**(2) Create an ec2 instance for reactjs application and deploy the application and provide the public Ip for it,also enable the cloud monitoring on this instances.**

**Theory:**

**Amazon EC2 instances:**

An amazon EC2 instance is a virtual server in Amazon’s Elasthic Compute Cloud(EC2) for running applications on the amazon web services(AWS) infrastructure.AWS is a comprehensive,evolving cloud computing platform,EC2 is a serice that enables business subscribers unlimited set of virtual machines(VMs). Amazon provides various types of instances with different configurations of CPU, memory, storage and networking resources to suit user needs. Each type is available in various sizes to address specific workload requirements.

**Amazon EC2 instance features**

Many EC2 instance features are customizable, including the storage, number of virtual processors and memory available to the instance, OS and the AMI on which the instance is based. The following are Amazon EC2 instance features:

* **Operating system**
* **Persistent storage**
* **Elastic IP addresses**
* **Amazon CloudWatch**
* **Automated scaling**
* **Bare-metal instances**
* **Amazon EC2 Fleet**
* **Pause and resume instances**

**Steps for launching instances:**

**Step 1: Set up an EC2 instance**

If at some point in the future, you wanted to create an application using the resources you’ve stored on S3, you’ll need to create an instance EC2.

**Step 2 : Choosing an AMI (Amazon Machine Image)**

An AMI is a template that is used to create a new instance—or virtual machine—based on user requirements. The AMI will contain information about the software, operating system, volume, and access permissions. There are two types of AMIs:

**Step 3 : Choosing an instance type**

An instance type specifies the hardware specifications that are required in the machine from the previous step.Instance types are fixed, and their configurations cannot be altered.

**Step 4 : Configure Instance**

You have to specify the number of instances, purchasing options, the kind of network, the subnet, assign a public IP, set the [IAM](https://www.simplilearn.com/tutorials/aws-tutorial/aws-iam) role, the shutdown behavior, etc. On that note, stopping the system and terminating the system under ‘Shutdown behavior’ are completely different things.

**Step 5 : Adding Storage**

You’re tasked with deciding the type of storage, which could be: The size (in GBs), volume type, where the disk is mounted, and whether the volume needs to be encrypted needs to be specified. Free users get to access up to 30 GBs of SSD or magnetic storage (which can be found under ‘Volume Type’).

**Step 6 : Adding tags**

This helps to identify instances more quickly.

**Step 7 : Configuring security groups**

These are used to specify rules based on which users are given access to the EC2 instance. You set up the type of security, protocol, the port range, and source (from where the incoming traffic is coming from). Incoming traffic has to be explicitly specified, and outgoing traffic is open.

**Step 9 : Review**

Click on ‘Launch’ and the instance is created.

**To deploy reactjs application in ec2 instances:**

**Step 1 :** Connect the instance.

**Step 2 :** Before installing the nodejs,we have to update the system using the yum command “**sudo yum update -y**”.And now install nodejs using command “**sudo yum install node. Js”.**

**Step 3 :** Client URL(curl) command line tool that enables data exchange between a device and server through terminal.So using curl download the installation script,we have to run that command

“curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.39.3/install.sh | bash”

Now run the command “. ~/.nvm/nvm.sh”

**Step 4 :** Now we got nvm installed,lets use it to install and use,the current LTS version of nodejs using the command “nvm install --lts”

**Step 5 :** Now we have to install specific version and that version is 16.So install specific version we have to use the command “nvm install 16”

**Step 6 :** Now check whether the nodejs installed completely or not using the command “node --version”

**Step 7 :** Now create a react app using command

“npx create-react-app application\_name”

After creating the application we need to install [npm@9.6.2](mailto:npm@9.6.2) using the command

“npm install -g @npm9.6.2”

**Step 8 :** Now go to created application path and run “npm start” command.Browse the given link to see th output.

**Step 9** :Now to run an application which has been in git we have to install git first using the command “sudo yum install git”

**Step 10 :** Aftering install the git,clone the given repository using command

“git clone repository\_link”

**Step 11 :** Change the directory and run the npm command

“npm run build”

And then run the command “npm run start” to start the application.Now browse the given link to see the output.

**Step 12 :** To enable the cloud monitoring,go to instances,select the instances that has been created to run this reactjs application.In that go to actions->Monitor and troubleshoot->Manage detailed monitoring.

Now enable the detailed monitoring and click confirm.

Now the instances is under the cloud monitoring.