 'environment' combines a 'version' with a 'configuration' and deploys them. Executables themselves are uploaded as archive files to S3 beforehand and the 'version' is just a pointer.

PROCEDURAL STEPS

1. To download all necessary setups use following links

JDK 8 Download:

<https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

Eclipse IDE for Java EE:

<https://www.eclipse.org/downloads/packages/release/neon/3/eclipse-ide-java-ee-developers>

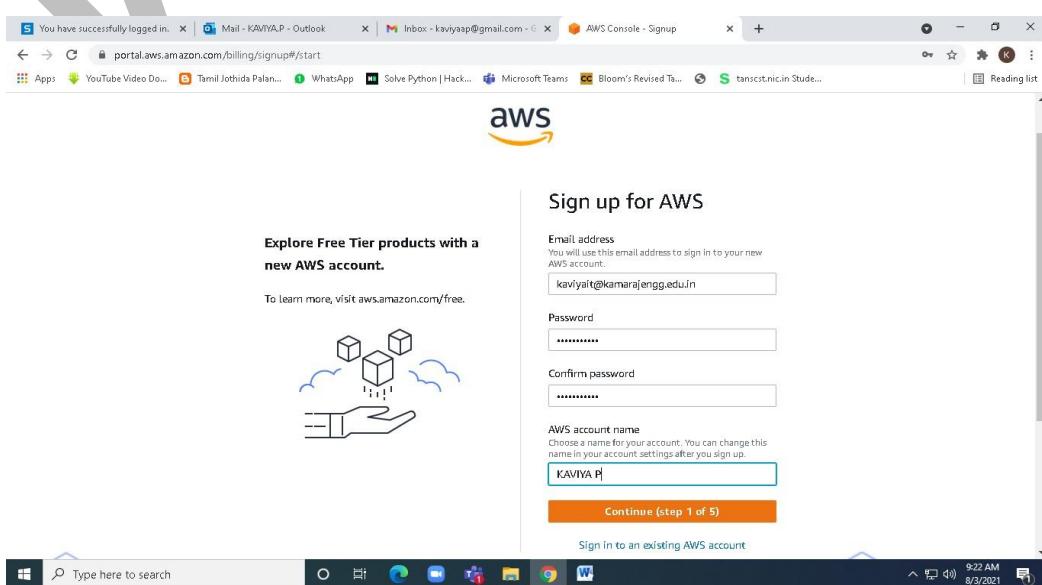
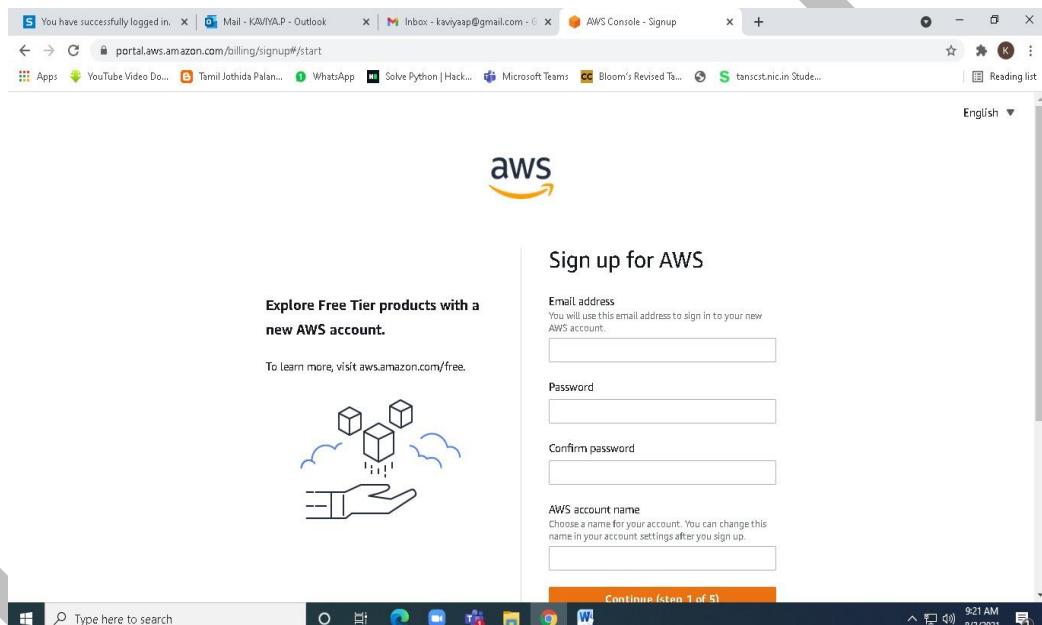
Apache Tomcat 8.0: <https://tomcat.apache.org/download-80.cgi>

2. Account Creation in AWS

2.1 Create an AWS account using

<https://portal.aws.amazon.com/billing/signup#/start>

Enter all necessary details



Enter Billing Information

The screenshot shows a Microsoft Edge browser window with the AWS sign-up page. The title bar says "Sign up for AWS". On the left, under "Secure verification", there is a message: "We will not charge for usage below AWS Free Tier limits. We temporarily hold INR 2 as a pending transaction for 3-5 days to verify your identity." In the center, there is a shield icon with a checkmark inside. On the right, there is a "Billing Information" section with fields for "Credit or Debit card number" (with VISA, MasterCard, AMEX, and DISCOVER logos), "Expiration date" (Month and Year dropdowns), "Cardholder's name" (text input), "CVV" (text input), and "Billing address" (with a radio button for "Use my contact address"). The status bar at the bottom shows "9:29 AM 8/3/2021".

Enter OTP for payment (Message received in registered Mobile Number)

The screenshot shows a Microsoft Edge browser window with the SBI ACS payment page. The title bar says "SBI ACS". The page has a "MasterCard SecureCode" logo and an SBI logo. It displays payment details: Merchant: AMAZON INTERNET SERVICES, Transaction Amount: ₹ 2.00, SBI Debit Card: 5103xxxx xxxx xx59. Below this is an "Authenticate Payment" section with the text "OTP sent to your mobile number ending 90xx9xxx14". It has a "Enter One Time Password (OTP)" input field, a "Make Payment" button, and a "Resend OTP" link. At the bottom, it says "Cancel and Go back to merchant" and "PCI DSS Certified". A note in a box says: "Important - To activate your SBI debit card for online transactions (if you are a new SBI customer or haven't transacted online after June 01, 2015), please send an sms SWON<space>ECOM<space>XXXX to 09223966666 (where XXXX is the last 4 digits of your SBI Debit Card) from your registered mobile number." The status bar at the bottom shows "9:32 AM 8/3/2021".

Confirm your Identity

The screenshot shows a Microsoft Edge browser window with the AWS sign-up URL: portal.aws.amazon.com/billing/signup?ppw-messageProcessedResponse=APPROVED&ppw-widgetEvent=MessageProcessedEvent&ppw-widgetState=5-7aCz9pUr8itr-wzEKA.... The page title is "Sign up for AWS". A large icon of a person with a checkmark is displayed. The main text says: "Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code." Below this, there are two radio buttons: "Text message (SMS)" (selected) and "Voice call". A dropdown menu for "Country or region code" shows "United States (+1)". A text input field for "Mobile phone number" is empty. A "Security check" section includes a CAPTCHA image. The Windows taskbar at the bottom shows various pinned apps like Mail, Outlook, and Teams.

Confirm your Identity using Verification Code (Code received in registered Mobile Number)

The screenshot shows the same Microsoft Edge browser window with the AWS sign-up URL. The page title is "Sign up for AWS". The "Confirm your identity" section now has a "Verify code" input field, which is empty. Below it is a large orange "Continue (step 4 of 5)" button. A note below the button says: "Having trouble? Sometimes it takes up to 10 minutes to retrieve a verification code. If it's been longer than that, return to the previous page and try again." The Windows taskbar at the bottom shows various pinned apps like Mail, Outlook, and Teams.

Select a support plan → Basic support - Free

The screenshot shows the AWS Support Plan selection page. It features three main sections:

- Basic support - Free**: Recommended for new users just getting started with AWS. Includes 24x7 self-service access to AWS resources, account and billing issues, and access to Personal Health Dashboard & Trusted Advisor. Represented by a notepad icon.
- Developer support - From \$29/month**: Recommended for developers experimenting with AWS. Includes email access to AWS Support during business hours and 12 (business)-hour response times. Represented by a laptop icon.
- Business support - From \$100/month**: Recommended for running production workloads on AWS. Includes 24x7 tech support via email, phone, and chat, 1-hour response times, and full set of Trusted Advisor best-practice recommendations. Represented by a briefcase icon.

Below these sections, there is a note about Enterprise level support: "From \$15,000 a month you will receive 15-minute response times and concierge-style experience with an assigned Technical Account Manager. [Learn more](#)".

AWS account creation is successful

The screenshot shows the AWS account creation success page. It features the AWS logo at the top, followed by a large illustration of a rocket launching from a cloud.

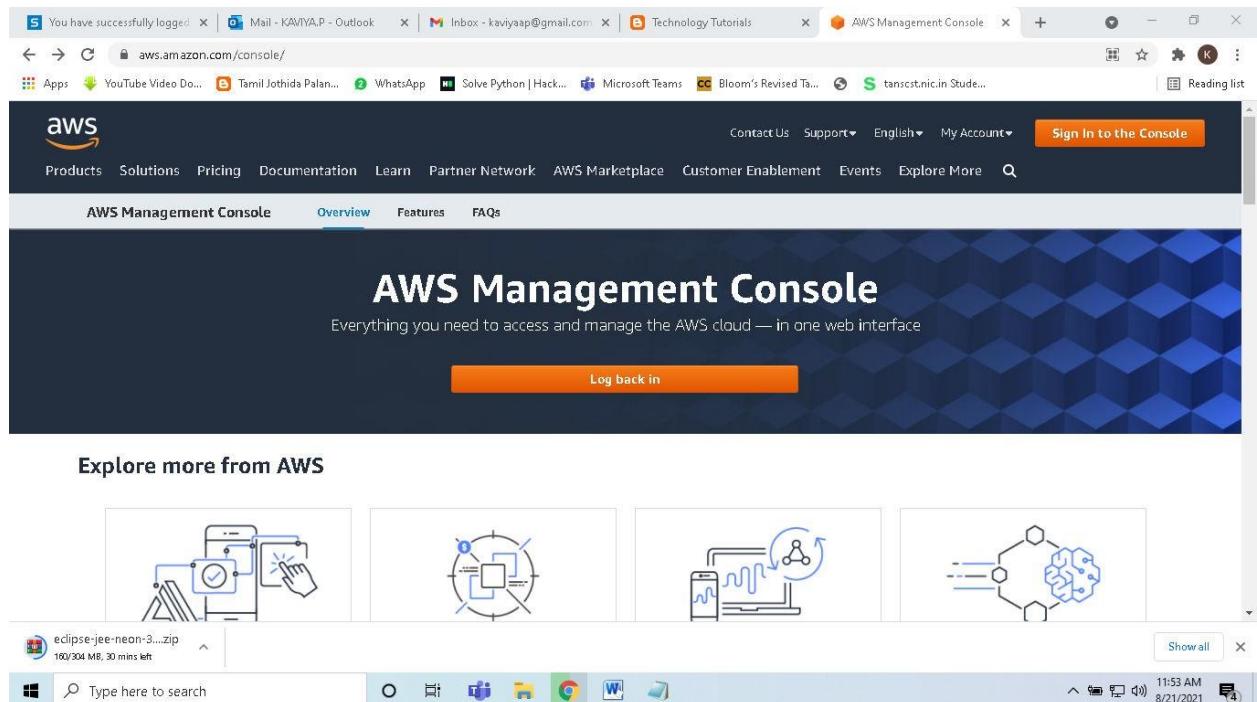
Congratulations

Thank you for signing up for AWS.
We are activating your account, which should only take a few minutes. You will receive an email when this is complete.

[Go to the AWS Management Console](#)

2.2 AWS – Sign in to the console

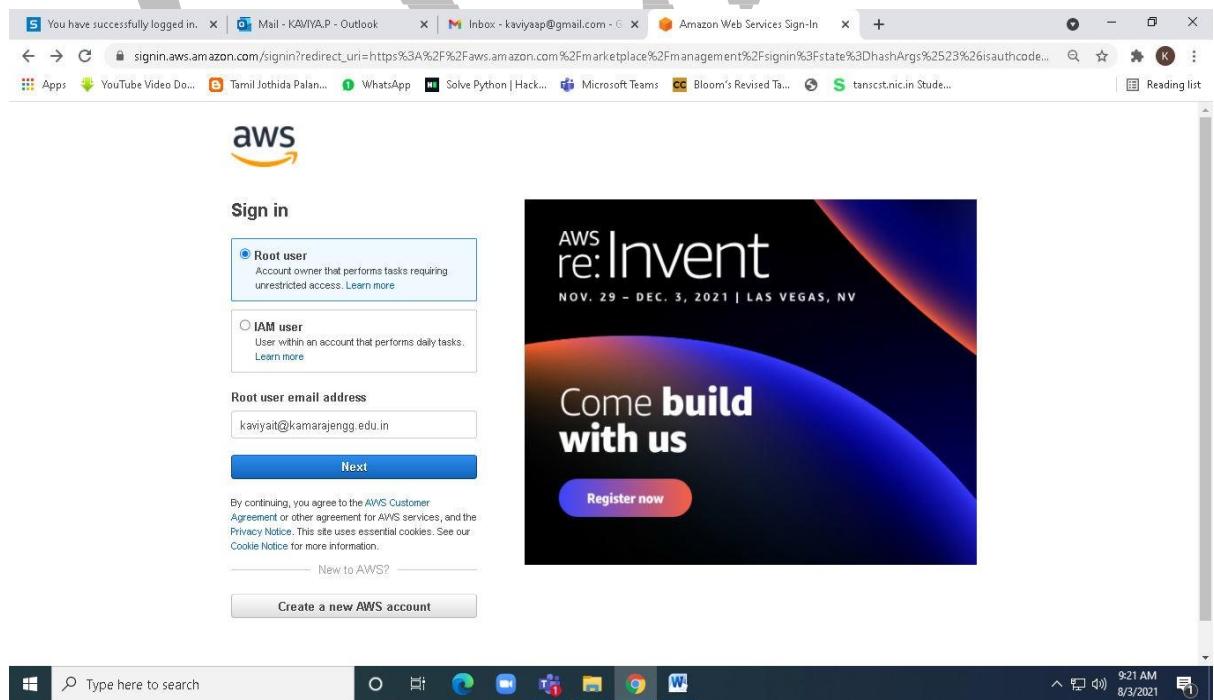
Link: <https://aws.amazon.com/console/>



Sign in as “Root User”

Give necessary credentails (E-Mail address, Security check and Password)

Enter E-Mail Address



Enter Security check

Type the characters seen in the image below

76g7t8

Submit

Amazon Elasticache for Redis

Boost application performance with microsecond latency

Enter Password and Click “Sign in”

Email: kaviyait@kamarajengg.edu.in

Password [Forgot password?](#)

Sign in

Sign in to a different account

Create a new AWS account

Amazon Elasticache for Redis

Boost application performance with microsecond latency

AWS Management Console & Click “Elastic Beanstalk”

The screenshot shows the AWS Management Console homepage. The top navigation bar includes links for Mail, Inbox, Technology Tutorials, AWS Management Console, and other services like YouTube Video, WhatsApp, and Microsoft Teams. The main content area features a large "AWS Management Console" title, a sidebar with "AWS services" (Recently visited services: AWS Marketplace Subscriptions, Elastic Beanstalk), and a "Build a solution" section. On the right, there are "Stay connected to your AWS resources on-the-go" and "Explore AWS" sections. The bottom of the page shows standard browser controls and a taskbar.

In Elastic Beanstalk – Click “Create Application”

The screenshot shows the Amazon Elastic Beanstalk Compute service page. The top navigation bar is identical to the previous screenshot. The main content area features a large "Amazon Elastic Beanstalk" title with the subtitle "End-to-end web application management". Below this, there's a "Get started" section with a "Create Application" button, a "How it works" section, and a detailed description of the service. A sidebar on the left lists "Environments", "Applications", and "Change history". The bottom of the page shows standard browser controls and a taskbar.

AWS Services

The screenshot shows the AWS Management Console with the URL <https://us-east-2.console.aws.amazon.com/elasticbeanstalk/home/?region=us-east-2#/welcome>. The browser interface includes tabs for Mail, Presenting..., Stop presenting, and Link Manager. The AWS logo is at the top left, followed by 'Services'. A search bar says 'Search for services, features, marketplace products, and docs [Alt+S]'. The main content area is titled 'All services' and lists various AWS services under categories: Favorites, Compute, Developer Tools, Machine Learning, AWS Cost Management, Recently visited, Containers, Customer Enablement, Amazon Rekognition, AR & VR, Storage, Robotics, and Application Integration.

AWS Services → All Services → Compute → EC2

This screenshot is identical to the one above, showing the AWS Management Console homepage. The URL is the same: <https://us-east-2.console.aws.amazon.com/elasticbeanstalk/home/?region=us-east-2#/welcome>. The browser interface, AWS logo, and search bar are identical. The main content area shows the 'All services' list, with the 'Compute' category expanded to show EC2, Lightsail, Lambda, Batch, Elastic Beanstalk, Serverless Application Rep..., AWS Outposts, EC2 Image Builder, and AWS App Runner. An arrow points from the 'Compute' heading to the EC2 link.

Initially “no instance” is running

The screenshot shows the AWS EC2 Dashboard. The left sidebar has sections for EC2 Dashboard, Instances (with sub-options like Instances, Instance Types, Launch Templates, etc.), and Images. The main area is titled 'Resources' and displays a table of EC2 resources in the US East (Ohio) Region:

Instances (running)	0	Dedicated Hosts	0
Elastic IPs	0	Instances	0
Key pairs	0	Load balancers	0
Placement groups	0	Security groups	1
Snapshots	0	Volumes	0

A tooltip message at the bottom left of the dashboard area says: "Easily size, configure, and deploy Microsoft SQL Server Always On availability groups on AWS using the AWS Launch Wizard for SQL Server. Learn more".

The top navigation bar includes tabs for You have success..., Mail - KAVIYA.P..., Your Oracle Account, Eclipse IDE for Java..., Oracle Login - Sign In, Dashboard | EC2..., New Tab, and several pinned icons. The status bar at the bottom right shows the date and time: 12:19 PM 8/21/2021.

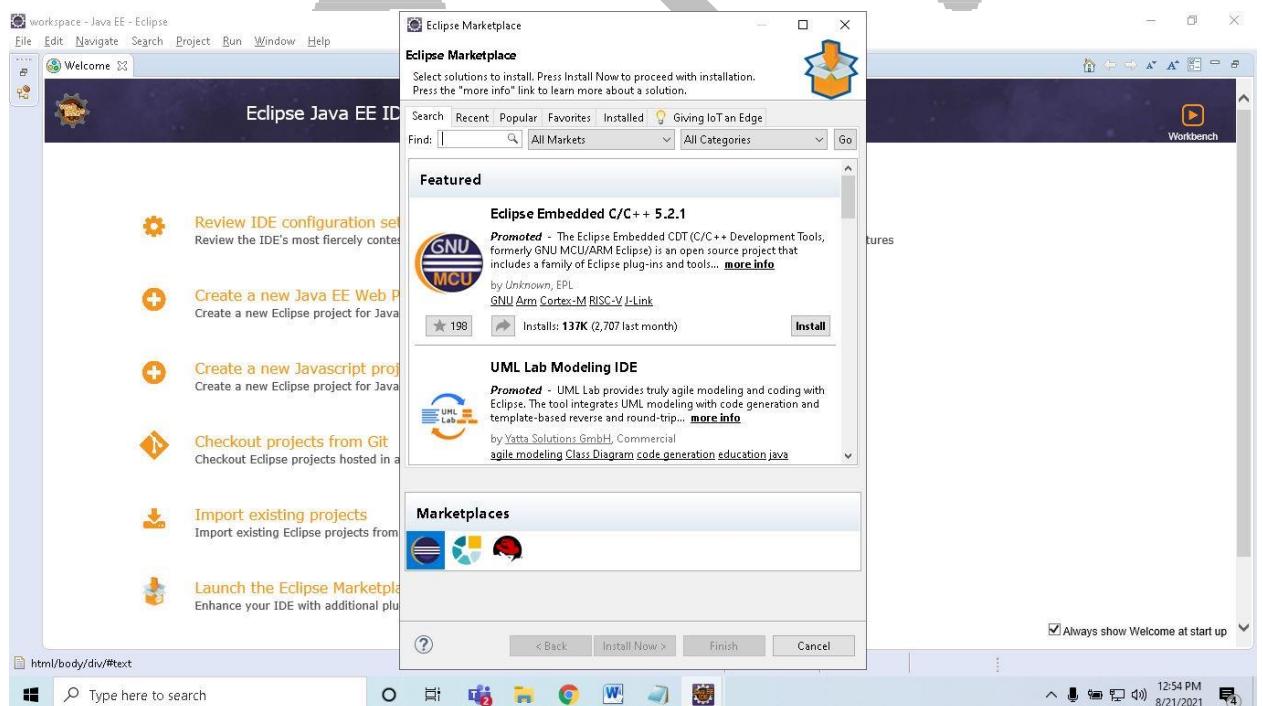
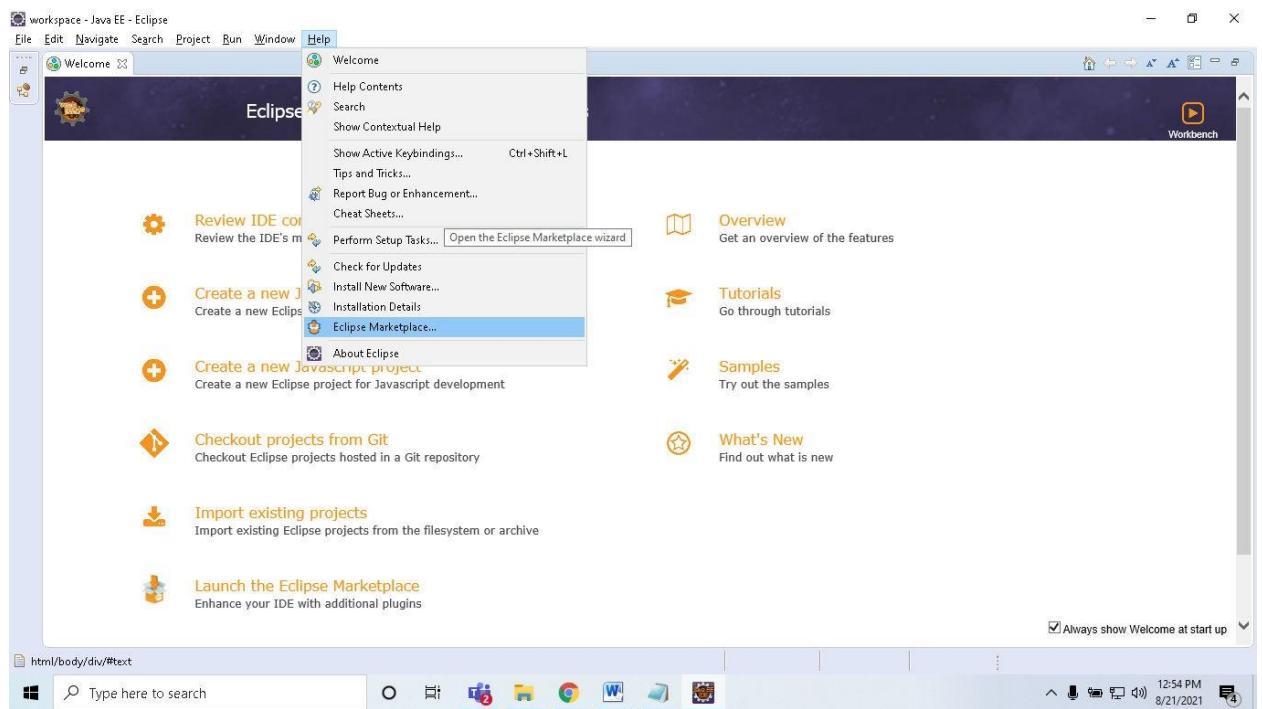
3. Open Eclipse IDE

The screenshot shows the Eclipse Java EE IDE for Web Developers. The window title is "workspace - Java EE - Eclipse". The main area is titled "Eclipse Java EE IDE for Web Developers" and contains a "Welcome" screen with several options:

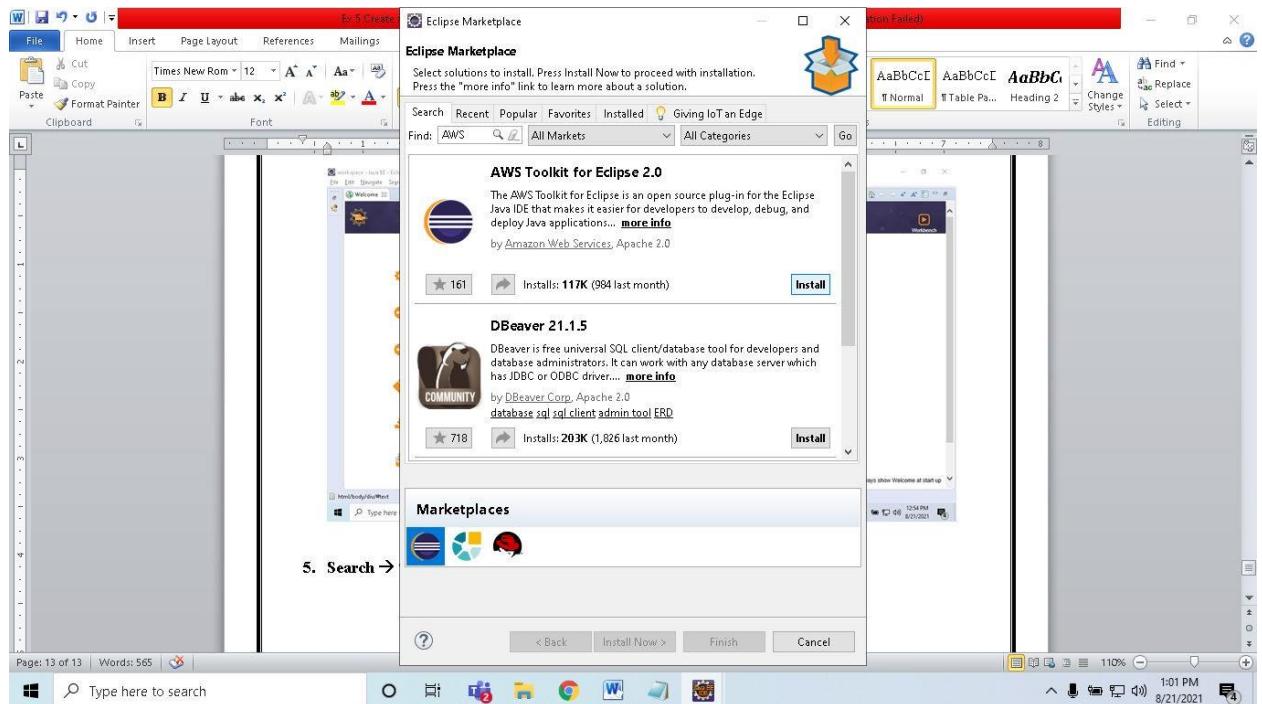
- Review IDE configuration settings
- Create a new Java EE Web Project
- Create a new Javascript project
- Checkout projects from Git
- Import existing projects
- Launch the Eclipse Marketplace
- Overview
- Tutorials
- Samples
- What's New

At the bottom right of the window, there is a checkbox labeled "Always show Welcome at start up". The status bar at the bottom right shows the date and time: 12:52 PM 8/21/2021.

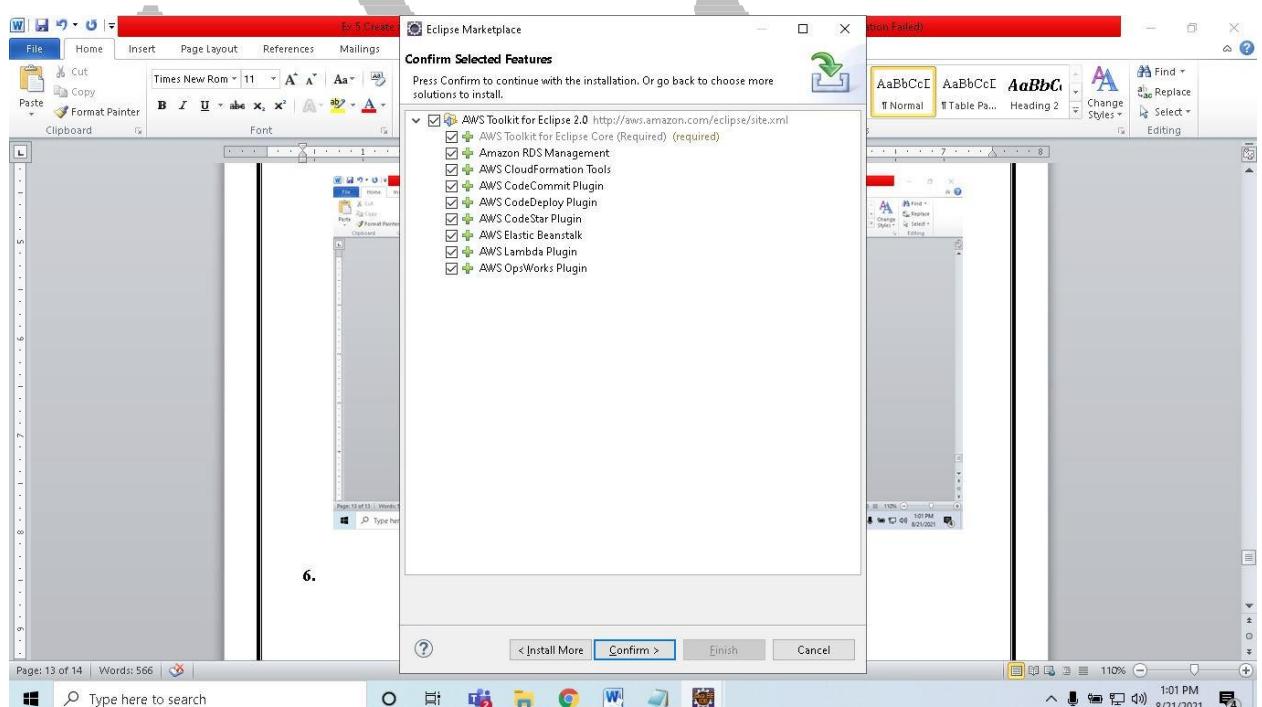
3.1 Go to “Help” option → Eclipse Marketplace



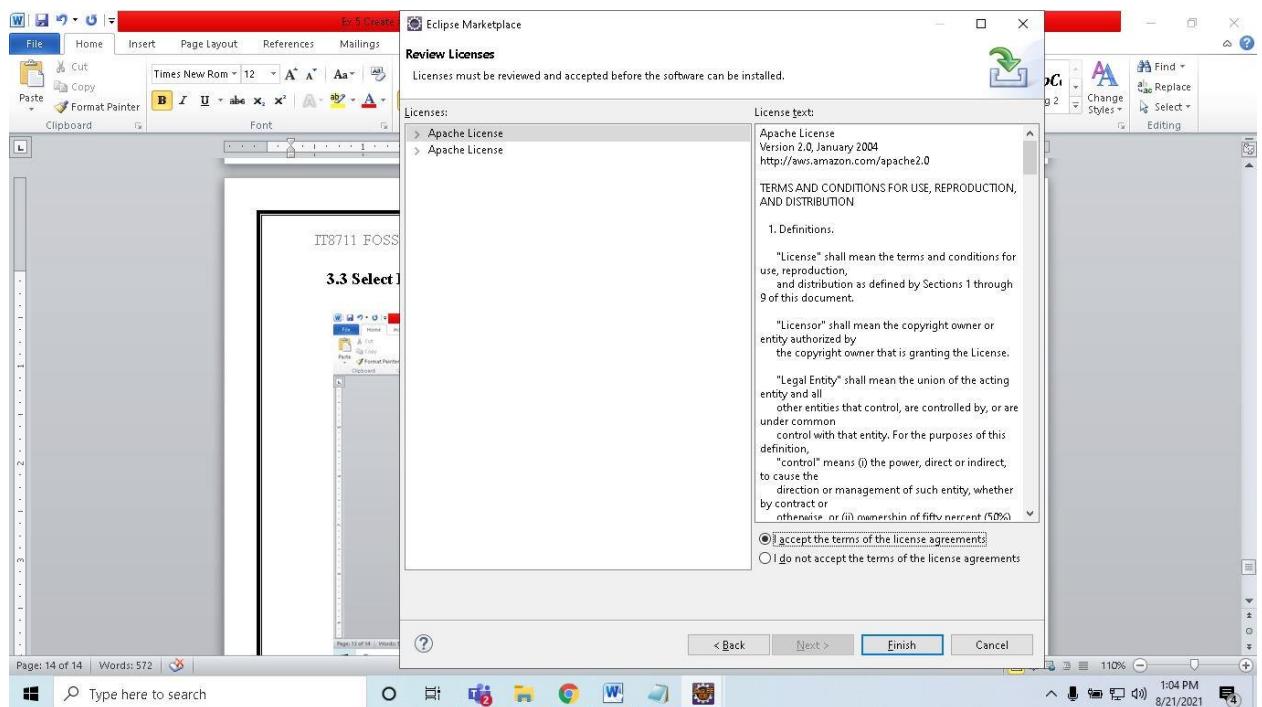
3.2 Search → “AWS Toolkit for Eclipse 2.0” → Click “Install”



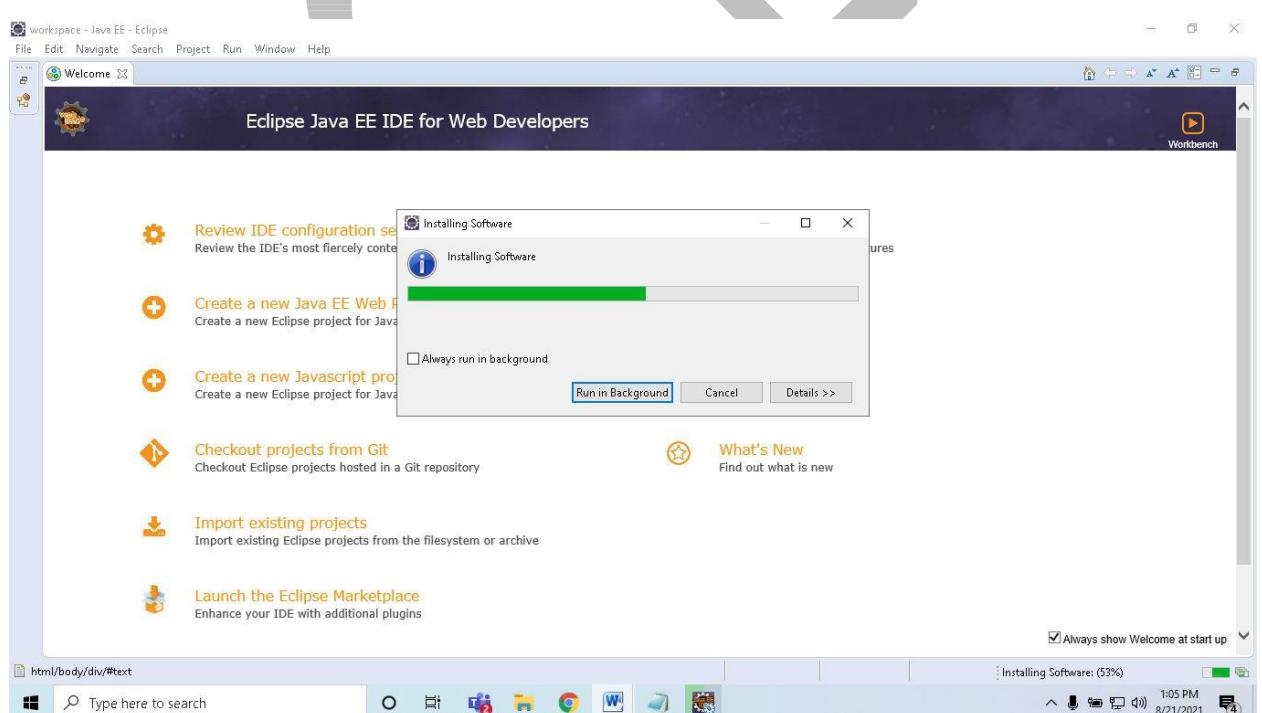
3.3 Select Features → Click “Confirm”



3.4 Review Licenses → Select “Accept the terms” → Click “Finish”

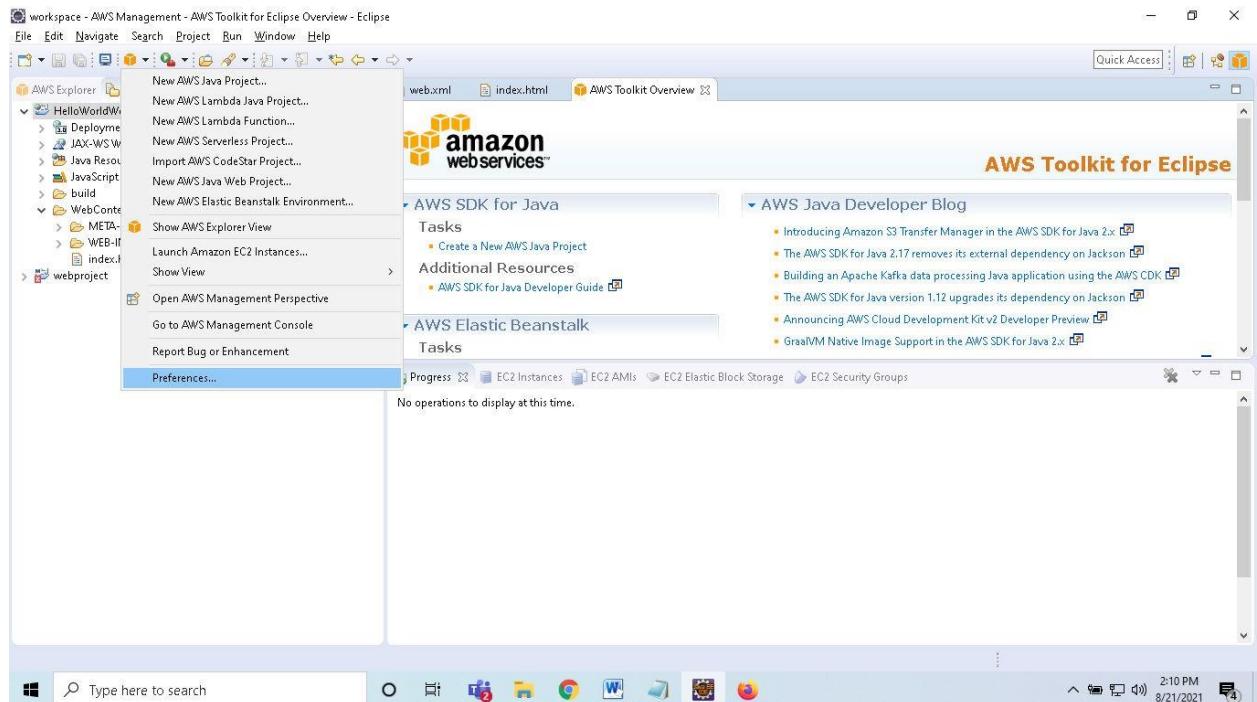


3.5 Installing Software

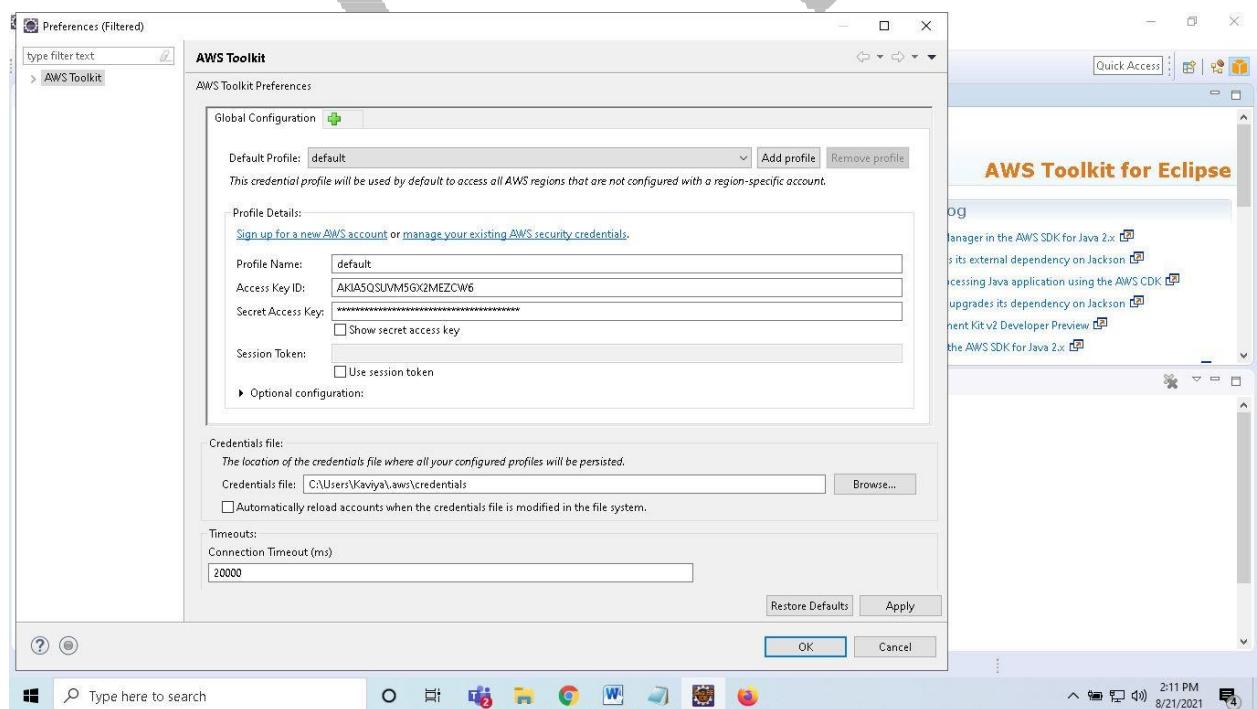


4. Connect Eclipse with AWS Account

4.1 Click “AWS” icon → Preferences



4.2 Click “manage your existing AWS security Credentials”



4.3 IAM Management Console is open in browser → Click “Access keys”

The screenshot shows the AWS IAM Management Console in a web browser. The left sidebar navigation includes 'Identity and Access Management (IAM)', 'Dashboard', 'Access management' (with sub-options like User groups, Users, Roles, Policies, Identity providers, Account settings), 'Access reports' (with sub-options like Access analyzer, Archive rules, Analyzers, Settings), 'Credential report', and 'Organization activity'. The main content area is titled 'Access keys (access key ID and secret access key)'. It contains a note about using access keys for programmatic calls and a warning about losing secret keys. A table lists existing access keys, including one created on Aug 17th, 2021, with details like Access Key ID (AKIA5QSUVM5GX2MEZCW6), Last Used (2021-08-21 14:13 UTC+0530), Last Used Region (us-west-2), Last Used Service (elasticbeanstalk), Status (Active), and Actions (Make Inactive | Delete). A 'Create New Access Key' button is visible. A note at the bottom encourages creating a new IAM user with limited permissions instead.

4.4 Click “Create New Access Key” → Download Key File

The screenshot shows the same AWS IAM Management Console interface as above, but with a 'Create Access Key' dialog box overlaid. The dialog box has a green checkmark indicating 'Your access key (access key ID and secret access key) has been created successfully.' It also contains a note about downloading the key file and a 'Show Access Key' button with 'Download Key File' and 'Close' options. The background content remains the same, showing the list of existing access keys.

The screenshot shows the AWS IAM Management Console interface. On the left, there's a navigation sidebar with options like Dashboard, Access management, and Access reports. The main area displays a list of access keys under the 'Access keys (access key ID)' section. A modal dialog box is open in the center, titled 'Opening rootkey.csv'. It contains the following text:
You have chosen to open:
rootkey.csv
which is: Text Document (90 bytes)
from: https://console.aws.amazon.com

What should Firefox do with this file?
 Your access key
Download your key if you do not download again.
 Open with Notepad (default)
 Save File

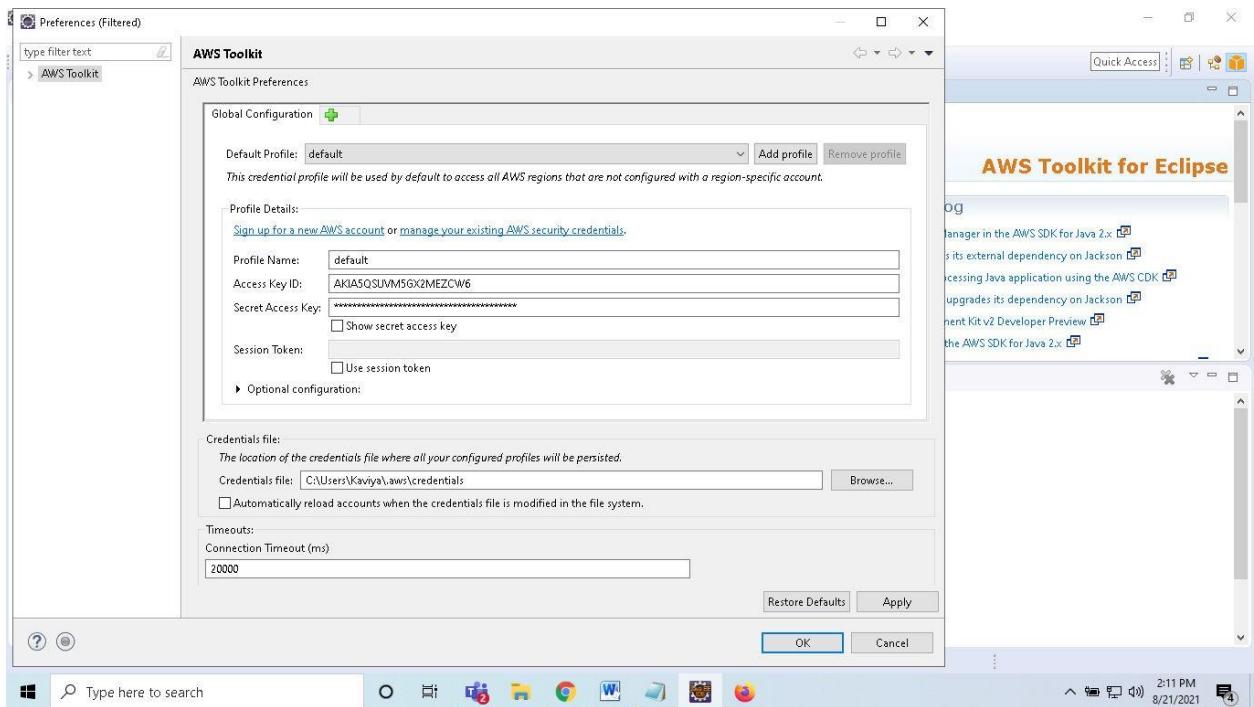
To help protect your s
▶ Show Access Key

OK Cancel

4.5 Open “rootkey.csv”

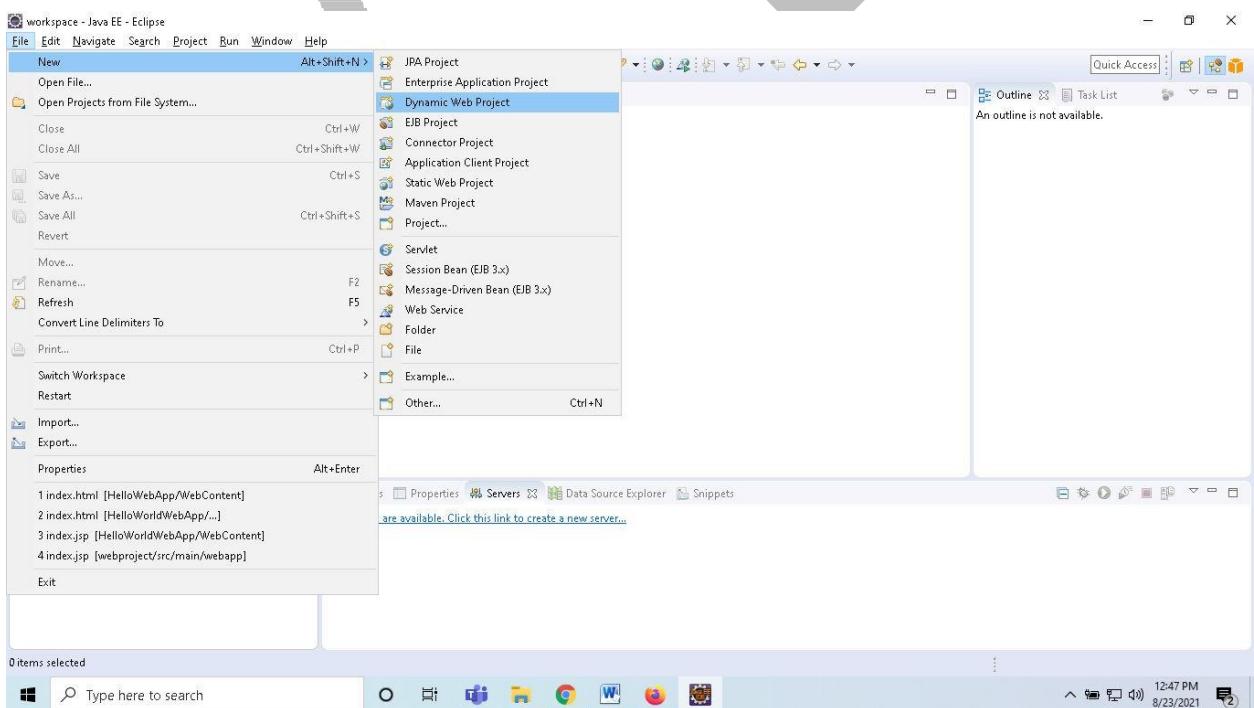
The screenshot shows a Microsoft Excel spreadsheet titled 'rootkey(1) - Microsoft Excel (Product Activation Failed)'. The spreadsheet has two rows of data:
1 AWSAccessKeyId=AKIA5QSUVM5G5I3LHA7Y
2 AWSSecretKey=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

4.6 Paste the AWS Access Key ID & Secret Access Key in AWS Toolkit Preferences from “rootkey.csv”

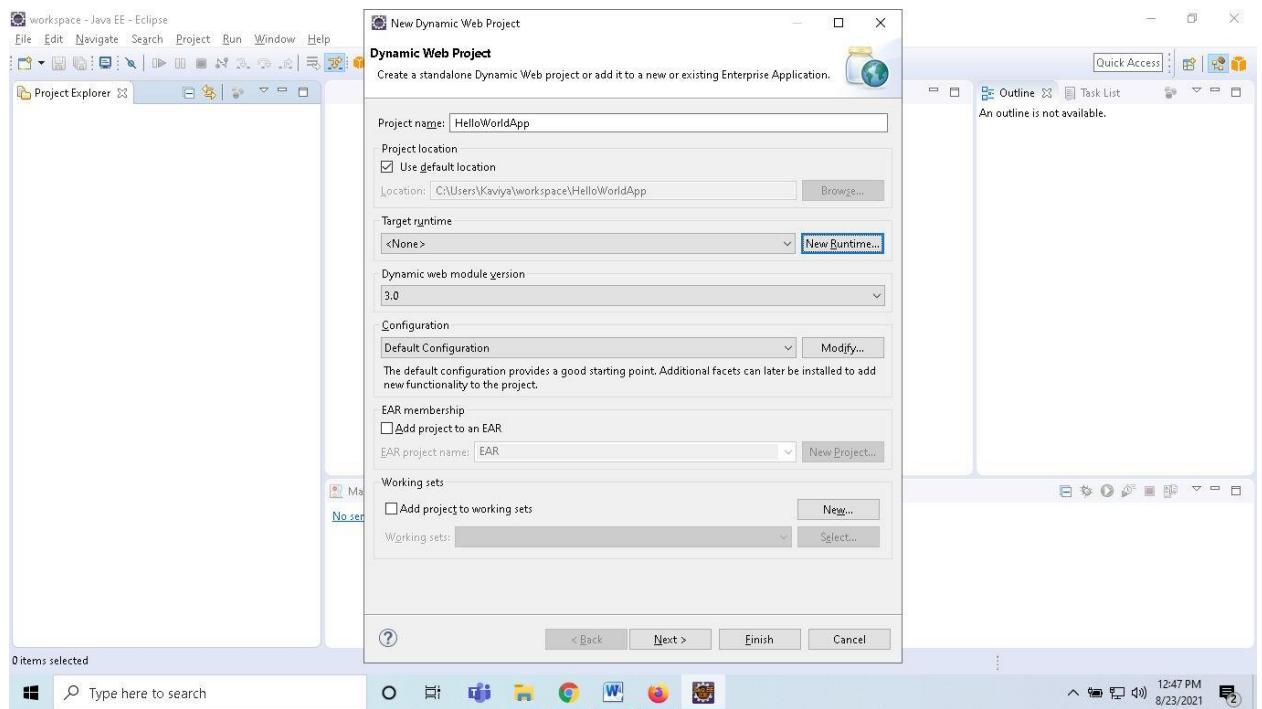


5. Develop Java Web Application in Eclipse IDE

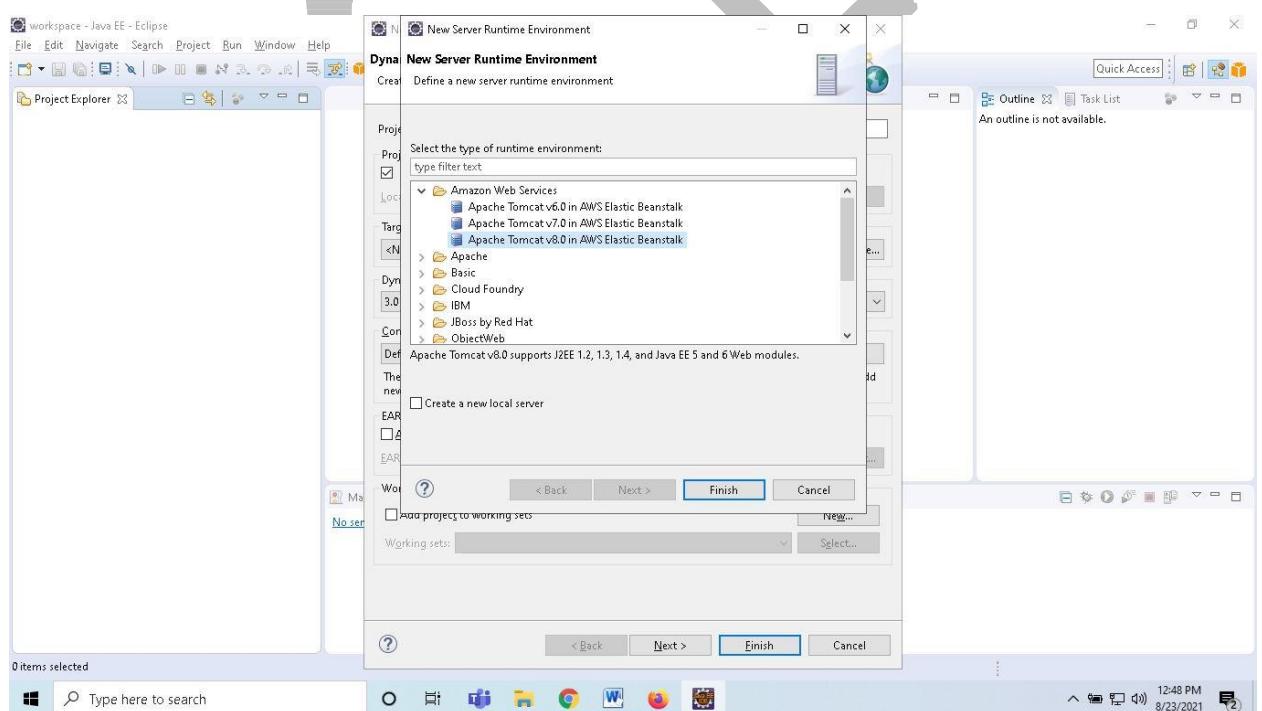
5.1 File → New → Dynamic Web Project



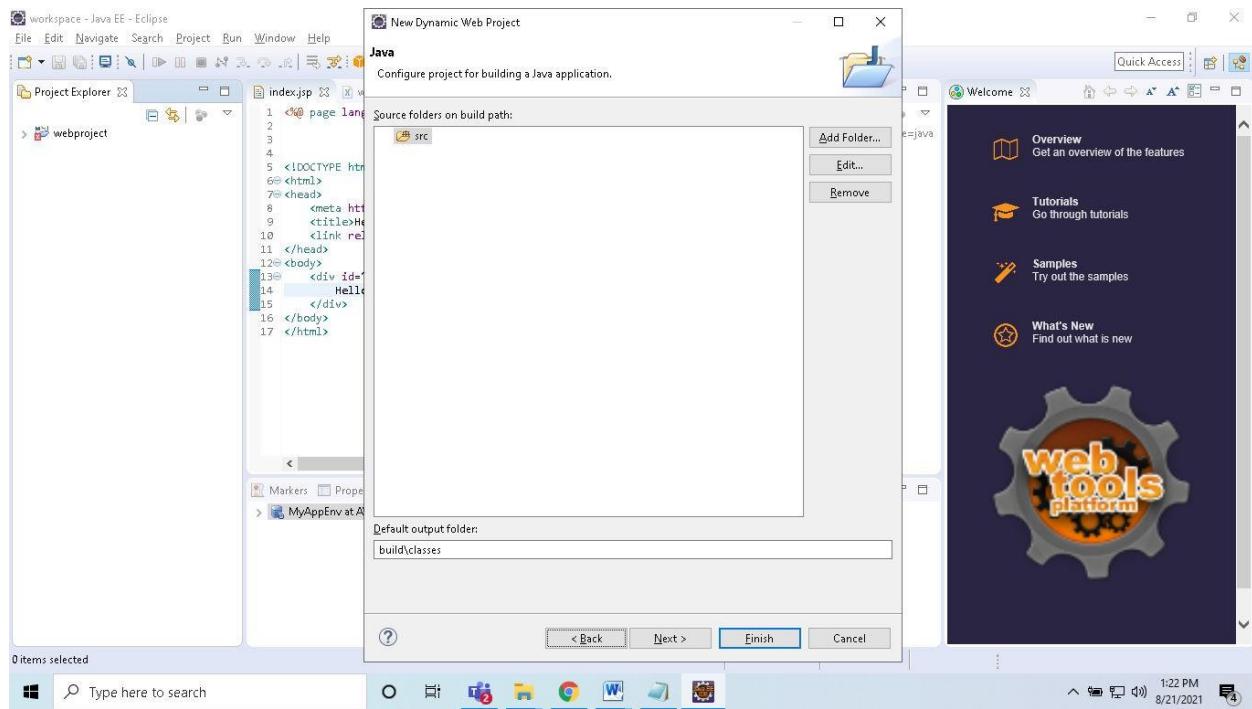
5.2 Give Project Name “HelloWorldApp”



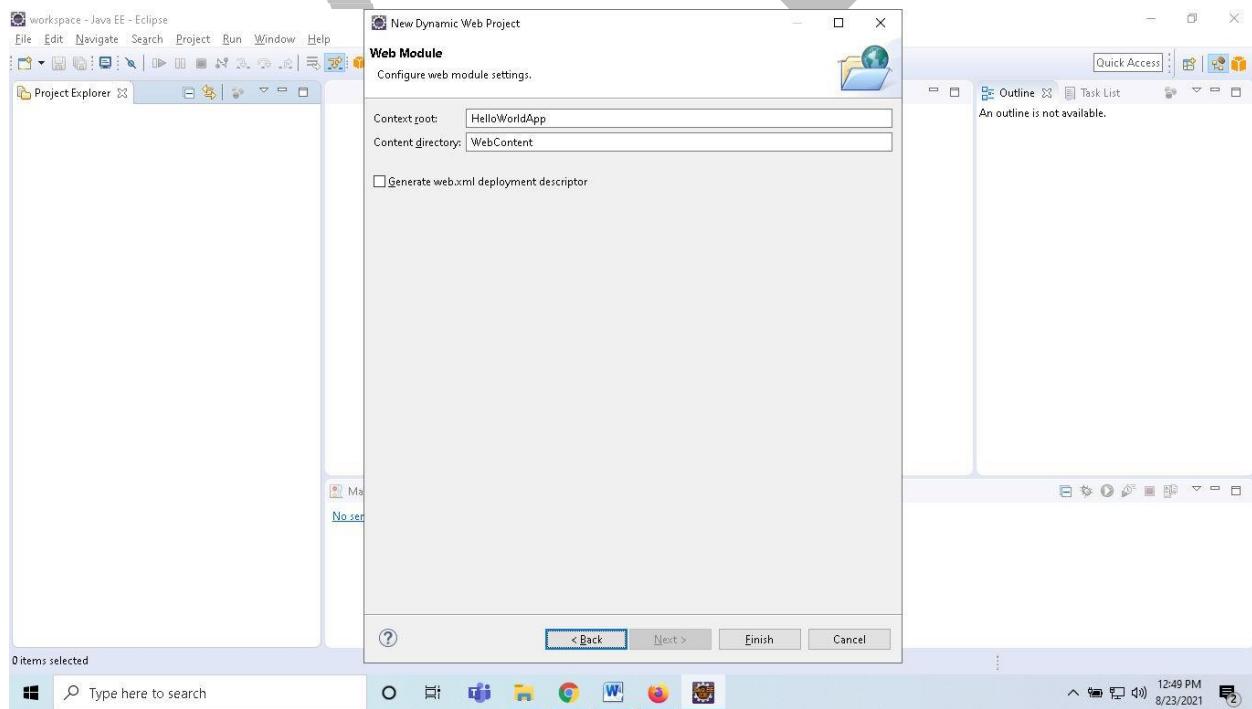
5.3 Choose Target Runtime → Choose “Apache Tomcat v8.0 in AWS Beanstalk” → Click “Finish” → Click “Next”



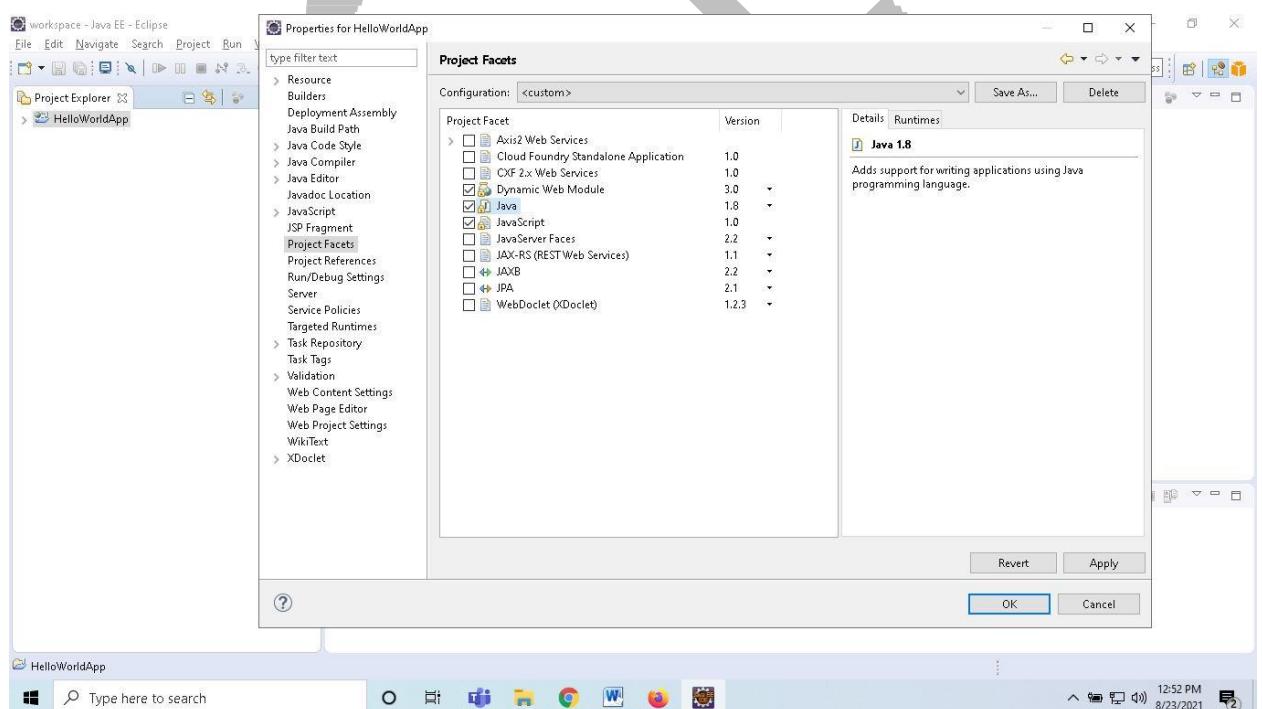
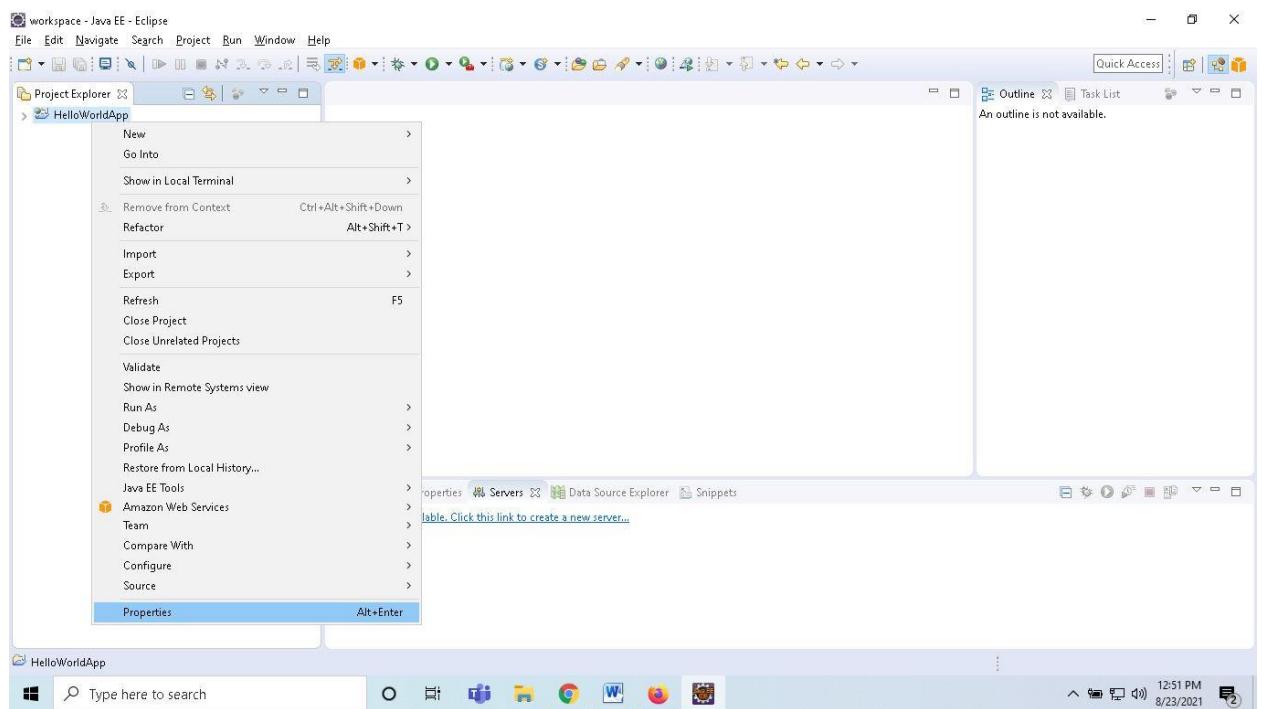
5.4 Configure project for building a Java application → Click “Next”



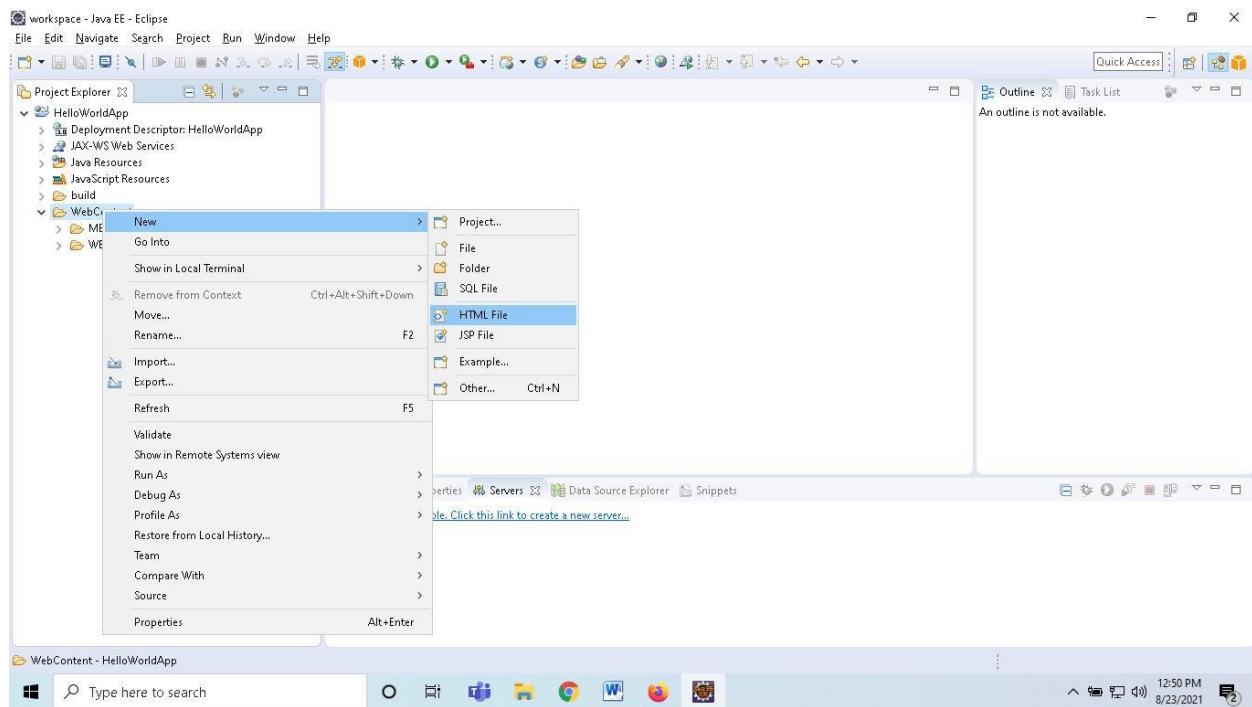
5.5 Configure web module settings → Click “Finish”



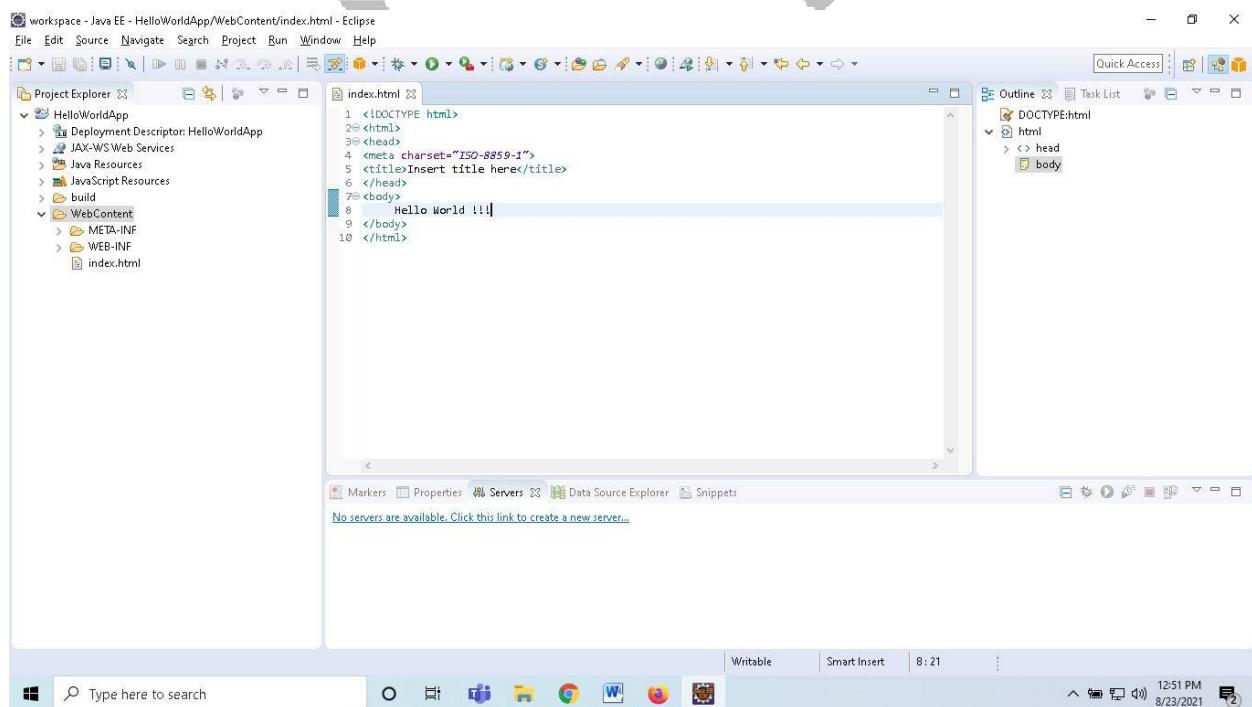
5.6 Check Project Facets → Dynamic Web Module & Java Version



5.7 Create a File “index.html”

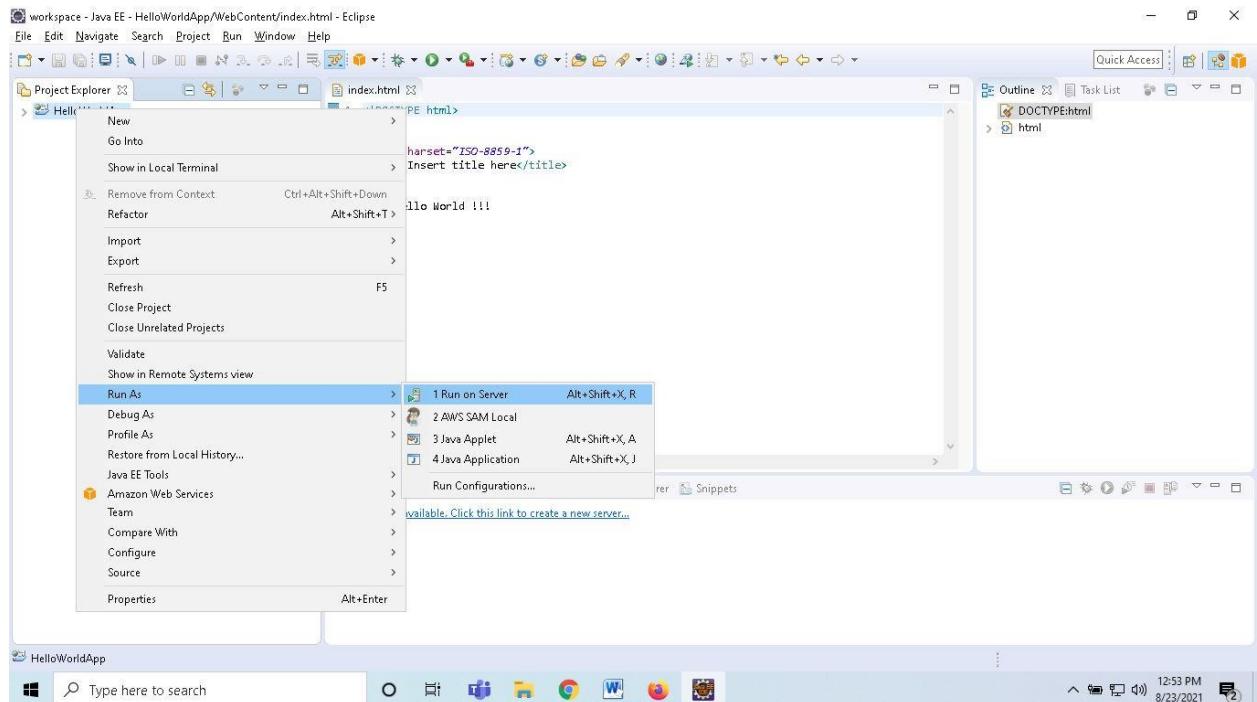


5.8 Add a code in “index.html”



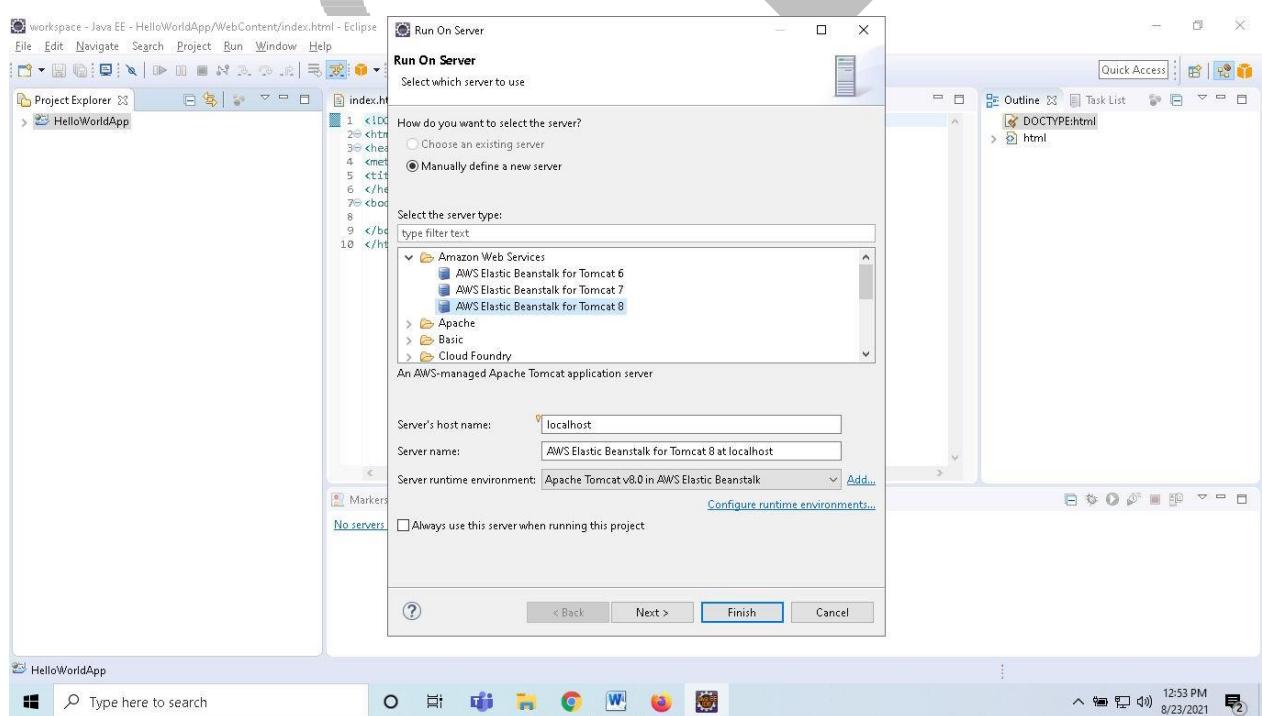
6. Deploy the application in AWS

6.1 Run the application → Choose “Run As” → Choose “Run on Server”

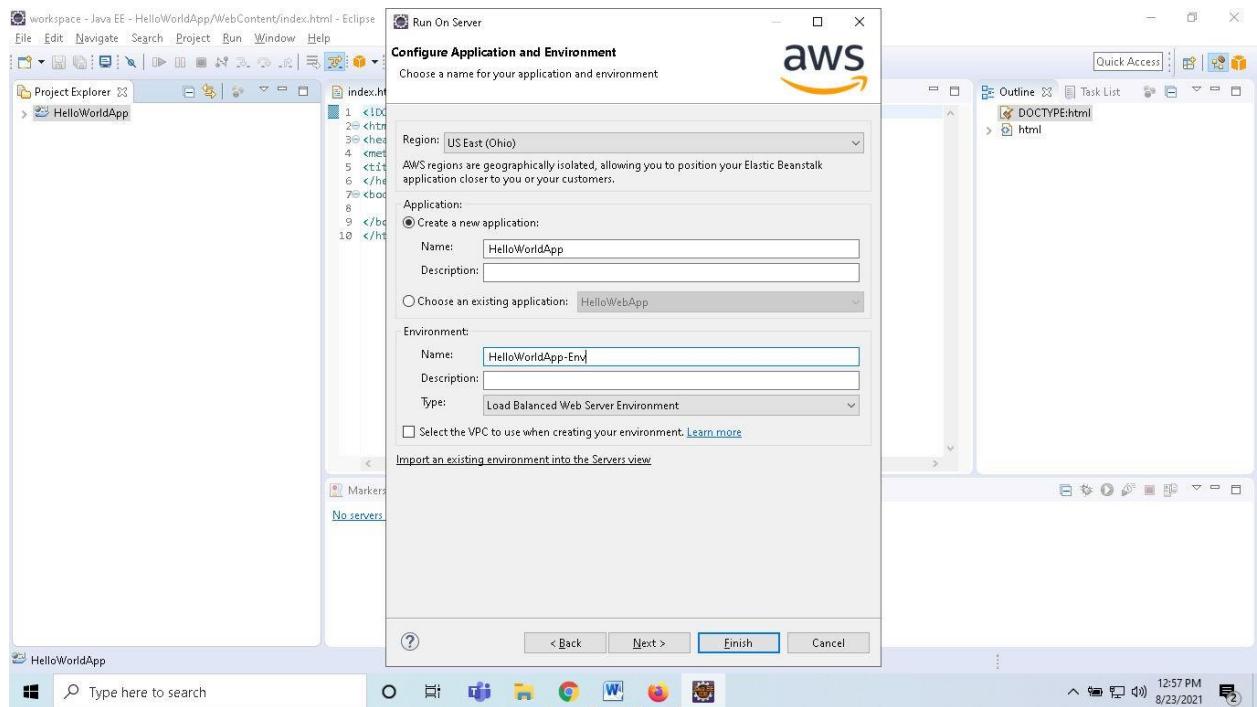


6.2 Run on Server → Select the server type as “AWS Elastic Beanstalk for Tomcat 8”

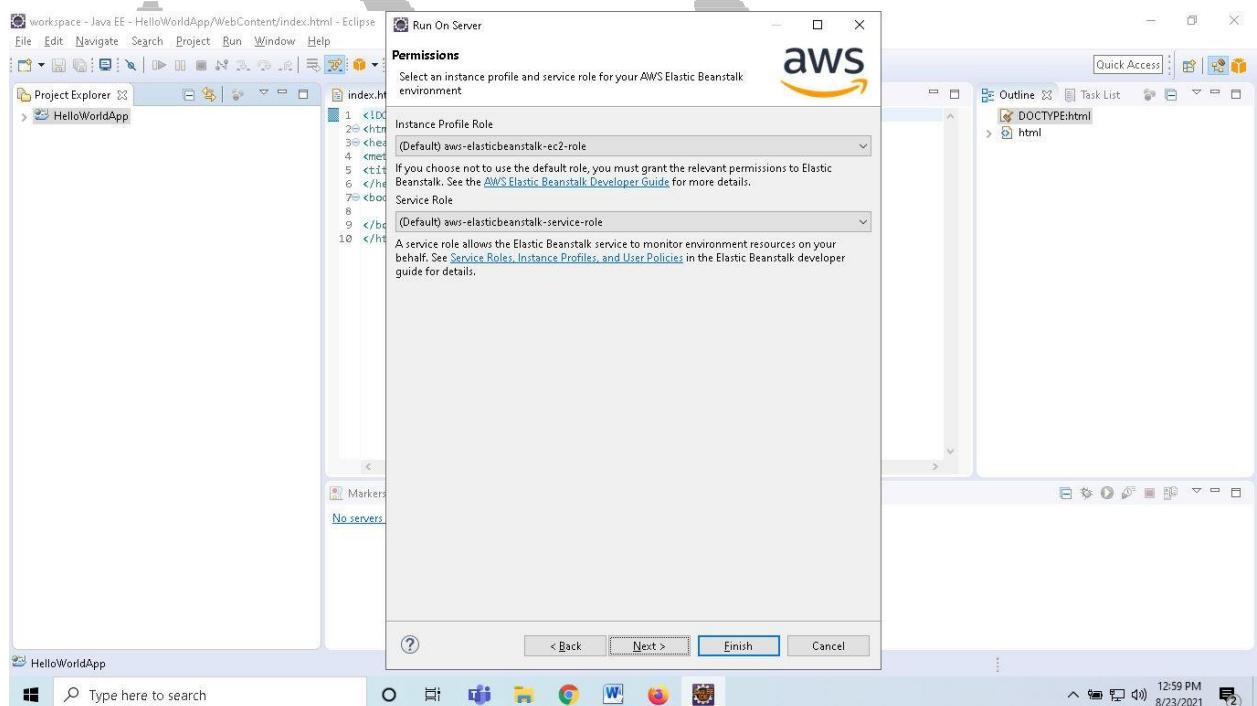
→ Click “Next”



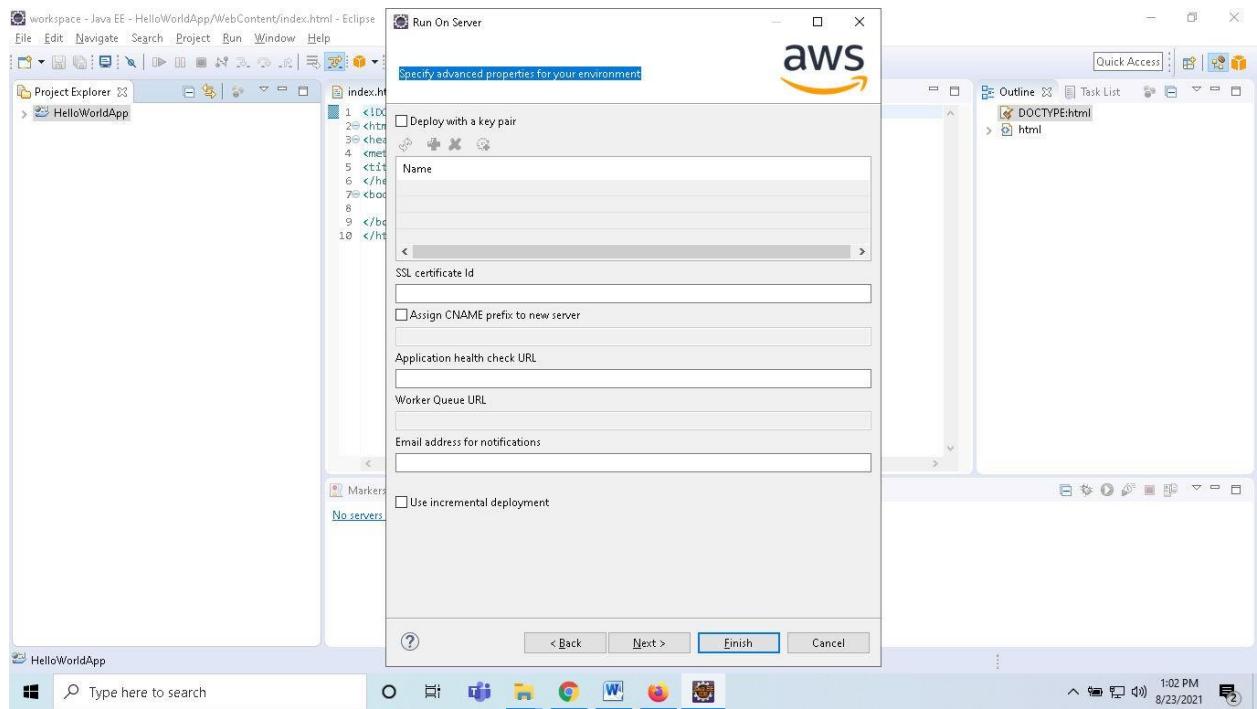
6.3 Configure Application and Environment → Give Region, Application and Environment details



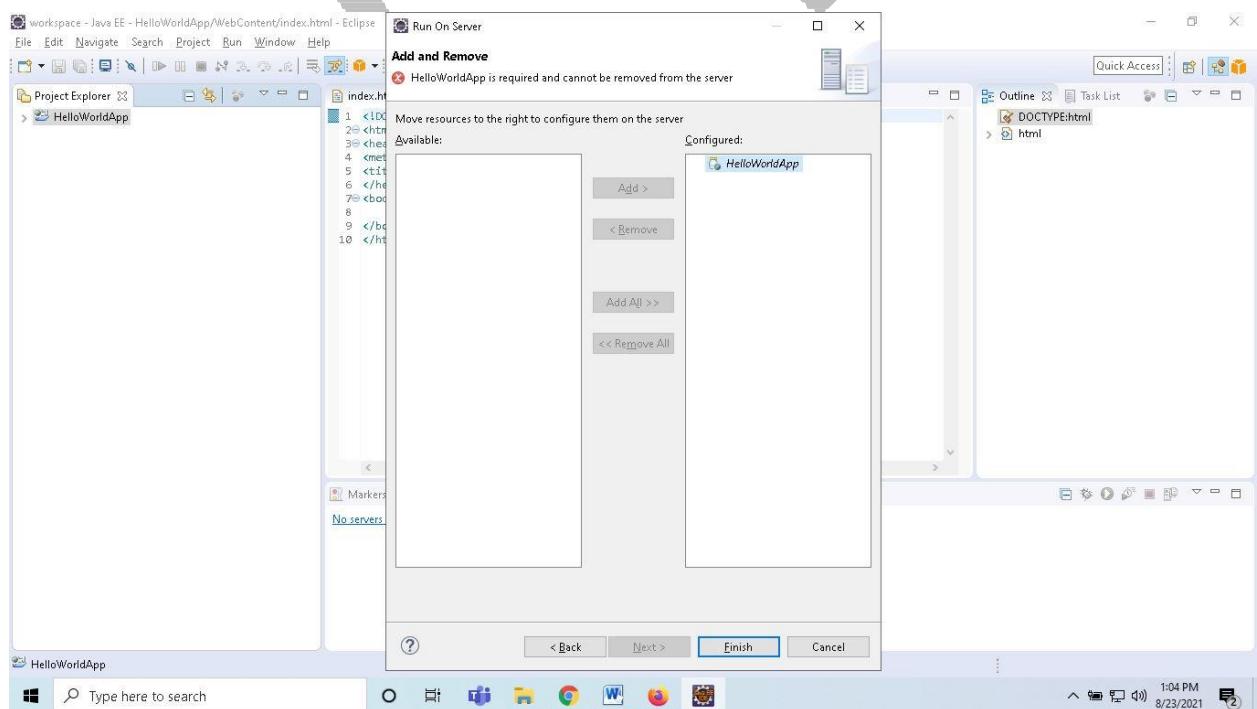
6.4 Permission → Click “Next”



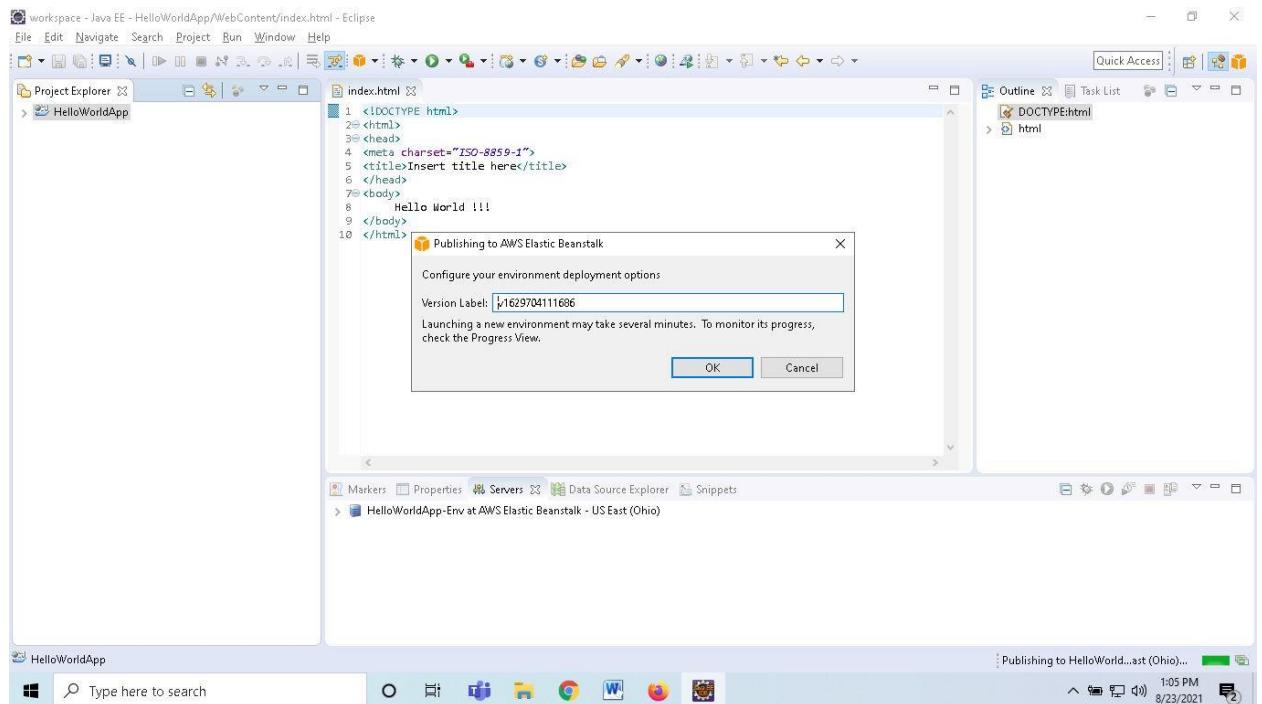
6.5 Specify advanced properties for your environment → Click “Next”



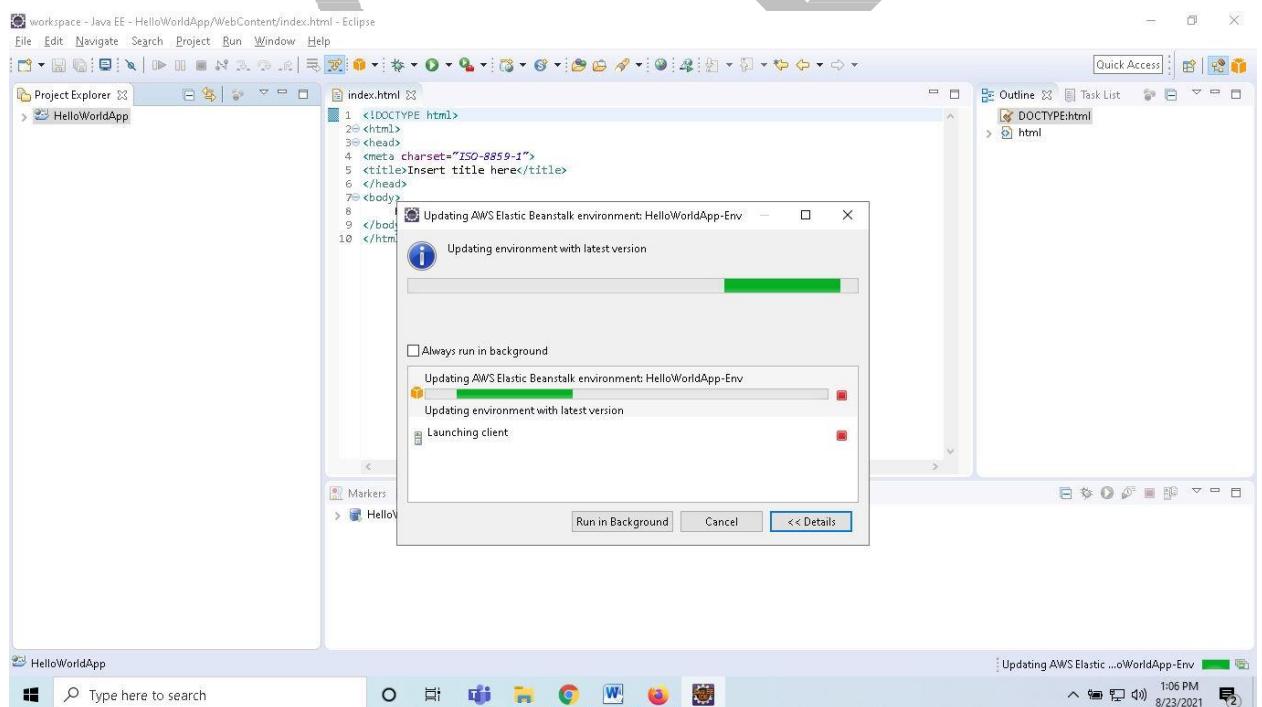
6.6 Add and Remove → Move resources to the right to configure them on the server → Click “Finish”



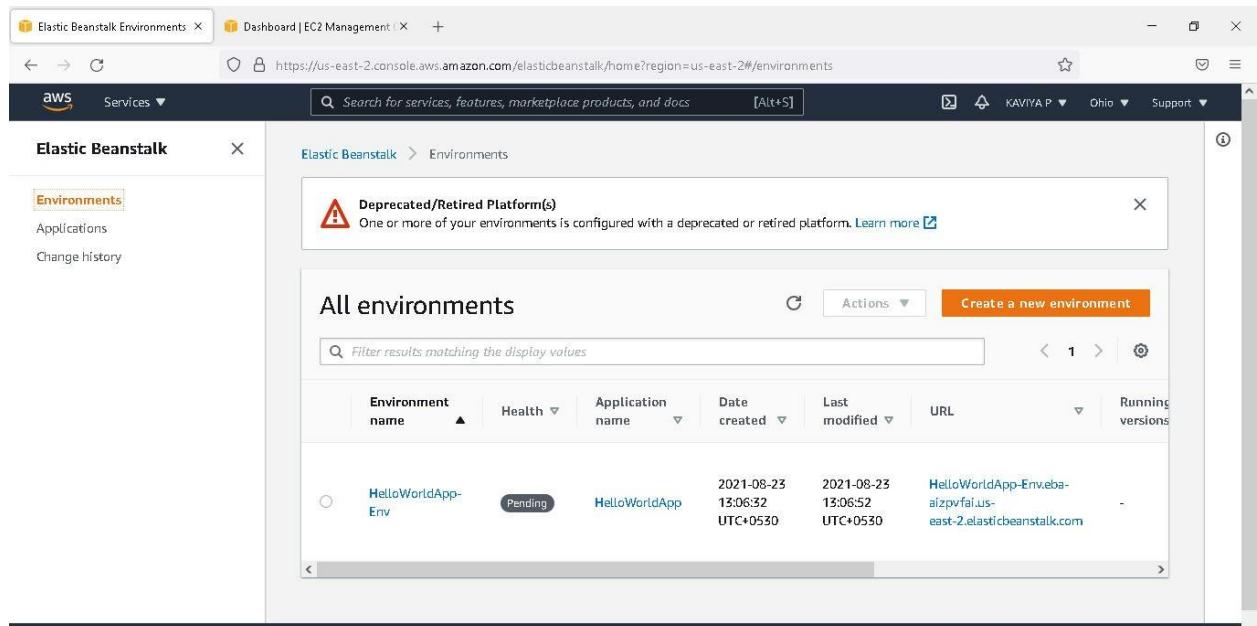
6.7 Publishing to AWS Elastic Beanstalk → Click “OK”



6.8 Updating AWS Elastic Beanstalk Environment



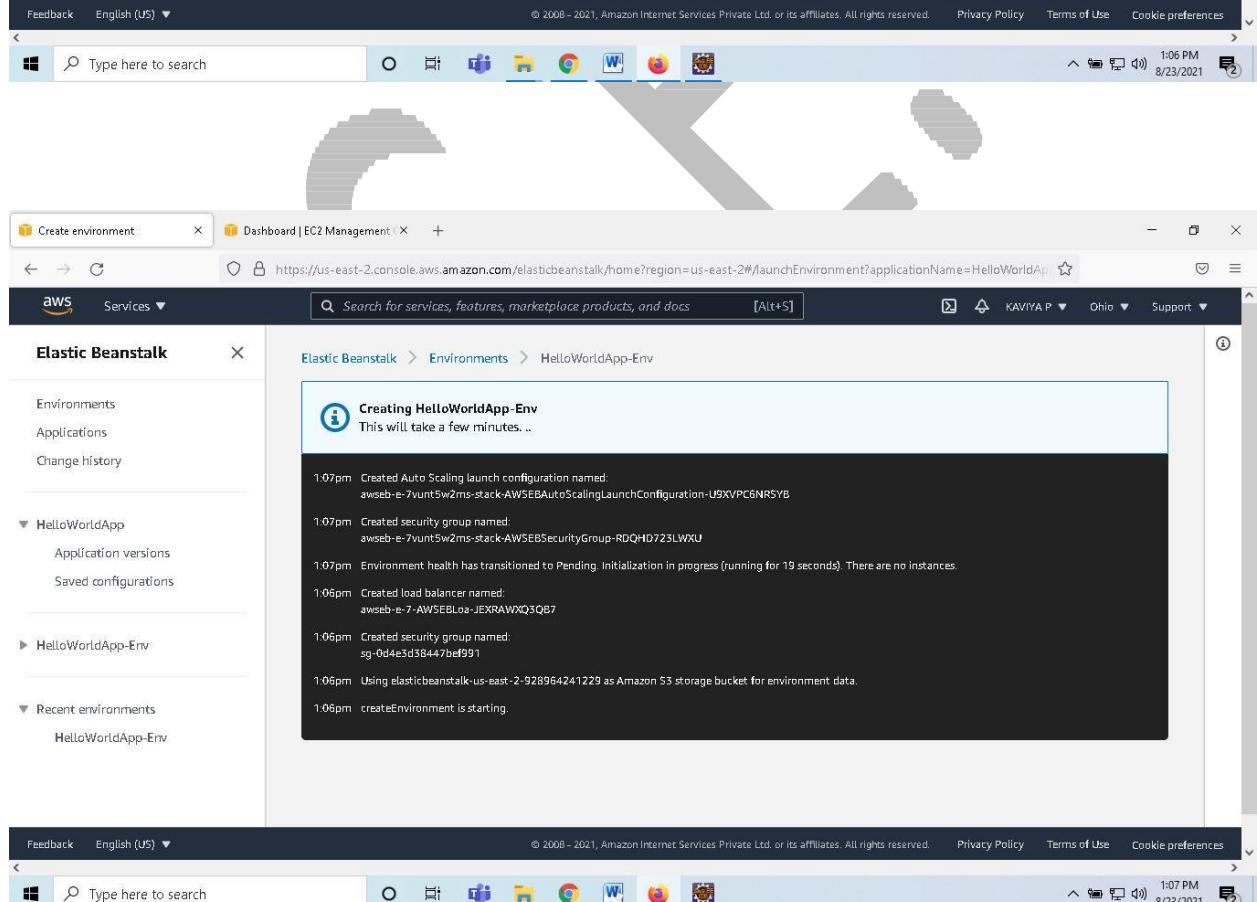
6.9 In AWS, Environment Creation is started [Health → Pending state]



The screenshot shows the AWS Elastic Beanstalk console. On the left, there's a sidebar with 'Environments' selected. The main area is titled 'All environments' and shows a single row:

Environment name	Health	Application name	Date created	Last modified	URL	Running versions
HelloWorldApp-Env	Pending	HelloWorldApp	2021-08-23 13:06:32 UTC+0530	2021-08-23 13:06:52 UTC+0530	HelloWorldApp-Env.eba-aizpvfai.us-east-2.elasticbeanstalk.com	-

A warning message at the top states: 'Deprecated/Retired Platform(s) One or more of your environments is configured with a deprecated or retired platform. Learn more'.



The screenshot shows the AWS Elastic Beanstalk console again, this time with a progress bar indicating the environment creation process. The progress bar is partially filled, showing the status 'Creating HelloWorldApp-Env'. Below the progress bar, a log window displays the following output:

```
1:07pm Created Auto Scaling launch configuration named: awseb-e-7vunt5w2ms-stack-AWSEBAutoScalingLaunchConfiguration-U9XVPC6NR5YSB  
1:07pm Created security group named: awseb-e-7vunt5w2ms-stack-AWSEBSecurityGroup-RDQHD723LWXU  
1:07pm Environment health has transitioned to Pending. Initialization in progress (running for 19 seconds). There are no instances.  
1:06pm Created load balancer named: awseb-e-7-AWSEBLba-JEXRAWXQ3QB7  
1:06pm Created security group named: sg-0d4e5b3b447bf991  
1:06pm Using elasticbeanstalk-us-east-2-928964241229 as Amazon S3 storage bucket for environment data.  
1:06pm createEnvironment is starting.
```

6.10 In AWS, Environment is created successfully [Health → OK state]

The screenshot shows the AWS Elastic Beanstalk Environments page. On the left, there's a sidebar with 'Elastic Beanstalk' and tabs for 'Environments' (which is selected), 'Applications', and 'Change history'. Below that is a 'Recent environments' section with 'HelloWorldApp-Env'. The main content area has a heading 'All environments' with a search bar and a table. The table columns are 'Environment name', 'Health', 'Application name', 'Date created', 'Last modified', 'URL', and 'Running versions'. One row is visible for 'HelloWorldApp-Env', which is marked as 'Ok'. At the top of the main content area, there's a warning box: 'Deprecated/Retired Platform(s)' with the message 'One or more of your environments is configured with a deprecated or retired platform. Learn more'. A button 'Create a new environment' is at the top right of the table area.

6.11 Java Web Application “HelloWorldApp” is launched successfully

The screenshot shows the AWS Elastic Beanstalk Applications page. The sidebar is identical to the previous screenshot. The main content area has a heading 'All applications' with a search bar and a table. The table columns are 'Application name', 'Environments', 'Date created', 'Last modified', and 'ARN'. Two rows are listed: 'HelloWebApp' (without an environment) and 'HelloWorldApp' (with 'HelloWorldApp-Env'). The ARN for 'HelloWorldApp' is 'arnaws:elasticbeanstalk:us-east-2:928964241229:application>HelloWorldApp'. The bottom of the page includes a standard Windows taskbar with icons for File Explorer, Task View, Start, and others.

6.12 Services → Compute → EC2 Dashboard → Check “one instance” is running

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with 'New EC2 Experience' and sections for Events, Tags, Limits, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), and Images (AMIs). The main area is titled 'Resources' and displays the following counts for the US East (Ohio) Region:

Category	Count
Instances (running)	1
Dedicated Hosts	0
Elastic IPs	0
Instances	1
Key pairs	0
Load balancers	1
Placement groups	0
Security groups	3
Snapshots	0
Volumes	1

A callout box highlights the 'Instances (running)' count of 1. Below the resources section, there's a 'Launch instance' button and a note about Microsoft SQL Server Always On availability groups.

On the right side, there's an 'Account attributes' panel with sections for Supported platforms (VPC), Default VPC (vpc-c83b59a3), Settings, EBS encryption, Zones, EC2 Serial Console, Default credit specification, and Console experiments. There's also an 'Explore AWS' panel with a link to '10 Things You Can Do Today to Reduce AWS Costs'.

7. Java Web Application “HelloWorldApp” is launched in AWS

7.1 In AWS, Environment Creation is started [Health → Pending state]

The screenshot shows the AWS Elastic Beanstalk Environments page. The left sidebar has 'Environments' selected, with options for Applications and Change history. A warning message says 'Deprecated/Retired Platform(s)' with a link to learn more. The main area is titled 'All environments' and shows a table of environments:

Environment name	Health	Application name	Date created	Last modified	URL	Running versions
HelloWorldApp-Env	Pending	HelloWorldApp	2021-08-23 13:06:52 UTC+0530	2021-08-23 13:06:52 UTC+0530	HelloWorldApp-Env.eba-e1zpvfai.us-east-2.elasticbeanstalk.com	-

At the bottom, there's a search bar, navigation links, and a status bar indicating the session is from 8/23/2021 at 1:06 PM.

Create environment Dashboard | EC2 Management

Services ▾

Elastic Beanstalk

- Environments
- Applications
- Change history
- ▼ HelloWorldApp
 - Application versions
 - Saved configurations
- ▶ HelloWorldApp-Env
- ▼ Recent environments
 - HelloWorldApp-Env

Elastic Beanstalk > Environments > HelloWorldApp-Env

Creating HelloWorldApp-Env
This will take a few minutes...

```
1:07pm Created Auto Scaling launch configuration named: awseb-e-7vunt5w2ms-stack-AWSEBAutoScalingLaunchConfiguration-U9XVPC6NRSYB  
1:07pm Created security group named: awseb-e-7vunt5w2ms-stack-AWSEBSecurityGroup-RDQHD723LWXU  
1:07pm Environment health has transitioned to Pending. Initialization in progress (running for 19 seconds). There are no instances.  
1:06pm Created load balancer named: awseb-e-7-AWSEBLba-JEXRAWXQ3QB7  
1:06pm Created security group named: sg-0d4e5d38447bf991  
1:06pm Using elasticbeanstalk-us-east-2-928964241229 as Amazon S3 storage bucket for environment data.  
1:06pm createEnvironment is starting.
```

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Type here to search

1:07 PM 8/23/2021

7.2 In AWS, Environment is created successfully [Health → OK state]

Elastic Beanstalk Environments Dashboard | EC2 Management

Services ▾

Elastic Beanstalk

- Environments
- Applications
- Change history
- ▼ Recent environments
 - HelloWorldApp-Env

Elastic Beanstalk > Environments

Deprecated/Retired Platform(s)
One or more of your environments is configured with a deprecated or retired platform. [Learn more](#)

All environments

Environment name	Health	Application name	Date created	Last modified	URL	Running versions
HelloWorldApp-Env	OK	HelloWorldApp	2021-08-23 12:06:32 UTC+0530	2021-08-23 13:08:56 UTC+0530	HelloWorldApp-Env.eba-aizpvfai.us-east-2.elasticbeanstalk.com	v162970

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Type here to search

1:09 PM 8/23/2021

7.3 Java Web Application “HelloWorldApp” is launched successfully

The screenshot shows the AWS Elastic Beanstalk Applications dashboard. On the left, there's a sidebar with 'Environments' and 'Recent environments'. Under 'Recent environments', 'HelloWorldApp-Env' is listed. The main area is titled 'All applications' and displays a table with the following data:

Application name	Environments	Date created	Last modified	ARN
HelloWebApp		2021-08-21 15:08:07 UTC+0530	2021-08-21 15:08:07 UTC+0530	arn:aws:elasticbeanstalk:us-east-2:928964241229:application>HelloWebApp
HelloWorldApp	HelloWorldApp-Env	2021-08-23 13:06:28 UTC+0530	2021-08-23 13:06:28 UTC+0530	arn:aws:elasticbeanstalk:us-east-2:928964241229:application>HelloWorldApp

7.4 Services → Compute → EC2 Dashboard → Check “one instance” is running

The screenshot shows the AWS EC2 Dashboard. The left sidebar includes 'EC2 Dashboard' with sections for Events, Tags, Limits, Instances, Images, and AMIs. The main 'Resources' section displays the following data:

Instances (running)	1	Dedicated Hosts	0
Elastic IPs	0	Instances	1
Key pairs	0	Load balancers	1
Placement groups	0	Security groups	3
Snapshots	0	Volumes	1

A note at the bottom of this section says: "Easily size, configure, and deploy Microsoft SQL Server Always On availability groups on AWS using the AWS Launch Wizard for SQL Server. [Learn more](#)".

The right sidebar contains 'Account attributes' with 'Supported platforms' (VPC), 'Default VPC' (vpc-c83b59a3), and 'Settings' for EBS encryption, Zones, EC2 Serial Console, Default credit specification, and Console experiments.

The bottom 'Explore AWS' section lists '10 Things You Can Do Today to Reduce AWS Costs'.

OUTPUT

