Security grp
Http ,https,custom tcp (8000-9000),rds,ssh,mysql aurora, all trafic

1)Creation of VPC.

Create VPC
Create 3 subnets in 3 different zones
Create IG attach VPC
Create Route Table
    Edit Subnet Associations -> Attach all subnets
    Edit Routes -> 0.0.0.0/0 Target IG created
Create Security Group, Edit and add Inbound rules

2)Linux server implementation using (php).

sudo -i
yum install httpd php php-mysql
service httpd start
cd /var/www/html
vim test.php

+i

```
<?php
$x = "Hello world!";
$y = 'Hello world!';

echo $x;
echo "<br>";
echo $y;
?>
```

Esc + :wq (To escape from the editor)

3)Ubuntu server implementation (R program)

sudo apt-get dist-upgrade
sudo apt-get upgrade

sudo su
echo "deb http://cran.rstudio.com/bin/linux/ubuntu trusty/" >> /etc/apt/sources.list
apt-key adv --keyserver keyserver.ubuntu.com --recv-keys E084DAB9
apt-get update
apt-get install r-base

R // This is for R command prompt)

message <-"Hello World!"
print(message)

q() //to quit

4)Windows server implementation with (C program)

Install code blocks >binary release >4th link source forge>and run normal c program

6)Launching website using S3 Bucket

Create IAM user and attach admin full access and S3 full access policies to it
Login though IAM
Create bucket
Upload html file, give public access
Copy file URL on browser

AMI:

Instance- actions- image and templates-create image
name and create image
Go to ami the select the created image from launch the instance
Select quick start
Then same procedure as linux

Normal Load Balancer

Create 2 linux server which should be running and both should be running at different subnet and run php program in instrances
Load Balancer
Create classic load balancer - create- load balancer protocol tcp
Select atleast 2 subnets under available subnets from different zone
Next assign security grp
    Select existing security grp
Configure security settings
Configure health check
    Protocol- tcp
    Res timeout -2
        5
        2
        10

Add ec2 instance
    Add instances
Add tags anyting
Review and create

Normal Autoscaling and autoscaling with load balancer

First create a linux instance and a ami which should be running
Go to autoscaling
Launch configuration

Create launch template
Name of the template
Provide guidance -click
Quick start- aws linux
Instance type t2 micro free tier
Key pair selection
Subnet -dont include
Select security group
Click Create launch template

Create launch configure
Launch configuration name
Ami selection
Instance type- t2 micro

Security grp Rules- all traffic -anywhere
Key pair-proceed without keypair
I ack…
Click launch config

Now go to autoscaling group
Create autoscaling grp- name
Launch template (select the created template)
Next
Network -select vpc-select 2 subnet (a and b zone)
Create new target grp
Next
No load balancer(for only autoscaling)
For autoscaling with load balncer(choose- create a new loadbalancer)
Next
Group size
2
1
3
Scaling policies
Select Target tracking scaling policy
Avg cpu utiliztion
Target value =90
Skip to the review and

Next
Next
create autoscaling grp

For RDS creation :

Go to VPC and go to actions edit vpc settings-> enable DNS in actions
Create security group in ec2
In RDS

- ☐ Create a subnet group
- ☐ Parameter group create parameters
- ☐ mysql 8.0 [group family] type - DB parameter Group.
- ☐
- ☐ Group name & description
- ☐ Create

3) click on created group. Edit parameters (check utf 8]

- ☐ Character-set-client->
- ☐
- ☐ character-set-Connection
- ☐
- ☐ Character-set. database.
- ☐ character-set- server
- ☐
- ☐ character-set - results.
- ☐ Save changes
- ☐

linux:

1.sudo -i
yum install httpd
service httpd start
yum install php php-mysql

service httpd restart
yum update

Create a page to test your PHP installation:
cd /var/www/html
vi test.php

```
<?php
$servername = "database-1.cwarrkrwzrbl.ap-south-1.rds.amazonaws.com";
$username = "admin";
$password = "admin123";
$dbname = "new";

// Create connection
$conn = new mysqli($servername, $username, $password, $dbname);
// Check connection
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}
$sql = "SELECT id, name FROM new.table";
$result = $conn->query($sql);

if ($result->num_rows> 0) {
    // output data of each row
    while($row = $result->fetch_assoc()) {
        echo "id = : " . $row["id"]. " - NAME   is : " . $row["name"]. "<br>";
    }
} else {
    echo "0 results";
}
$conn->close();
?>
```

Type :wq to write the file and quit vi
Open a browser and access test.php to test your PHP installation:
http://ec2-50-17-14-16.compute-1.amazonaws.com/test.php (Use your actual public DNS name/Public IP).

2.mysql connection in ec2

sudo -i
yum install httpd
service httpd start
yum install php php-mysql
service httpd restart
yum update

yum install mysql
yum install mysql-server

mysql -u admin -p -h database-1.cwarrkrwzrbl.ap-south-1.rds.amazonaws.com -P 3306

use new

select * from new.table;

3.Xampp

Go to htdocs and put same php program as above:
localhost:80/test.php

4.IAM

Step1 :-creating IAM user

* Services → IAM -> users → Add user

user Name

Enable console access.
 next I custom password.

uncheck users must create a new password at next sign-in

Attach polices directly.

permission policies

Administrator Access

Amazon S3 full Access.
create user [download CSV file] copy paste and paste and login to IAM user.
Step2: Login IAM user

* Create S3 bucket and html file.
S3 → create bucket.

name

ACLs enabled.

uncheck) Block all public access.
I acknowledge.

add html file.

go to permission
Read
show the html implementation by clicking the link.

Dynamo db

Search dynamoDB
Create table
- Table name
- Partition key
- Sort key

Click Create table

Side bar select table
Select created
- Goto actions - create items
  - Enter values.

Click create item

From side bar select explore items and select your EMP
In scan and query - select query and enter partition key and click run
- Select scan and click run.

Ms sql

Make sure you have sql server management studio in pc
Create a new instance with ms sql in rds
Copy the end pt
Open sql management
Server name - end pt
Auth- sql server
Log in cred- admin
Password

Create new database
Give name and save
Select created database and create new table
Insert values
Retrieve

JDBC data retrieve from my sql

Run an instance in rds connect to my sql create database table etc..
Make sure u have sj folder
Insatll jre and jdk
Click on eclipse
Click on normal java program icon right corner

File > new > java project> name > finish
Right Click on created project >new> java class fille and click on public static void main

Click on src >.java file
Only package name should be there delete rest of the lines
Edit dbname,password, hostname, and query in below program

```
import java.sql.*;

public class JDBClass {
```

```
public static void main(String args[]){
try{
Class.forName("com.mysql.cj.jdbc.Driver");
String dbName = "RONdb";
    String userName = "admin";
    String password = "admin123";
    String hostname = "rondb.c93fxu82udnu.ap-south-1.rds.amazonaws.com";
    String port ="3306";
    String jdbcUrl = "jdbc:mysql://" + hostname + ":" + port + "/" + dbName + "?user=" +
userName + "&password=" + password;
    Connection con = DriverManager.getConnection(jdbcUrl);
    if (con != null) {
        System.out.println("Connected to the database test1");
     }
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery("select * from RONdb.student");
while(rs.next())
System.out.println(rs.getInt(1)+"  "+rs.getString(2));
con.close();
}catch(Exception e){ System.out.println(e);}
}
}
```

Right click on progarm > run as java program

JSP program

Run an instance in rds connect to my sql create database table etc..
Make sure u have sj folder
Insatll jre and jdk
Click on eclipse
Click on java ee program icon right corner
File > new > dynamic web [roject> name and select tomcat server 8.0 > finish
Right Click on created project >new> jsp file
Click on created jsp file >web content> paste progarm in body
Right click> run as >run on server
next> select the project created>finish
If u get error then
Click on window >show view >servers> double click on the tomcat server>
Change the port number of the respective port shown in the error
Again right click>run as> run on server

EMR

Create s3 bucket upload 3 files
emr>dashboard>Block public access >off
Create cluster >name and key pair(create a new one in ec2)>create cluster
After getting waiting stage
Go to master security grp> click on inbound rules>check ssh and alltrafic is there or not.
If not present add them.
Click on conncet to master node using ssh
Copy the bold letter and paste it on putty host name
Then ssh >auth>select key pair

Click on steps in emr > add steps> streaming program>choose the path of all
>Click add
Click on arrow copy the below url and update python 3 places accordingly

[hadoop@ip-172-31-3-1 ~]$ hadoop-streaming -files
s3://emrbucketman/wcmapper.py,s3://emrbucketman/wcreducer.py -mapper "python3
wcmapper.py" -reducer "python3 wcreducer.py" -input s3://emrbucketman/input.txt
-output s3://emrbucketman/output/

Go to s3 >output>part0002>download >open with notepad