Name of the Course : Complete Java SE8 Developer Bootcamp

Level : Moderate

Tool Stack : Java8 and Junit4

Problem Statement : Provide a code solution to check an IP address valid or not, using String functions and Exception.

Description : Due to epidemic situation, the National Education Board requests all schools to conduct online classes and examinations. The schools are required to create personal websites in their respective IP Addresses (IPv4). The board created URL name for each school which is registered in the board. The board needs to accept an IP Address of a school and map to the URL. First it is required to check whether the IP Address is a valid IPv4 address or not i.e.

a) There should be 4 octets, separated by dot(.).

b) Each octet’s value must be between 0 and 255.

c) Neither negative, nor alphanumerical values should be present.

Your are required to write a Java application to check for a valid IP address. Input will be an IP address and output will be either “Valid” or “Invalid”.

Create only one class Main with two methods :-

1.public static boolean checkIpAddress(String ipAddress) which checks given IP address as valid or not. You can use java.lang.Exception class for this purpose. This function will return either true or false.

2. public static void main(String arg[]) for accepting IP Address, invokes the checkIpAddress method and displays message Valid or Invalid.

Code:

**import** java.util.Scanner;

**public** **class** Main {

**public** **static** **boolean** checkIpAddress(String ipAddress)

{

**try**

{

**if**(ipAddress.startsWith("."))

**throw** **new** Exception();

**if**(ipAddress.endsWith("."))

**throw** **new** Exception();

String []octetArray=ipAddress.split("\\.");

**if**(octetArray.length!=4)

**throw** **new** Exception();

**for**(String value:octetArray)

{

**int** octetNumber=Integer.*parseInt*(value);

**if**(octetNumber<0 || octetNumber>255)

**throw** **new** Exception();

}

**return** **true**;

}

**catch**(Exception exception)

{

**return** **false**;

}

}

**public** **static** **void** main(String[] args) {

Scanner scanner=**new** Scanner(System.***in***);

System.***out***.println("Enter IP Address:");

String ipAddress=scanner.nextLine();

**if**(*checkIpAddress*(ipAddress))

{

System.***out***.println("Valid");

}

**else**

{

System.***out***.println("Invalid");

}

}}

Junit Testing

**import static org.junit.Assert.\*;**

**import org.junit.Test;**

**public class MainTest {**

**@Test**

**public void testCheckIpAddress() {**

**assertEquals(true, Main.checkIpAddress("128.254.143.196"));**

**assertEquals(false, Main.checkIpAddress("128.264.143.196"));**

**assertEquals(false, Main.checkIpAddress("128.254.143.196."));**

**assertEquals(false, Main.checkIpAddress(".128.254.143.196"));**

**assertEquals(false, Main.checkIpAddress("128.254.143.196.121"));**

**assertEquals(false, Main.checkIpAddress("128.254.-143.196"));**

**assertEquals(false, Main.checkIpAddress("128.25b.143.196"));**

**}**

**}**

Test Data1

Enter IP Address:

128.254.143.196

Valid

Test Data2

Enter IP Address:

128.254.143.196.

Invalid

Test Data3

Enter IP Address:

.128.254.143.196

Invalid

Test Data 4

Enter IP Address:

128.264.143.196

Invalid

Test Data 5

Enter IP Address:

128.254.143.196.

Invalid

Test Data 6

Enter IP Address:

128.254.-143.196

Invalid

Learning outcome: Participants can able to learn how to use the different String functions and handling the java.lang.Exception.