

# KP : Java Spring MVC

Tuesday, February 18, 2020 11:26 AM

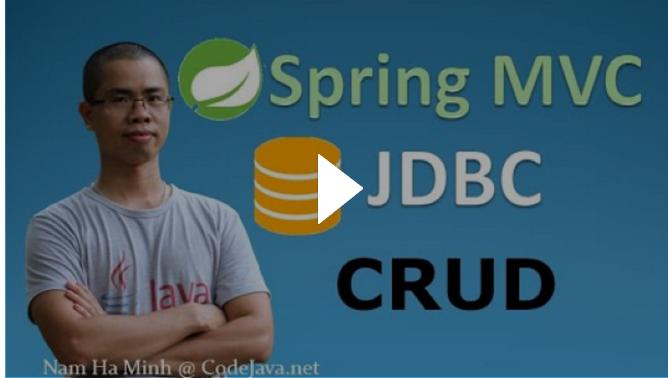
## KPJavaSpring

### Eclipse

- Install Eclipse for creating KPJavaSpring.

### YouTube

- Follow tutorial Java Spring MVC <https://www.youtube.com/watch?v=-wddkBQZuPs>
- [Java Spring MVC and JDBC CRUD Tutorial \(Web App using Eclipse, Tomcat, MySQL and JUnit\)](#)
- 



### YouTube

- Follow tutorial Java Spring MVC <https://www.youtube.com/watch?v=-wddkBQZuPs>
- [Java Spring MVC and JDBC CRUD Tutorial \(Web App using Eclipse, Tomcat, MySQL and JUnit\)](#)

### Steps

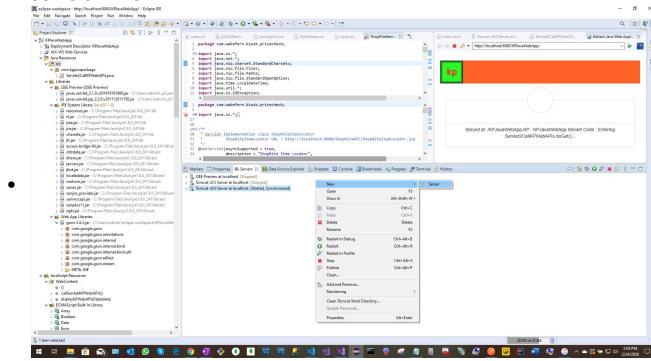
- Create MySQL Database
- Create Java Spring MVC Project
- Dependencies
- Code Model Class
- Code DAO Classes + Unit Tests
- Configure Spring MVC Dispatcher Servlet
- Configure Spring MVC
- Code Spring Controller
- Code JSPs
- Test the Java Spring MVC Application & JDBC

### Technologies Used

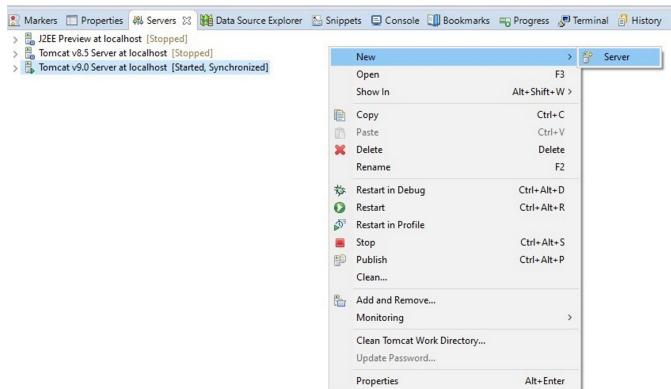
- Spring Framework 5 (Spring MVC + Spring JDBC)
- Java Servlet
- Java Server Pages (JSP)
- Java Server Pages (JSP) Standard Tag Library (JSTL)
- MySQL Connector Java (JDBC Driver)
- Maven
- JUnit

## Eclipse : IBM Liberty WAS Installation

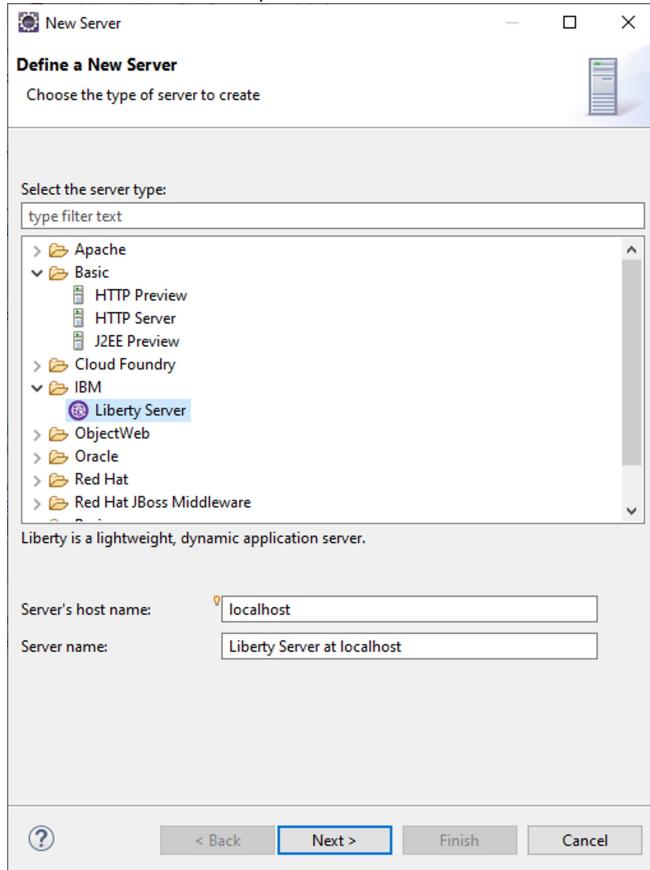
- Install IBM Liberty WAS Installation
- Servers -> New

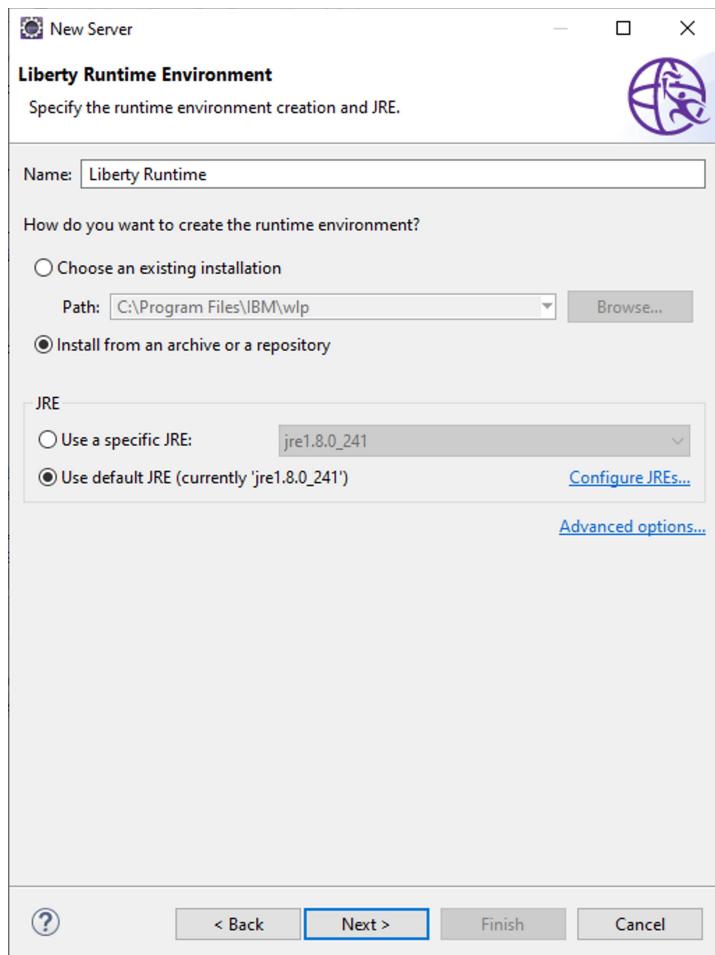


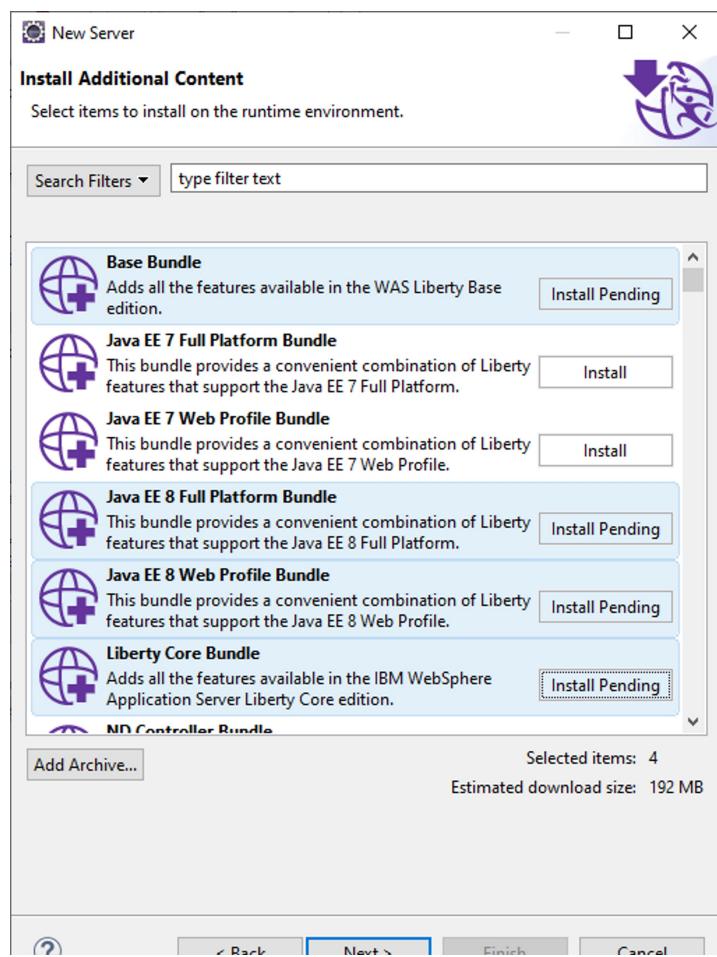
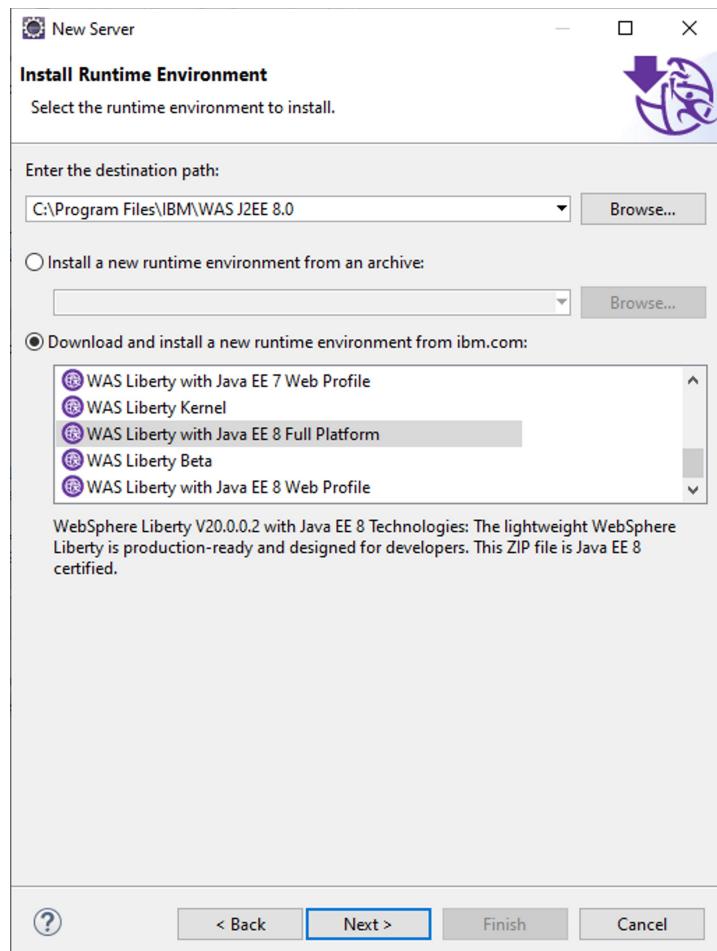
- Servers -> New

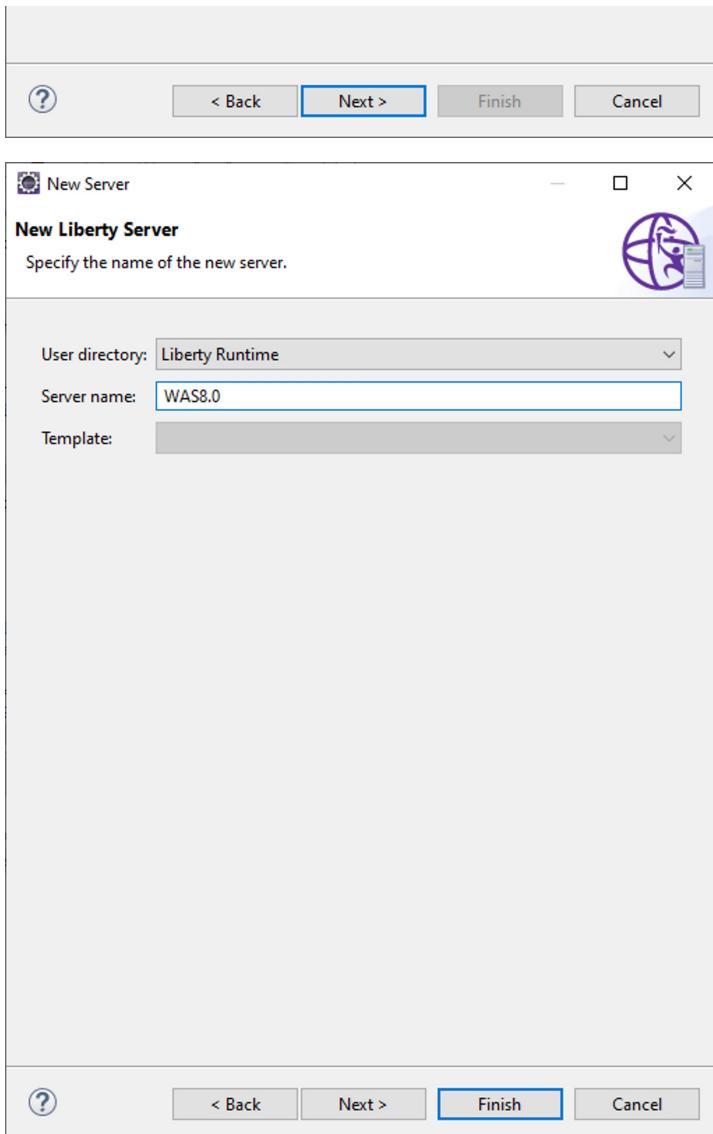


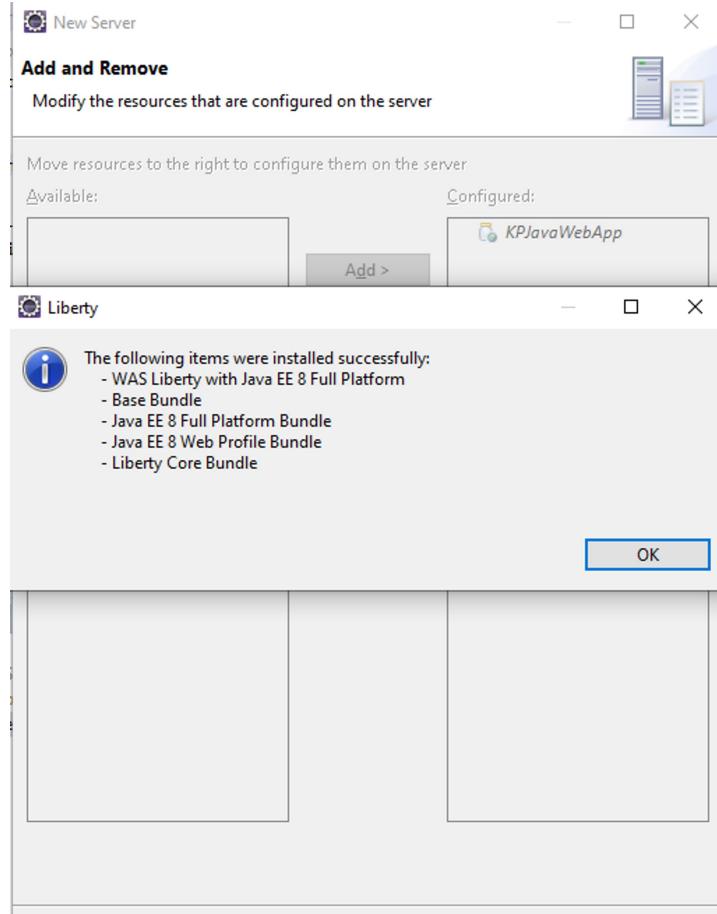
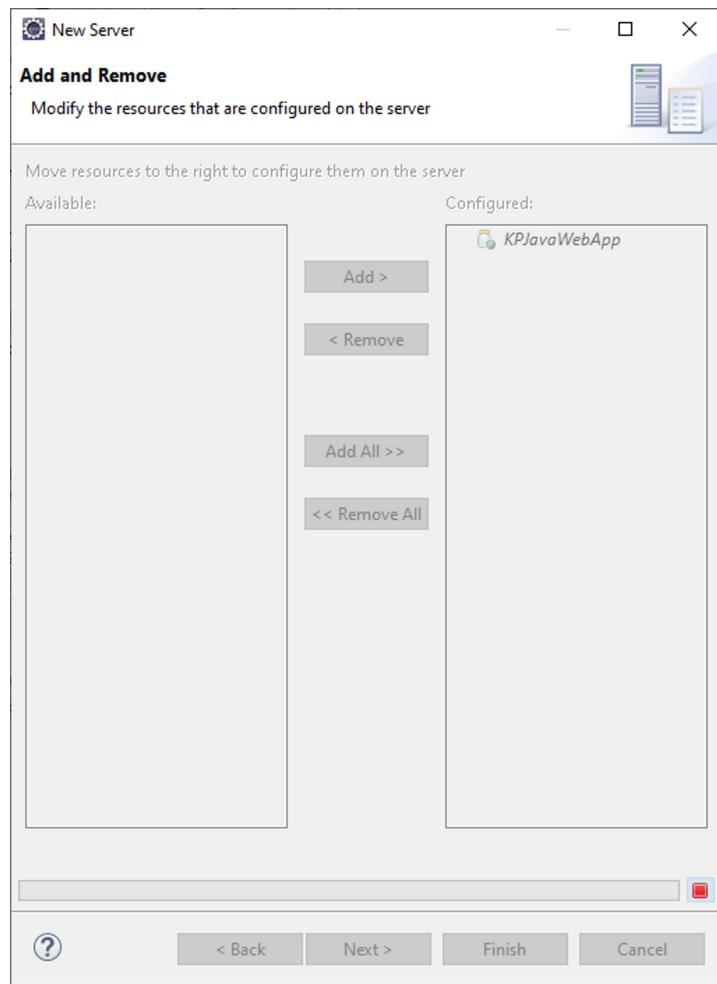
- Server -> New -> IBM -> Liberty Server ->

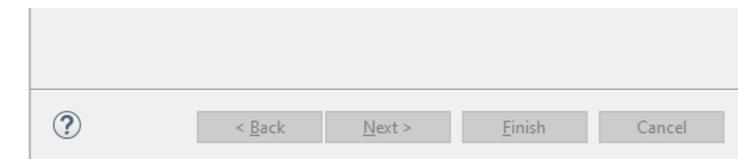






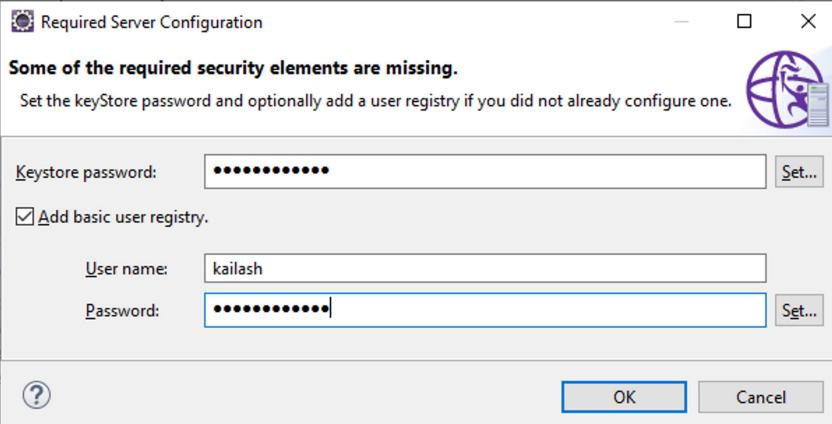






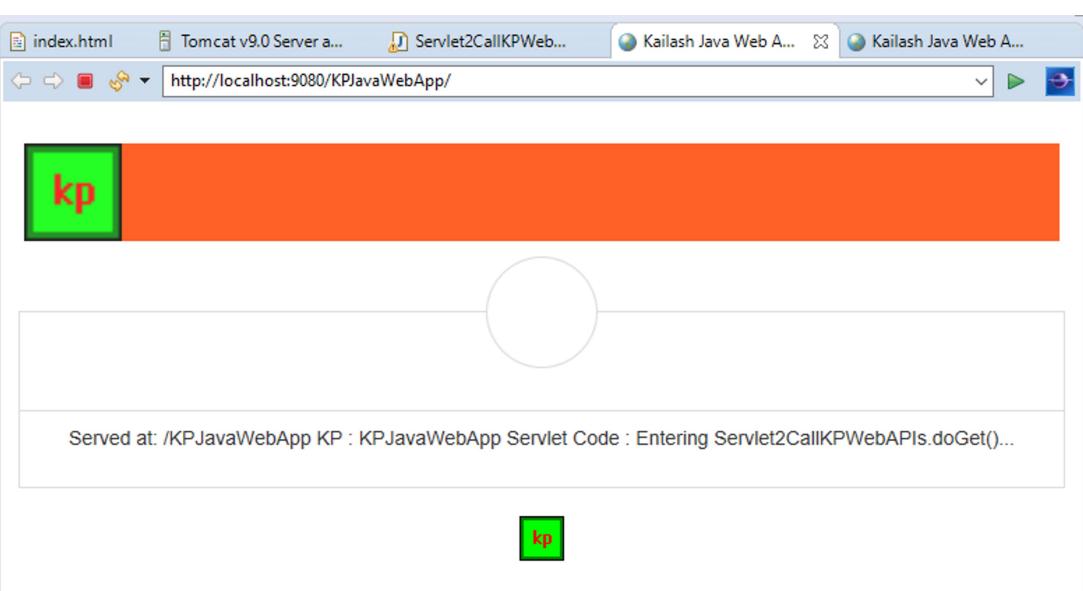
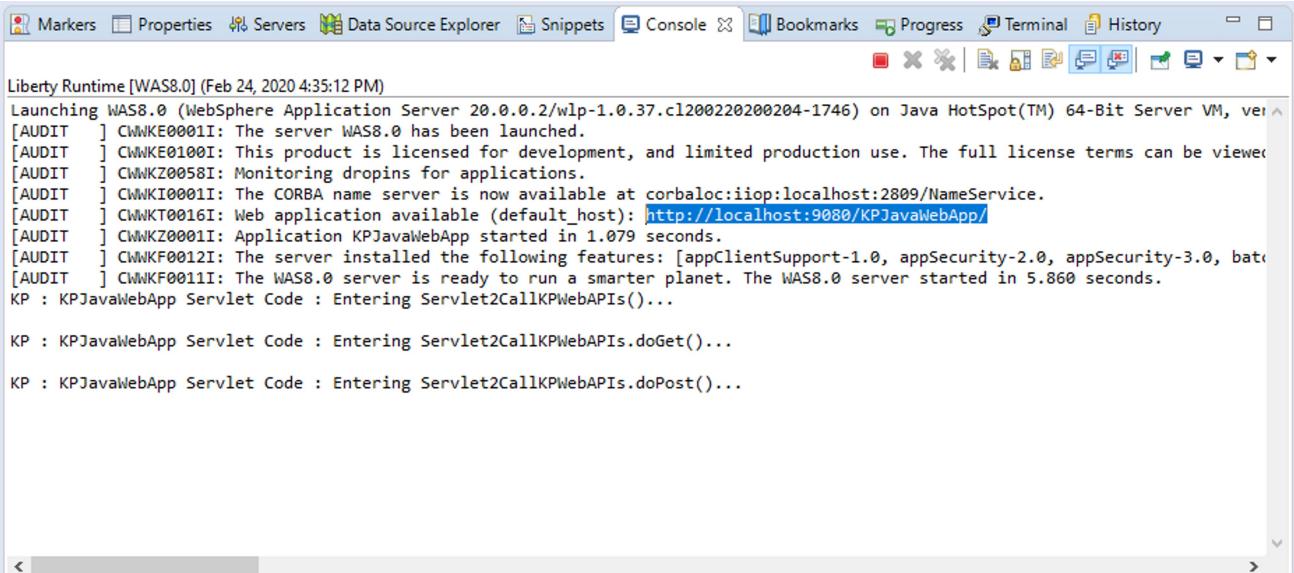
- WAS Key Store Password

- User name : kailash
  - Password : (kSk)

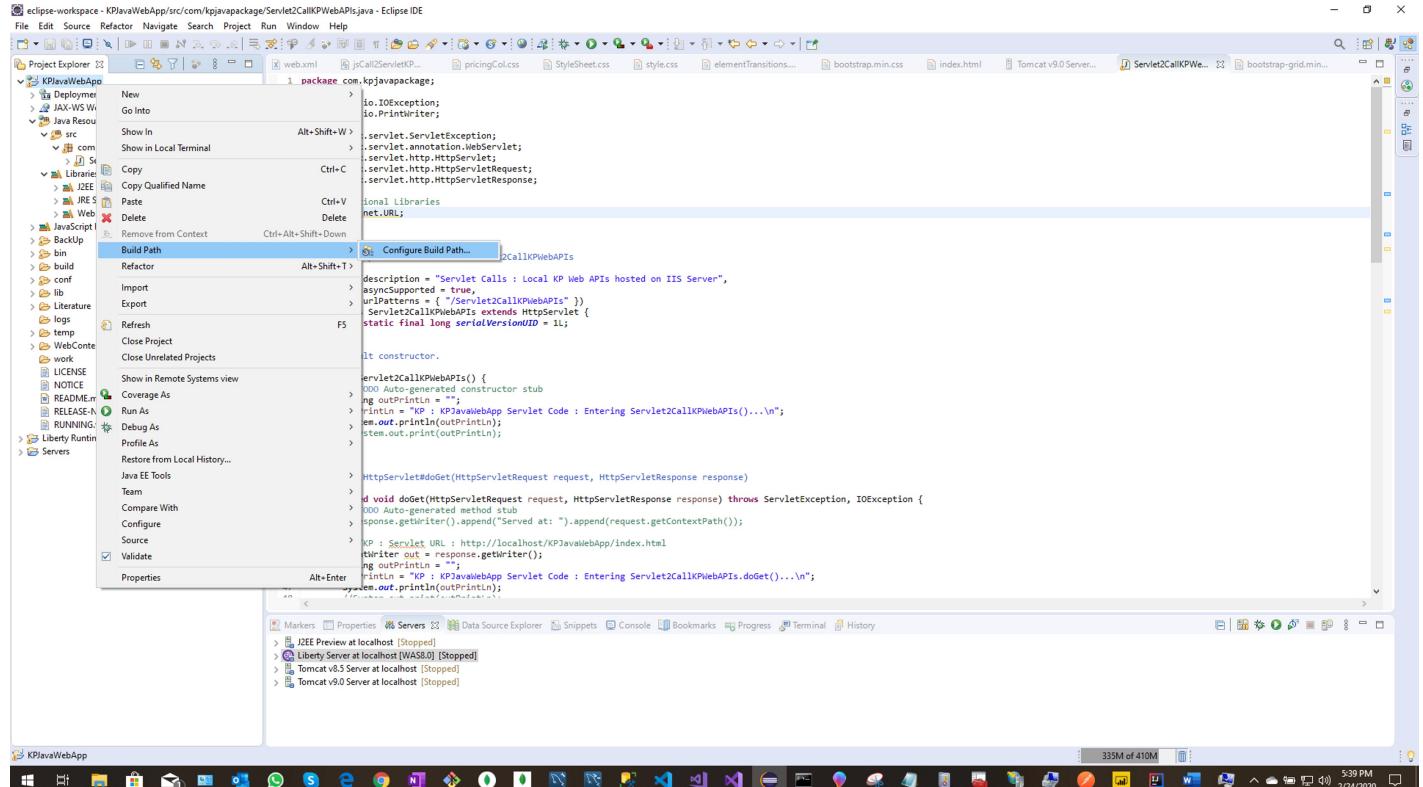


- IBM WAS 8.0 Localhost

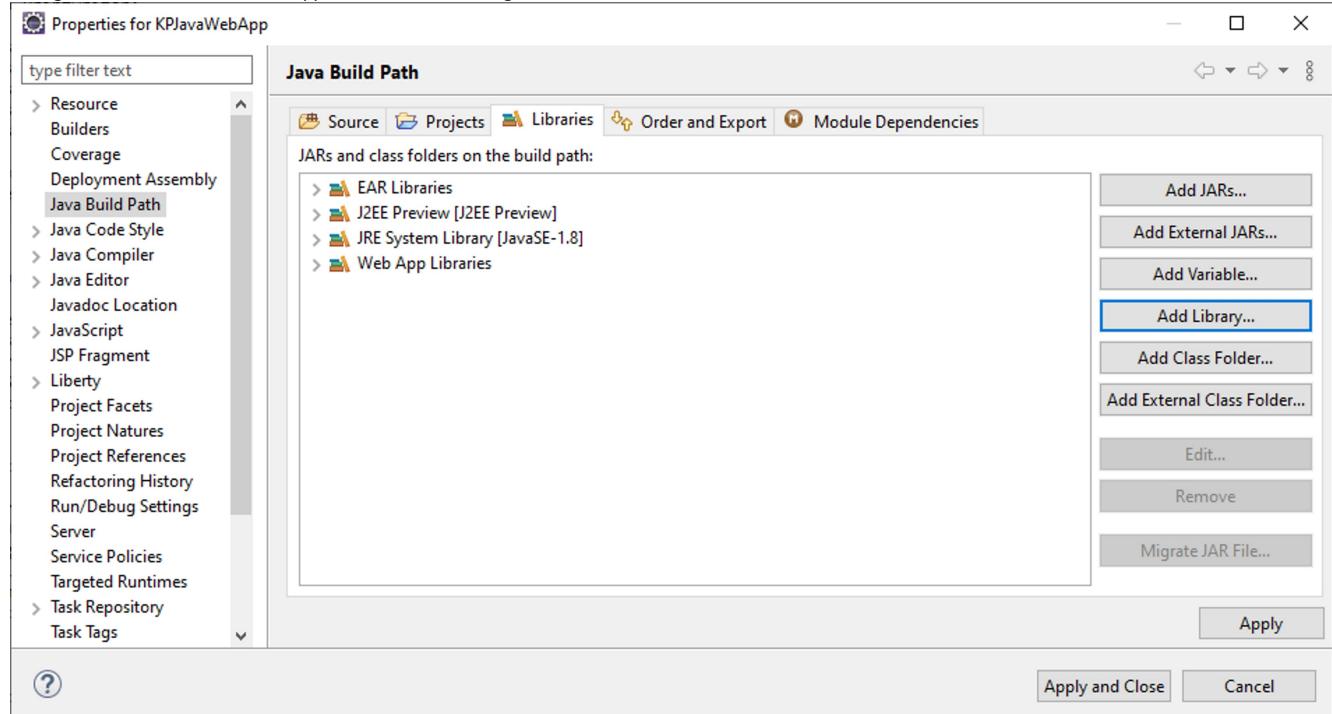
- URL : <http://localhost:9080/KPJavaWebApp/>

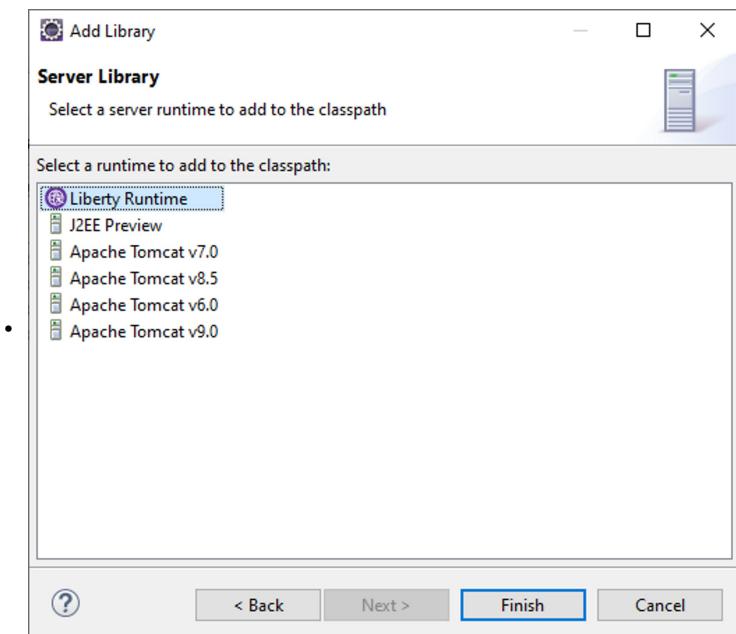
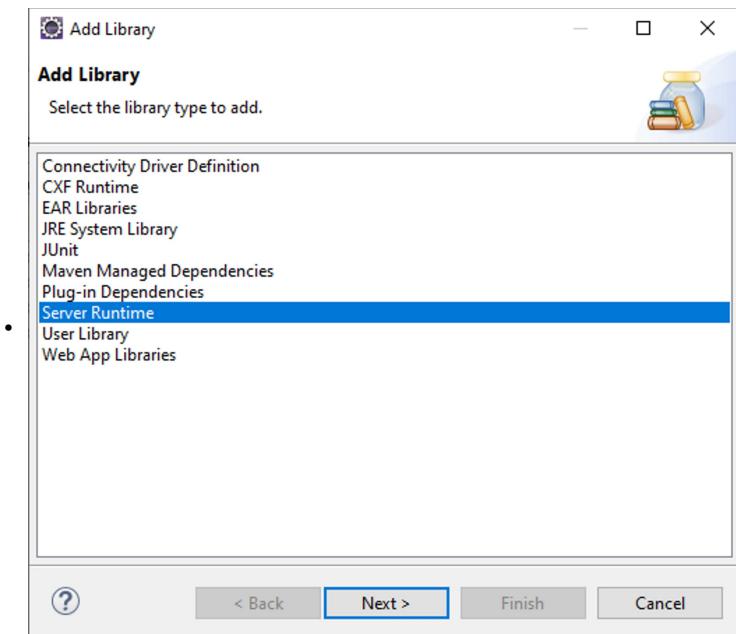


## IBM WAS 8.0 - Configure Build Path

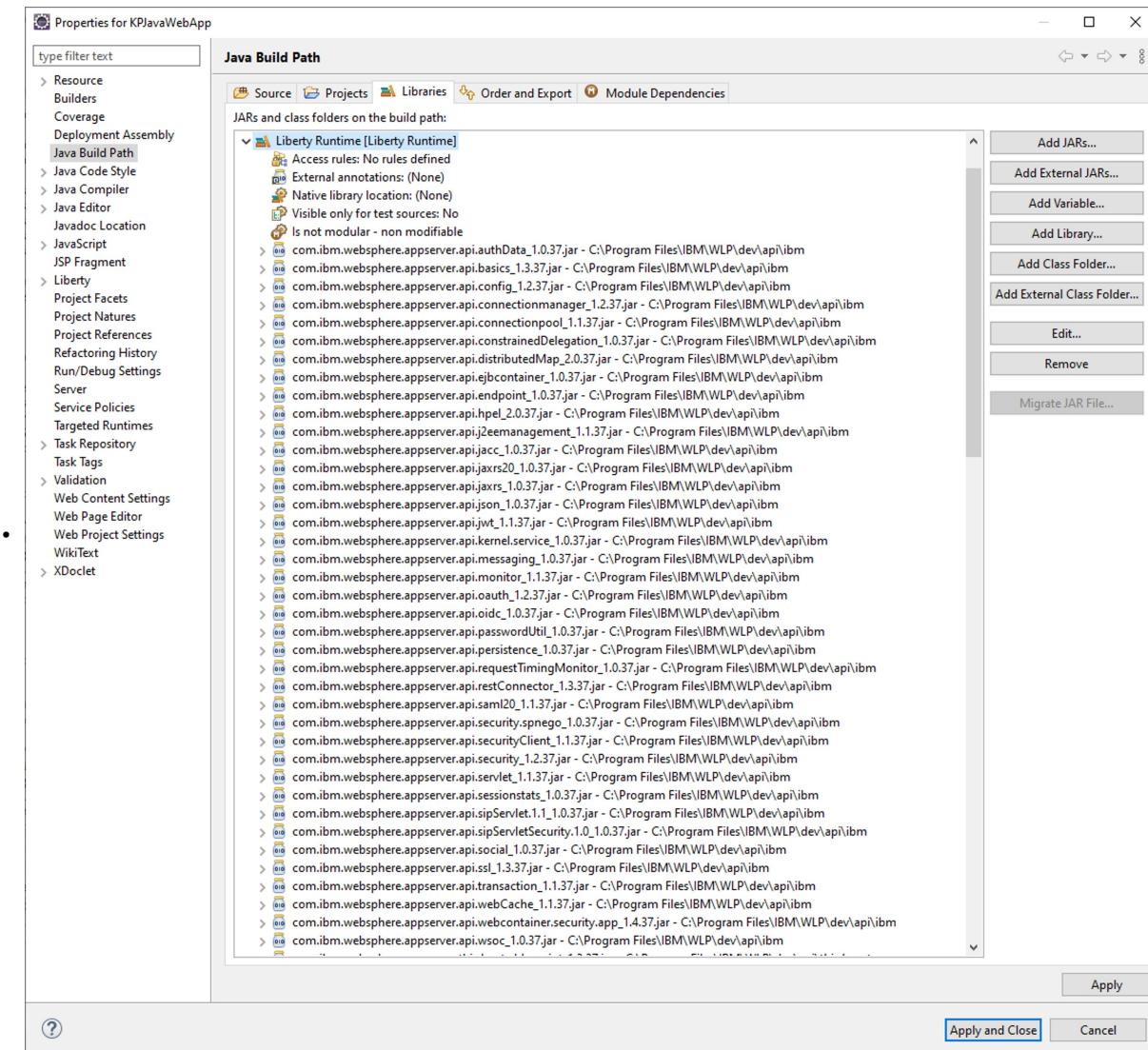


### Configure Build Path : KPJavaWebApp -> Build Path -> Configure Build Path





- Configure Build Path : KPJavaWebApp -> Build Path -> Configure Build Path -> Add Library -> Server Runtime -> Liberty Runtime



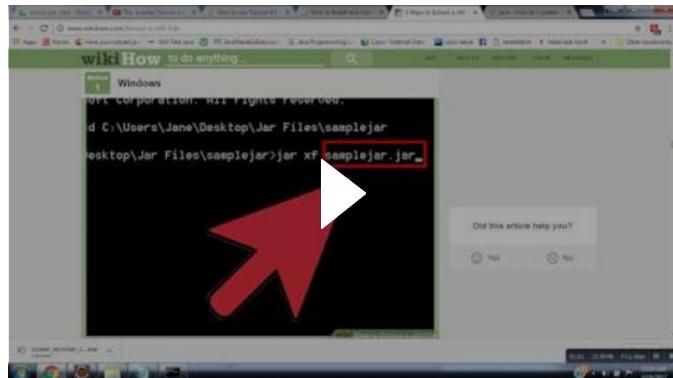
## Eclipse : Tomcat Server Installation

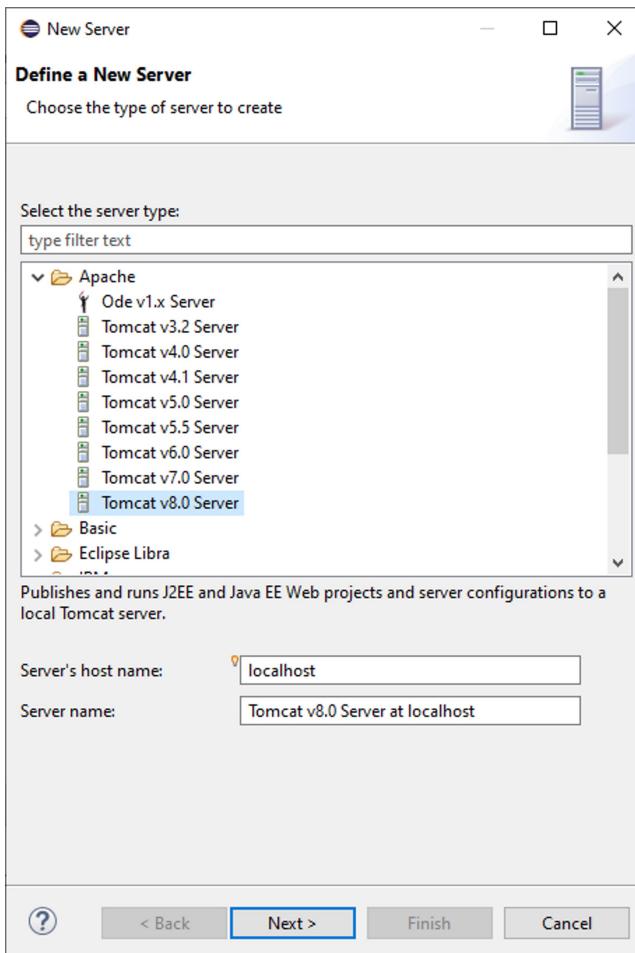
C:\Program Files\Apache Software Foundation\Tomcat 9.0\lib\catalina

<https://stackoverflow.com/questions/8453543/extracting-jar-file-with-command-line>

<https://www.youtube.com/watch?v=GtdFeTggd8Q>

The Apache Tomcat installation at this directory is version 8 5 9 A Tomcat 8 0 installation is exp





```

Administrator: Developer Command Prompt for VS 2017

Directory of C:\Program Files\Apache Software Foundation\Tomcat 9.0\lib
02/19/2020 02:33 PM <DIR> .
02/19/2020 02:33 PM <DIR> ..
12/07/2019 11:43 AM 12,986 annotations-api.jar
02/19/2020 02:33 PM <DIR> catalina
12/07/2019 11:43 AM 54,227 catalina-ant.jar
12/07/2019 11:43 AM 123,330 catalina-ha.jar
12/07/2019 11:43 AM 62,859 catalina-ssi.jar
12/07/2019 11:43 AM 78,187 catalina-storeconfig.jar
12/07/2019 11:43 AM 346,284 catalina-tribes.jar
12/07/2019 11:43 AM 2,884,633 ecj-4.13.jar
12/07/2019 11:43 AM 90,212 el-api.jar
12/07/2019 11:43 AM 169,274 jasper-el.jar
12/07/2019 11:43 AM 562,812 jasper.jar
12/07/2019 11:43 AM 27,960 jaspic-api.jar
12/07/2019 11:43 AM 63,221 jsp-api.jar
12/07/2019 11:43 AM 283,292 servlet-api.jar
12/07/2019 11:43 AM 11,234 tomcat-api.jar
12/07/2019 11:43 AM 891,240 tomcat-coyote.jar
12/07/2019 11:43 AM 319,669 tomcat-dbcp.jar
12/07/2019 11:43 AM 69,253 tomcat-i18n-cs.jar
12/07/2019 11:43 AM 75,209 tomcat-i18n-de.jar
12/07/2019 11:43 AM 104,196 tomcat-i18n-es.jar
12/07/2019 11:43 AM 165,534 tomcat-i18n-fr.jar
12/07/2019 11:43 AM 186,461 tomcat-i18n-ja.jar
12/07/2019 11:43 AM 188,334 tomcat-i18n-ko.jar
12/07/2019 11:43 AM 50,029 tomcat-i18n-pt-BR.jar
12/07/2019 11:43 AM 38,871 tomcat-i18n-ru.jar
12/07/2019 11:43 AM 125,397 tomcat-i18n-zh-CN.jar
12/07/2019 11:43 AM 149,580 tomcat-jdbc.jar
12/07/2019 11:43 AM 36,021 tomcat-jni.jar
12/07/2019 11:43 AM 213,546 tomcat-util-scan.jar
12/07/2019 11:43 AM 189,103 tomcat-util.jar
12/07/2019 11:43 AM 231,393 tomcat-websocket.jar
12/07/2019 11:43 AM 39,410 websocket-api.jar
31 File(s) 7,843,757 bytes
3 Dir(s) 324,001,832,960 bytes free

C:\Program Files\Apache Software Foundation\Tomcat 9.0\lib>

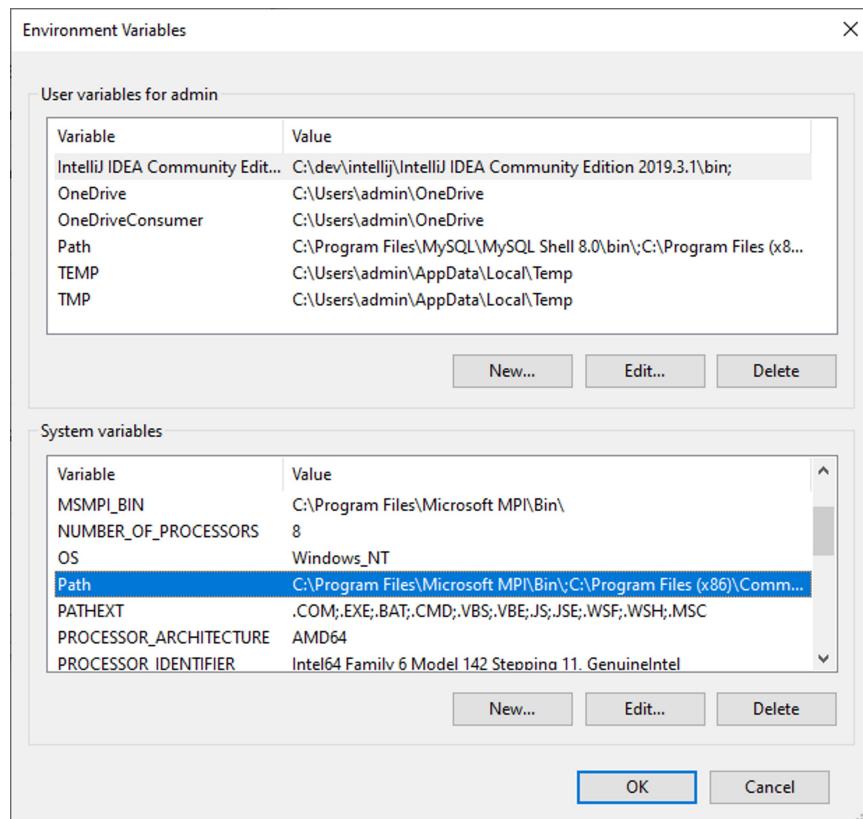
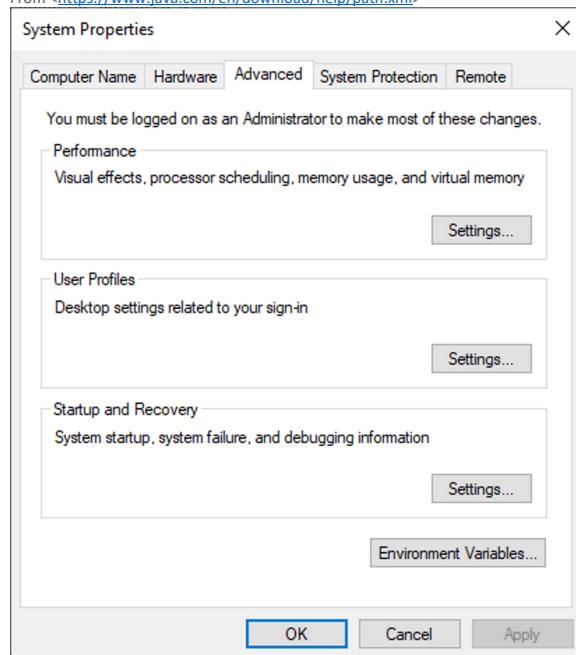
```

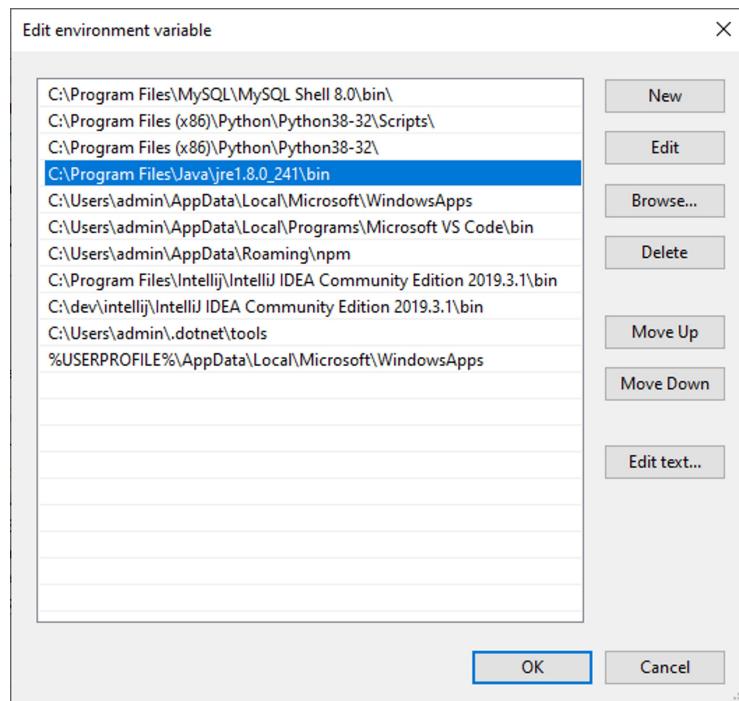
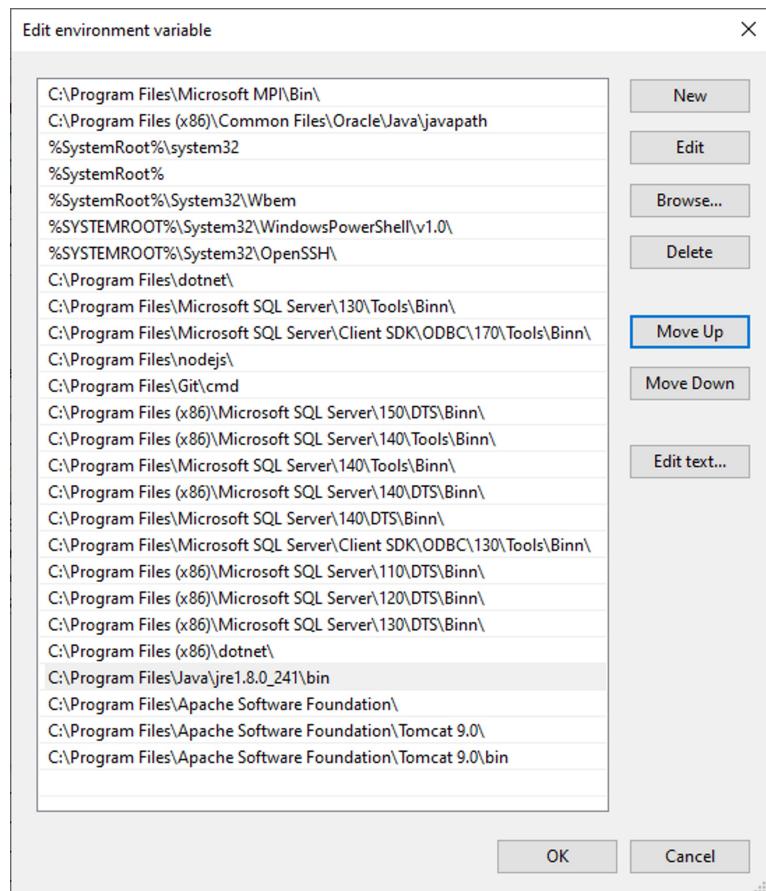
#### Windows 10 and Windows 8

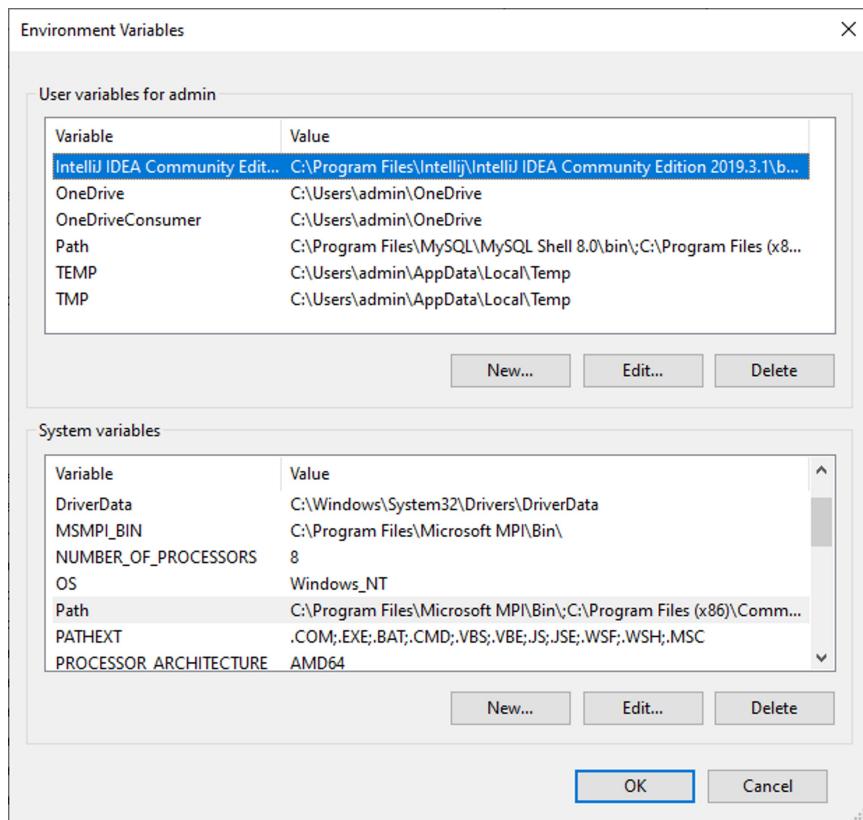
- In Search, search for and then select: System (Control Panel)

2. Click the **Advanced system settings** link.
3. Click **Environment Variables**. In the section **System Variables**, find the PATH environment variable and select it. Click **Edit**. If the PATH environment variable does not exist, click **New**.
4. In the **Edit System Variable** (or **New System Variable**) window, specify the value of the PATH environment variable. Click **OK**. Close all remaining windows by clicking **OK**.
5. Reopen Command prompt window, and run your java code.

From <<https://www.java.com/en/download/help/path.xml>>

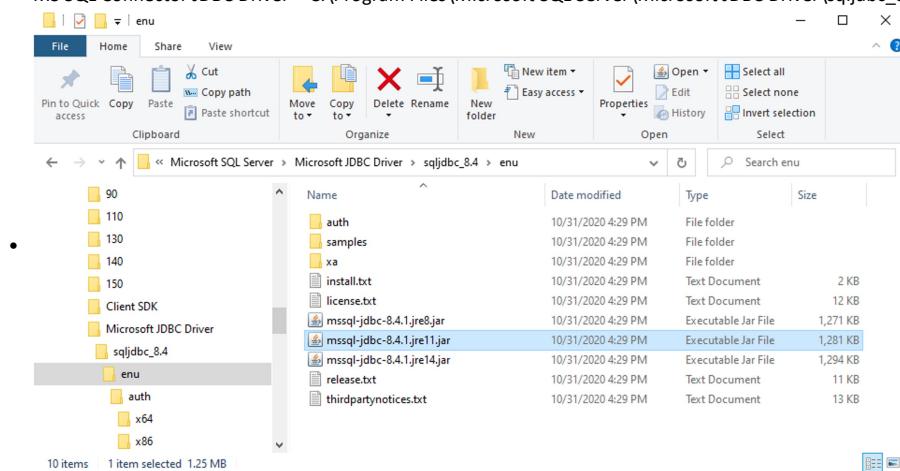




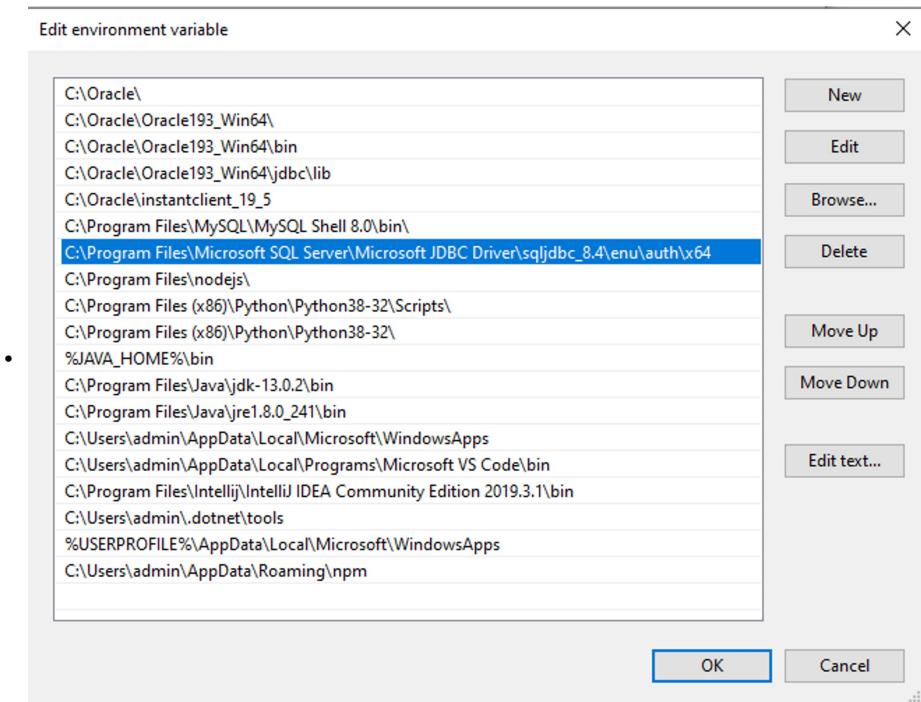


#### Eclipse & MS SQLServer Connector JDBC Driver

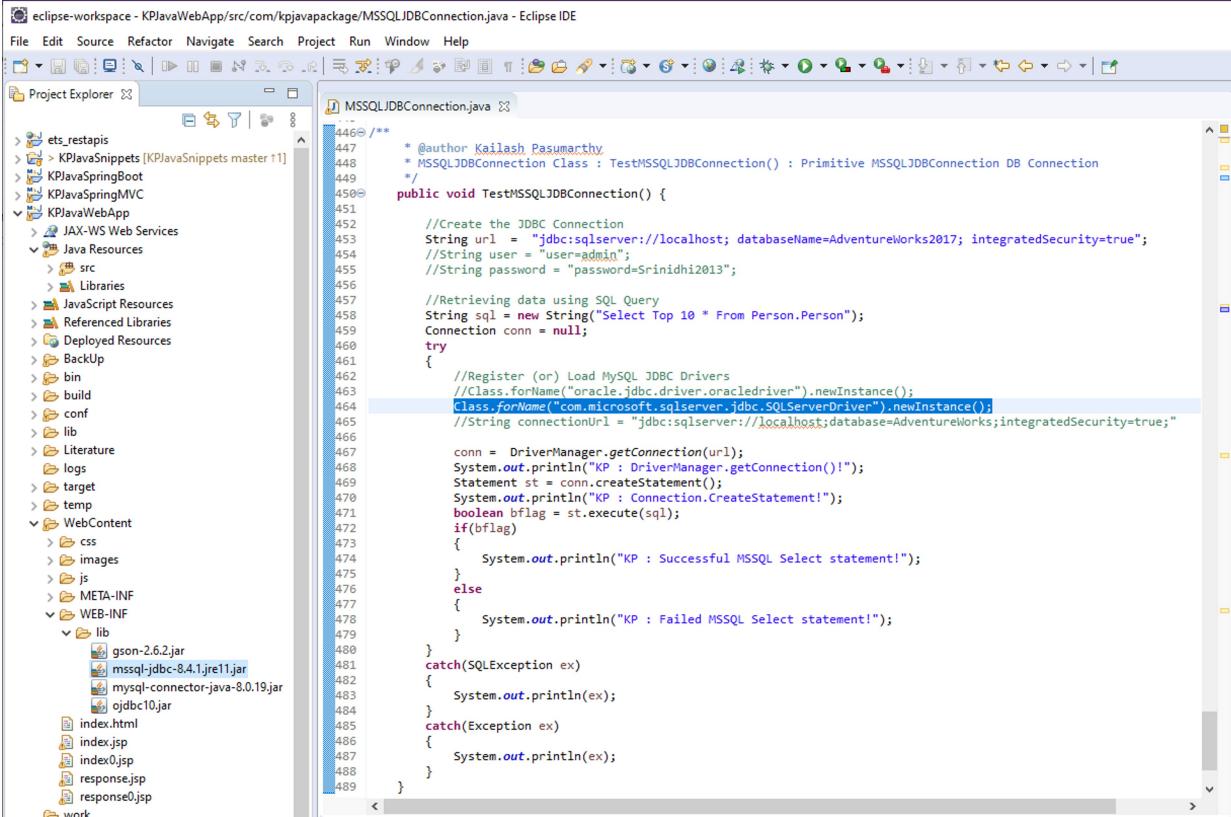
- Download MS SQL Server JDBC Drivers : <https://docs.microsoft.com/en-us/sql/connect/jdbc/download-microsoft-jdbc-driver-for-sql-server?view=sql-server-ver15>
- MS SQL Connector JDBC Driver - C:\Program Files\Microsoft SQL Server\Microsoft JDBC Driver\sqljdbc\_8.4\enu\mssql-jdbc-8.4.1.jre11.jar



- Set the JAVA Path Variable for MS SQL Server JDBC Jar file



- Add SQL Server JDBC Jar File to the Project Directory



- Follow the documentation on MS to connect to the MS SQL Server using JDBC Servers

- <https://docs.microsoft.com/en-us/sql/connect/jdbc/working-with-a-connection?view=sql-server-ver15>

Java	
<pre>         Class.forName("com.microsoft.sqlserver.jdbc.SQLServerDriver");         String connectionUrl = "jdbc:sqlserver://localhost;database=AdventureWorks;integratedSecurity=true";         Connection con = DriverManager.getConnection(connectionUrl);     </pre>	

- SQL Server Services - MSSQLServer : Running

Computer Management

File Action View Help

Computer Management (Local)

- System Tools
  - Task Scheduler
  - Event Viewer
  - Shared Folders
  - Local Users and Groups
  - Performance
  - Device Manager
- Storage
  - Disk Management
- Services and Applications
  - Internet Information Services (IIS) Manager
  - SQL Server Configuration Manager
    - SQL Server Services
    - SQL Server Network Configuration (32bit)
    - SQL Native Client 11.0 Configuration (32bit)
      - Client Protocols
      - Aliases
    - SQL Server Network Configuration
      - Protocols for MSSQLSERVER
    - SQL Native Client 11.0 Configuration
    - Services
    - WMI Control
  - Message Queuing

Name State Start Mode Log On As Process ID

SQL Server Integration Services 14.0	Running	Automatic	NT Service\MsDtsS...	6584
SQL Full-text Filter Daemon Launcher (MSSQLSERVER)	Running	Automatic	NT Service\MSSQLF...	6640
SQL Server Launchpad (MSSQLSERVER)	Running	Automatic	NT Service\MSSQLL...	10148
<b>SQL Server (MSSQLSERVER)</b>	<b>Running</b>	<b>Automatic</b>	<b>NT Service\MSSQLS...</b>	<b>6592</b>
SQL Server Analysis Services (MSSQLSERVER)	Running	Automatic	NT Service\MSSQLS...	6700
SQL Server Browser	Running	Automatic	NT AUTHORITY\LO...	5436
SQL Server PolyBase Data Movement (MSSQLSERVER)	Stopped	Automatic	NT AUTHORITY\NE...	0
SQL Server PolyBase Engine (MSSQLSERVER)	Running	Automatic	NT AUTHORITY\NE...	10108
SQL Server Agent (MSSQLSERVER)	Running	Automatic	NT Service\SQLSER...	10140

Actions

- SQL Server Services More Actions
- SQL Server (MSSQLSERVER) More Actions

- SQL Server Configuration Manager : TCP/IP - Enabled

Sql Server Configuration Manager

File Action View Help

SQL Server Configuration Manager (Local)

- SQL Server Services
- SQL Server Network Configuration (32bit)
- SQL Native Client 11.0 Configuration (32bit)
- SQL Server Network Configuration
  - Protocols for MSSQLSERVER
- SQL Native Client 11.0 Configuration

TCP/IP Properties

Protocol IP Addresses

Protocol Name	Status
Shared Memory	Enabled
Named Pipes	Enabled
<b>TCP/IP</b>	<b>Enabled</b>

Protocol IP Addresses

- IP8
  - Active Yes
  - Enabled No
  - IP Address 169.254.207.91
- IP9
  - Active Yes
  - Enabled No
  - IP Address ::1
- IPAll
  - TCP Dynamic Ports
    - TCP Port 1433

TCP Port TCP port

OK Cancel Apply Help

- Java Class : MSSQLDBConnection

```

445
446 /**
447 * @author Kailash Pasumarty
448 * MSSQLJDBConnection Class : TestMSSQLJDBConnection() : Primitive MSSQLJDBConnection DB Connection
449 */
450 public void TestMSSQLJDBConnection() {
451
452     //Create the JDBC Connection
453     String url = "jdbc:sqlserver://localhost; databaseName=AdventureWorks2017; integratedSecurity=true";
454     //String user = "user=admin";
455     //String password = "password=Srinidhi2013";
456
457     //Retrieving data using SQL Query
458     String sql = new String("Select Top 10 * From Person.Person");
459     Connection conn = null;
460     try
461     {
462         //Register (or) Load MySQL JDBC Drivers
463         //Class.forName("oracle.jdbc.driver.oracledriver").newInstance();
464         Class.forName("com.microsoft.sqlserver.jdbc.SQLServerDriver").newInstance();
465         //String connectionUrl = "jdbc:sqlserver://localhost;database=AdventureWorks;integratedSecurity=true";
466
467         conn = DriverManager.getConnection(url);
468         System.out.println("KP : DriverManager.getConnection()!");
469         Statement st = conn.createStatement();
470         System.out.println("KP : Connection.CreateStatement!");
471         boolean bflag = st.execute(sql);
472         if(bflag)
473         {
474             System.out.println("KP : Successful MSSQL Select statement!");
475         }
476         else
477         {
478             System.out.println("KP : Failed MSSQL Select statement!");
479         }
480     }
481     catch(SQLException ex)
482     {
483         System.out.println(ex);
484     }
485     catch(Exception ex)
486     {
487         System.out.println(ex);
488     }
489 }

```

KPSQLQuery.sql - sita.AdventureWorks2017 (SITA\admin (58)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

AdventureWorks2017 Execute

Object Explorer

Connect >

sita (SQL Server 14.0.2027.2 - SITA\admin) >

- Databases
  - System Databases
  - Database Snapshots
  - AdventureWorks2017
    - Tables
      - System Tables
      - FileTables
      - External Tables
      - Graph Tables
      - dbo.AWBuildVersion
      - dbo.DatabaseLog
      - dbo.ErrorLog
      - HumanResources.Departm
      - HumanResources.Employee
      - HumanResources.Employee
      - HumanResources.Employee
      - HumanResources.JobCand
      - HumanResources.Shift
      - Person.Address
      - Person.AddressType
      - Person.BusinessEntity
      - Person.BusinessEntityAddr
      - Person.BusinessEntityCont
      - Person.ContactType
      - Person.CountryRegion
      - Person.EmailAddress
      - Person.Password
      - Person.Person
      - Person.PersonPhone

KPSQLQuery.sql - sita.AdventureWorks2017 (SITA\admin (58))

Use [Adventureworks2017]

```

Select * From Person.Person
Select * From INFORMATION_SCHEMA.COLUMNS Where TABLE_NAME = N'Person'
SELECT Top 100 * FROM Person.Person
Select * From Person.Person Where BusinessEntityID = 5
Select * From Person.Person
Select * From Person.Person Order By BusinessEntityID DESC
Select Count(*) From Person.Person

```

Results

BusinessEntityID	PersonType	NameStyle	Title	FirstName	MiddleName	LastName	Suffix	EmailPromotion
1	EM	0	NULL	Ken	J	Sánchez	NULL	0
2	EM	0	NULL	Tent	Lee	Duffy	NULL	1
3	EM	0	NULL	Roberto	NULL	Tamburelo	NULL	0
4	EM	0	NULL	Rob	NULL	Walters	NULL	0
5	EM	0	Ms.	Gail	A	Erickson	NULL	0
6	EM	0	Mr.	Joséf	H	Goldberg	NULL	0
7	EM	0	NULL	Dylan	A	Miller	NULL	2
8	EM	0	NULL	Diane	L	Margheim	NULL	0
9	EM	0	NULL	Gigi	N	Matthew	NULL	0
10	EM	0	NULL	Michael	NULL	Raheem	NULL	2
11	EM	0	NULL	Ovidiu	V	Craciun	NULL	0
12	EM	0	NULL	Thierry	B	D'Hers	NULL	2
13	EM	0	Ms.	Janice	M	Galvin	NULL	2
14	EM	0	NULL	Michael	I	Sullivan	NULL	2
15	EM	0	NULL	Sharon	B	Salavarria	NULL	2
16	EM	0	NULL	David	M	Bradley	NULL	1
17	EM	0	NULL	Kevin	F	Brown	NULL	2
18	EM	0	NULL	John	L	Wood	NULL	2

Query executed successfully.

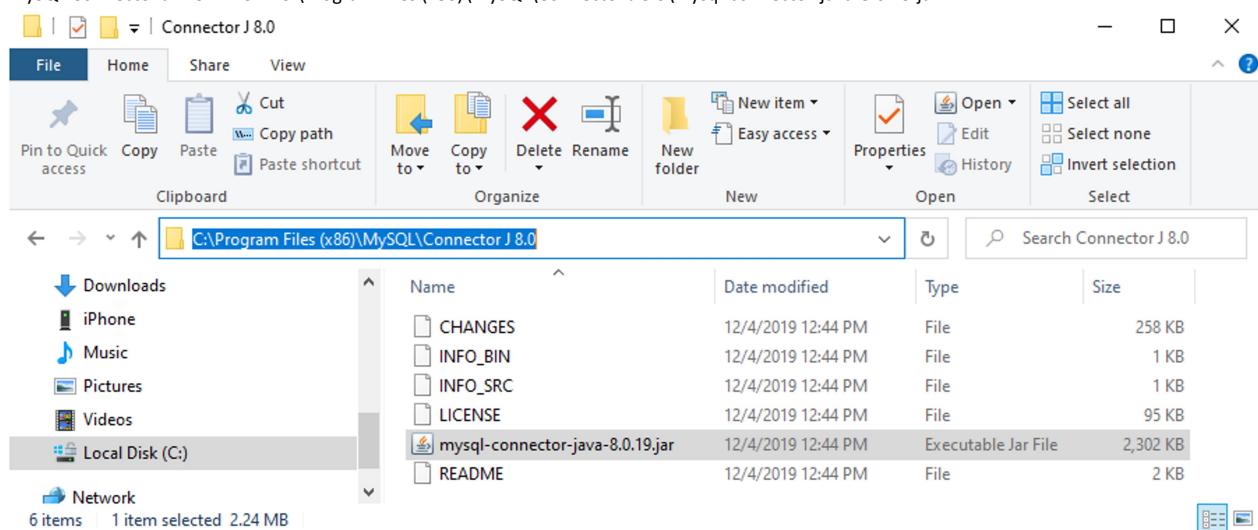
<http://localhost:8080/KPJavaWebApp/>

Welcome to Kailash Java Web Application : EJB Servlets & REST APIs!

BusinessEntityID	PersonType	Name Style	Title	FirstName	MiddleName	LastName	Suffix	EmailPromotion	AdditionalContactInfo	RowGUID	ModifiedDate
1	EM	0	null	Ken	J	Sánchez	null	0	null	92C4279F-1207-48A3-844B-4636514EB7E2	2009-01-07 00:00:00.0
2	EM	0	null	Terri	Lee	Duffy	null	1	null	D8763459-8AA8-47CC-AFF7-C9079AF79033	2008-01-24 00:00:00.0
3	EM	0	null	Roberto	null	Tamburello	null	0	null	E1A2555E-0828-434B-A33B-6F38136A37DE	2007-11-04 00:00:00.0
4	EM	0	null	Rob	null	Walters	null	0	null	F2D7CE06-38B3-4357-805B-F4B6B71C01FF	2007-11-28 00:00:00.0
5	EM	0	Ms.	Gail	A	Erickson	null	0	null	F3A3F6B4-AE3B-430C-A754-9F2231BA6FEF	2007-12-30 00:00:00.0
6	EM	0	Mr.	Jossef	H	Goldberg	null	0	null	0DEA28FD-EFFE-482A-AFD3-B7E8F199D56F	2013-12-16 00:00:00.0

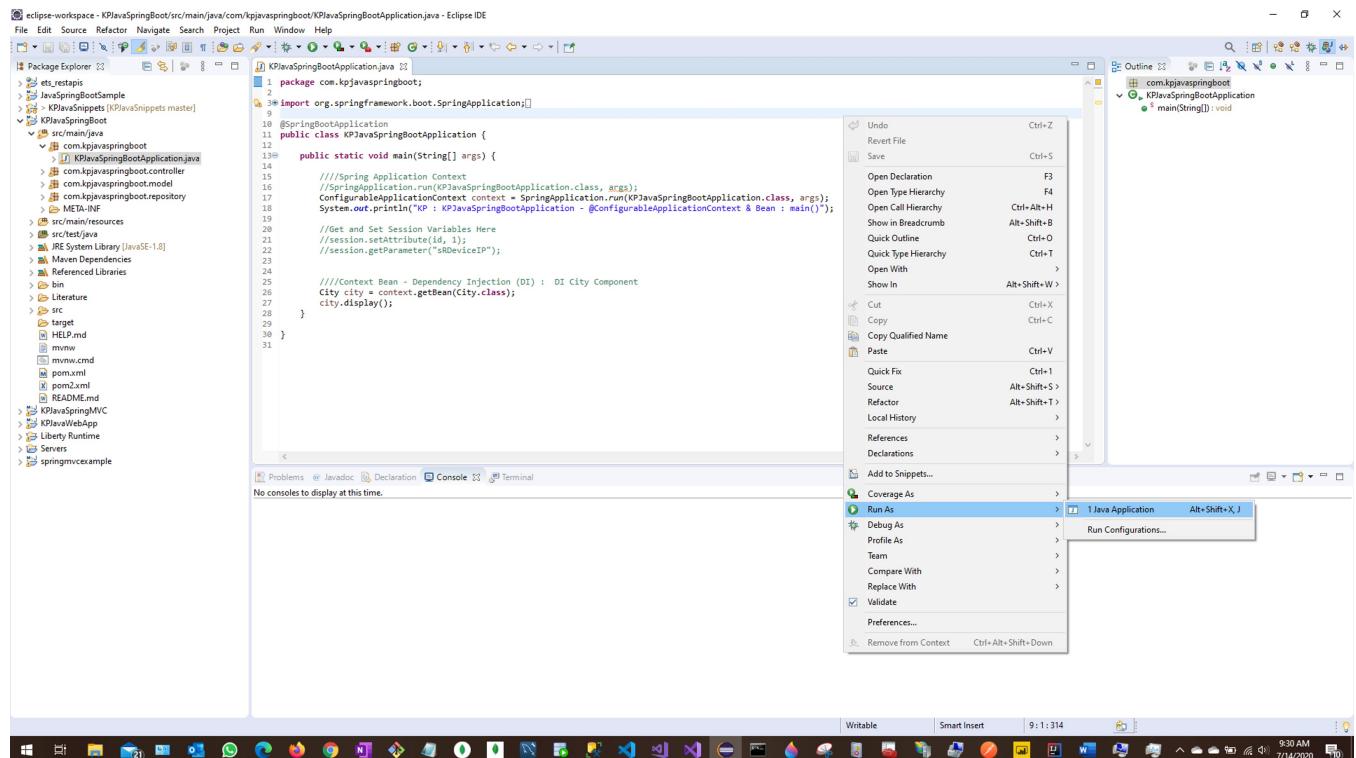
#### Eclipse & MySQL Connector JDBC Driver

- MySQL Connector JDBC Driver - C:\Program Files (x86)\MySQL\Connector J 8.0\mysql-connector-java-8.0.19.jar

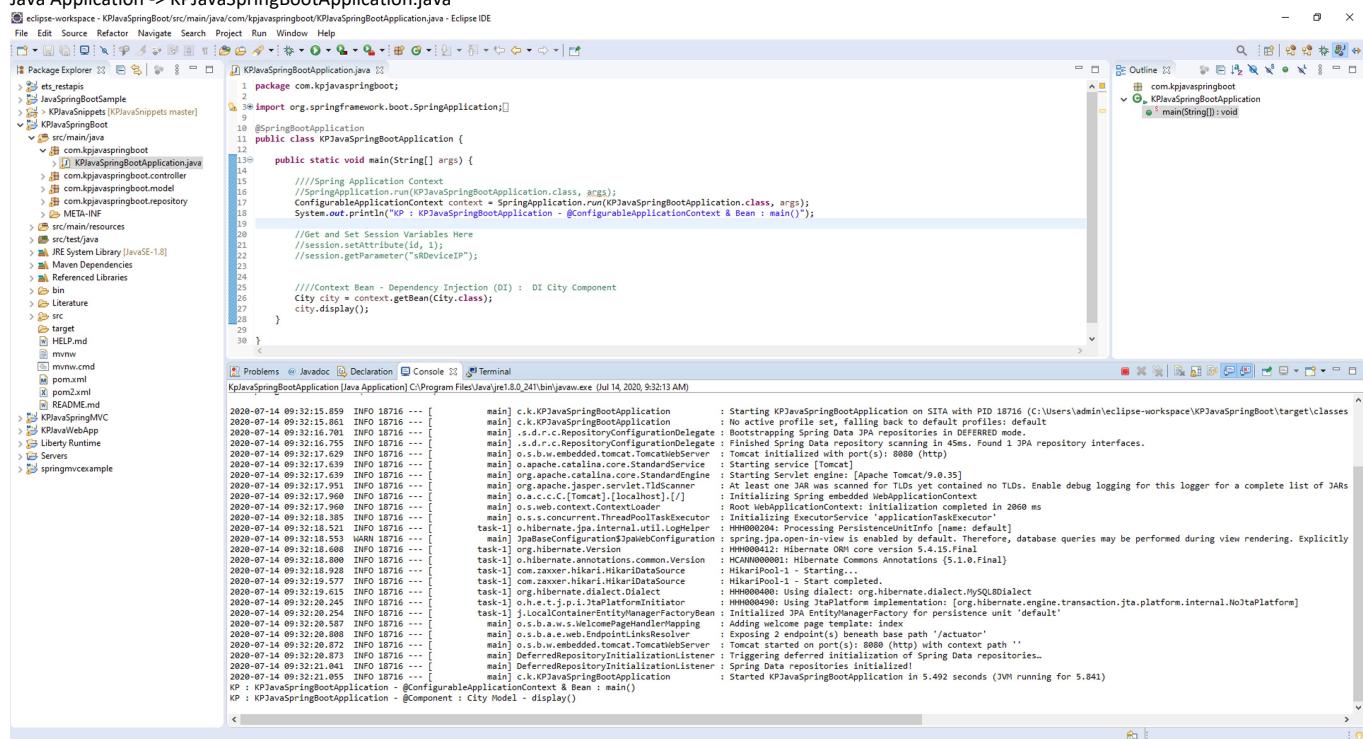


#### KP Java Spring Boot & REST APIs : KPJavaRESTAPIs

- KPJavaSpringBoot -> KPJavaSpringBootApplication.java -> Run As -> Java Application



- Java Application -> KJavaSpringBootApplication.java



- KP Java : kill processes listening on "8080"
- Process Listening on port "8080" : netstat -a -n -o | find "8080"  
TCP 0.0.0.0:8080 0.0.0.0: LISTENING 5420
- Kill Process Listening on port "8080" : taskkill /F /pid 5420  
SUCCESS: The process with PID 5420 has been terminated.

```

Administrator: Developer Command Prompt for VS 2017
*****
** Visual Studio 2017 Developer Command Prompt v15.0
** Copyright (c) 2017 Microsoft Corporation
*****

C:\Windows\System32>netstat -a -n -o | find "8080"
  TCP    0.0.0.0:8080        0.0.0.0:0          LISTENING      5420

• C:\Windows\System32>taskkill /pid 5420
ERROR: The process with PID 5420 could not be terminated.
Reason: This process can only be terminated forcefully (with /F option).

C:\Windows\System32>taskkill /F /pid 5420
SUCCESS: The process with PID 5420 has been terminated.

C:\Windows\System32>

```

- Port 8080 required by Tomcat v9.0 Server at localhost is already in use. The server may already be running in another process, or a system process may be using the port. To start this server you will need to stop the other process or change the port number(s).

```

Administrator: Developer Command Prompt for VS 2017
*****
** Visual Studio 2017 Developer Command Prompt v15.0
** Copyright (c) 2017 Microsoft Corporation
*****

• C:\Windows\System32>netstat -ano | findstr 8080
  TCP    0.0.0.0:8080        0.0.0.0:0          LISTENING      5152

C:\Windows\System32>taskkill /F /pid 5152
SUCCESS: The process with PID 5152 has been terminated.

C:\Windows\System32>

```

- <http://localhost:8080>

Welcome to Kailash Spring Boot Web Application : REST APIs!

CRUD - HTTP : GET  
City ID : 27

CRUD - HTTP : GET ALL

CRUD - HTTP : POST  
City ID : 4081  
City Name : Nityananda  
Country Code : IND  
District Name : Nityananda  
Population : 999

CRUD - HTTP : UPDATE  
Country ID : 4080  
Country Name : Mudinepalli  
Country Code : IND  
District Name : Andhra Pradesh  
Population : 99999

CRUD - HTTP : DELETE  
Country ID : 4081  
Country Name : Mudinepalli  
Country Code : IND  
District Name : Andhra Pradesh  
Population : 99999

Copyright © Your Website 2019

- HTTP:// GET ALL : <http://localhost:8080/cities?>

Kailash Spring Boot Application

localhost:8080/cities?

Welcome to Kailash Spring Boot Web Application : REST APIs!

ID	Name	CountryCode	District	Population
1	Kabul	AFG	Kabul	1780000
2	Qandahar	AFG	Qandahar	237500
3	Herat	AFG	Herat	186800
4	Mazar-e-Sharif	AFG	Balkh	127800
5	Amsterdam	NLD	Noord-Holland	731200
6	Rotterdam	NLD	Zuid-Holland	593321
7	Haag	NLD	Zuid-Holland	440900
8	Utrecht	NLD	Utrecht	234323
9	Eindhoven	NLD	Noord-Brabant	201843
10	Tilburg	NLD	Noord-Brabant	193238
11	Groningen	NLD	Groningen	172701
12	Breda	NLD	Noord-Brabant	160398
13	Apeldoorn	NLD	Gelderland	153491
14	Nijmegen	NLD	Gelderland	152463
15	Enschede	NLD	Overijssel	149544
16	Haarlem	IND	Noord-Holland	148772

- <http://localhost:8080/city?id=4080>

Postman

File Edit View Help

KP Professional Workspace

PUT Spr... DEL Spr... POST Spr... GET htt... GET htt... GET Spr... X + \*\*\* No Environment

SpringBoot-<http://localhost:8080/city-GET>

GET <http://localhost:8080/city?id=4080> Send Save

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies Code

Query Params

KEY	VALUE	DESCRIPTION	*** Bulk Edit
<input checked="" type="checkbox"/> id	4080		
Key	Value	Description	

Body Cookies (1) Headers (6) Test Results Status: 200 OK Time: 26 ms Size: 2.71 KB Save Response

Pretty Raw Preview Visualize

logo

Welcome to Kailash Spring Boot Web Application : REST APIs!

ID	Name	CountryCode	District	Population
4080	Mudinepalli	IND	Krishna	1234567890

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Bootcamp Build Browse

- <http://localhost:8080/city?id=4080&name=Mudinepalli&countryCode=IND&disrtict=Krishna&population=9876543210>

Postman

File Edit View Help

KP Professional Workspace Invite Upgrade

PUT Spr... X DEL Spr... POST Spr... GET http... GET http... GET Spr... + ... No Environment Comments 0 Examples 0

SpringBoot-<http://localhost:8080>/city-Update

PUT <http://localhost:8080/api/city/>?id=4080&name=Mudinepalli&countryCode=IND&disrtict=Krishna&population=987654321

Send Save

Params Authorization Headers (10) Body Pre-request Script Tests Settings Cookies Code

none form-data x-www-form-urlencoded raw binary GraphQL JSON Beautify

```
1 [ { 2   "id": 4080, 3   "name": "Mudinepalli", 4   "countryCode": "IND", 5   "disrtict": "Krishna", 6   "population": 1234567890 7 } ]
```

Body Cookies (1) Headers (5) Test Results Status: 200 OK Time: 112 ms Size: 261 B Save Response

Pretty Raw Preview Visualize JSON

```
1 [ { 2   "id": 4080, 3   "name": "Mudinepalli", 4   "countryCode": "IND", 5   "disrtict": "Krishna", 6   "population": 1234567890 7 } ]
```

Bootcamp Build Browse

The screenshot shows the Postman interface with a PUT request to update a city record. The URL is <http://localhost:8080/api/city/>?id=4080&name=Mudinepalli&countryCode=IND&disrtict=Krishna&population=987654321. The request body is a JSON object with fields id, name, countryCode, disrtict, and population. The response status is 200 OK with a size of 261 B.

Postman

File Edit View Help

KP Professional Workspace Invite Upgrade

PUT Spr... X DEL Spr... POST Spr... GET http... GET http... GET Spr... + ... No Environment Comments 0 Examples 0

SpringBoot-<http://localhost:8080>/city-Update

PUT http://localhost:8080/api/city?id=4080&name=Mudinepalli&countryCode=IND&disrtict=Krishna&population=9876... Send Save

Params Authorization Headers (10) Body Pre-request Script Tests Settings Cookies Code

Headers Hide auto-generated headers

KEY	VALUE	DESCRIPTION	***	Bulk Edit	Presets
Cookie	JSESSIONID=69B35756938E75601667E966C344E154				
Cache-Control	no-cache				
Postman-Token	<calculated when request is sent>				
Content-Type	application/json				
Content-Length	<calculated when request is sent>				
Host	<calculated when request is sent>				
User-Agent	PostmanRuntime/7.25.0				
Accept	*/*				
Accept-Encoding	gzip, deflate, br				
Connection	keep-alive				
Key	Value	Description			

Body Cookies (1) Headers (5) Test Results Status: 200 OK Time: 112 ms Size: 261 B Save Response

Pretty Raw Preview Visualize JSON

```

1 [
2   "id": 4080,
3   "name": "Mudinepalli",
4   "countryCode": "IND",
5   "disrtict": "Krishna",
6   "population": 1234567890
7 ]

```

Bootcamp Build Browse

- Create X509 Certificate - Create PKCS12 : Public Key Cryptography Standards

- keytool -genkeypair -alias baeldung -keyalg RSA -keysize 2048 -storetype PKCS12 -keystore baeldung.p12 -validity 3650

Administrator: Developer Command Prompt for VS 2017

```
C:\Windows\System32>netstat -a -n -o | find "8080"
  TCP    0.0.0.0:8080          0.0.0.0:0              LISTENING      5260

C:\Windows\System32>taskkill /F /pid 5260
SUCCESS: The process with PID 5260 has been terminated.

C:\Windows\System32>keytool -genkeypair -alias baeldung -keyalg RSA -keysize 2048 -storetype PKCS12 -keystore baeldung.p12
-valiidity 3650
Enter keystore password:
Re-enter new password:
What is your first and last name?
[Unknown]: Kailash Pasumathy
What is the name of your organizational unit?
[Unknown]: Pasumathy
What is the name of your organization?
[Unknown]: Pasumathy
What is the name of your City or Locality?
[Unknown]: Princeton
What is the name of your State or Province?
[Unknown]: New Jersey
What is the two-letter country code for this unit?
[Unknown]: US
Is CN=Kailash Pasumathy, OU=Pasumathy, O=Pasumathy, L=Princeton, ST=New Jersey, C=US correct?
[no]: yes

Generating 2,048 bit RSA key pair and self-signed certificate (SHA256withRSA) with a validity of 3,650 days
for: CN=Kailash Pasumathy, OU=Pasumathy, O=Pasumathy, L=Princeton, ST=New Jersey, C=US
```

C:\Windows\System32>

- keytool -genkeypair -alias baeldung -keyalg RSA -keysize 2048 -storetype PKCS12 -keystore baeldung.p12 -validity 3650

- SSL Enable : 'application.properties'

eclipse-workspace - KPJavaSpringBoot/src/main/resources/application.properties - Eclipse IDE

File Edit Navigate Search Project Run Window Help

Project Explorer

KPJavaSpringBoot

src/main/java

com.kpjavaspringboot

KPJavaInterview.java  
KPJavaInterviewExamples.java  
KPJavaSpringBootApplication.java  
KPJavaInterview-XX.txt  
KPJavaInterview.java.txt  
KPJavaInterviewExamples.java.txt

com.kpjavaspringboot.controller  
com.kpjavaspringboot.model  
com.kpjavaspringboot.repository

META-INF

src/main/resources

keystore

baeldung.p12  
KPSitaRamaCert.cer  
KPSitaSelfSignedCert.cer  
KPSitaSelfSignedCert.pfx

application.properties  
application.properties.txt

src/test/java

JRE System Library [JavaSE-1.8]

Maven Dependencies

Referenced Libraries

bin

Literature

src

target

HELP.md  
mvnw  
mvnw.cmd  
pom.xml  
README.md

KPJavaSpringMVC

KPJavaWebApp

Liberty Runtime (in use)

PriceCheckerKiosk

Servers

springmvexample

application.... KPJavaInterv... CityControll... Card.java KPJavaSprin... 2

```

27
28 # SSL
29 # The format used for the keystore. It could be set to JKS in case it is a JKS file
30 ##KP: Enable server.port='8080' for 'https'
31 server.port=8443
32 # PKCS12 or JKS : PKCS - Public Key Cryptography Standards
33 server.ssl.keyStoreType=PKCS12
34 # The path to the keystore containing the certificate
35 server.ssl.key-store=classpath:keystore/baeldung.p12
36 # The password used to generate the certificate
37 server.ssl.key-store-password=password
38 # The alias mapped to the certificate
39 server.ssl.key-alias=baeldung
40
41
42 ## SSL Enabled
43 server.ssl.enabled=true
44 #trust store location
45 trust.store=classpath:keystore/baeldung.p12
46 #trust store password
47 trust.store.password=password
48
49

```

Markers Properties Servers Data Source Explorer Snippets Console Progress Terminal C

KPJavaSpringBootApplication [Java Application] C:\Program Files\Java\jre1.8.0\_241\bin\javaw.exe (Oct 22, 2020, 5:11:35 PM)

KP : Count Number of Digits and Return the Sum?  
Count & Sum of All Digits inside the Number : '987654321'. Count : '9', Sum : '45'  
KP : Check if Input String a Palindrome  
Input Variable : 'Madam'  
Input String : 'Madam', is NOT a Palindrome !  
Input Variable : 'Madam'. Ignore Case : 'true'  
Input String : 'Madam', is A Palindrome !  
Input Variable : 'Madam'. Ignore Case : 'false'  
Input String : 'Madam', is NOT a Palindrome. Case Sensitive !  
KP : Compute Factorial Recursively  
Factorial of : '27' = '1484783616'  
KP : KPJavaSpringBootApplication - @Component : City Model - display()  
2020-10-22 17:13:19.054 INFO 3492 --- [nio-8443-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/] :  
2020-10-22 17:13:19.055 INFO 3492 --- [nio-8443-exec-2] o.s.web.servlet.DispatcherServlet :  
2020-10-22 17:13:19.064 INFO 3492 --- [nio-8443-exec-2] o.s.web.servlet.DispatcherServlet :  
KP : KPJavaSpringBootApplication - @Controller : CityController - @GetMapping : retrieveAllCities()  
KP : KPJavaSpringBootApplication - @Controller : CityController - @GetMapping : retrieveAllCities()  
KP : KPJavaSpringBootApplication - @RestController : CityController - @GetMapping  
2020-10-22 17:22:27.998 WARN 3492 --- [nio-8443-exec-9] .w.s.m.s.DefaultHandlerExceptionResolver :  
KP : KPJavaSpringBootApplication - @RestController : CityController - @GetMapping  
com.kpjavaspringboot.model.City@6f686668 27 Emmen NLD Drenthe 105853  
KP : KPJavaSpringBootApplication - @Controller : CityController - @GetMapping : retrieveAllCities()

- <https://localhost:8443/cities>

Postman

File Edit View Help

+ New Import Runner

GET https://kpmvcwebapis.com/api... [CONFLICT] GET https://localhost:8... GET https://localhost:8443/ No Environment Examples (0) BUILD

GET https://localhost:8443/cities

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies Code

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Body	Cookies (1)	Headers (6)	Test Results	

Status: 200 OK Time: 124 ms Size: 610 KB Save Response

Logo

Welcome to Kailash Spring Boot Web Application : REST APIs!

ID	Name	CountryCode	District	Population
1	Kabul	AFG	Kabul	1780000
2	Qandahar	AFG	Qandahar	237500
3	Herat	AFG	Herat	186800

Find and Replace Console All Logs

2 WARNINGS Clear

200 61 ms  
200 124 ms

Bootcamp Build Browse

- <https://localhost:8443/cities>

Kailash Spring Boot Application 8

Not secure | localhost:8443/cities

Apps ShopRite-DEP-UAT ShopRite What is Apigee Edg... Angular JavaScript... Other bookmarks

# Welcome to Kailash Spring Boot Web Application : REST APIs!

ID	Name	CountryCode	District	Population
1	Kabul	AFG	Kabul	1780000
2	Qandahar	AFG	Qandahar	237500
3	Herat	AFG	Herat	186800
4	Mazar-e-Sharif	AFG	Balkh	127800
5	Amsterdam	NLD	Noord-Holland	731200
6	Rotterdam	NLD	Zuid-Holland	593321
7	Haag	NLD	Zuid-Holland	440900
8	Utrecht	NLD	Utrecht	234323
9	Eindhoven	NLD	Noord-Brabant	201843
10	Tilburg	NLD	Noord-Brabant	193238
11	Groningen	NLD	Groningen	172701
12	Breda	NLD	Noord-Brabant	160398
13	Apeldoorn	NLD	Gelderland	153491
14	Nijmegen	NLD	Gelderland	152463
15	Enschede	NLD	Overijssel	149544
16	Haarlem	NLD	Noord-Holland	148772
17	Almere	NLD	Flevoland	142465
18	Arnhem	NLD	Gelderland	138020

• <https://localhost:8443>

Kailash Spring Boot Application

Not secure | localhost:8443

Apps ShopRite-DEP-UAT ShopRite What is Apigee Edg... Angular JavaScript... Other bookmarks

# Welcome to Kailash Spring Boot Web Application : REST APIs!

CRUD - HTTP : GET

City ID :  Get

CRUD - HTTP : GET ALL

CRUD - HTTP : POST

City ID :   
City Name :   
Country Code :   
District Name :   
Population :

CRUD - HTTP : UPDATE

Country ID :   
Country Name :   
Country Code :   
District Name :   
Population :

CRUD - HTTP : DELETE

Country ID :   
Country Name :   
Country Code :   
District Name :   
Population :

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• <https://localhost:8443/api/city?id=27>

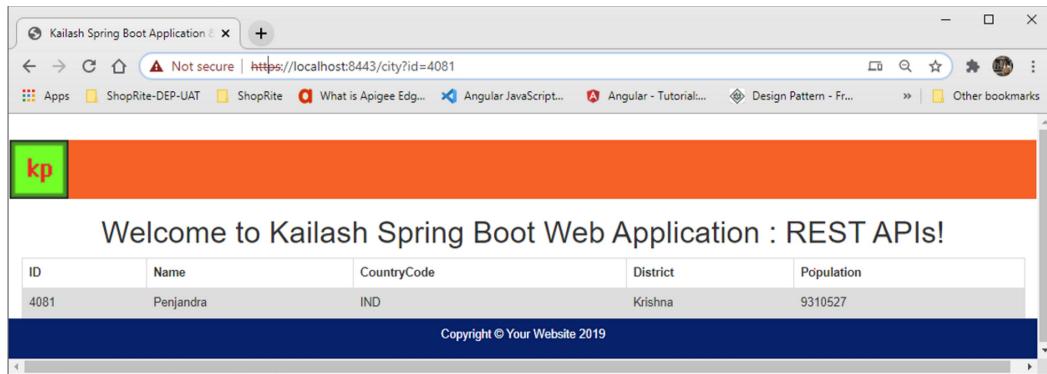
https://localhost:8443/api/city?id=27

Not secure | localhost:8443/api/city?id=27

Apps ShopRite-DEP-UAT ShopRite What is Apigee Edg... Other bookmarks

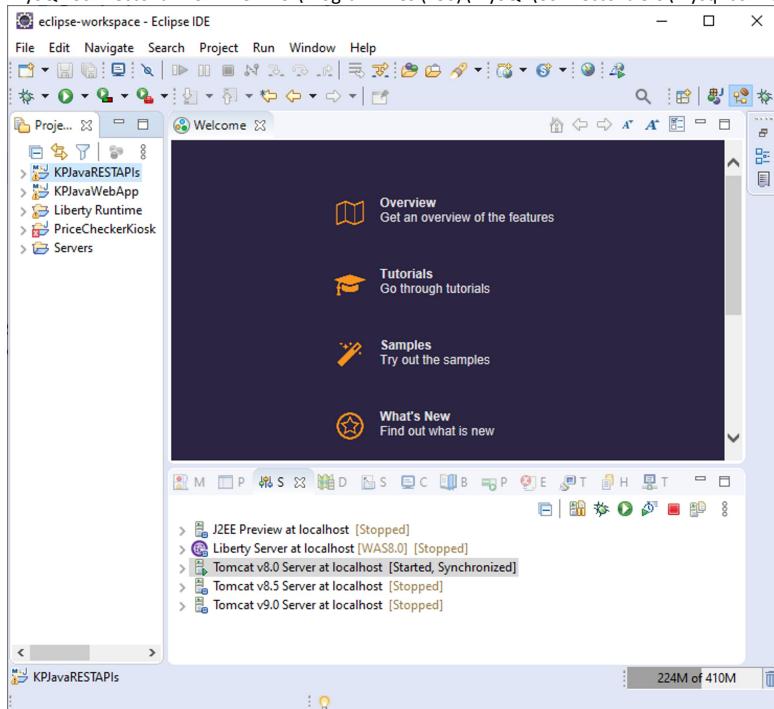
```
{"id":27,"name":"Emmen","countryCode":"NLD","disrtict":"Drenthe","population":105853}
```

• <https://localhost:8443/city?id=4081>

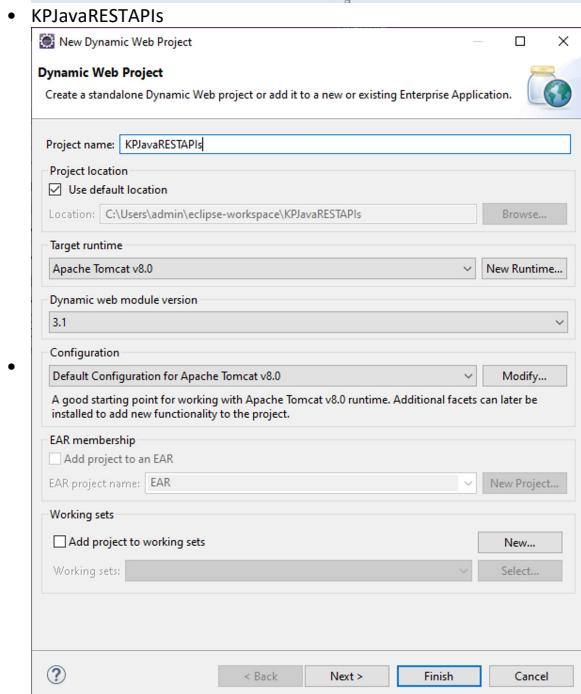
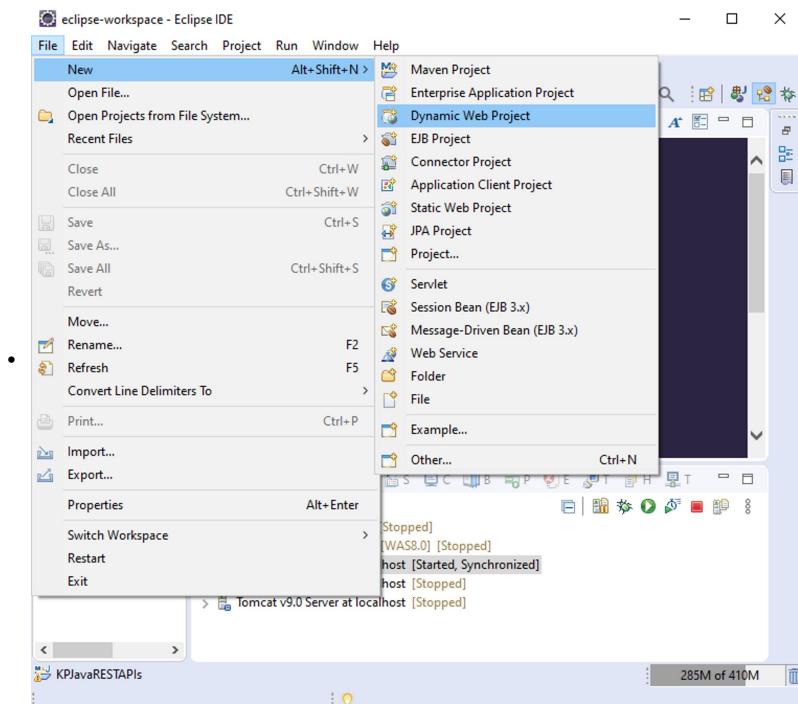


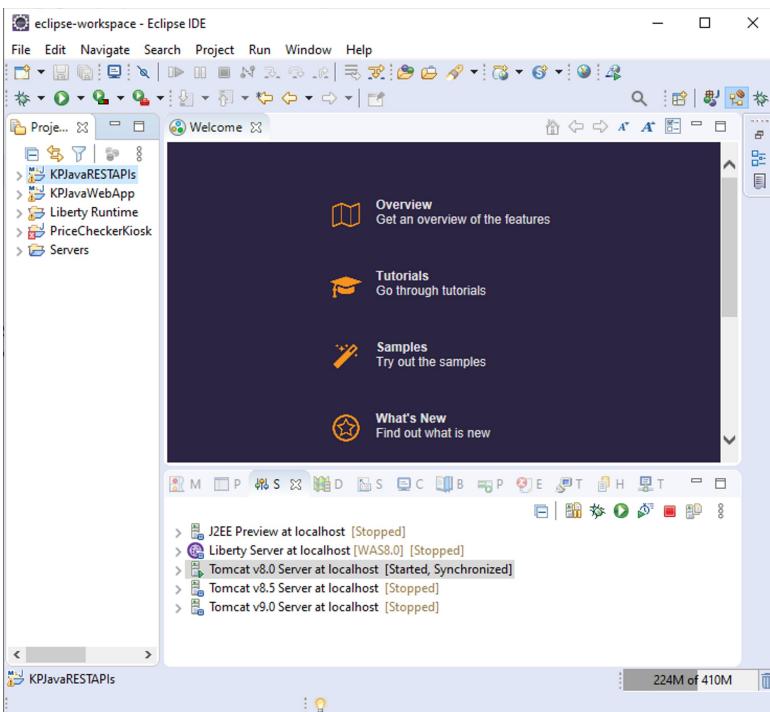
#### KP Java Spring MVC Framework & REST APIs : KPJavaRESTAPIs

- MySQL Connector JDBC Driver - C:\Program Files (x86)\MySQL\Connector J 8.0\mysql-connector-java-8.0.19.jar

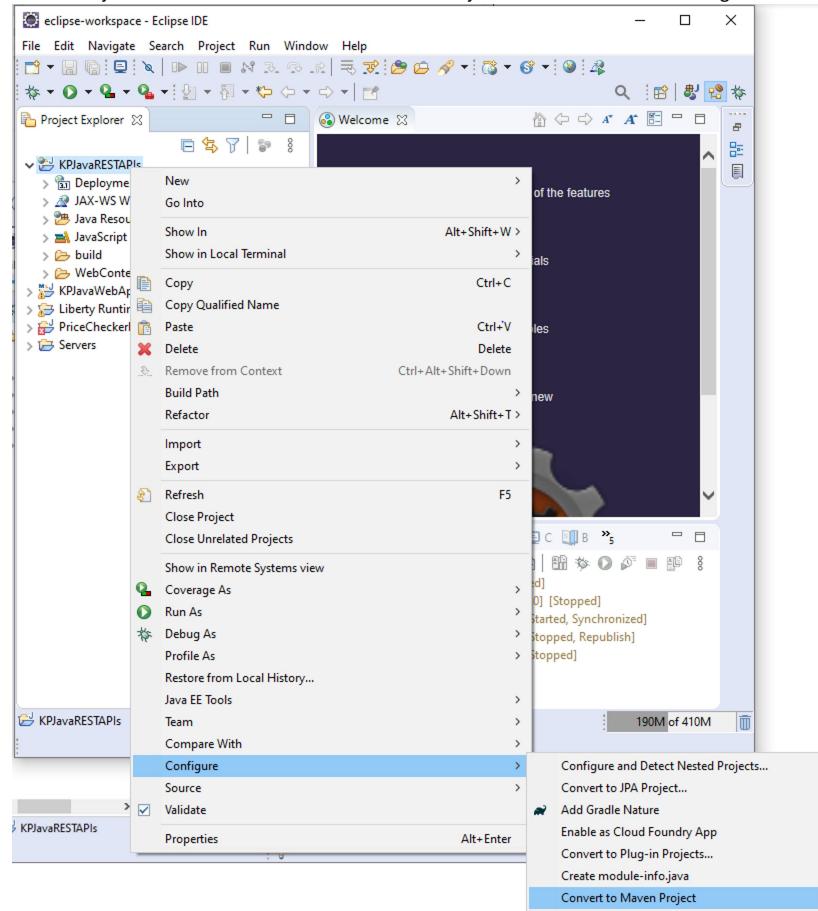


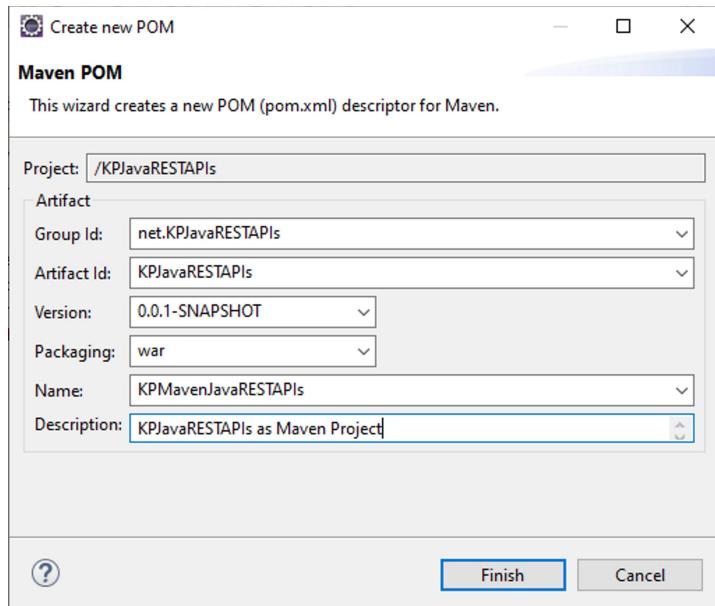
- File -> New -> Dynamic Web Project





- Maven Project : Convert KPJavaRESTAPIs to Maven Project : KPJavaRESTAPIs -> Configure -> Convert to Maven Project





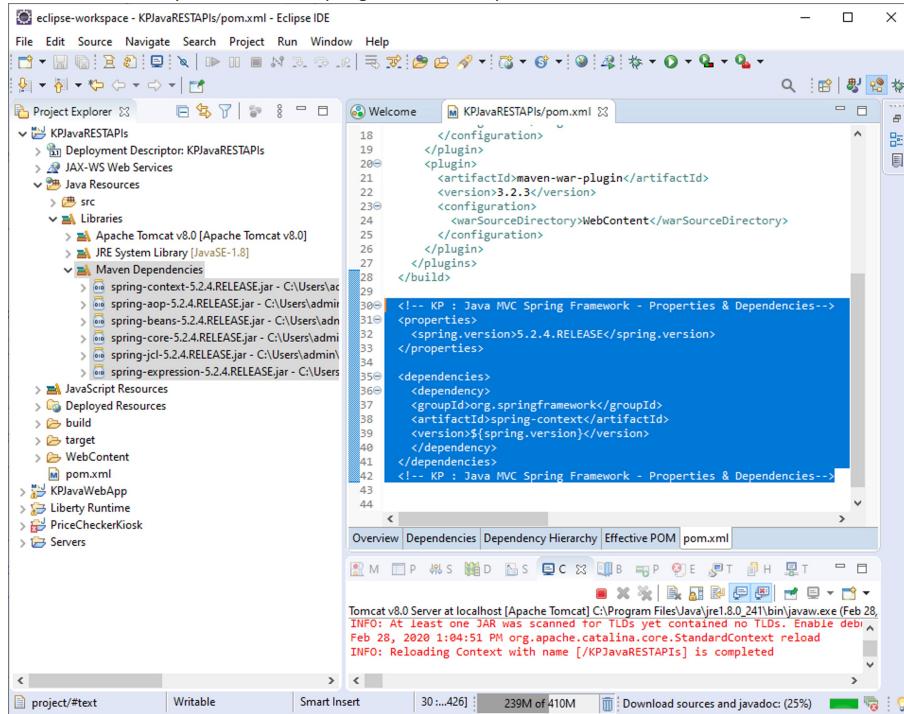
- Spring Framework : <https://spring.io/projects/spring-framework>.
- MVC Spring Framework 5.2.4.RELEASE Currently as 5.1.9.RELEASE is the latest release version.

- Add Spring Framework Properties & Dependencies in Maven POM.xml file

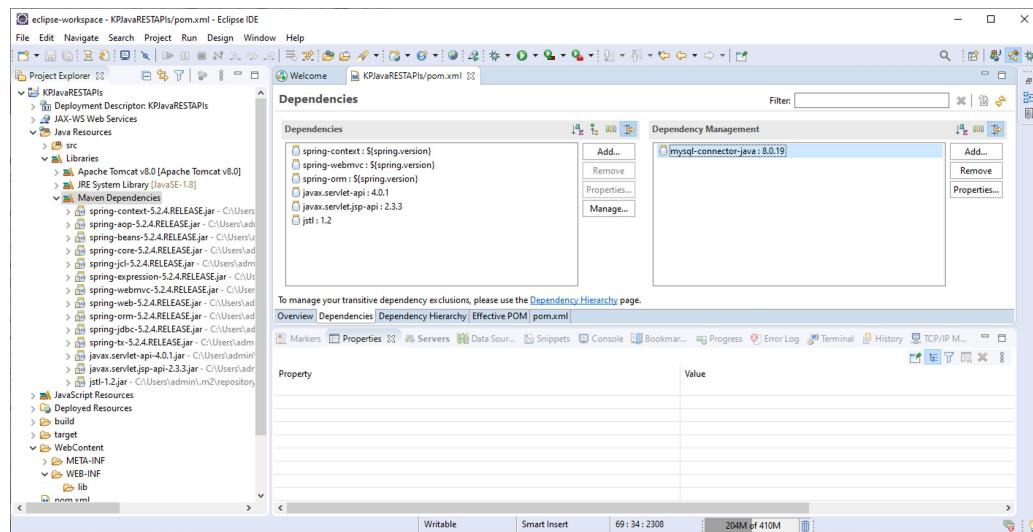
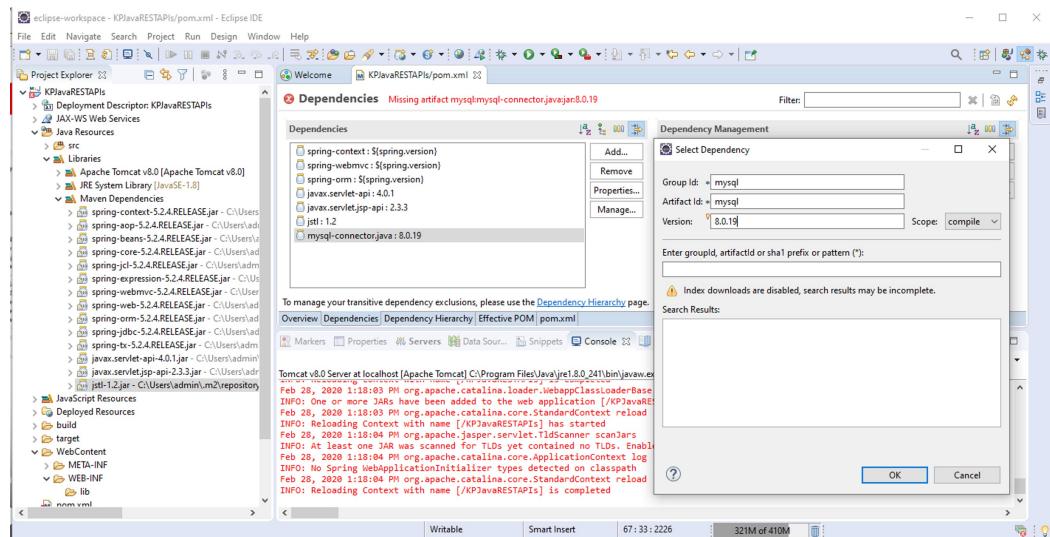
```
<!-- KP : Java MVC Spring Framework - Properties & Dependencies-->
<properties>
    <spring.version>5.2.4.RELEASE</spring.version>
</properties>

<dependencies>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-context</artifactId>
        <version>${spring.version}</version>
    </dependency>
</dependencies>
<!-- KP : Java MVC Spring Framework - Properties & Dependencies-->
```

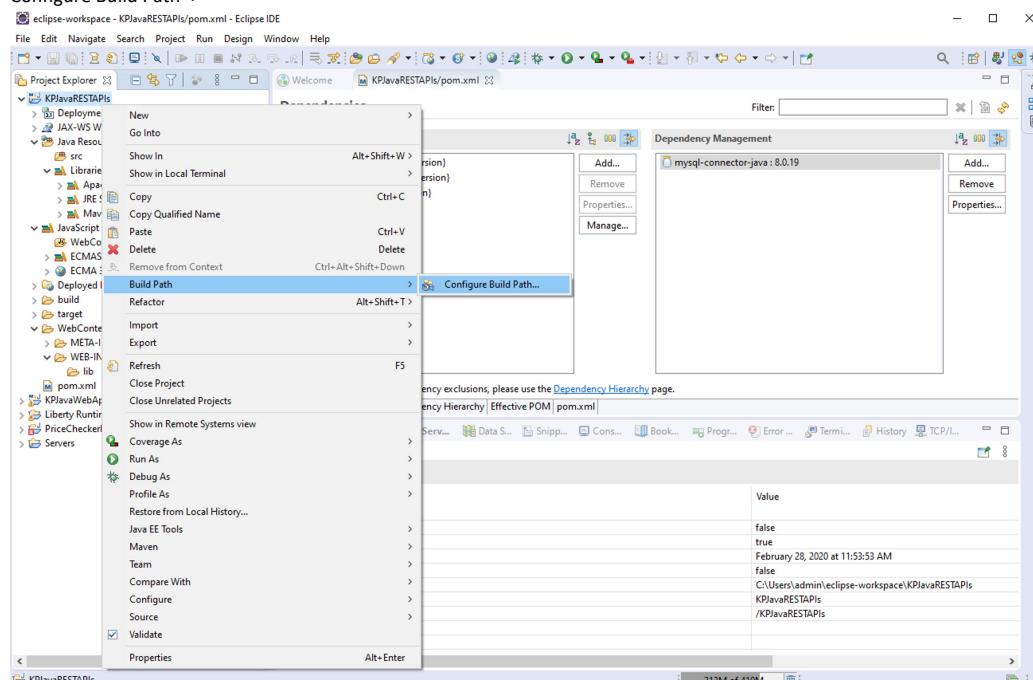
- Maven automatically downloads the Spring Framework Dependencies



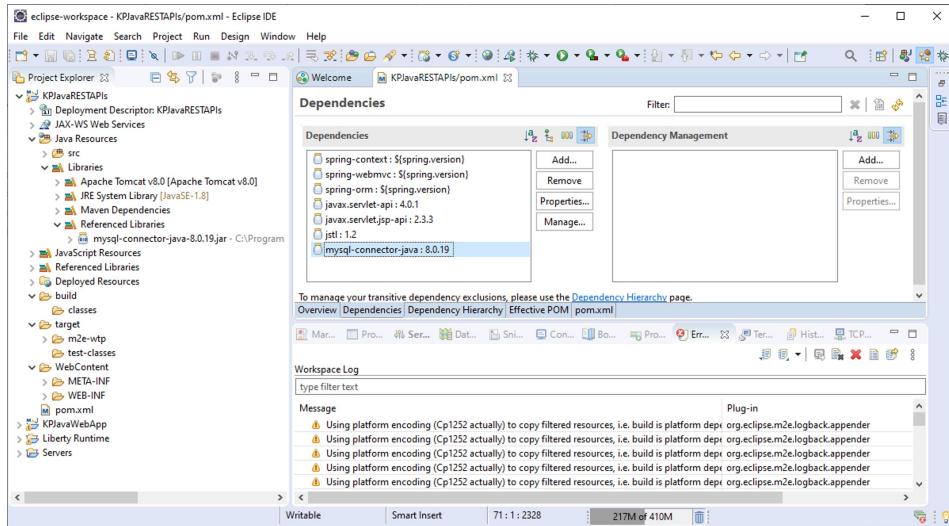
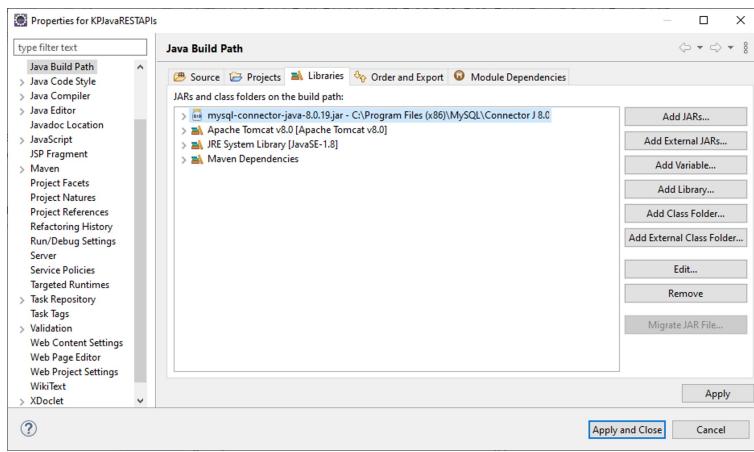
- MySQL Dependency : On installing MySQL



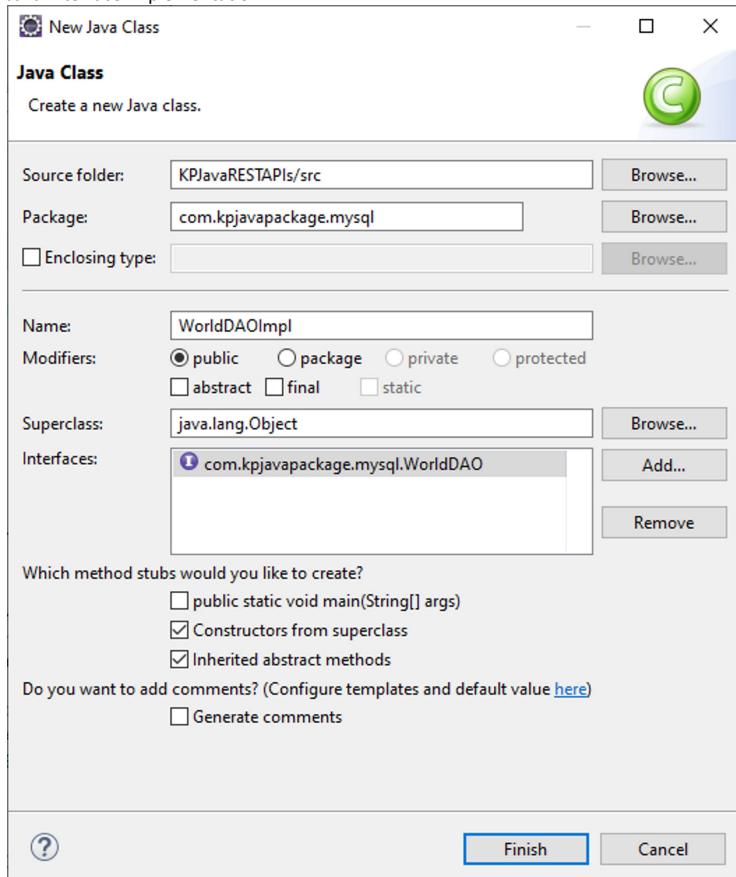
- Configure Build Path ->



- Configure Build Path -> Add External JARs -> mysql-connector-java-8.0.19.jar



#### Java Interface Implementation



- Add Web Application Initializer : KPWebApplInitializer

