**UTILITY SERVICE (FIND PRIME FACTORS OF GIVEN NUMBER)**

**Problem Statement:**

Build a rest api which take input as number and the response is the prime factors of the given number.

**GitHub Repository URL:**  
<https://github.com/pmv103/PrimeFactor.git>

**Solution:**

It is a rest based application build to find the prime factors of given number. To run this application we need tomcat server version 8 or greater.

**Tools used:**

Java : JDK 1.8

Jars : jaxrs-ri-2.26, junit-4.10.jar

Server : Apache tomcat 9.0.2

IDE : Eclipse

**Java source code:**

Below two java files are required to implement the above service

1. UtilityServiceResource.java

It is service resource file which takes the request

1. PrimeFactor.java

It is java file contains actual prime factor calculation logic.

1. PrimeFactorValidation.java

It contains validate function which is validate the input

1. Web.xml

It contains property like display name, welcome file list, servlet (servlet name, servlet class and init param) and servlet mapping (servlet name and url pattern)

**JUnit:**

JUnit is a unit testing framework for the Java programming language. JUnit has been important in the development of test-driven development.

Build the JUnit test cases for UtilityService using **junit-4.10.jar**. This contains COM.UTILITYSERVICE.TEST package in that we have following java files…

1. TestPrimeFactor.java

It contains testGetPrimeFactor function with various test scenarios to test prime factor calculations by using JUnit assertEquals method summary.

1. TestUtilityServiceResource.java

It contains testGetPrimeFactor function which accepts input params and test the function with the help of JUnit assertEquals method summary.

1. TestRunner.java

TestRunner class contains main method to run the TestPrimeFactor and TestUtilityServiceResource class file and print the true for successful result and false for failed condition;

And we have main package COM.UTILITYSERVICE and it contains following java files..

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**Procedure:**

To run the application we need to deploy the UtilityService.war file on tomcat server with the help of tomcat manager. For testing the application we need to hit the below URL on Browsers, RESTED or POSTMAN (chrome extension) application.

**URL:**

http://<ip>:<port>/UtilityService/rs/utilityservice/primefactors/{numString}

**Description:**

|  |  |
| --- | --- |
| **Parameter** | **Description** |
| ip | IP address of server where rest application is running |
| port | Tomcat server port i.e 8080 |
| {numString} | Specifies the input value for which prime factors have to be determined  **Valid Input range is:** 2 to 9,223,372,036,854,775,807 |

**For Example:**

http://127.0.0.1:8080/UtilityService/rs/utilityservice/primefactors/8

**Result:**

Prime factor(s) are: 2 2 2