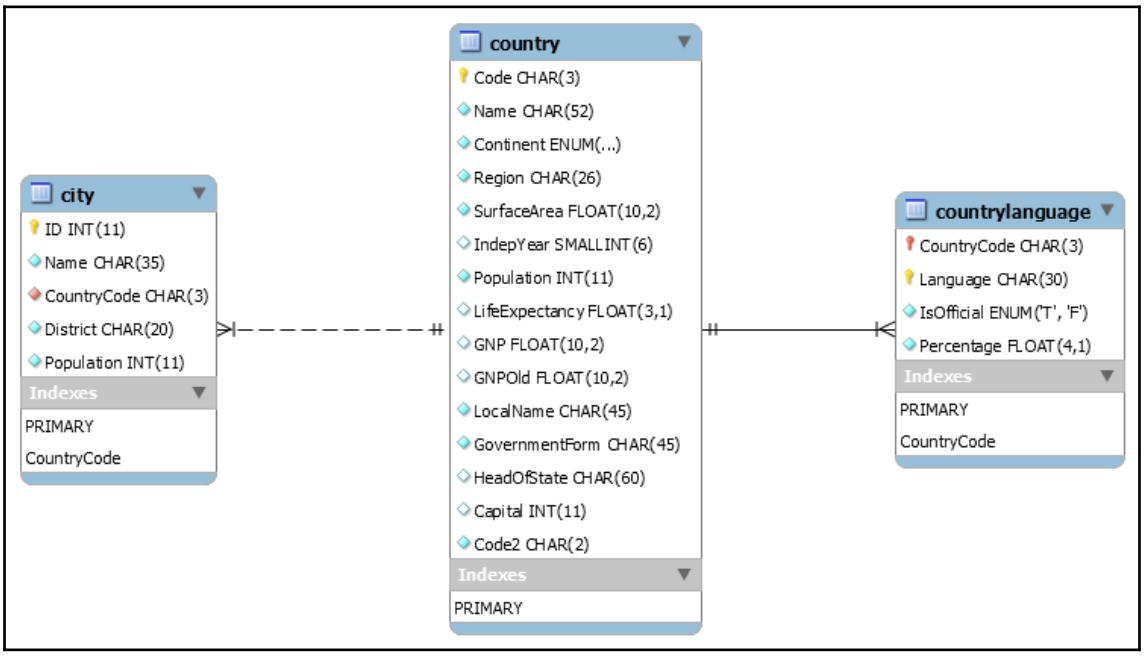
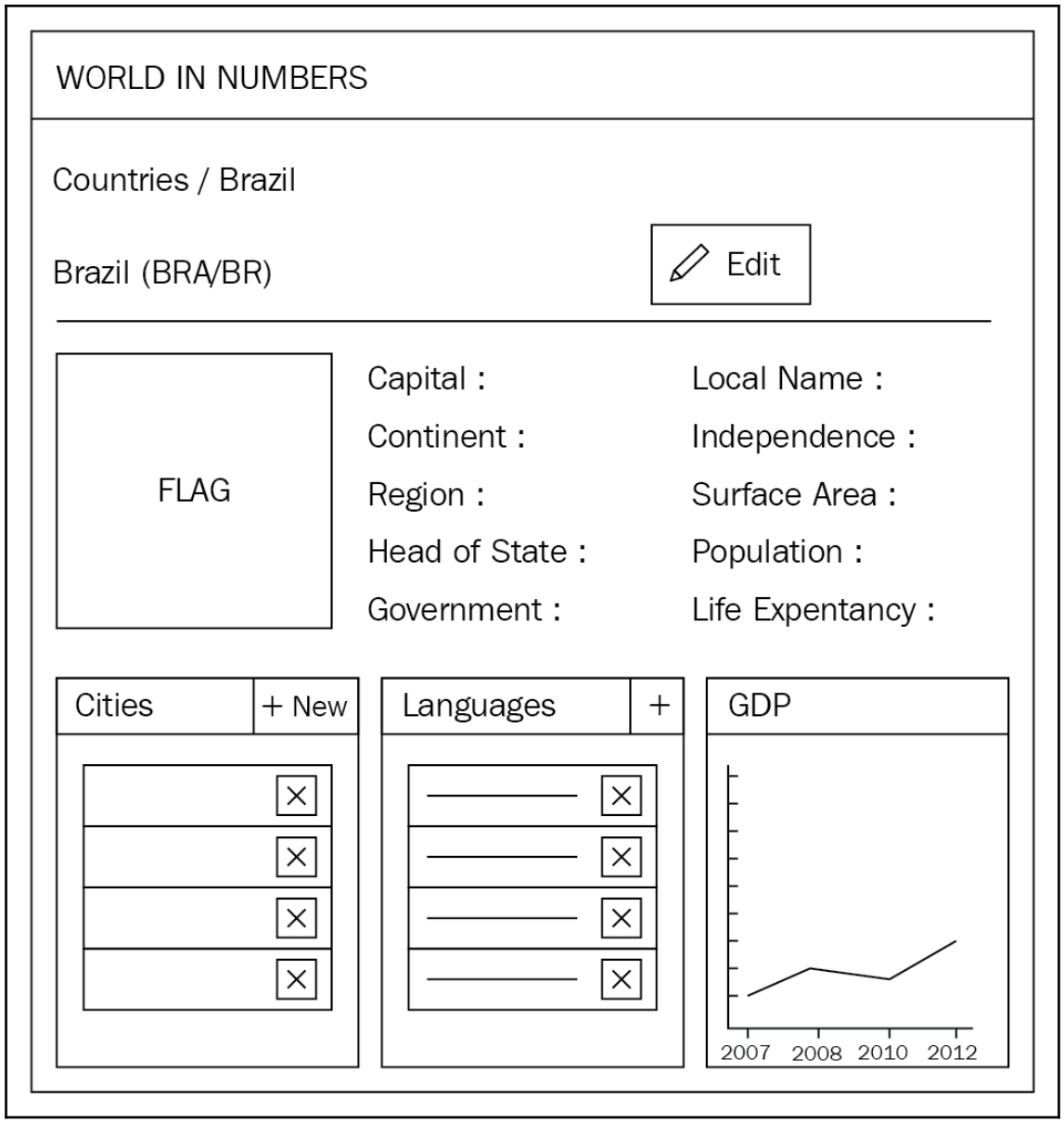
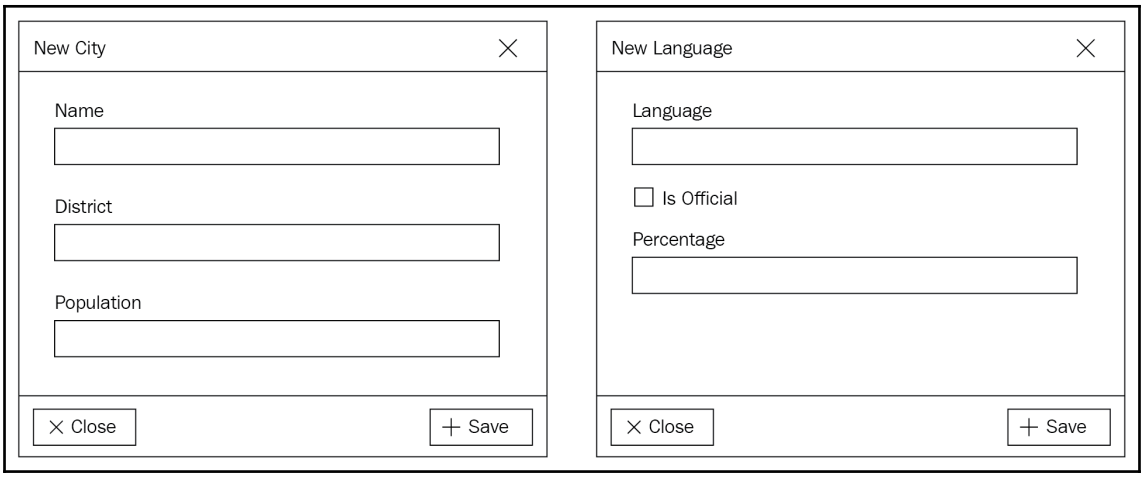
Chapter 1: Creating an Application to List World Countries with their GDP



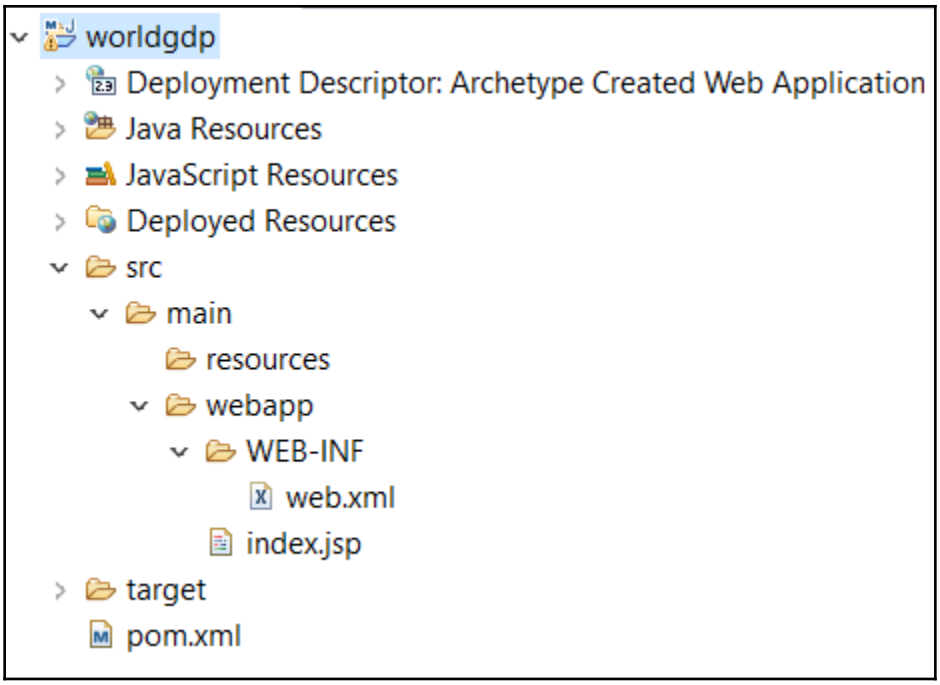
WORLD IN NUMBERS
Countries
Search by Name
Search
Continent
Region
All
All
Code
Name
Continent
Region
Area
<<
1
2
3
4
>>

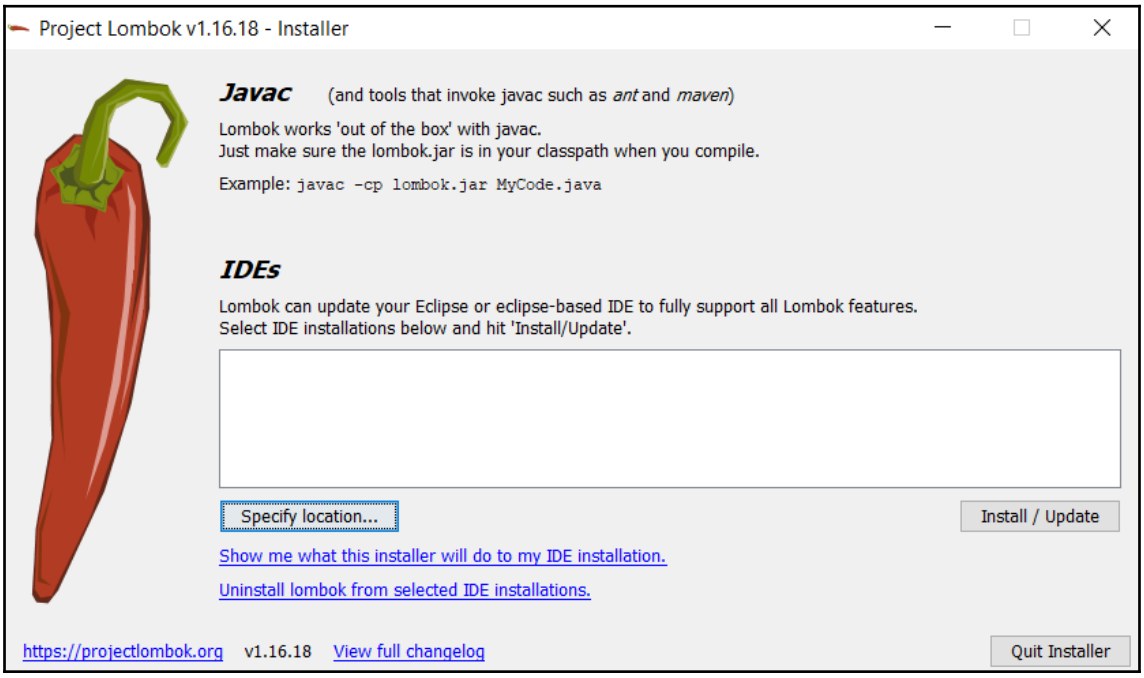

WORLD IN NUMBERS
Countries / Brazil
Brazil (BRA/BR)
Edit
FLAG
Capital :
Continent :
Region :
Head of State :
Government :
Local Name :
Independence :
Surface Area :
Population :
Life Expentancy :
Cities
+ New
Languages
+
GDP
2007
2008
2010
2012

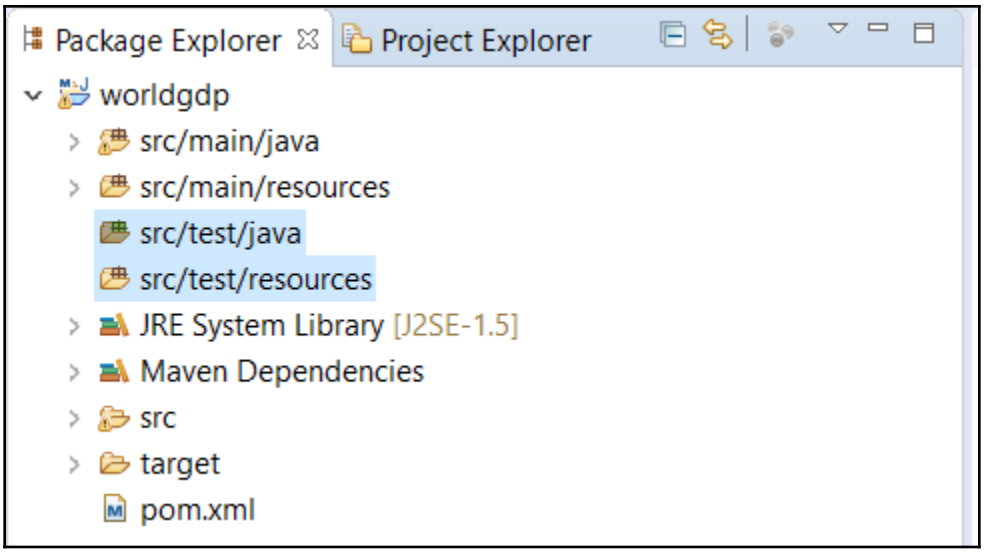
WORLD IN NUMBERS
Edit Brazil
Name
Local Name
Capital
Continent
Region
Head of State
Government
Independence
Surface Area
Population
Life Expectancy
Cancel
Save

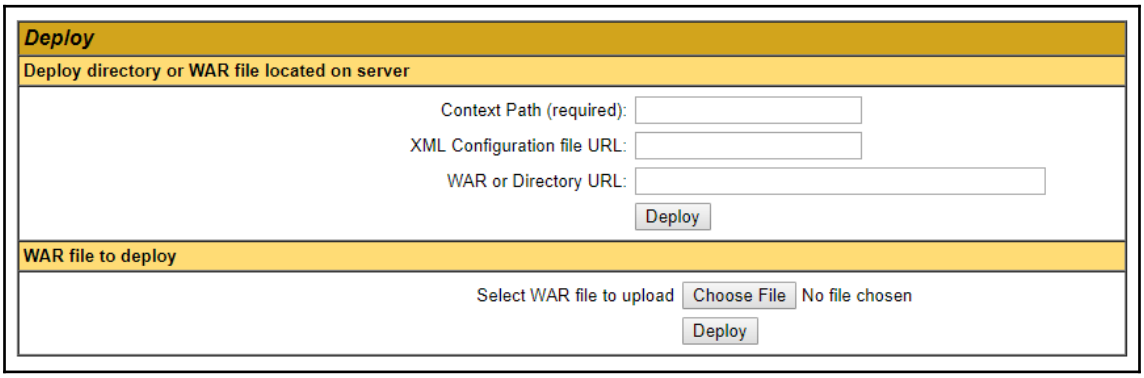



```
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/4/maven-p
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/4/maven-pa
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-arche
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archet
kB at 11 kB/s)
[INFO] Using property: groupId = com.nilangpatel.worldgdp
[INFO] Using property: artifactId = worldgdp
[INFO] Using property: version = 0.0.1-SNAPSHOT
[INFO] Using property: package = com.nilangpatel.worldgdp
Confirm properties configuration:
groupId: com.nilangpatel.worldgdp
artifactId: worldgdp
version: 0.0.1-SNAPSHOT
package: com.nilangpatel.worldgdp
 Y: :
```

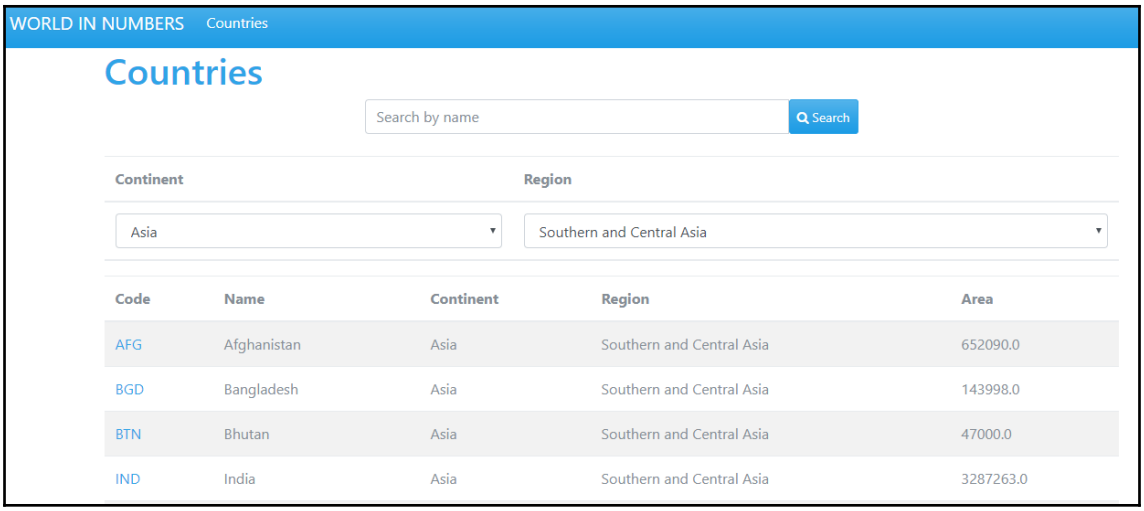

worldgdp
Deployment Descriptor: Archetype Created Web Application
Java Resources
JavaScript Resources
Deployed Resources
src
main
resources
webapp
WEB-INF
web.xml
index.jsp
target
pom.xml


Project Lombok v1.16.18 - Installer
Javac
(and tools that invoke javac such as ant and maven)
Lombok works 'out of the box' with javac.
Just make sure the lombok.jar is in your classpath when you compile.
Example: javac -cp lombok.jar MyCode.java
IDEs
Lombok can update your Eclipse or eclipse-based IDE to fully support all Lombok features.
Select IDE installations below and hit 'Install/Update'.
Specify location...
Install / Update
Show me what this installer will do to my IDE installation.
Uninstall lombok from selected IDE installations.
https://projectlombok.org
v1.16.18
View full changelog
Quit Installer

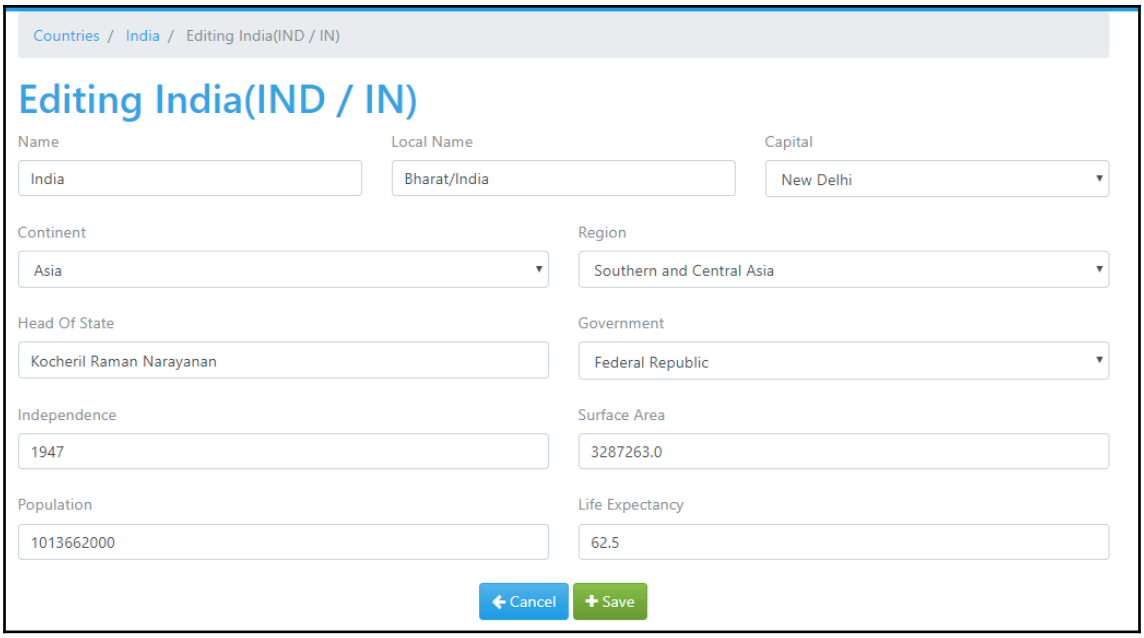

Package Explorer
Project Explorer
worldgdp
src/main/java
src/main/resources
src/test/java
src/test/resources
JRE System Library [J2SE-1.5]
Maven Dependencies
src
target
pom.xml

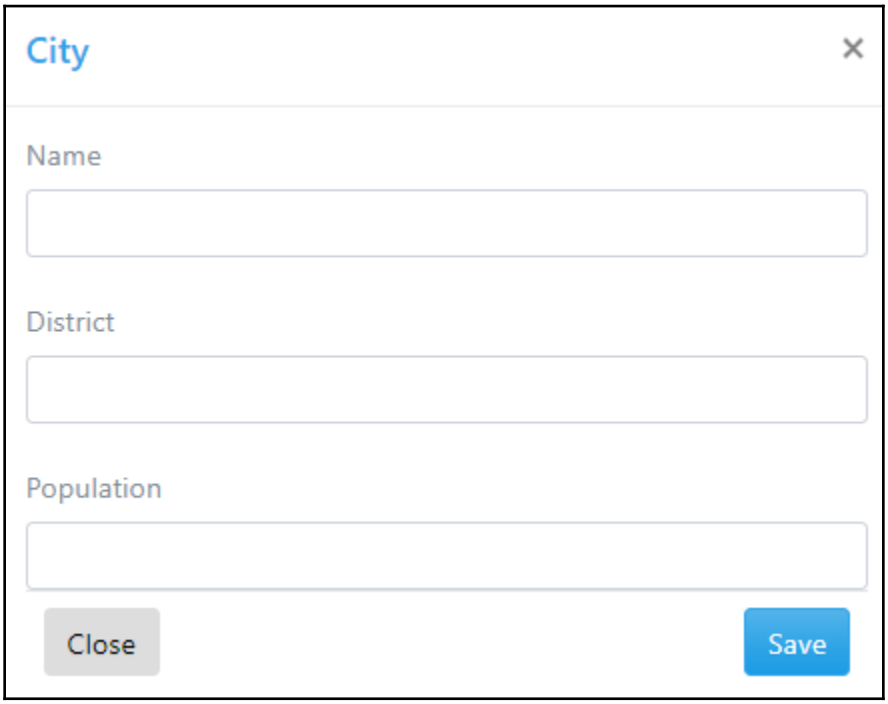

Deploy
Deploy directory or WAR file located on server
Context Path (required):
XML Configuration file URL:
WAR or Directory URL:
Deploy
WAR file to deploy
Select WAR file to upload
Choose File
No file chosen
Deploy

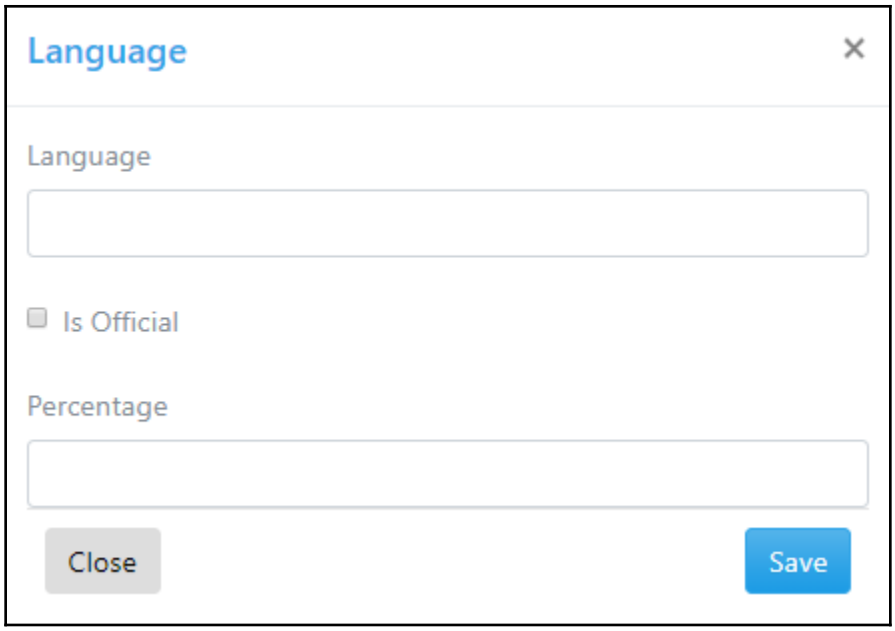
{
"count": 239,
"list": [
{ … }, // 14 items
{ … }, // 14 items
{
"code": "AGO",
"name": "Angola",
"continent": "Africa",
"region": "Central Africa",
"surfaceArea": 1246700,
"indepYear": 1975,
"population": 12878000,
"lifeExpectancy": 38.29999923706055,
"gnp": 6648,
"localName": "Angola",
"governmentForm": "Republic",
"headOfState": "JosÃ© Eduardo dos Santos",
"capital": {
"id": 56,
"name": "Luanda",
"countryCode": null,
"country": null,
"district": null,
"population": null
},
"code2": "AO"
},
{
"code": "AIA",
"name": "Anguilla",
"continent": "North America",


WORLD IN NUMBERS
Countries
Countries
Search by name
Search
Continent
Region
Asia
Southern and Central Asia
Code
Name
Continent
Region
Area
AFG
Afghanistan
Asia
Southern and Central Asia
652090.0
BGD
Bangladesh
Asia
Southern and Central Asia
143998.0
BTN
Bhutan
Asia
Southern and Central Asia
47000.0
IND
India
Asia
Southern and Central Asia
3287263.0

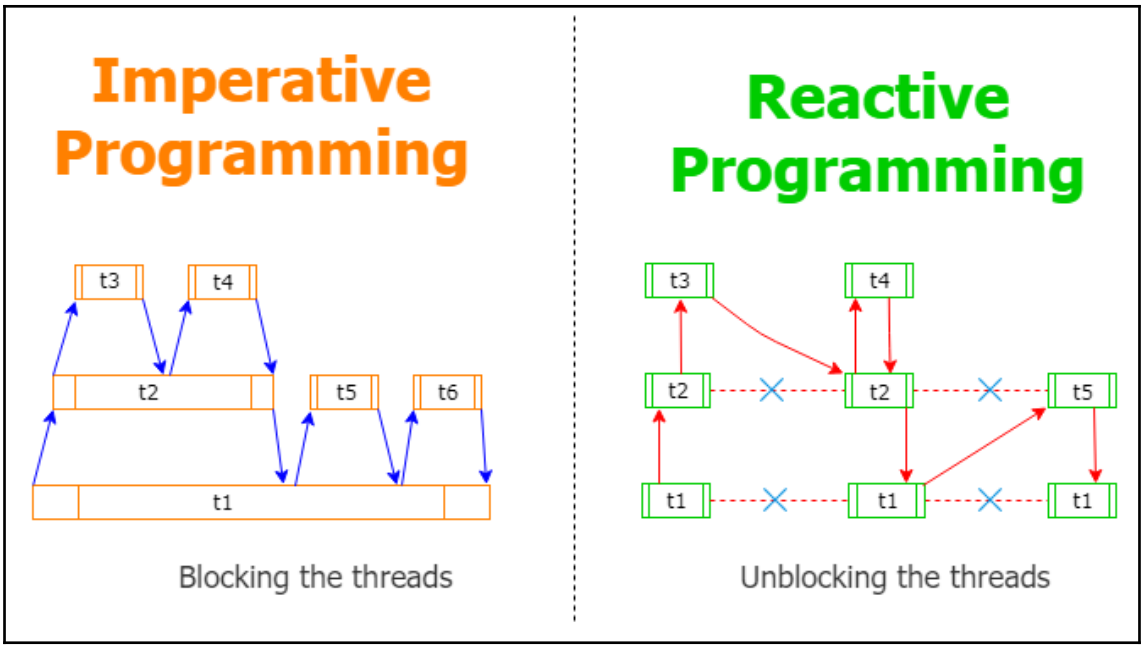
Countries / India
India(IND / IN)
Edit
Capital
New Delhi
Continent
Asia
Region
Southern and Central Asia
Head of State
Kocheril Raman Narayanan
Government
Federal Republic
Local Name
Bharat/India
Independence
1947
Surface Area
3287263.0
Population
1013662000
Life Expectancy
62.5
Cities
New
Mumbai (Bombay)
Maharashtra
10500000
Delhi
Delhi
7206704
Calcutta [Kolkata]
West Bengali
4399819
Chennai (Madras)
Tamil Nadu
3841396
Hyderabad
Andhra Pradesh
2964638
Ahmedabad
Languages
New
Hindi
39.90%
Bengali
8.20%
Telugu
7.80%
Marathi
7.40%
Tamil
6.30%
Urdu
5.10%
Gujarati
4.80%
Kannada
3.90%
GDP
2,600,000,0...
2,200,000,0...
1,800,000,0...
1,400,000,0...
1,000,000,0...
GDP (current US$)
GDP (current US$)

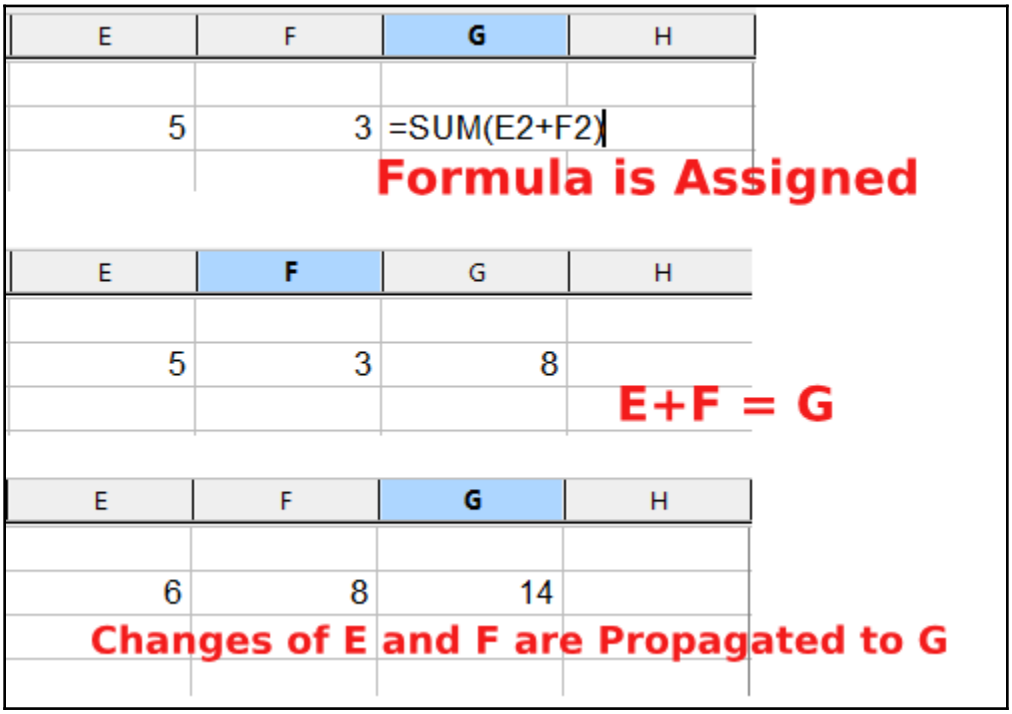

Countries / India / Editing India(IND / IN)
Editing India(IND / IN)
Name
India
Local Name
Bharat/India
Capital
New Delhi
Continent
Asia
Region
Southern and Central Asia
Head Of State
Kocheril Raman Narayanan
Government
Federal Republic
Independence
1947
Surface Area
3287263.0
Population
1013662000
Life Expectancy
62.5
Cancel
Save

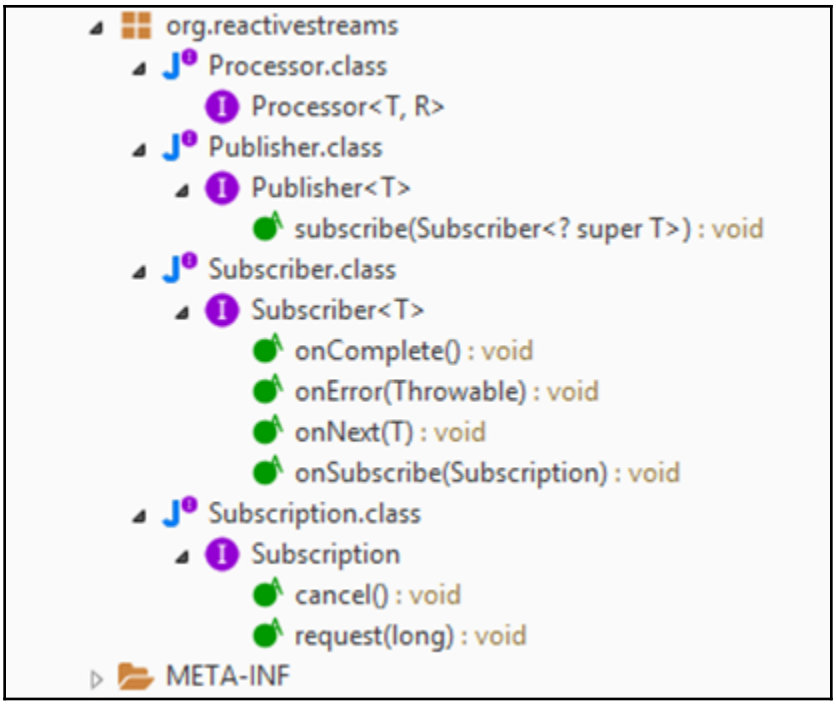

City
Name
District
Population
Close
Save

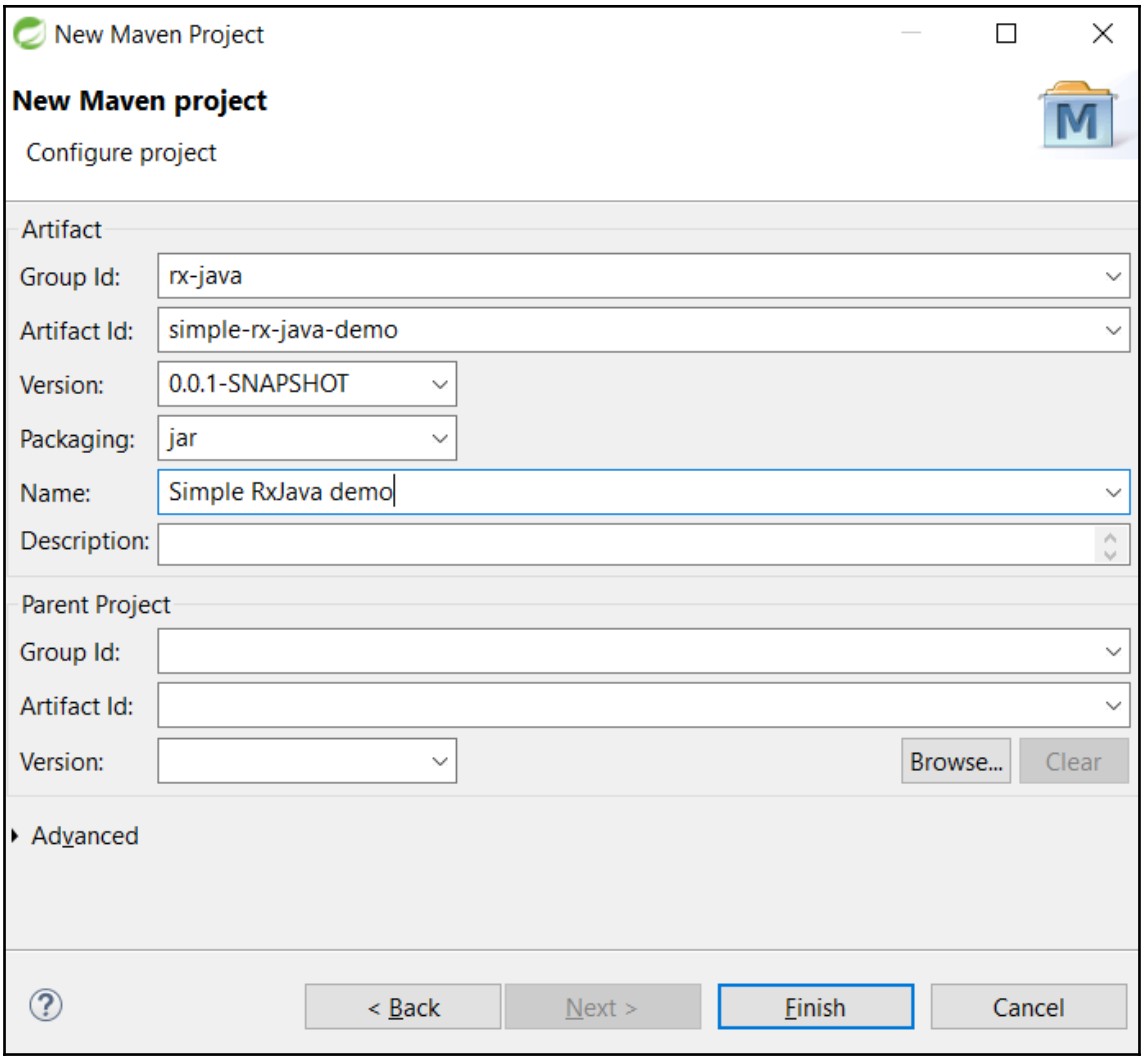


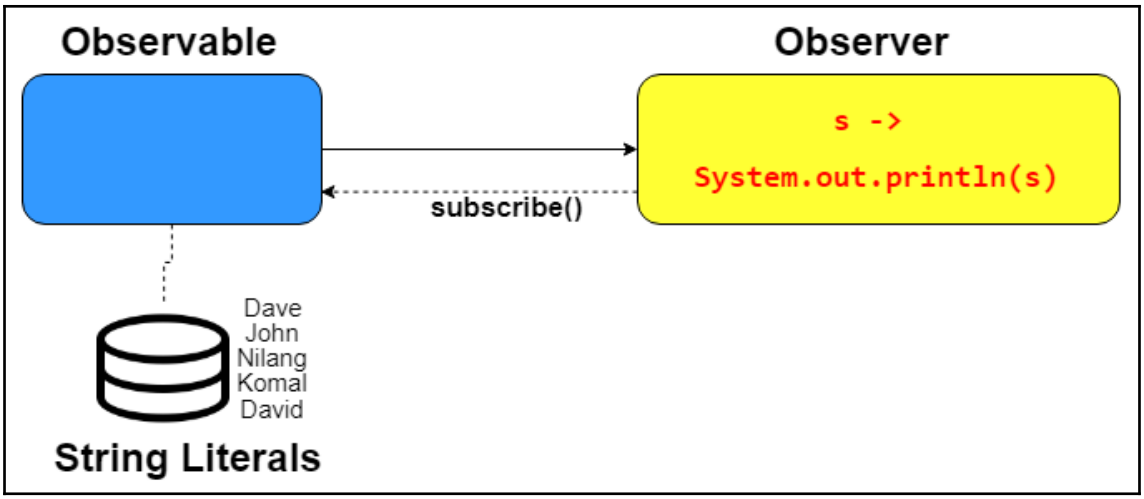
Chapter 2: Building a Reactive Web Application


Imperative Programming
t3
t4
t2
t5
t6
t1
Blocking the threads
Reactive Programming
t3
t4
t2
t2
t5
t1
t1
t1
Unblocking the threads


E F G H
5 3 =SUM(E2+F2)
Formula is Assigned
E F G H
5 3 8
E+F = G
E F G H
6 8 14
Changes of E and F are Propagated to G


org.reactivestreams
Processor.class
Processor<T, R>
Publisher.class
Publisher<T>
subscribe(Subscriber<? super T>) : void
Subscriber.class
Subscriber<T>
onComplete() : void
onError(Throwable) : void
onNext(T) : void
onSubscribe(Subscription) : void
Subscription.class
Subscription
cancel() : void
request(long) : void
META-INF


New Maven Project
New Maven project
Configure project
Artifact
Group Id:
rx-java
Artifact Id:
simple-rx-java-demo
Version:
0.0.1-SNAPSHOT
Packaging:
jar
Name:
Simple RxJava demo
Description:
Parent Project
Group Id:
Artifact Id:
Version:
Browse...
Clear
Advanced
< Back
Next >
Finish
Cancel




```
Dave
*******
*******
*******
David
```

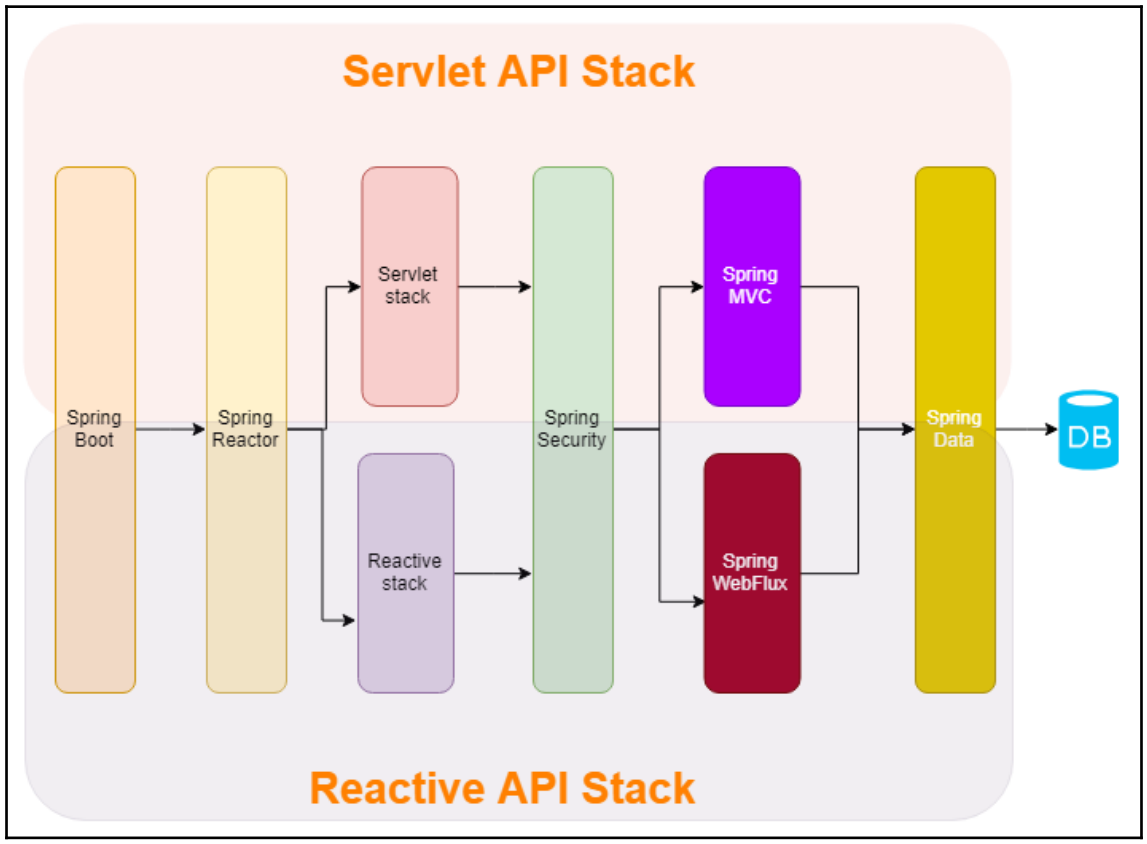
```
Subscription initiated ...
The value January is received from Observable
The value February is received from Observable
The value May is received from Observable
The value July is received from Observable
Receive all the Data !
```

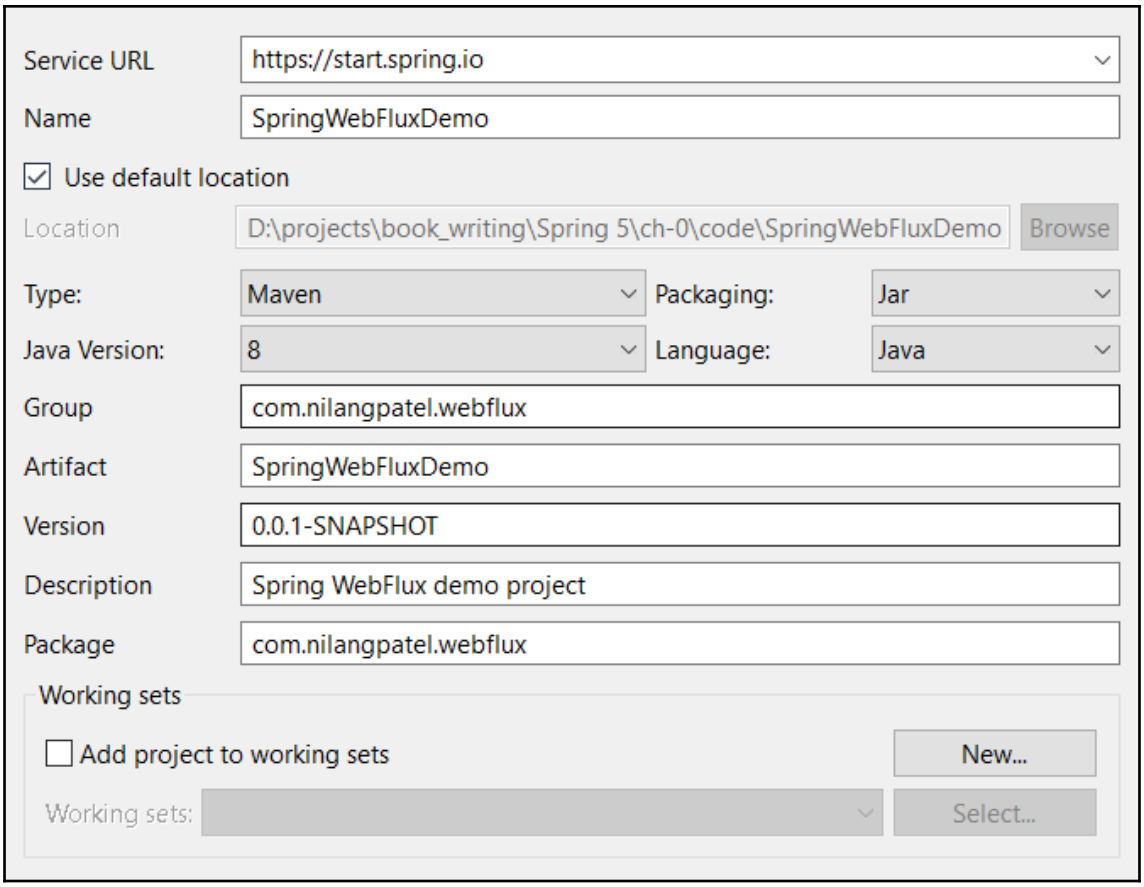
```
Observer 1 Received:Two
Observer 1 Received:Four
Observer 2 Received:One
Observer 2 Received:Two
Observer 2 Received:Three
Observer 2 Received:Four
Observer 2 Received:Five
```

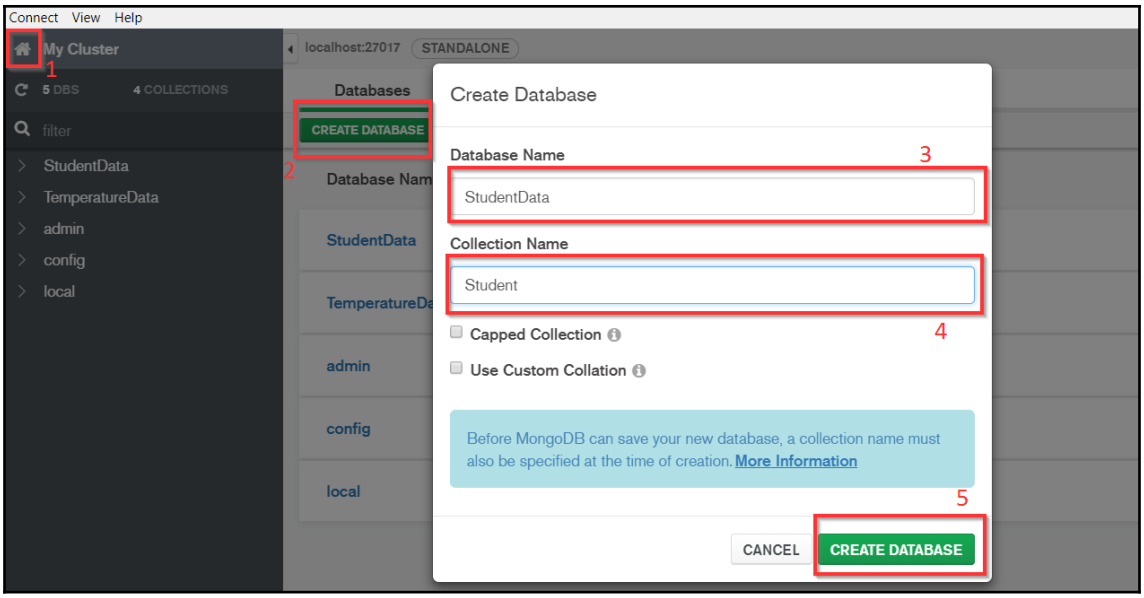
```
Observable #1 : 0
Observable #1 : 1
Observable #1 : 2
Observable #2 : 2
Observable #1 : 3
Observable #2 : 3
Observable #1 : 4
Observable #2 : 4
Observable #1 : 5
Observable #2 : 5
Observable #1 : 6
Observable #2 : 6
```

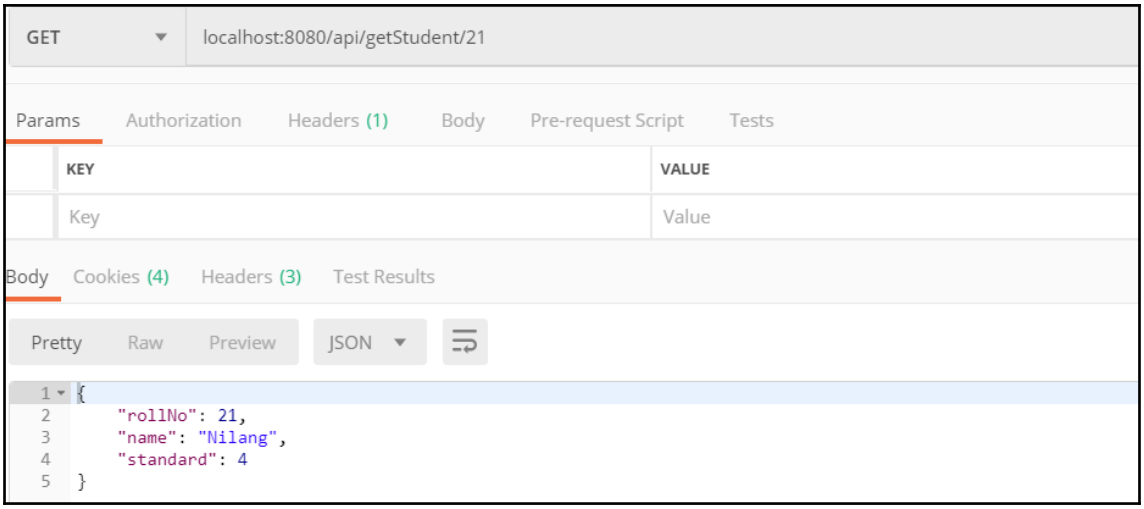
```
Observable #1 : 0
Observable #1 : 1
Observable #1 : 2
Observable #1 : 3
Observable #2 : 3
Observable #1 : 4
Observable #2 : 4
Observable #1 : 5
Observable #2 : 5
Observable #1 : 6
Observable #2 : 6
Observable #1 : 7
Observable #2 : 7
```

```
Console  Progress  Problems
<terminated> ReactorCustomSubscriber [Java Application] C:\Program Files\Java\jre1.8.0_181\bin
Fetching the values ...!!
Fetchig next value in hookOnNext()-->John
Fetchig next value in hookOnNext()-->Komal
Fetchig next value in hookOnNext()-->Harmi
Fetchig next value in hookOnNext()-->Bhakti
Fetchig next value in hookOnNext()-->Tom
Fetchig next value in hookOnNext()-->Peter
Congratulation, Everything is completed successfully ..!!
Shutting down the operation, Bye ..!! ON_COMPLETE
```



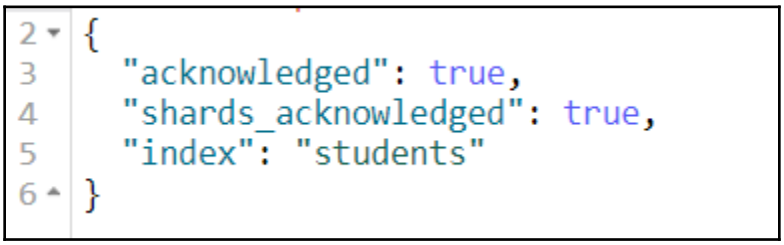

Service URL
https://start.spring.io
Name
SpringWebFluxDemo
Use default location
Location
D:\projects\book_writing\Spring 5\ch-0\code\SpringWebFluxDemo
Browse
Type:
Maven
Packaging:
Jar
Java Version:
8
Language:
Java
Group
com.nilangpatel.webflux
Artifact
SpringWebFluxDemo
Version
0.0.1-SNAPSHOT
Description
Spring WebFlux demo project
Package
com.nilangpatel.webflux
Working sets
Add project to working sets
New...
Working sets:
Select...

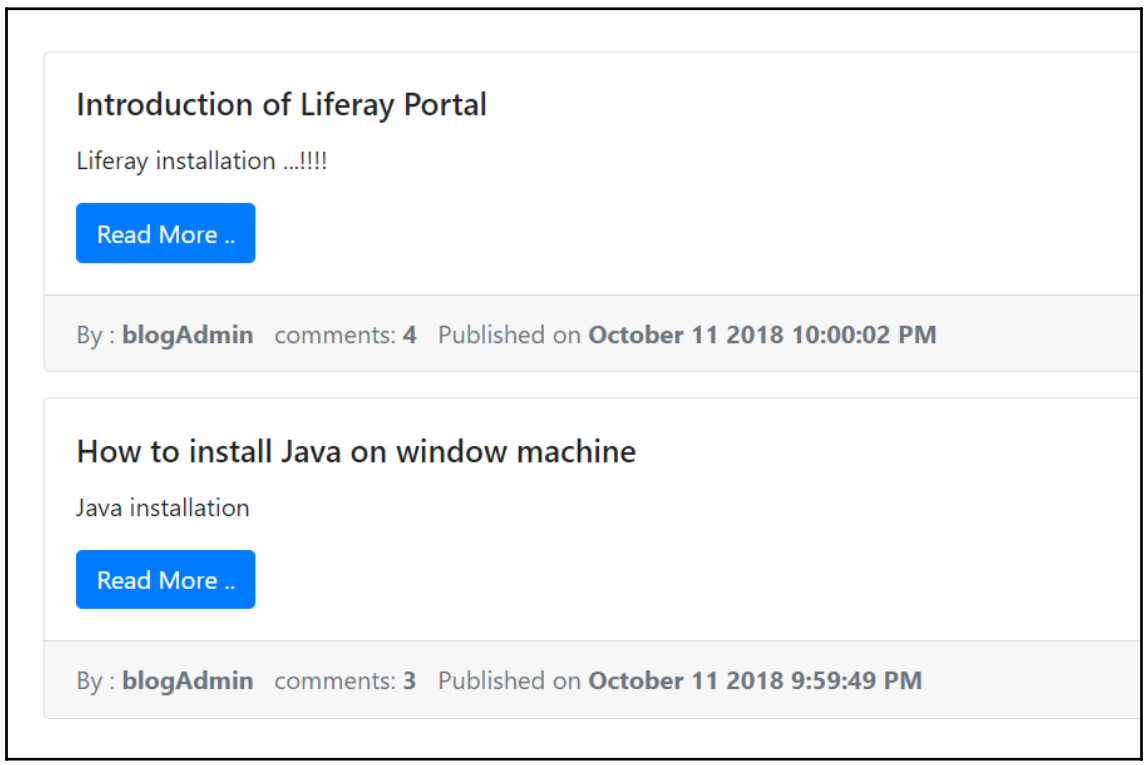

Connect View Help
My Cluster
1
5 DBS
4 COLLECTIONS
filter
StudentData
TemperatureData
admin
config
local
localhost:27017
STANDALONE
Databases
CREATE DATABASE
2
Database Nam
StudentData
TemperatureDa
admin
config
local
Create Database
Database Name
3
StudentData
Collection Name
Student
Capped Collection
4
Use Custom Collation
Before MongoDB can save your new database, a collection name must also be specified at the time of creation. More Information
5
CANCEL
CREATE DATABASE

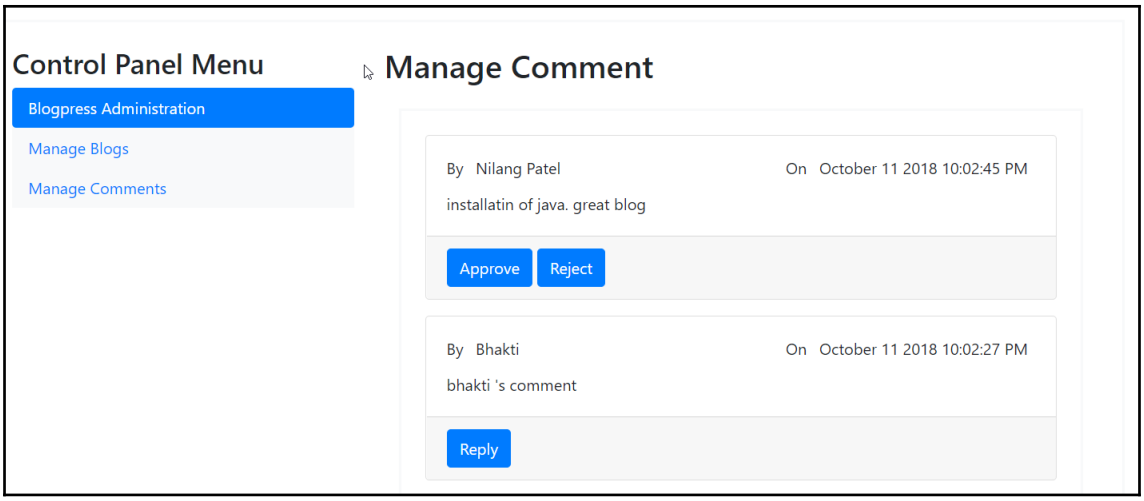

GET
localhost:8080/api/getStudent/21
Params
Authorization
Headers (1)
Body
Pre-request Script
Tests
KEY
VALUE
Key
Value
Body
Cookies (4)
Headers (3)
Test Results
Pretty
Raw
Preview
JSON
{
"rollNo": 21,
"name": "Nilang",
"standard": 4
}

Body
Cookies (4)
Headers (3)
Test Results
Pretty
Raw
Preview
JSON
[
{
"rollNo": 21,
"name": "Nilang",
"standard": 4
},
{
"rollNo": 11,
"name": "Komal",
"standard": 6
},
{
"rollNo": 12,
"name": "Bhakti",
"standard": 5
},
{
"rollNo": 18,
"name": "Harmi",
"standard": 3
}
]

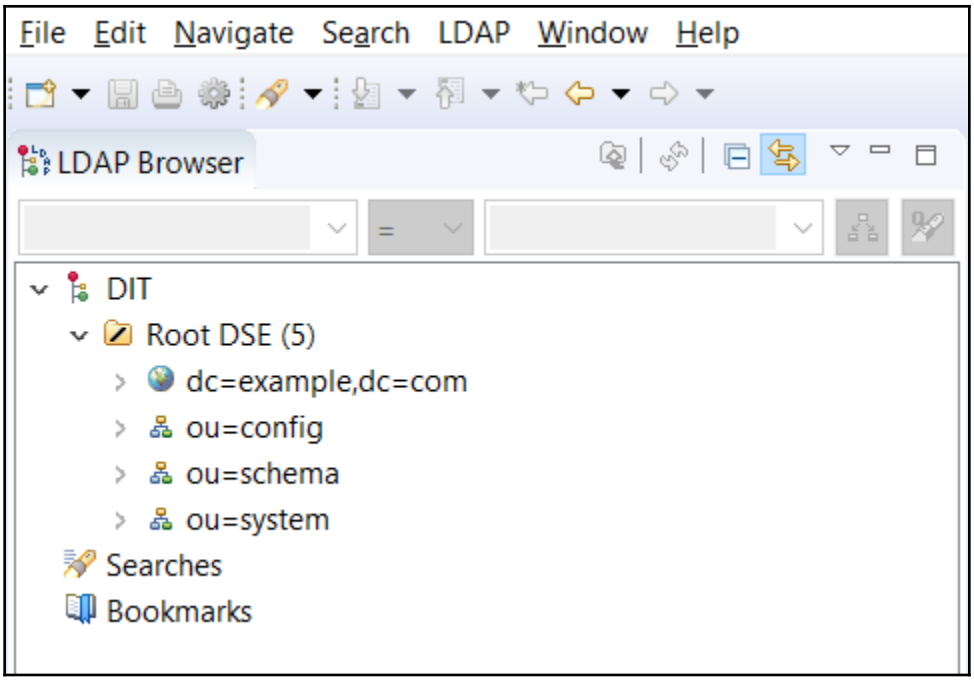
Chapter 3: Blogpress - A Simple Blog Management System

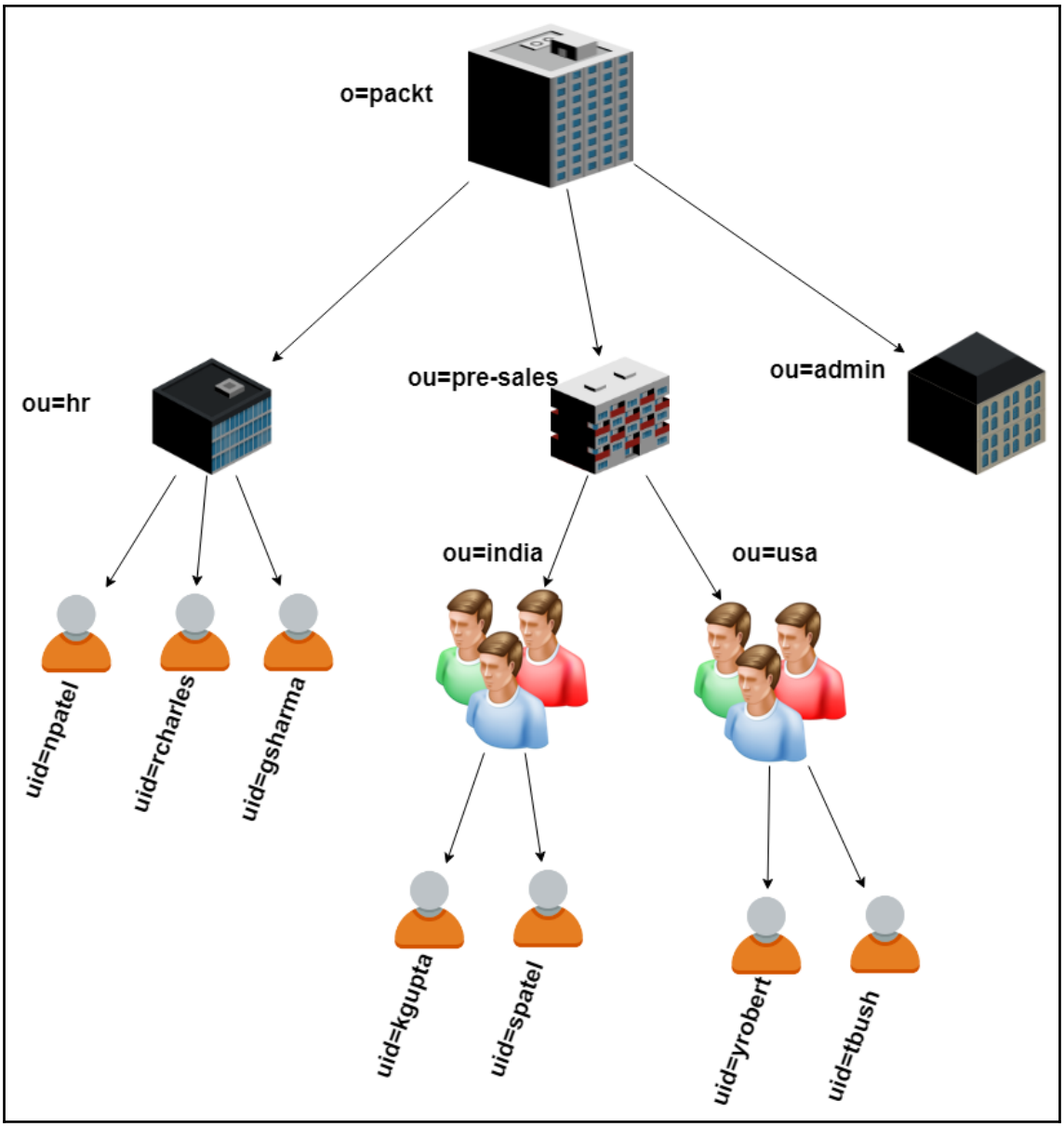


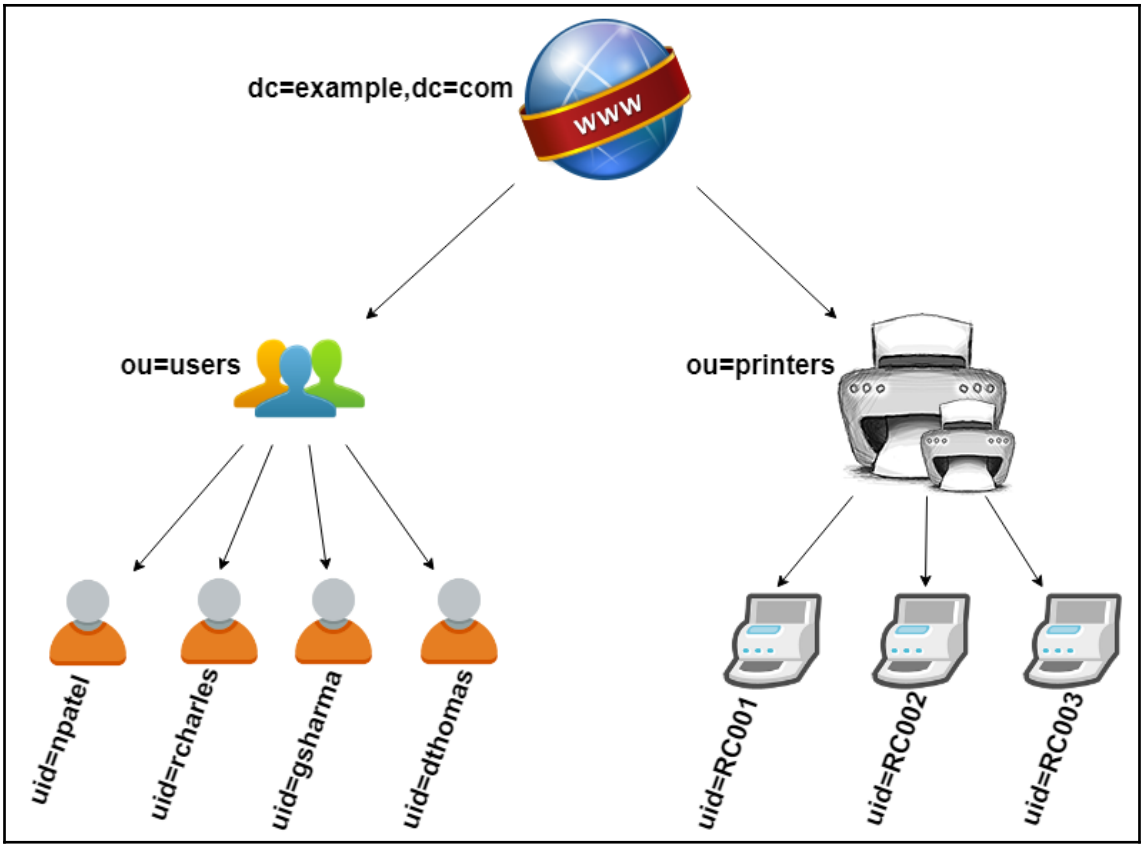


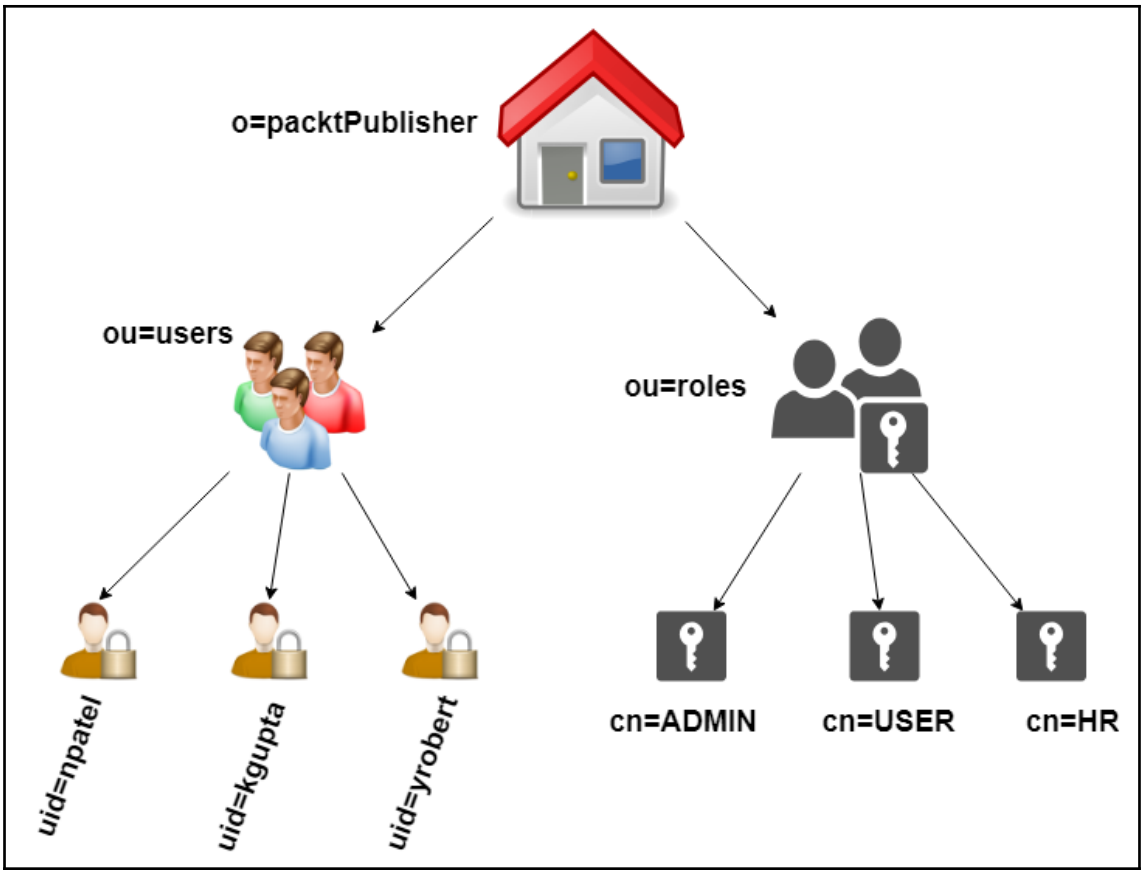


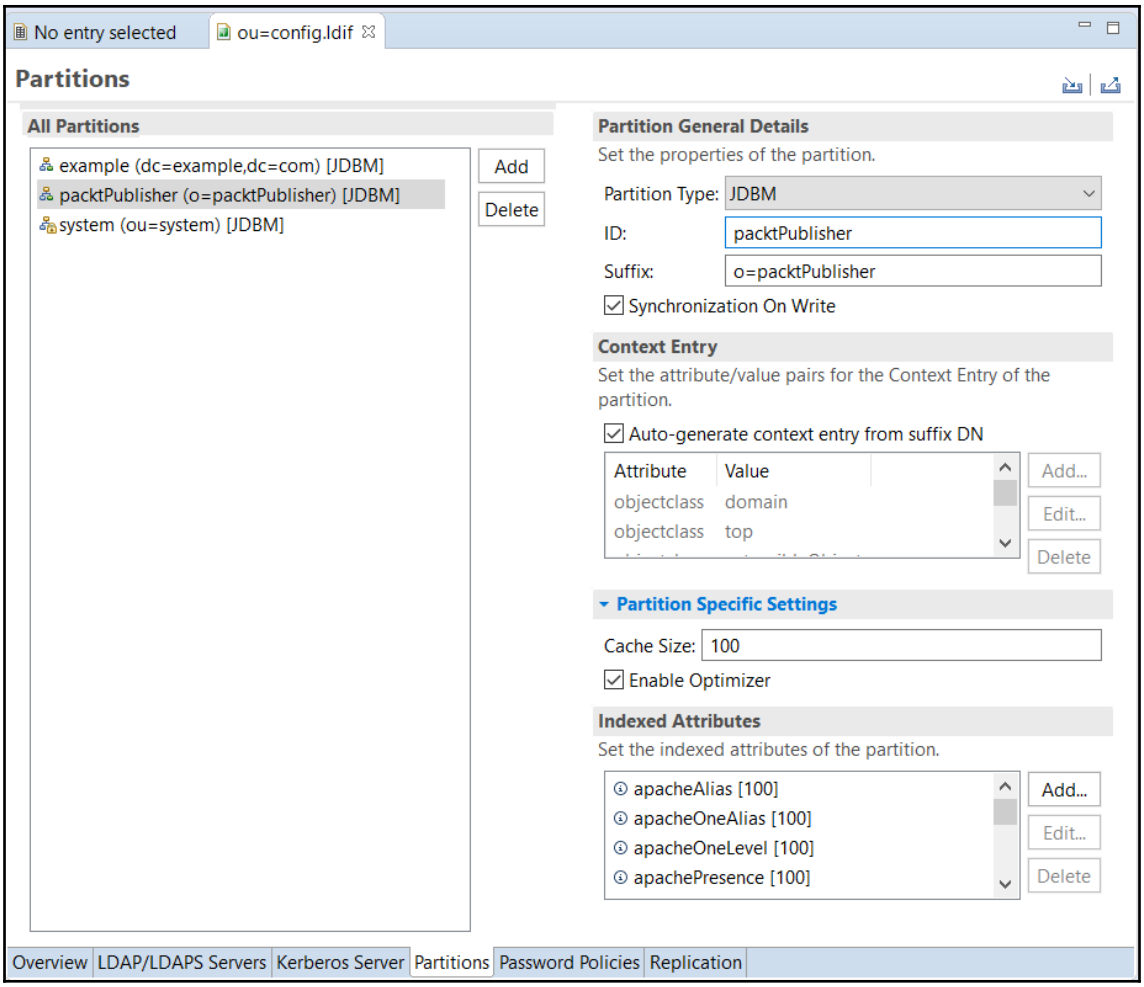
Chapter 4: Building a Central Authentication Server

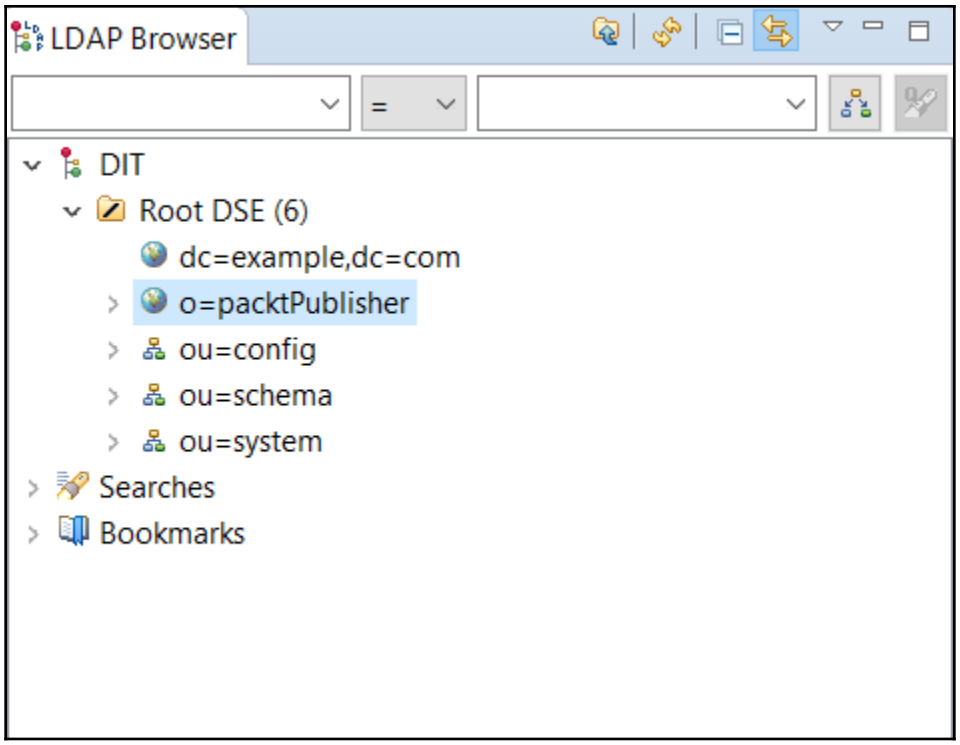

File Edit Navigate Search LDAP Window Help
LDAP Browser
=
DIT
Root DSE (5)
dc=example,dc=com
ou=config
ou=schema
ou=system
Searches
Bookmarks

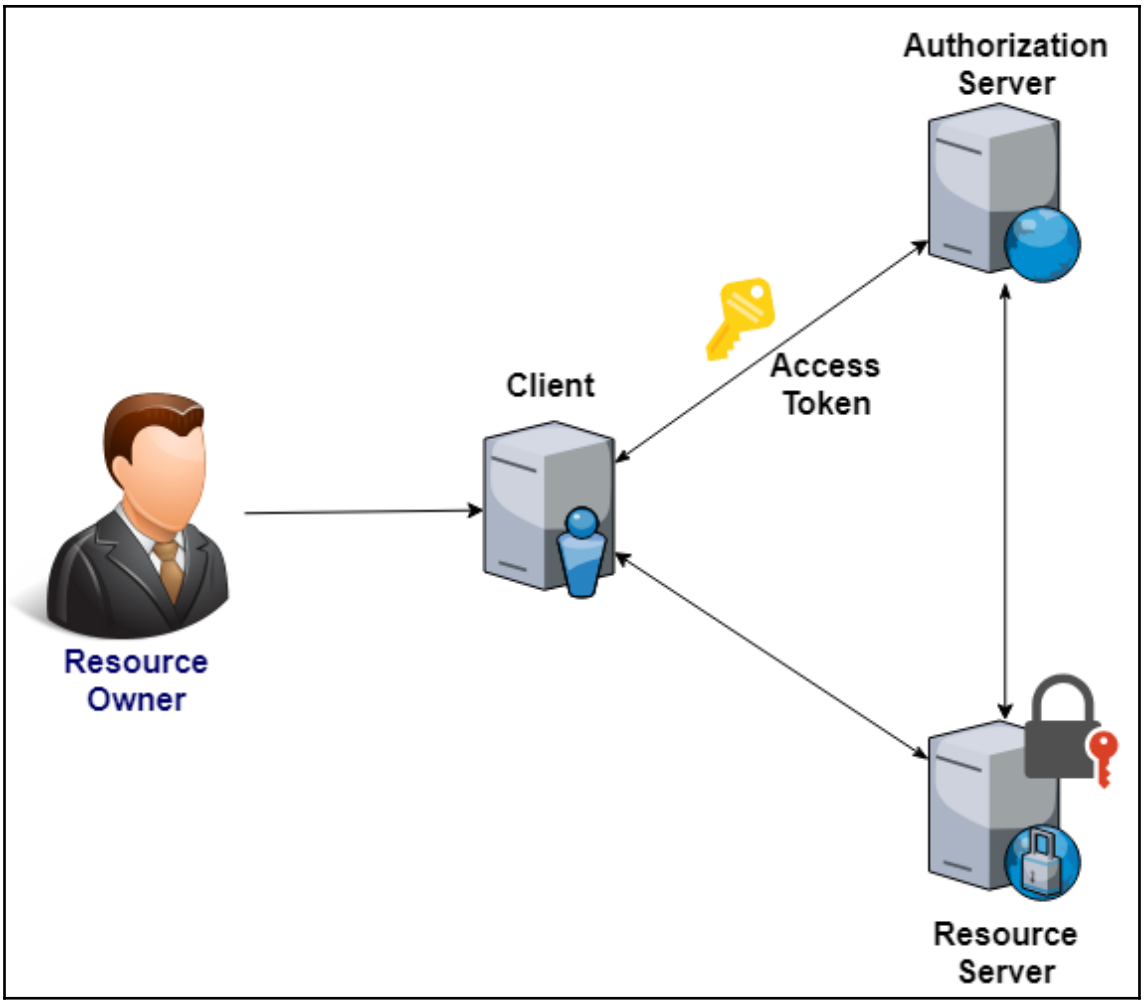

o=packt
ou=hr
ou=pre-sales
ou=admin
ou=india
ou=usa
uid=npatel
uid=rcharles
uid=gsharma
uid=kgupta
uid=spatel
uid=yrobert
uid=tbush

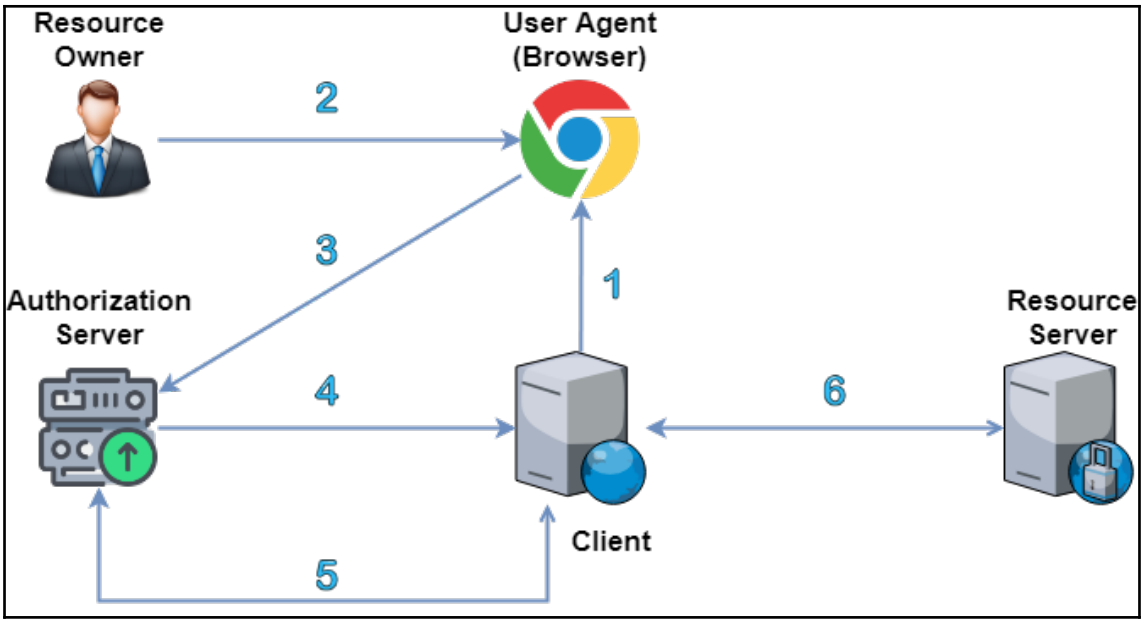

dc=example,dc=com
www
ou=users
ou=printers
uid=npatel
uid=rcharles
uid=gsharma
uid=dthomas
uid=RC001
uid=RC002
uid=RC003

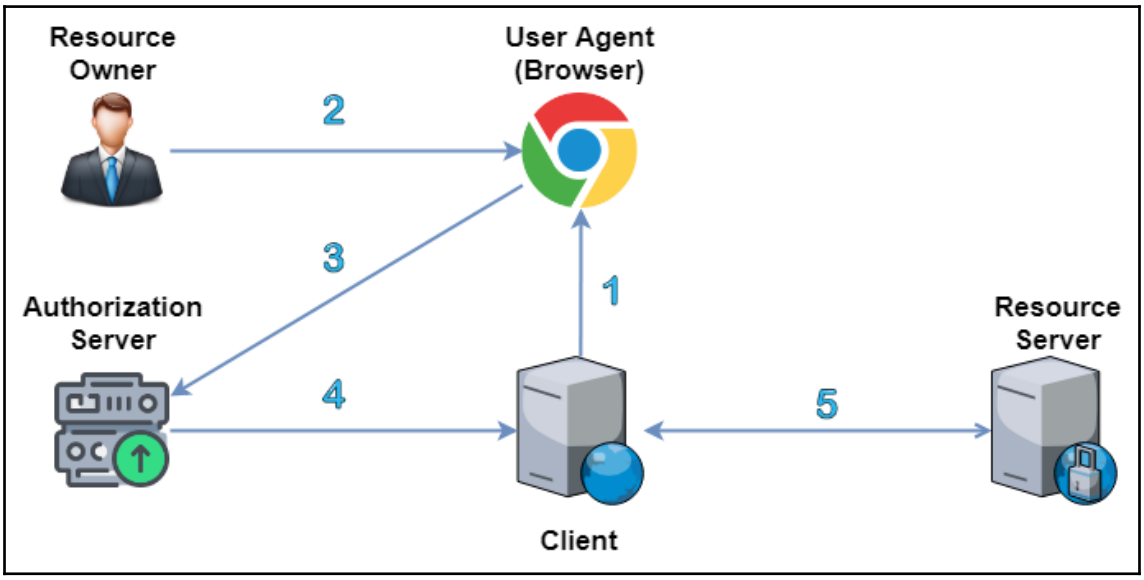

o=packtPublisher
ou=users
ou=roles
uid=npatel
uid=kgupta
uid=yrobert
cn=ADMIN
cn=USER
cn=HR

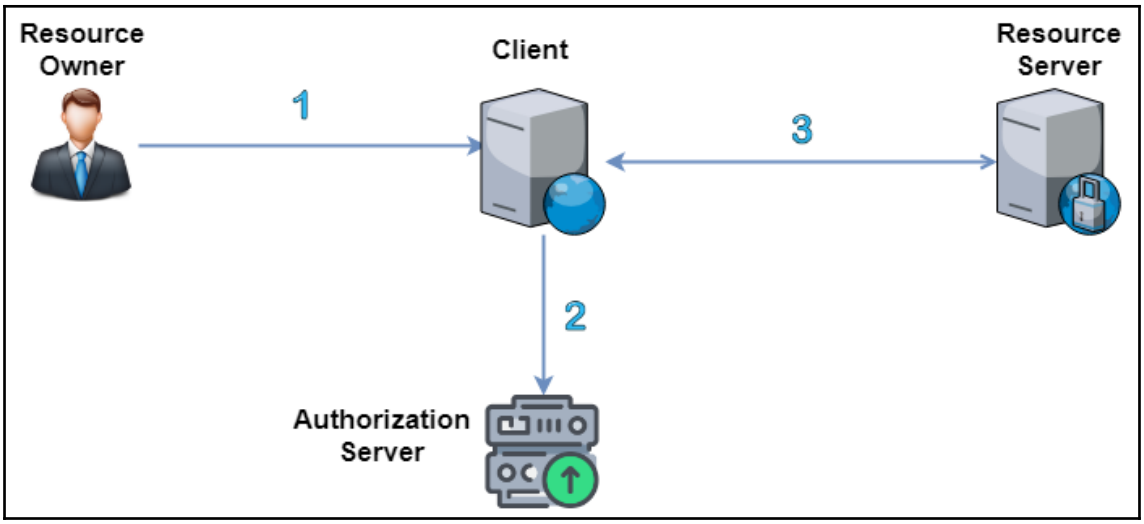

No entry selected
ou=config.ldif
Partitions
All Partitions
example (dc=example,dc=com) [JDBM]
packtPublisher (o=packtPublisher) [JDBM]
system (ou=system) [JDBM]
Add
Delete
Partition General Details
Set the properties of the partition.
Partition Type: JDBM
ID: packtPublisher
Suffix: o=packtPublisher
Synchronization On Write
Context Entry
Set the attribute/value pairs for the Context Entry of the partition.
Auto-generate context entry from suffix DN
Attribute Value
objectclass domain
objectclass top
Add...
Edit...
Delete
Partition Specific Settings
Cache Size: 100
Enable Optimizer
Indexed Attributes
Set the indexed attributes of the partition.
apacheAlias [100]
apacheOneAlias [100]
apacheOneLevel [100]
apachePresence [100]
Add...
Edit...
Delete
Overview
LDAP/LDAPS Servers
Kerberos Server
Partitions
Password Policies
Replication

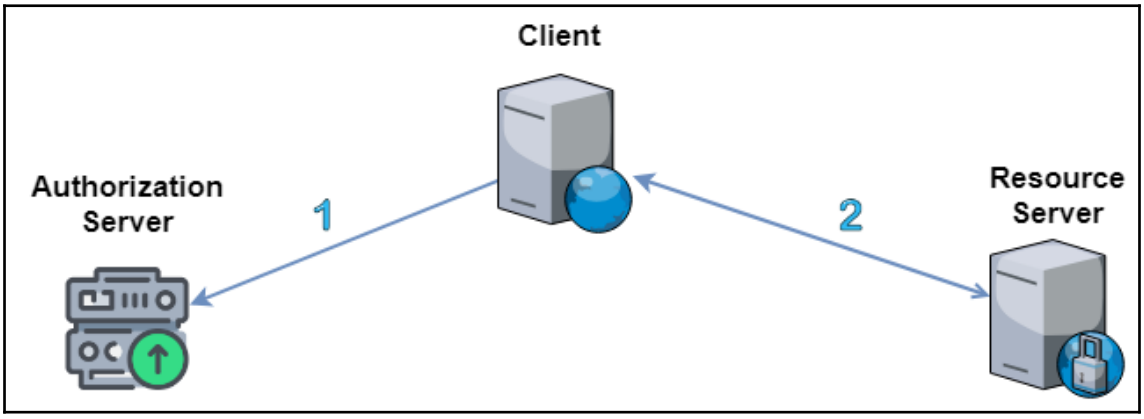

LDAP Browser
=
DIT
Root DSE (6)
dc=example,dc=com
o=packtPublisher
ou=config
ou=schema
ou=system
Searches
Bookmarks

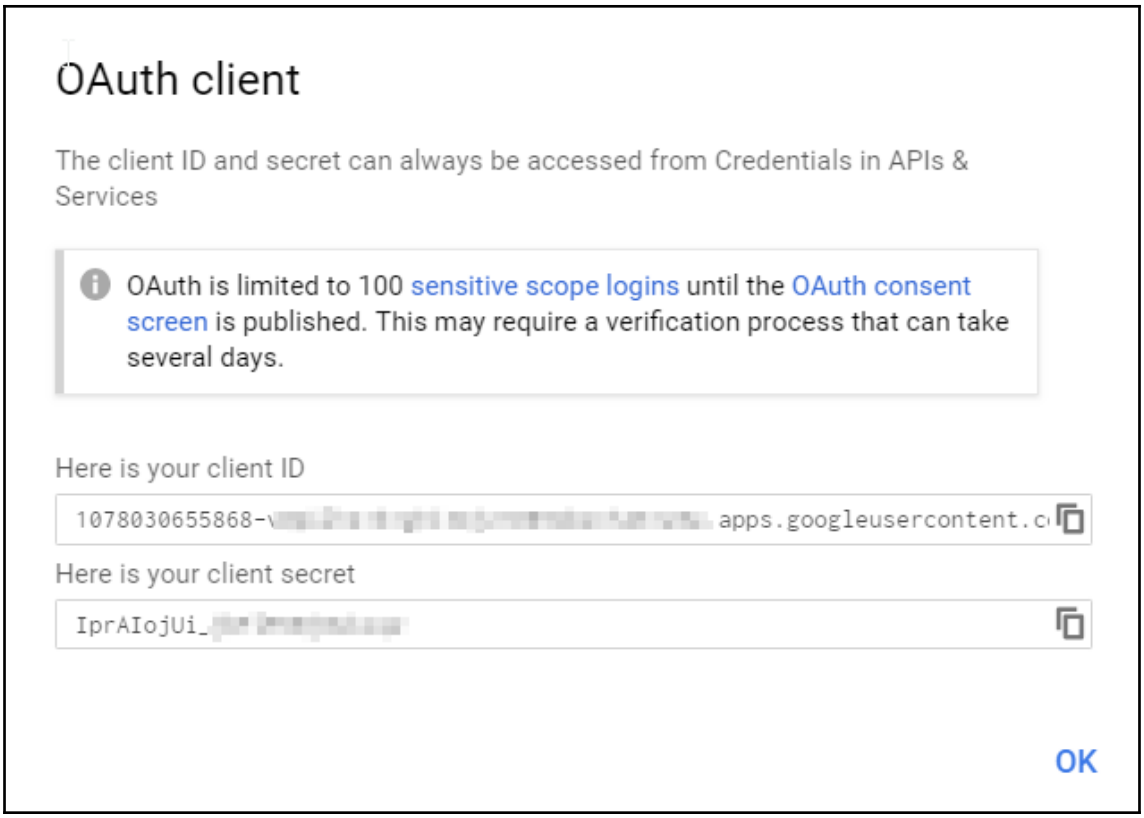

Authorization
Server
Access
Token
Client
Resource
Owner
Resource
Server

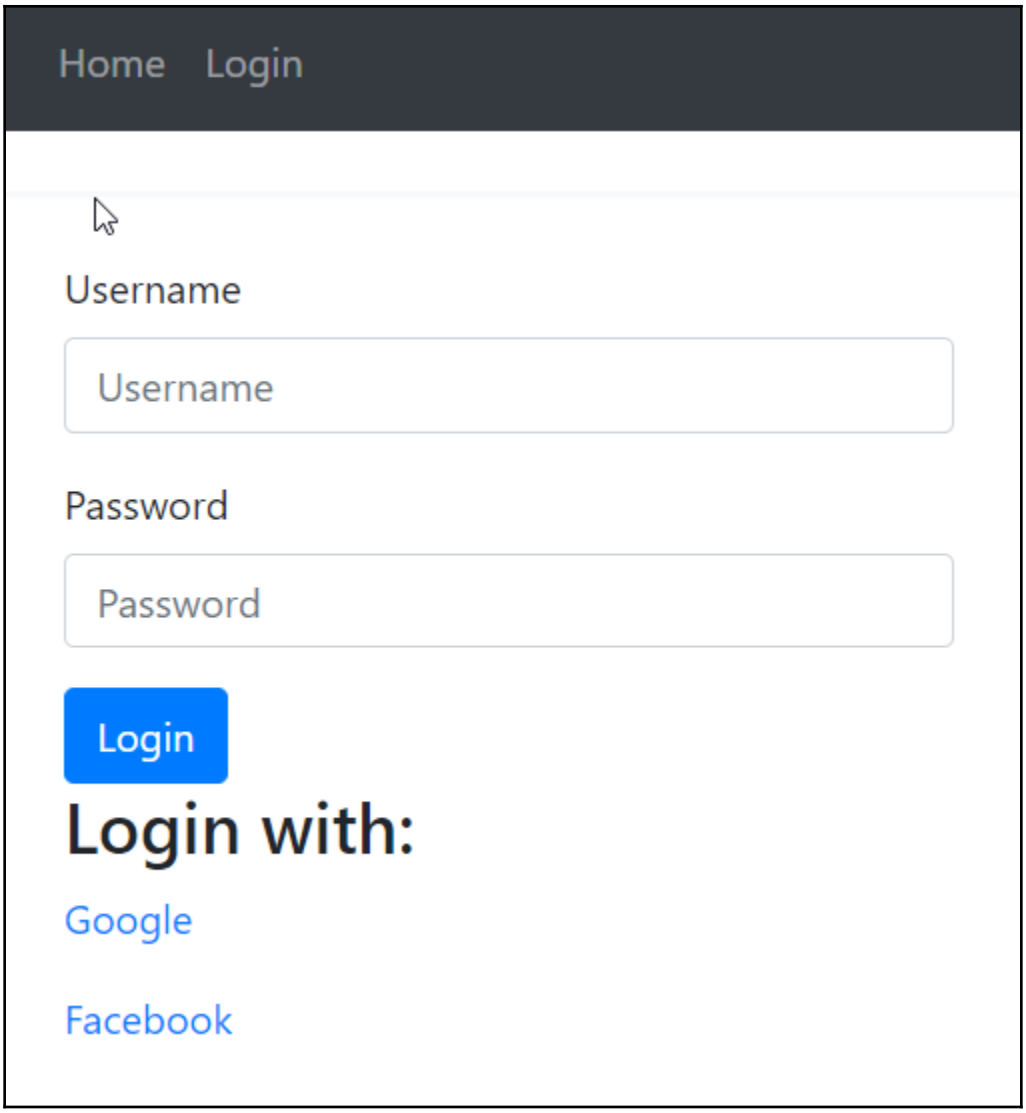

Resource
Owner
User Agent
(Browser)
2
3
1
Authorization
Server
Resource
Server
4
6
Client
5


Resource
Owner
User Agent
(Browser)
2
3
1
Authorization
Server
Resource
Server
4
5
Client


Resource Owner
Client
Resource Server
1
3
2
Authorization Server


Client
Authorization Server
1
2
Resource Server

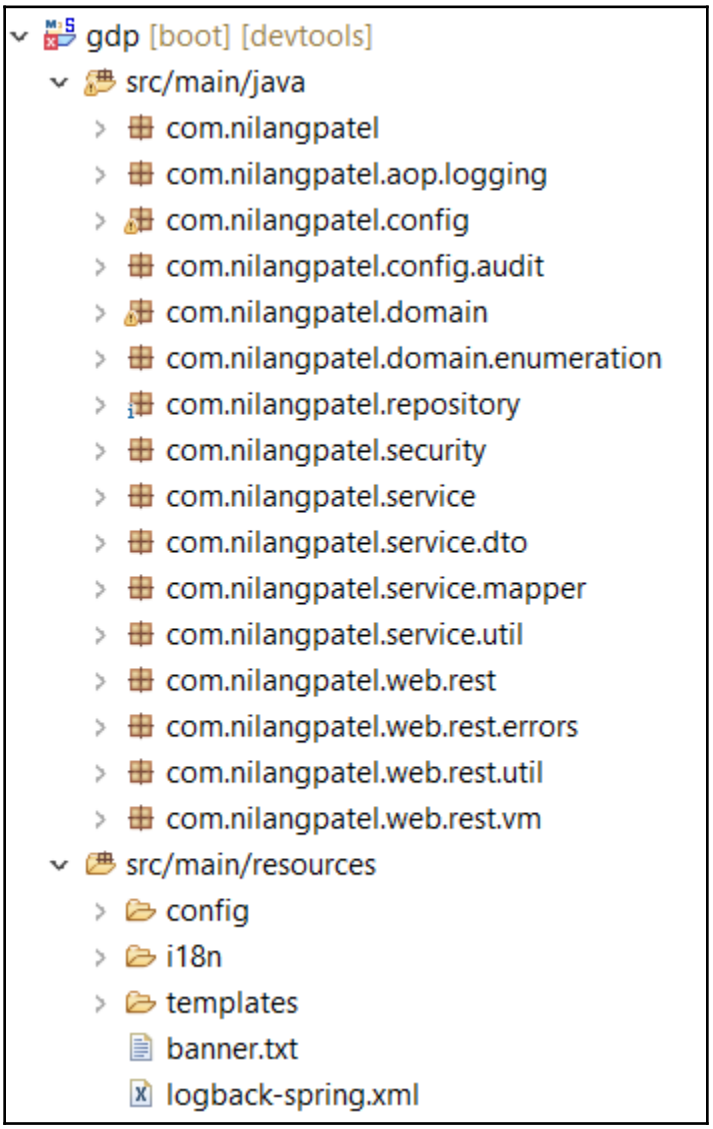

OAuth client
The client ID and secret can always be accessed from Credentials in APIs & Services
OAuth is limited to 100 sensitive scope logins until the OAuth consent screen is published. This may require a verification process that can take several days.
Here is your client ID
1078030655868-
apps.googleusercontent.c
Here is your client secret
IprAIojUi_
OK

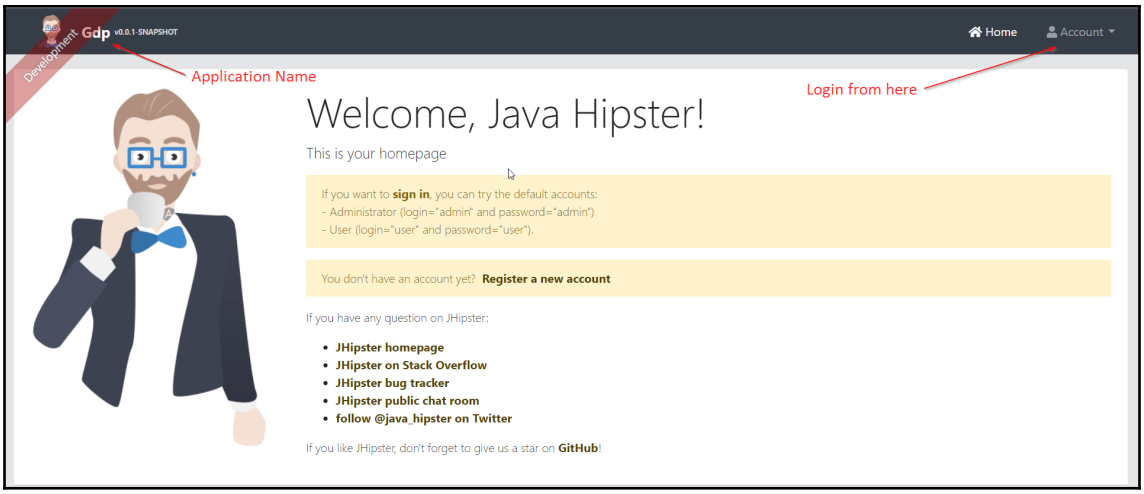

Home
Login
Username
Username
Password
Password
Login
Login with:
Google
Facebook

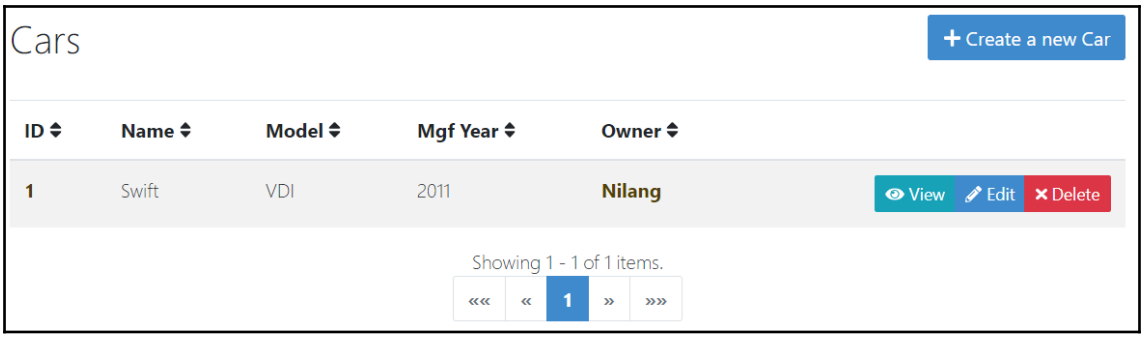
OAuth Approval
Do you authorize "c1" to access your protected resources?
Authorize
Deny

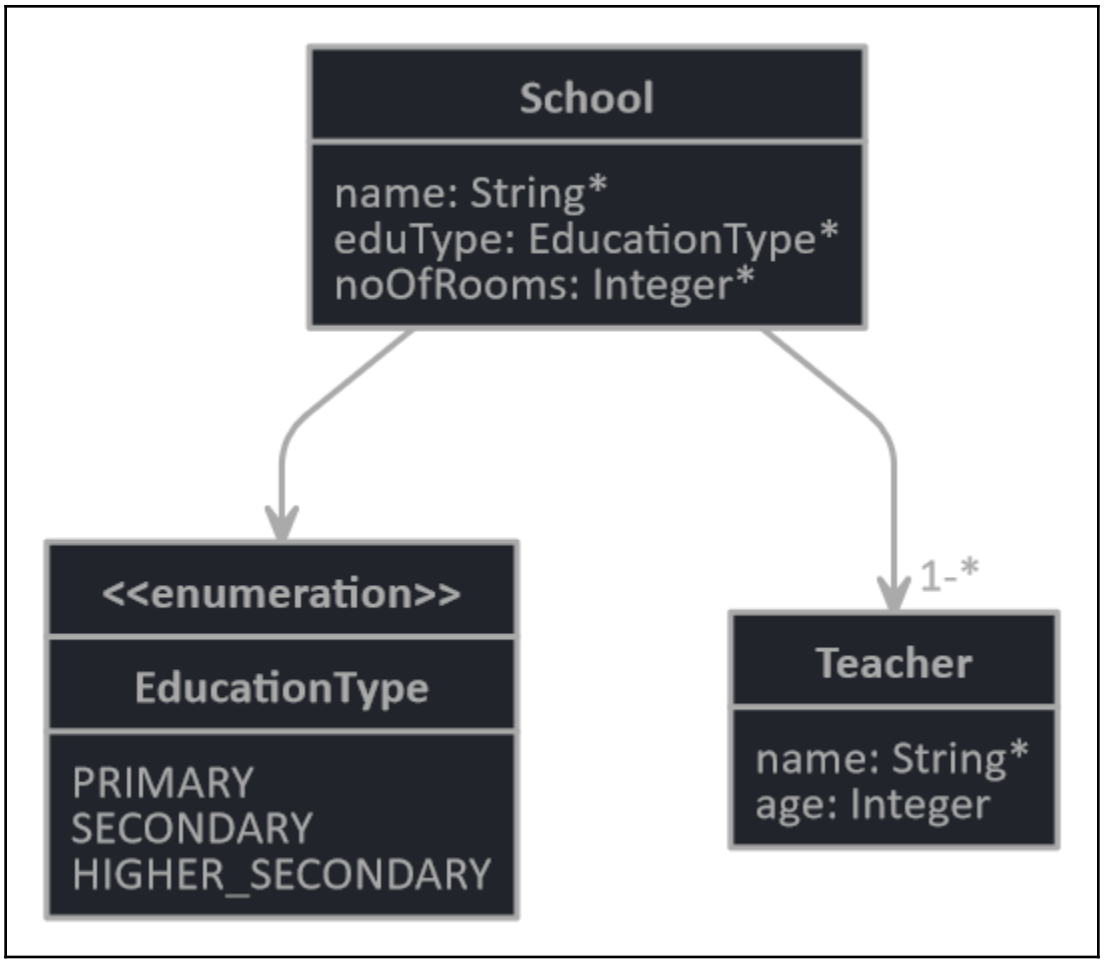
{"id":"john","content":"Hello World"}

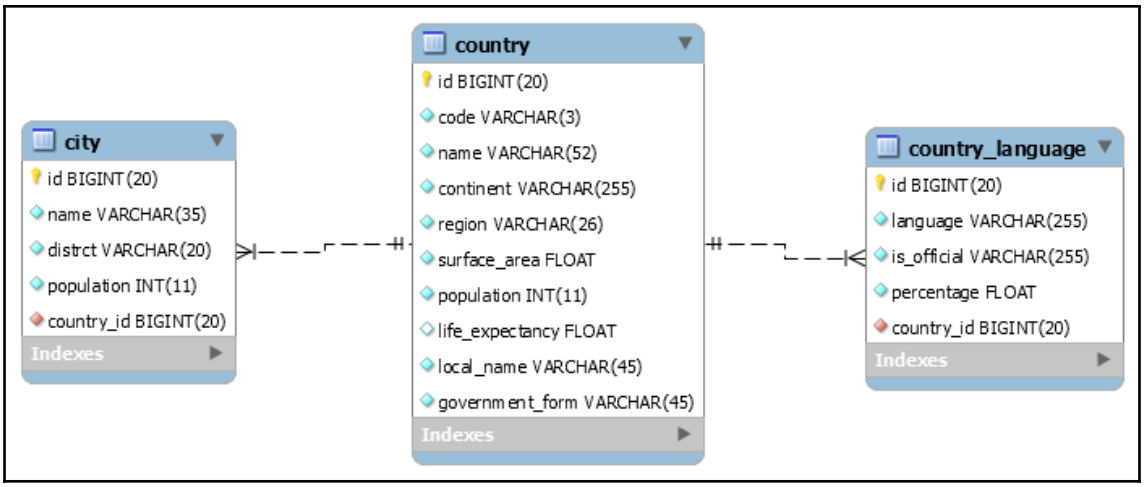
Chapter 5: An Application to View Countries and their GDP using JHipster

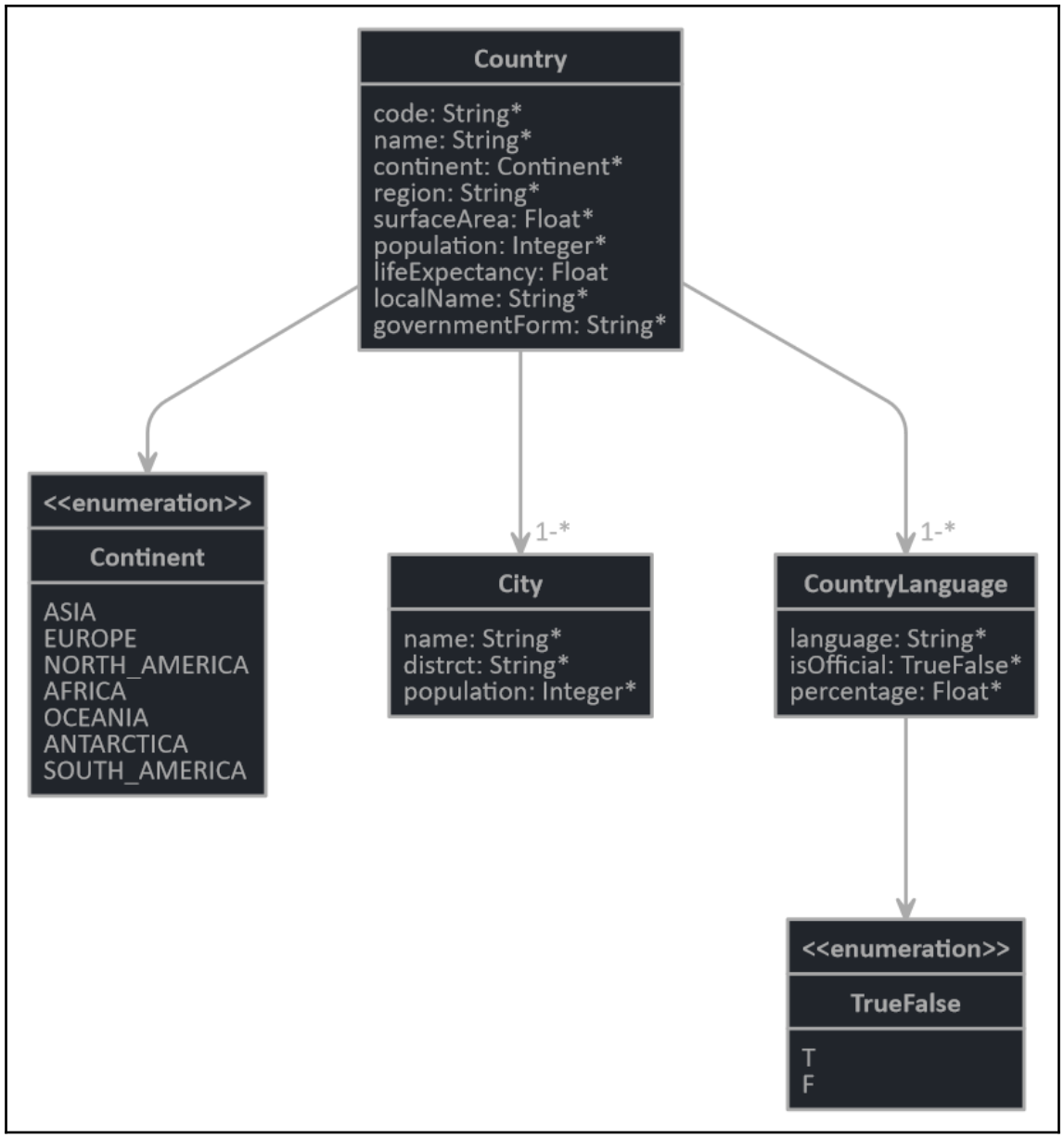


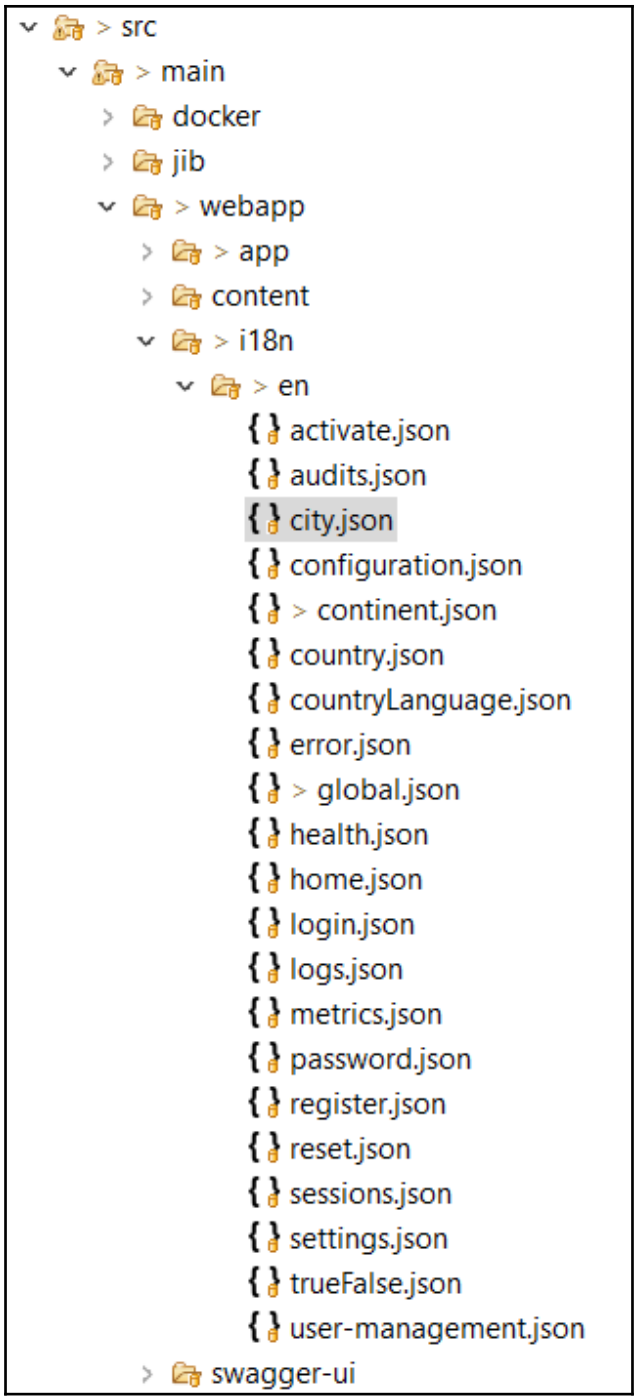

Development
Gdp v0.0.1-SNAPSHOT
Home
Account
Application Name
Login from here
Welcome, Java Hipster!
This is your homepage
If you want to sign in, you can try the default accounts:
- Administrator (login="admin" and password="admin")
- User (login="user" and password="user").
You don't have an account yet? Register a new account
If you have any question on JHipster:
JHipster homepage
JHipster on Stack Overflow
JHipster bug tracker
JHipster public chat room
follow @java_hipster on Twitter
If you like JHipster, don't forget to give us a star on GitHub!

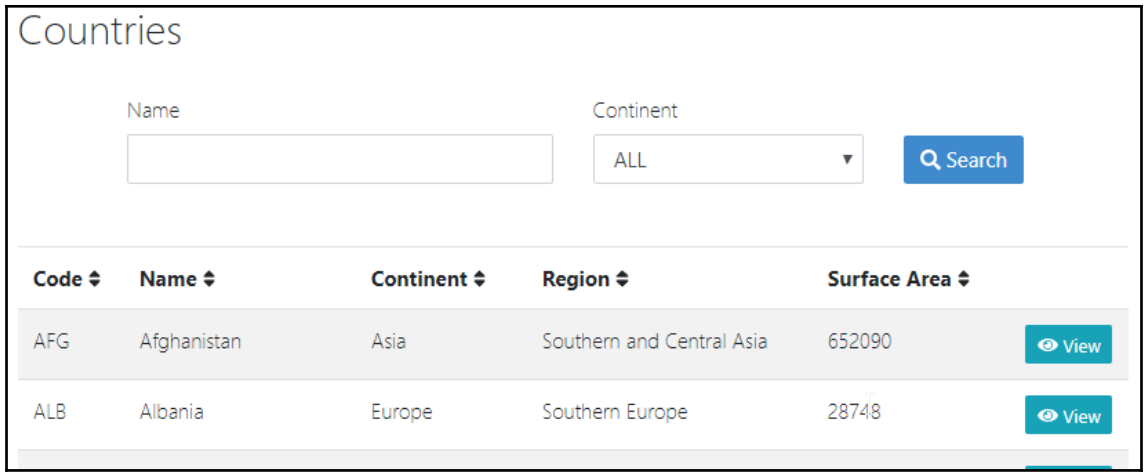

Cars
+ Create a new Car
ID
Name
Model
Mgf Year
Owner
1
Swift
VDI
2011
Nilang
View
Edit
Delete
Showing 1 - 1 of 1 items.
«« « 1 » »»

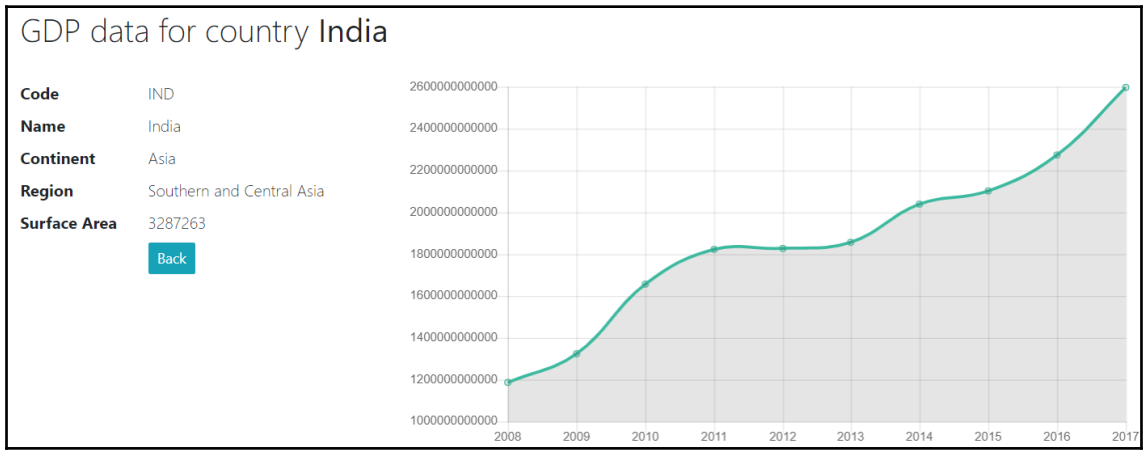

School
name: String*
eduType: EducationType*
noOfRooms: Integer*
<<enumeration>>
EducationType
PRIMARY
SECONDARY
HIGHER_SECONDARY
1-*
Teacher
name: String*
age: Integer


city
id BIGINT(20)
name VARCHAR(35)
distrct VARCHAR(20)
population INT(11)
country_id BIGINT(20)
Indexes
country
id BIGINT(20)
code VARCHAR(3)
name VARCHAR(52)
continent VARCHAR(255)
region VARCHAR(26)
surface_area FLOAT
population INT(11)
life_expectancy FLOAT
local_name VARCHAR(45)
government_form VARCHAR(45)
Indexes
country_language
id BIGINT(20)
language VARCHAR(255)
is_official VARCHAR(255)
percentage FLOAT
country_id BIGINT(20)
Indexes

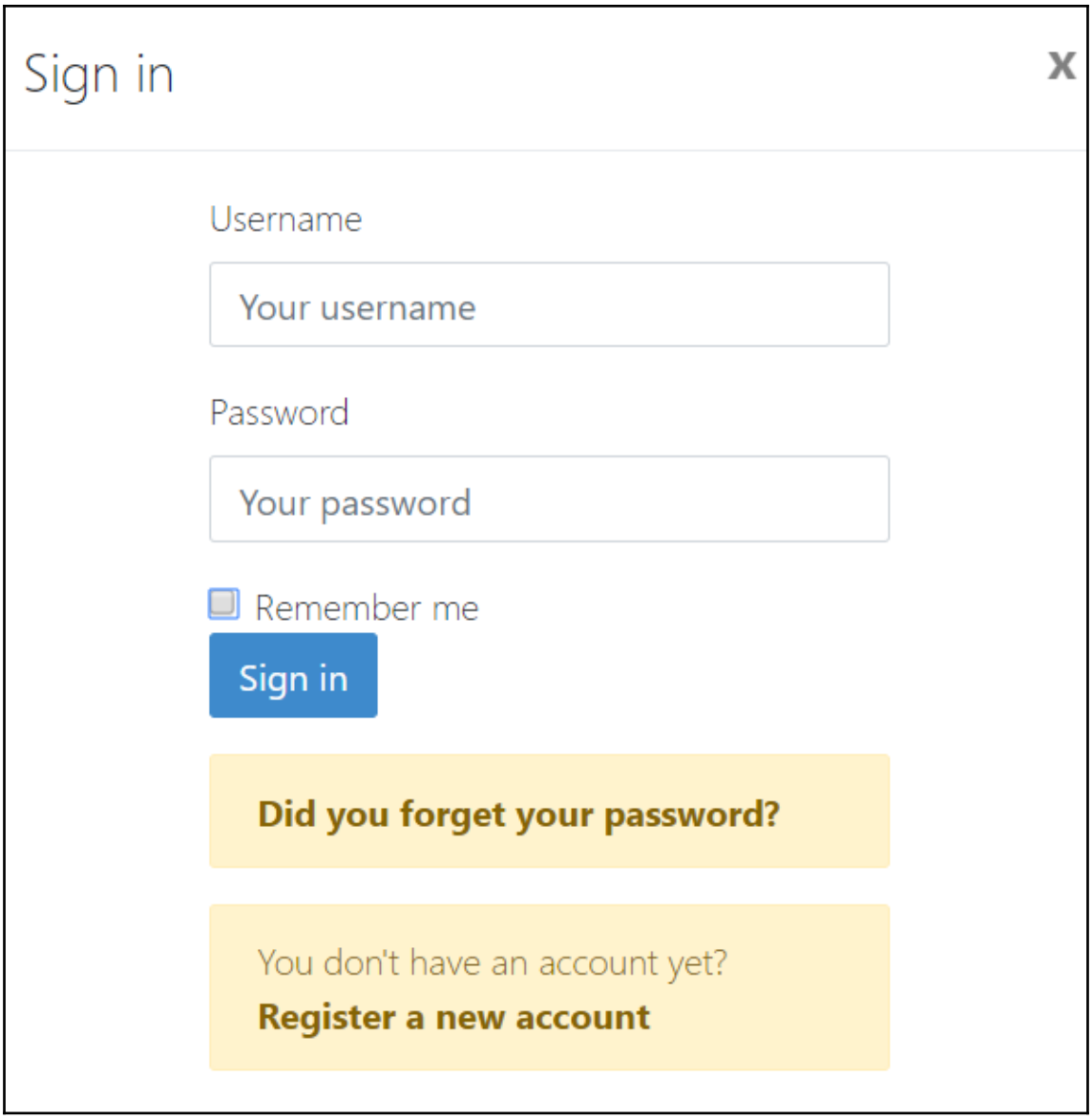

Country
code: String*
name: String*
continent: Continent*
region: String*
surfaceArea: Float*
population: Integer*
lifeExpectancy: Float
localName: String*
governmentForm: String*
<<enumeration>>
Continent
ASIA
EUROPE
NORTH_AMERICA
AFRICA
OCEANIA
ANTARCTICA
SOUTH_AMERICA
1-*
City
name: String*
distrct: String*
population: Integer*
1-*
CountryLanguage
language: String*
isOfficial: TrueFalse*
percentage: Float*
<<enumeration>>
TrueFalse
T
F

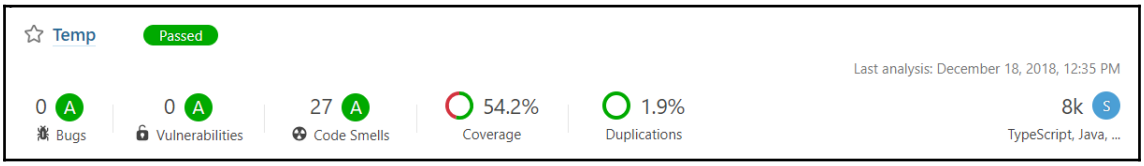

src
main
docker
jib
webapp
app
content
i18n
en
activate.json
audits.json
city.json
configuration.json
continent.json
country.json
countryLanguage.json
error.json
global.json
health.json
home.json
login.json
logs.json
metrics.json
password.json
register.json
reset.json
sessions.json
settings.json
trueFalse.json
user-management.json
swagger-ui


Countries
Name
Continent
ALL
Search
Code
Name
Continent
Region
Surface Area
AFG
Afghanistan
Asia
Southern and Central Asia
652090
View
ALB
Albania
Europe
Southern Europe
28748
View

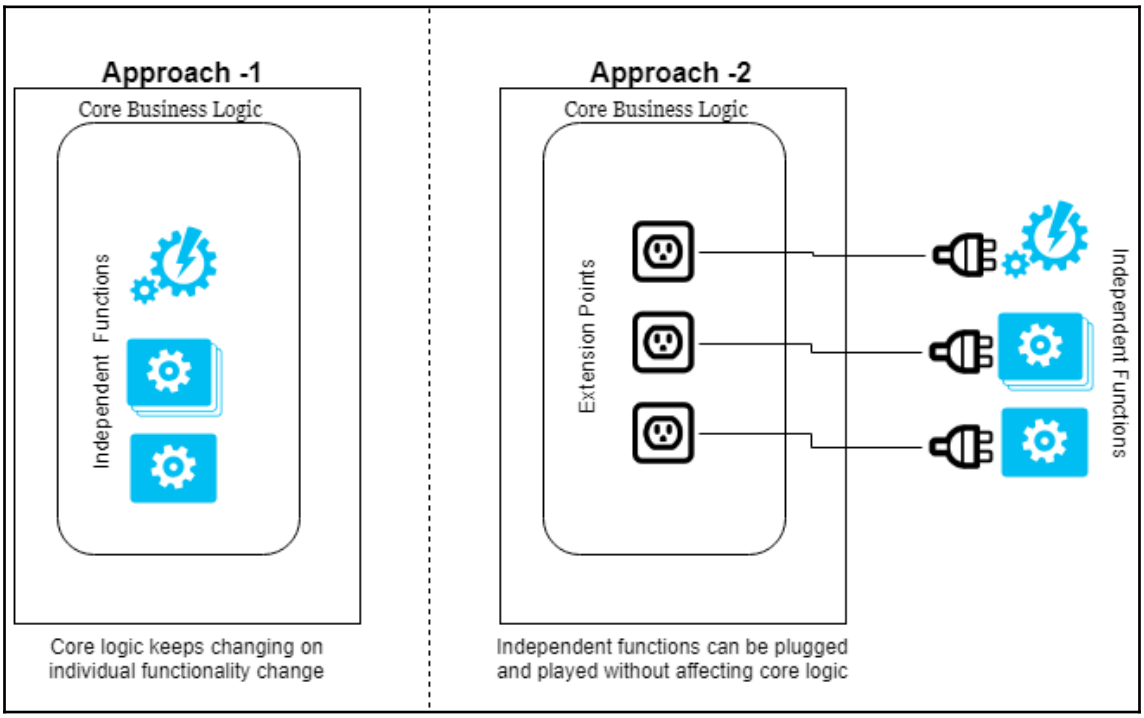

GDP data for country India
Code
IND
Name
India
Continent
Asia
Region
Southern and Central Asia
Surface Area
3287263
Back
2600000000000
2400000000000
2200000000000
2000000000000
1800000000000
1600000000000
1400000000000
1200000000000
1000000000000
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

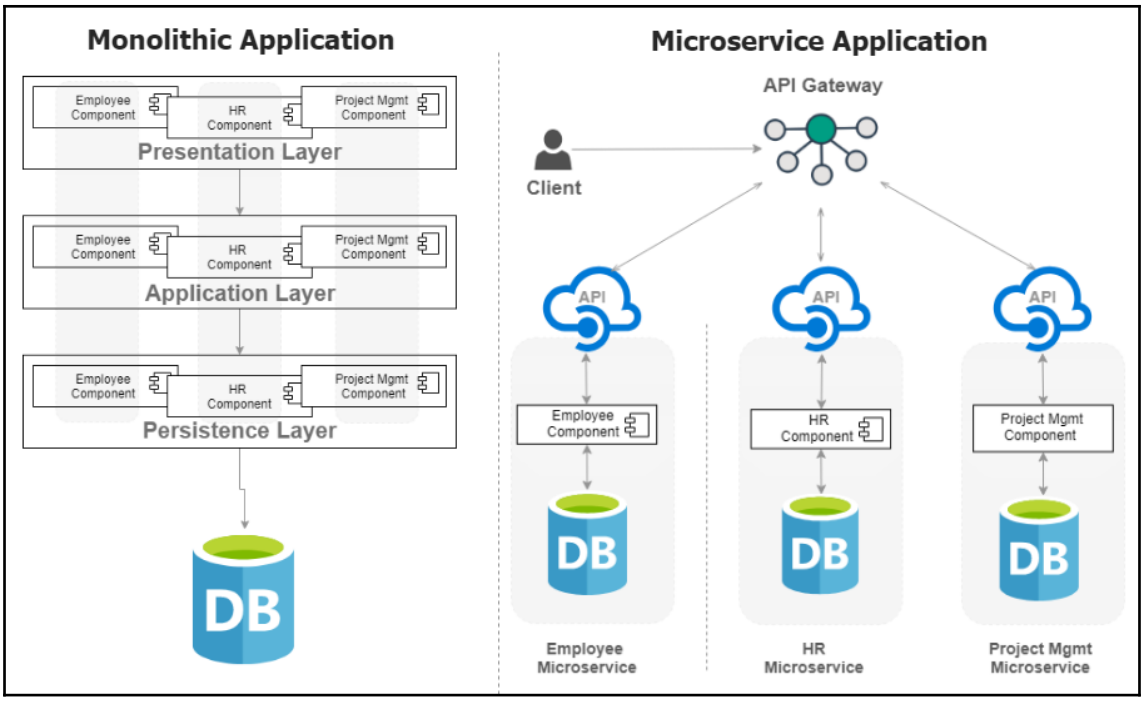
Home
Countries
Account

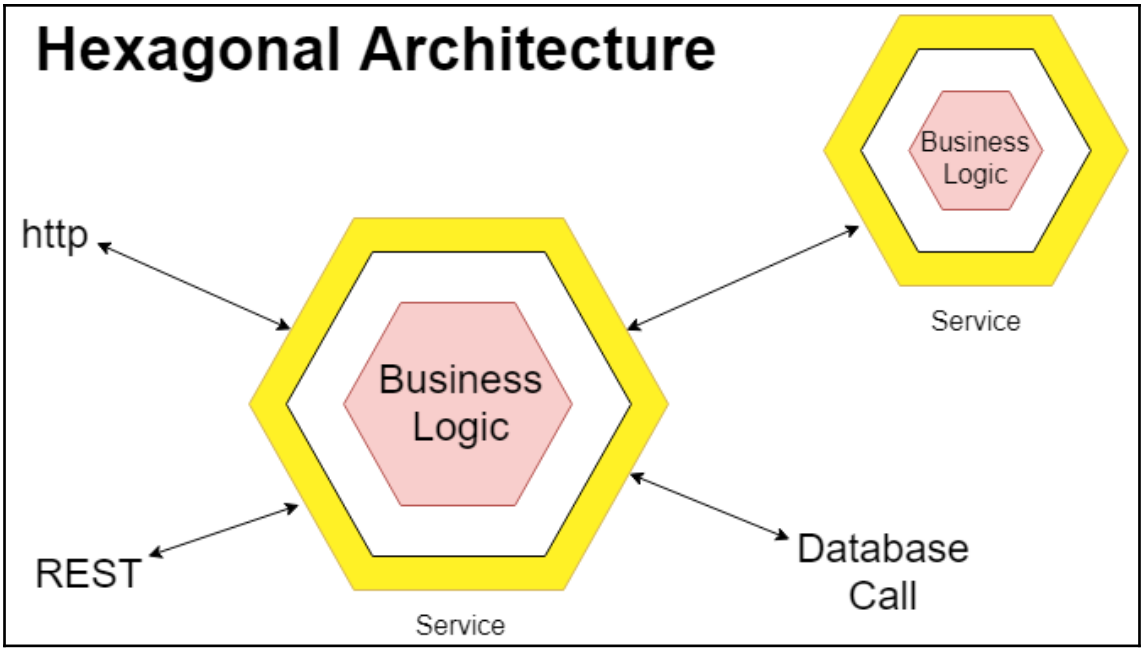

Sign in
Username
Your username
Password
Your password
Remember me
Sign in
Did you forget your password?
You don't have an account yet?
Register a new account

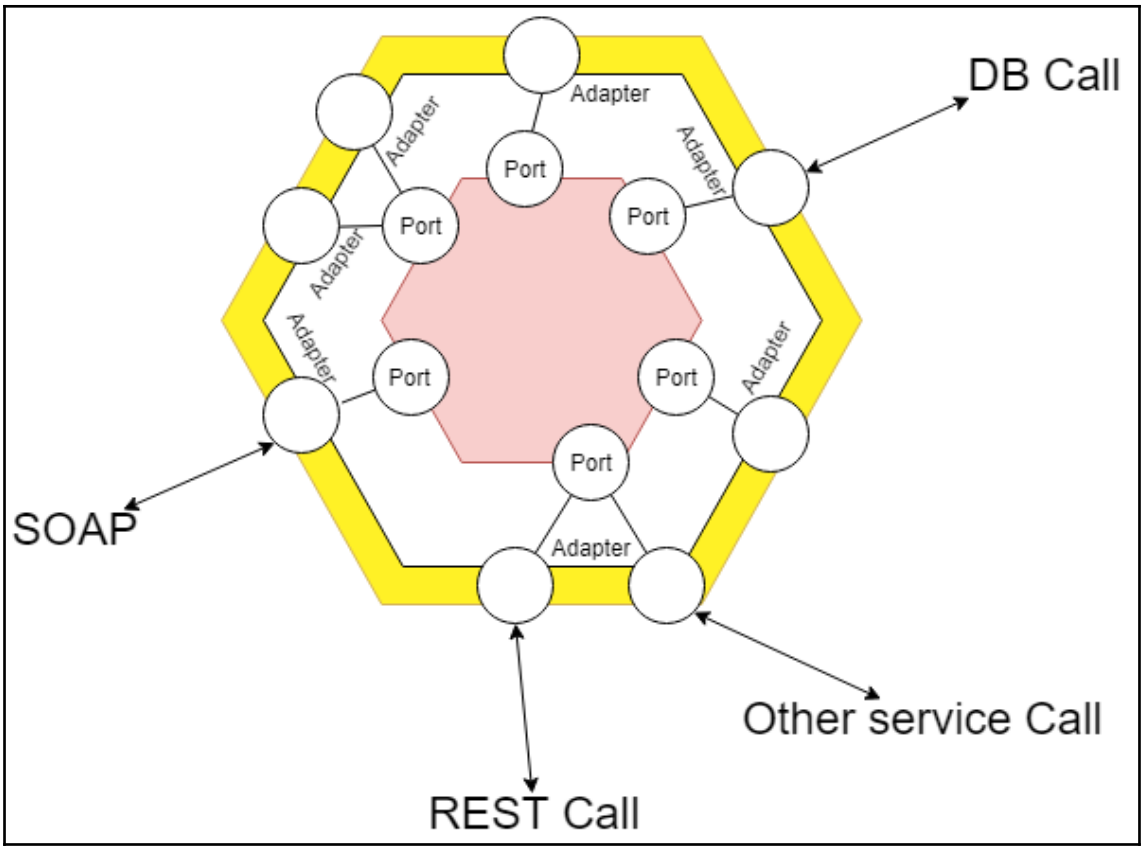

Temp
Passed
Last analysis: December 18, 2018, 12:35 PM
0 A Bugs
0 A Vulnerabilities
27 A Code Smells
54.2% Coverage
1.9% Duplications
8k TypeScript, Java, ...

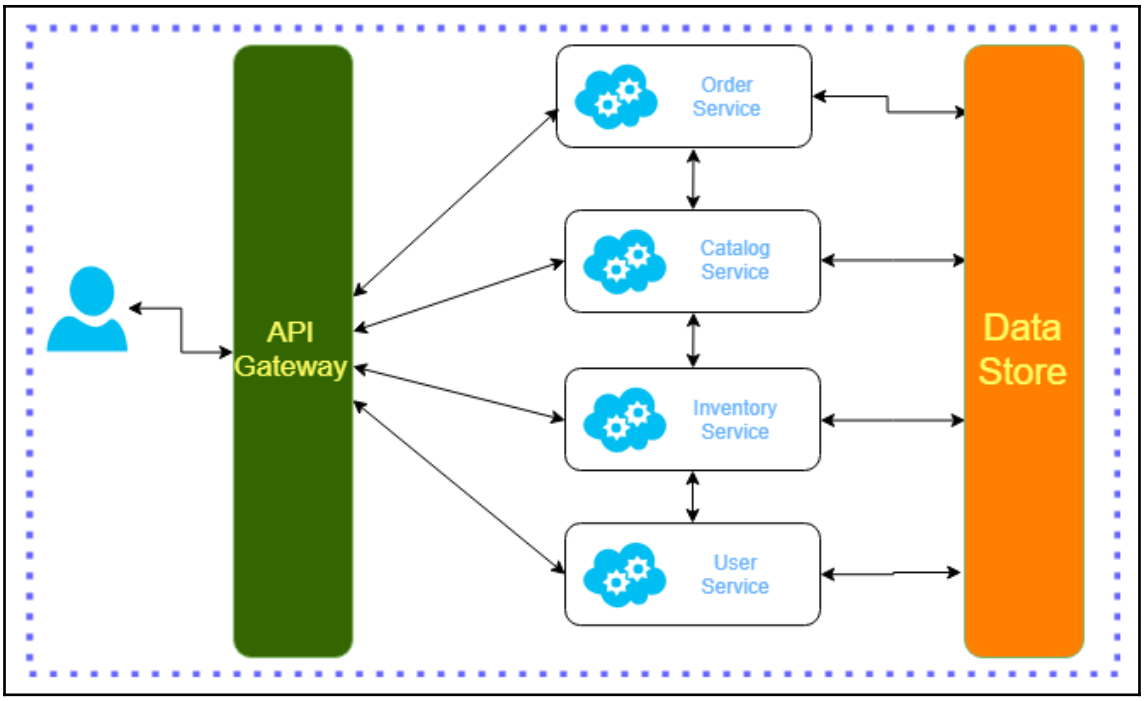
Chapter 6: Creating an Online Bookstore

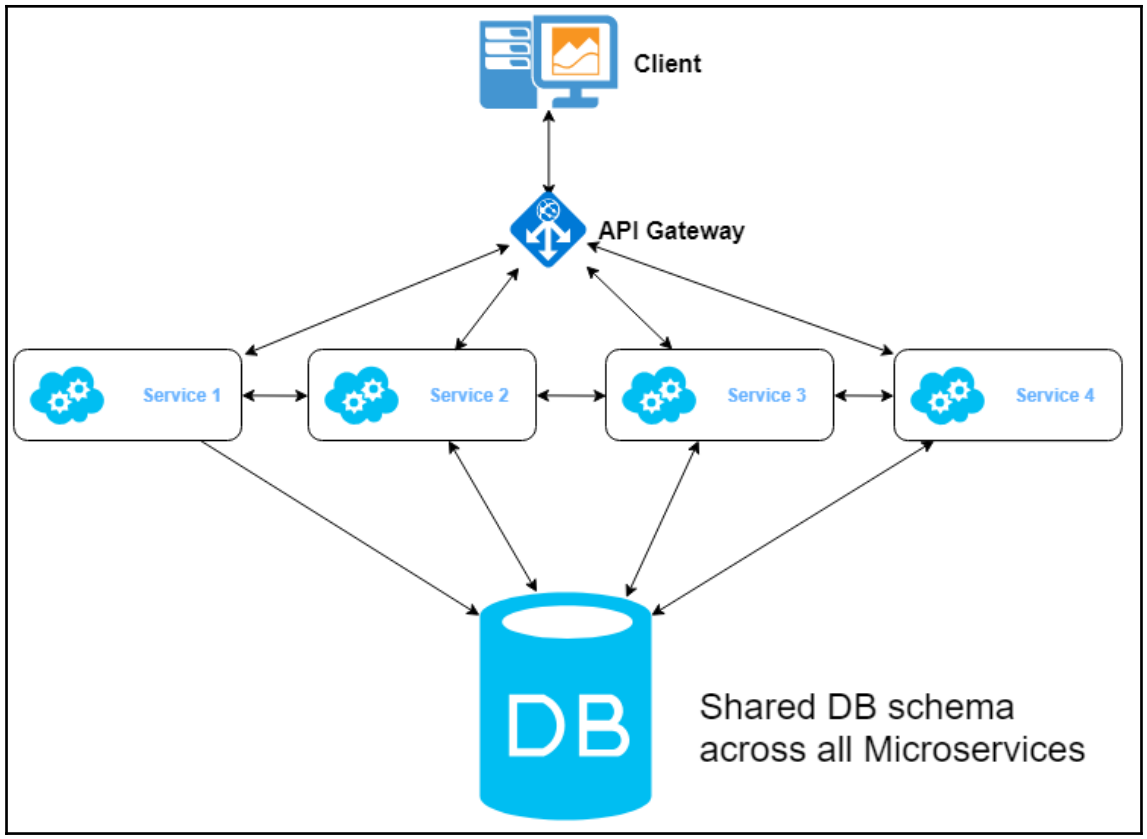


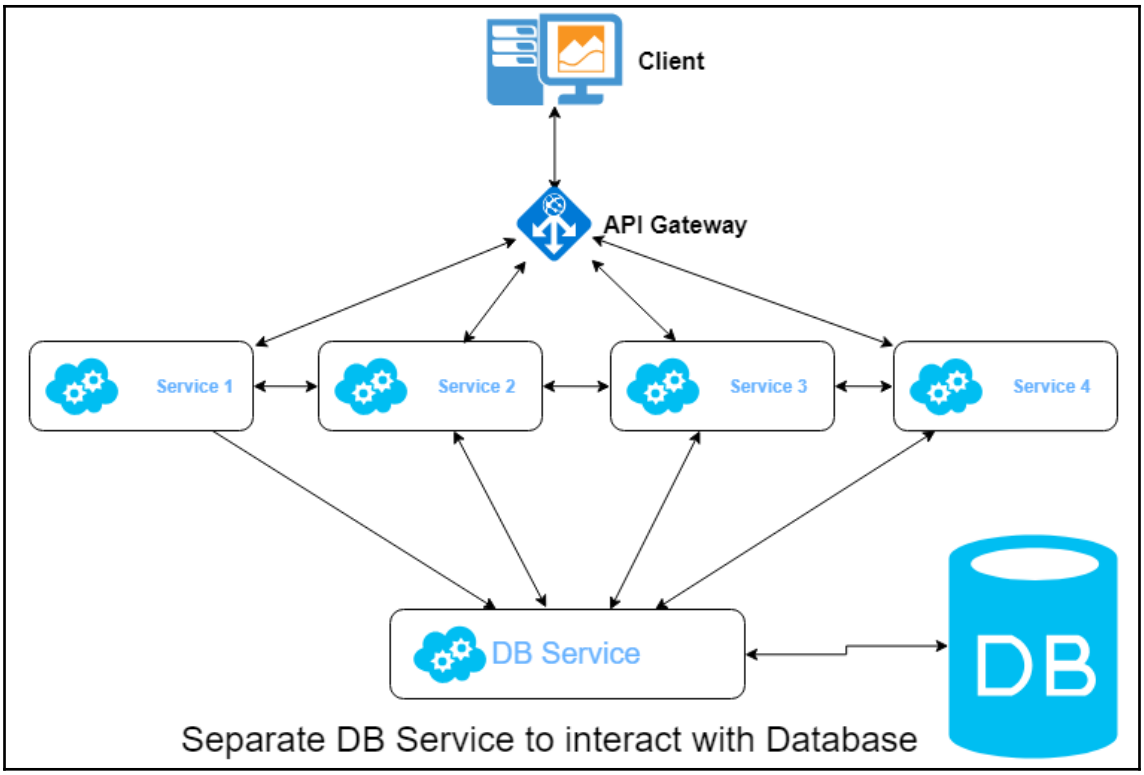

Monolithic Application
Employee Component
HR Component
Project Mgmt Component
Presentation Layer
Application Layer
Persistence Layer
DB
Microservice Application
API Gateway
Client
API
Employee Component
HR Component
Project Mgmt Component
DB
Employee Microservice
HR Microservice
Project Mgmt Microservice

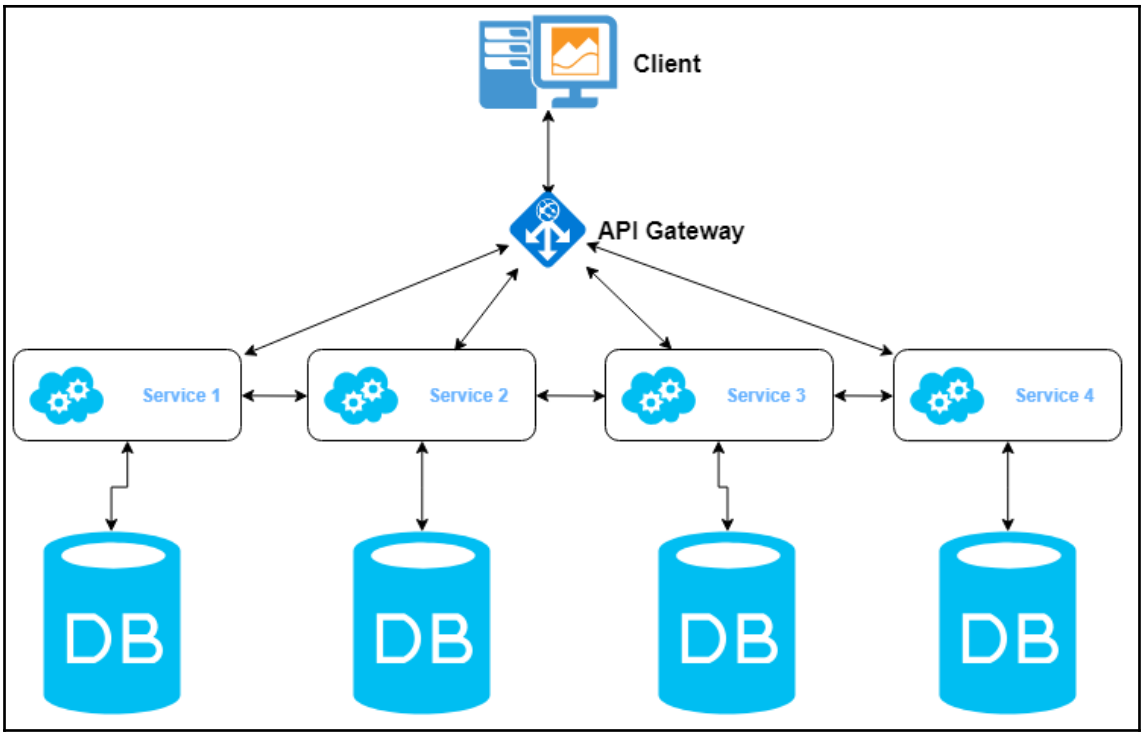

Hexagonal Architecture
Business Logic
http
Service
Business Logic
REST
Database Call
Service

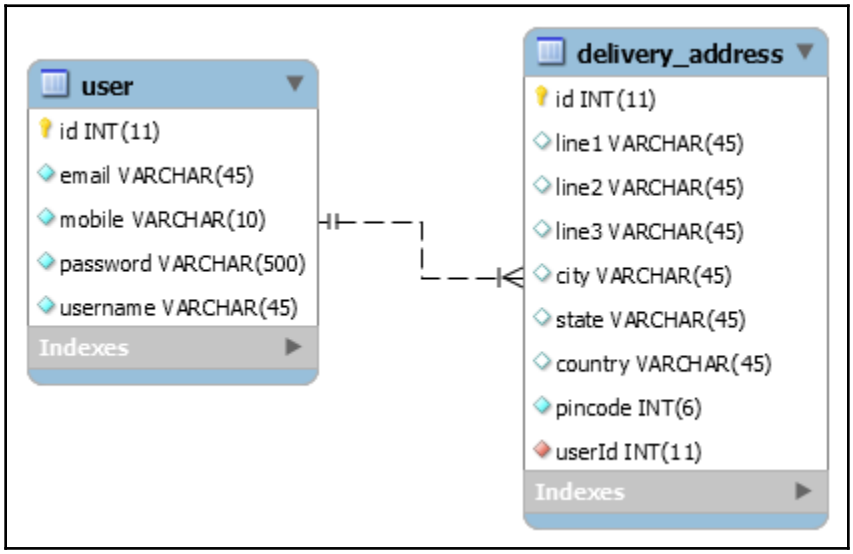

DB Call
Adapter
Adapter
Adapter
Port
Port
Port
Adapter
Adapter
Adapter
Port
Port
Port
Adapter
SOAP
Adapter
Other service Call
REST Call

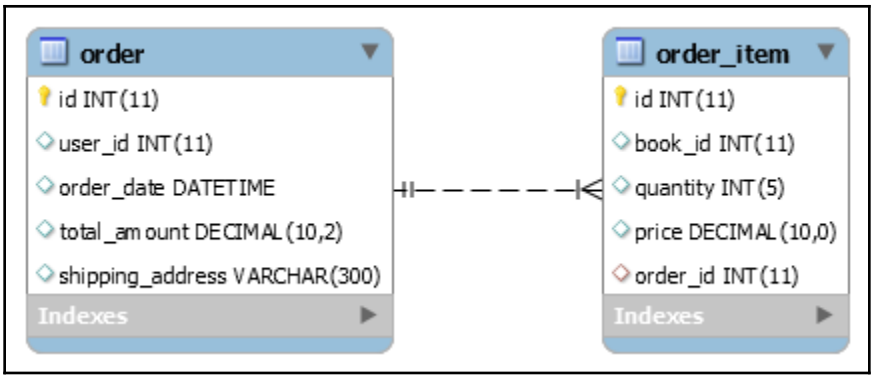

API
Gateway
Order
Service
Catalog
Service
Inventory
Service
User
Service
Data
Store

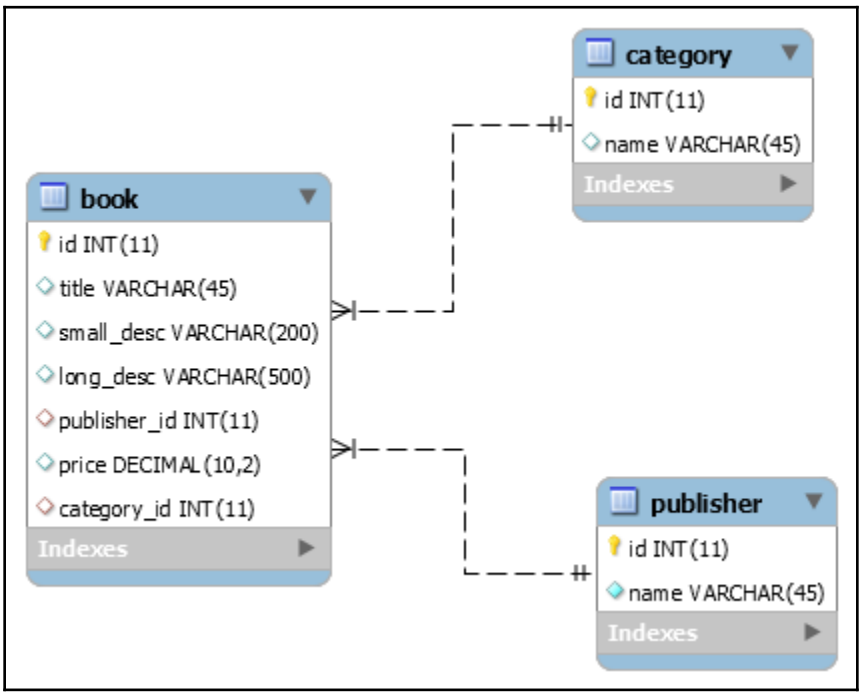

Client
API Gateway
Service 1
Service 2
Service 3
Service 4
DB
Shared DB schema
across all Microservices

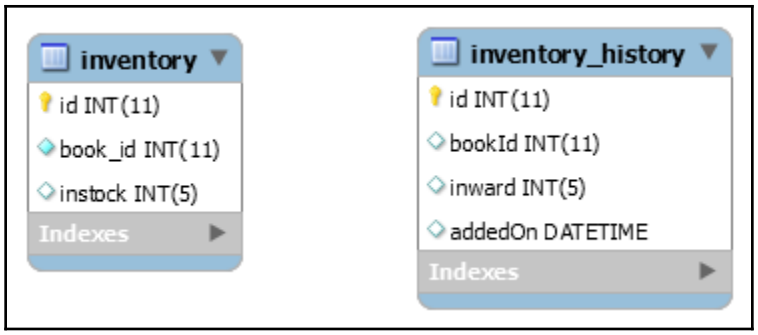

Client
API Gateway
Service 1
Service 2
Service 3
Service 4
DB Service
DB
Separate DB Service to interact with Database


Client
API Gateway
Service 1
Service 2
Service 3
Service 4
DB
DB
DB
DB


user
id INT(11)
email VARCHAR(45)
mobile VARCHAR(10)
password VARCHAR(500)
username VARCHAR(45)
Indexes
delivery_address
id INT(11)
line1 VARCHAR(45)
line2 VARCHAR(45)
line3 VARCHAR(45)
city VARCHAR(45)
state VARCHAR(45)
country VARCHAR(45)
pincode INT(6)
userId INT(11)
Indexes


order
id INT(11)
user_id INT(11)
order_date DATETIME
total_amount DECIMAL(10,2)
shipping_address VARCHAR(300)
Indexes
order_item
id INT(11)
book_id INT(11)
quantity INT(5)
price DECIMAL(10,0)
order_id INT(11)
Indexes


category
id INT(11)
name VARCHAR(45)
Indexes
book
id INT(11)
title VARCHAR(45)
small_desc VARCHAR(200)
long_desc VARCHAR(500)
publisher_id INT(11)
price DECIMAL(10,2)
category_id INT(11)
Indexes
publisher
id INT(11)
name VARCHAR(45)
Indexes



Service URL: https://start.spring.io

Name: eureka-discovery-service

Use default location

Location: D:\projects\book_writing\Spring 5\ch-4\code\eureka-discovery-serv Browse

Type: Maven Packaging: Jar

Java Version: 8 Language: Java

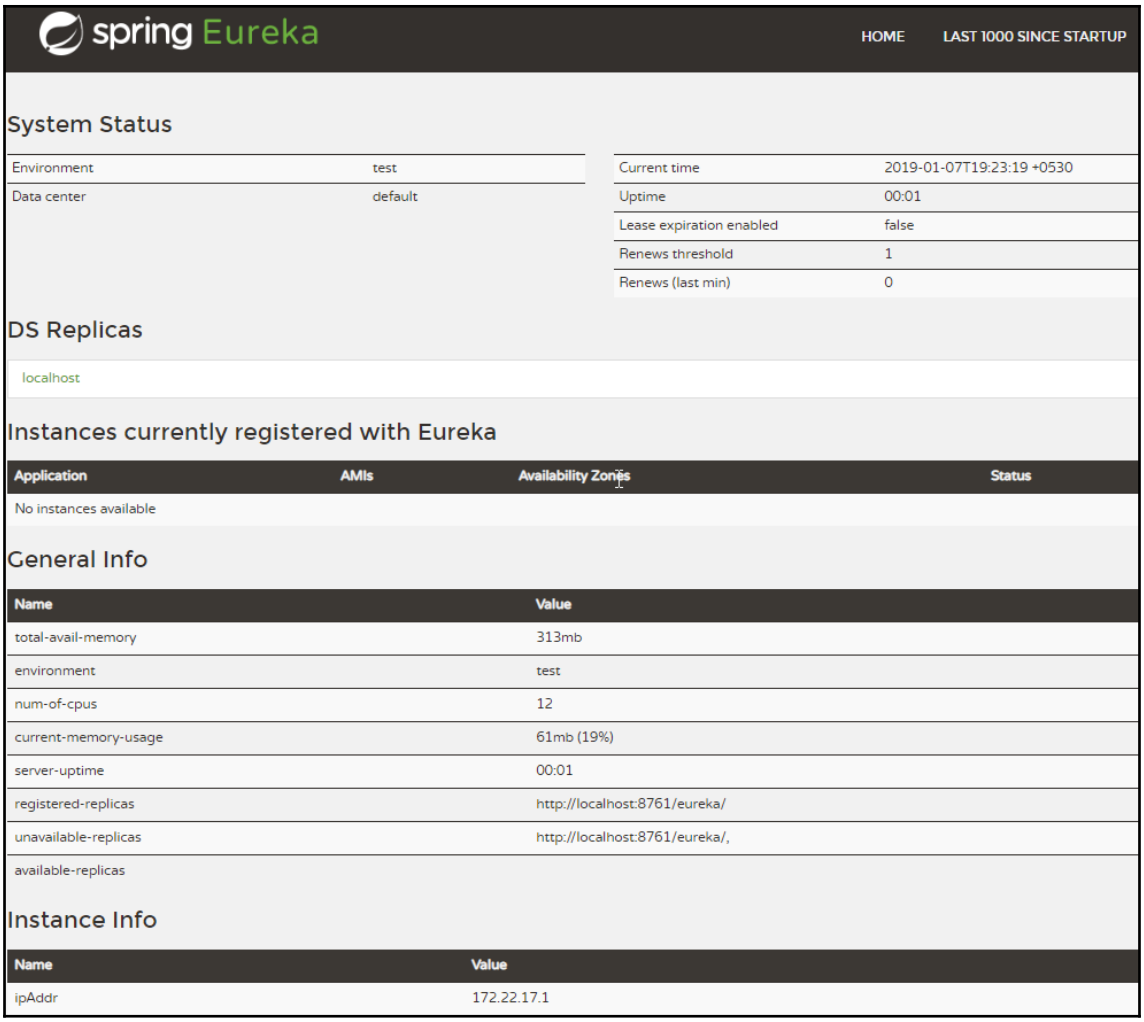
Group: com.eureka.discovery

Artifact: eureka-discovery-service

Version: 0.0.1-SNAPSHOT

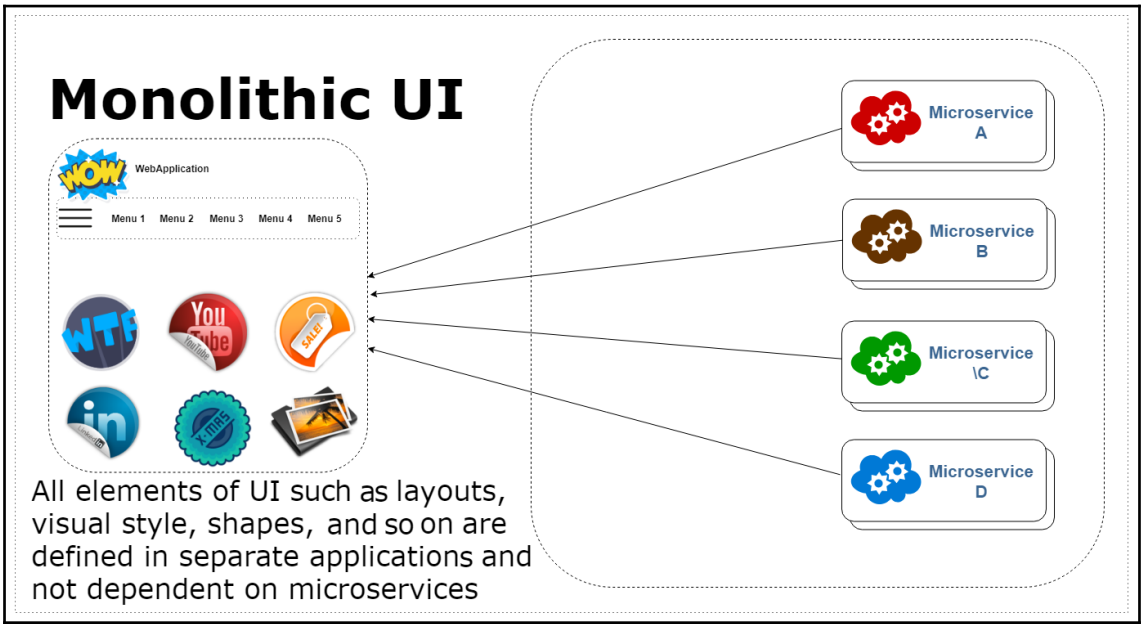
Description: This is discovery service

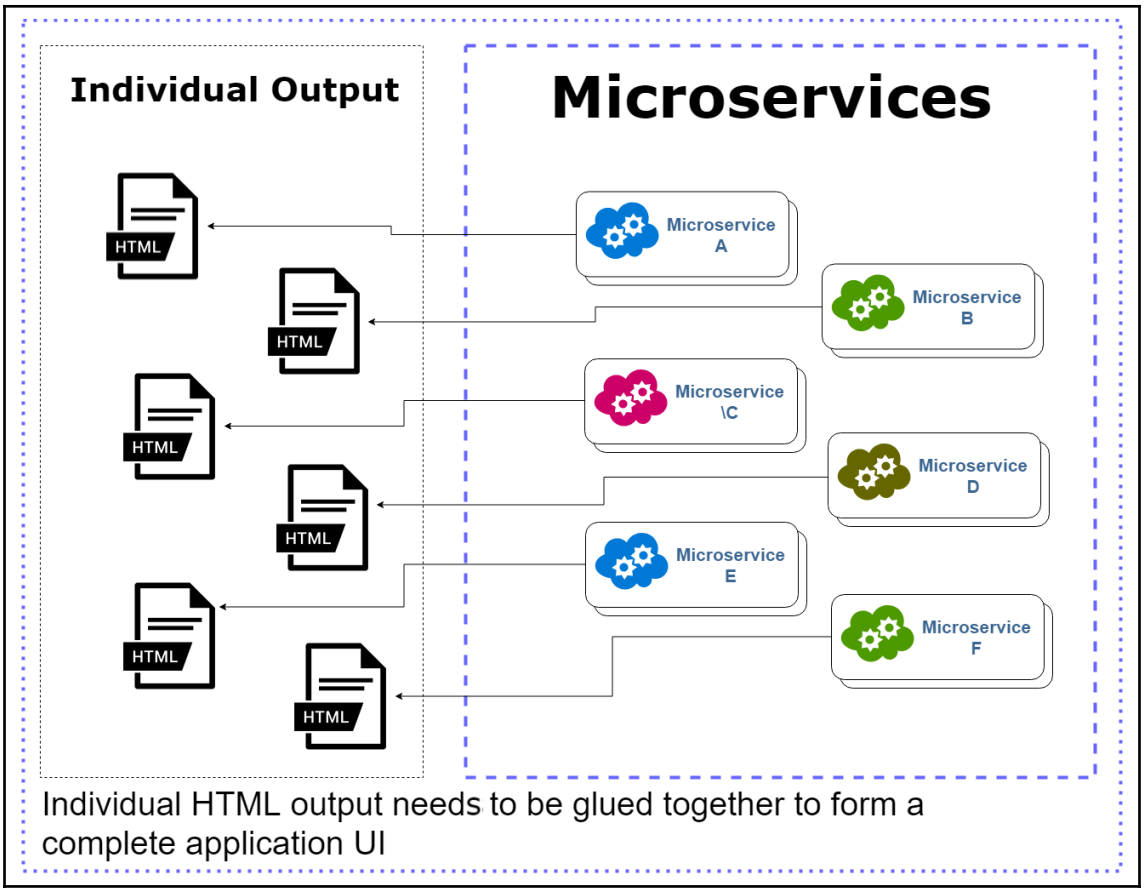
Package: com.eureka.discovery


spring Eureka
HOME
LAST 1000 SINCE STARTUP
System Status
Environment
test
Data center
default
Current time
2019-01-07T19:23:19 +0530
Uptime
00:01
Lease expiration enabled
false
Renews threshold
1
Renews (last min)
0
DS Replicas
localhost
Instances currently registered with Eureka
Application
AMIs
Availability Zones
Status
No instances available
General Info
Name
Value
total-avail-memory
313mb
environment
test
num-of-cpus
12
current-memory-usage
61mb (19%)
server-uptime
00:01
registered-replicas
http://localhost:8761/eureka/
unavailable-replicas
http://localhost:8761/eureka/,
available-replicas
Instance Info
Name
Value
ipAddr
172.22.17.1

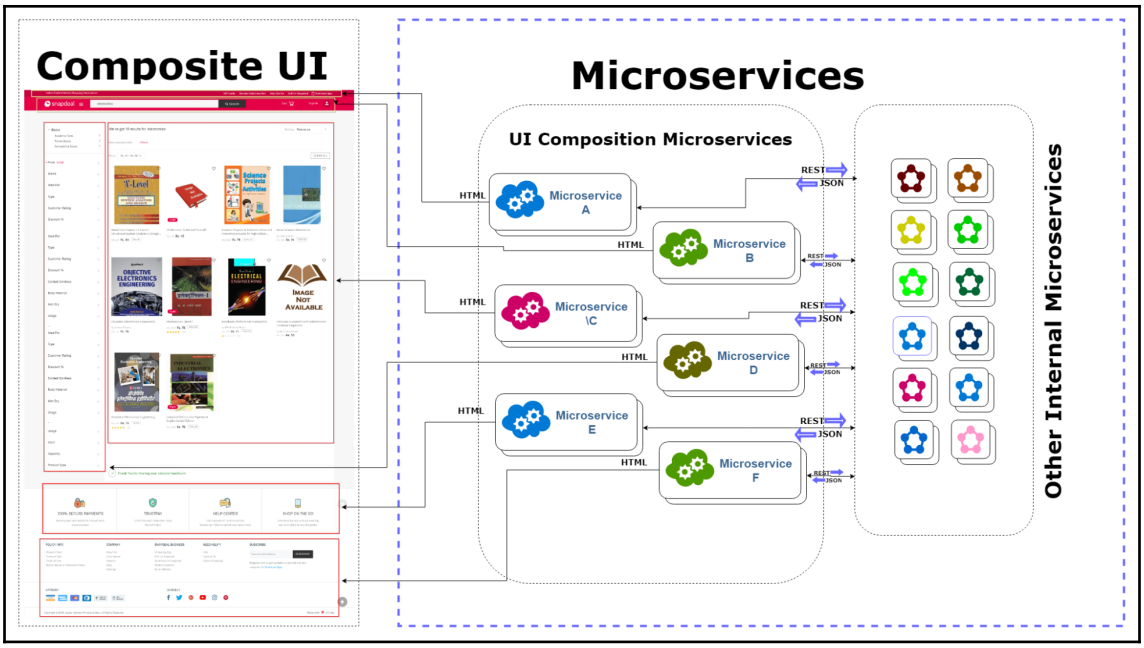
Instances currently registered with Eureka

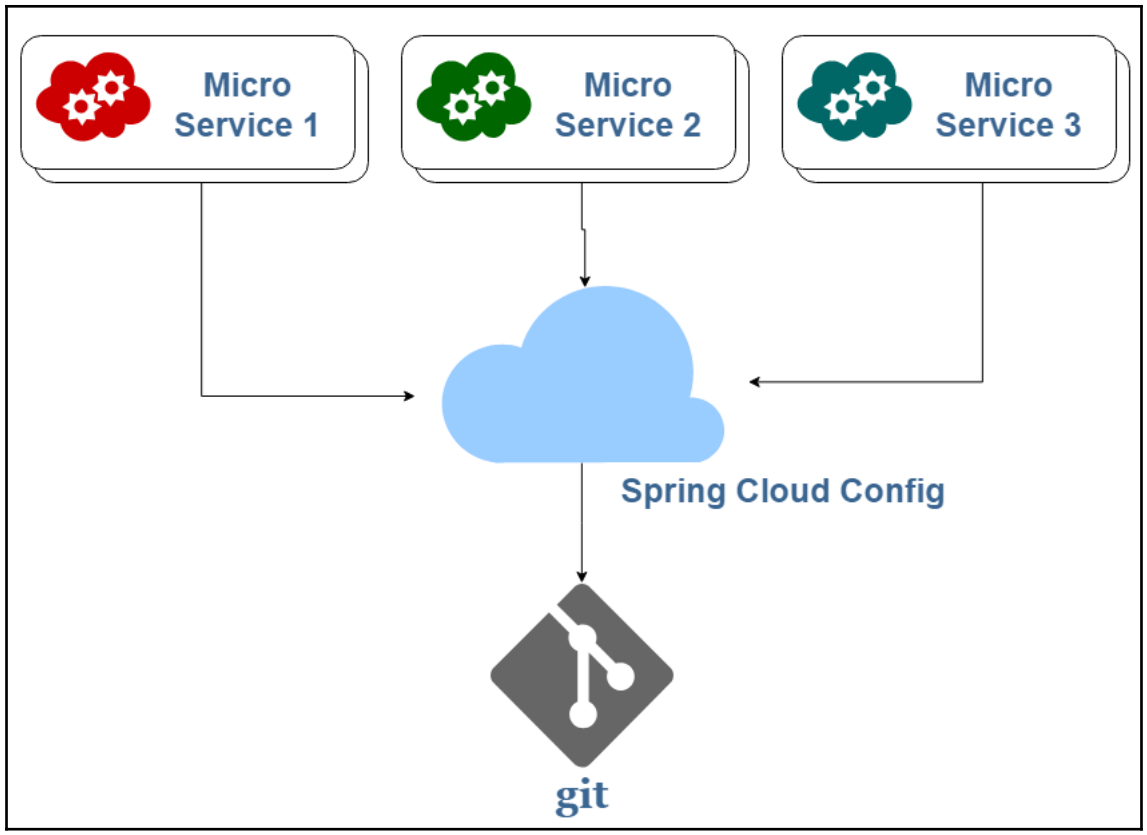
Application	AMIs	Availability Zones	Status
CATALOG-SERVICE	n/a (1)	(1)	UP (1) - nil.mshome.net:catalog-service:8792
INVENTORY-SERVICE	n/a (1)	(1)	UP (1) - nil.mshome.net:inventory-service:8793
ORDER-SERVICE	n/a (1)	(1)	UP (1) - nil.mshome.net:order-service:8794
USER-SERVICE	n/a (1)	(1)	UP (1) - nil.mshome.net:user-service:8791

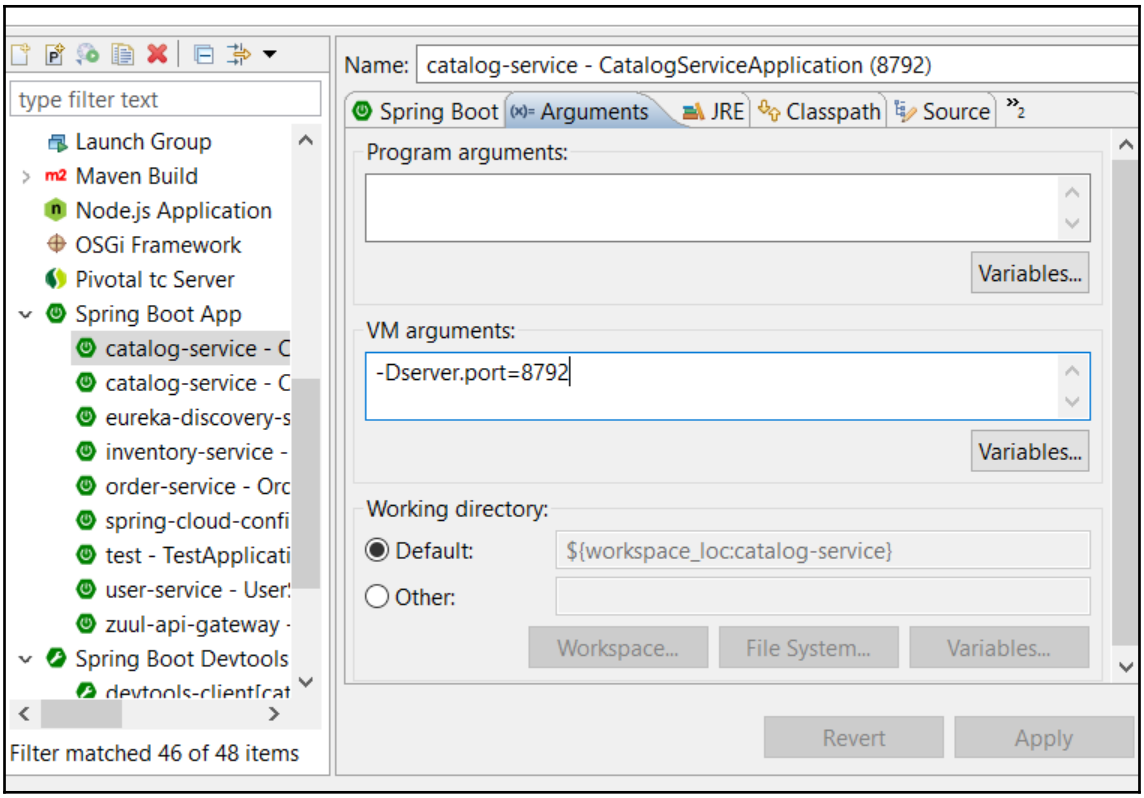


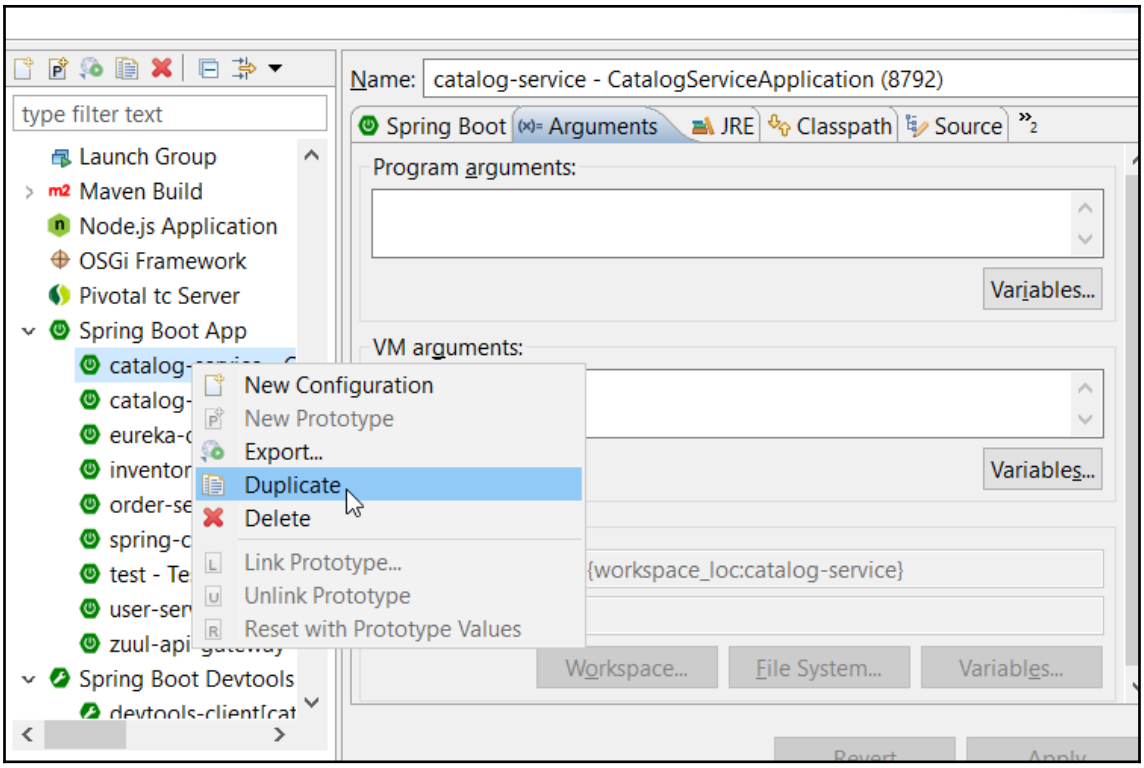


Individual HTML output needs to be glued together to form a complete application UI


Composite UI
Microservices
UI Composition Microservices
HTML
Microservice A
Microservice B
Microservice C
Microservice D
Microservice E
Microservice F
REST
JSON
Other Internal Microservices

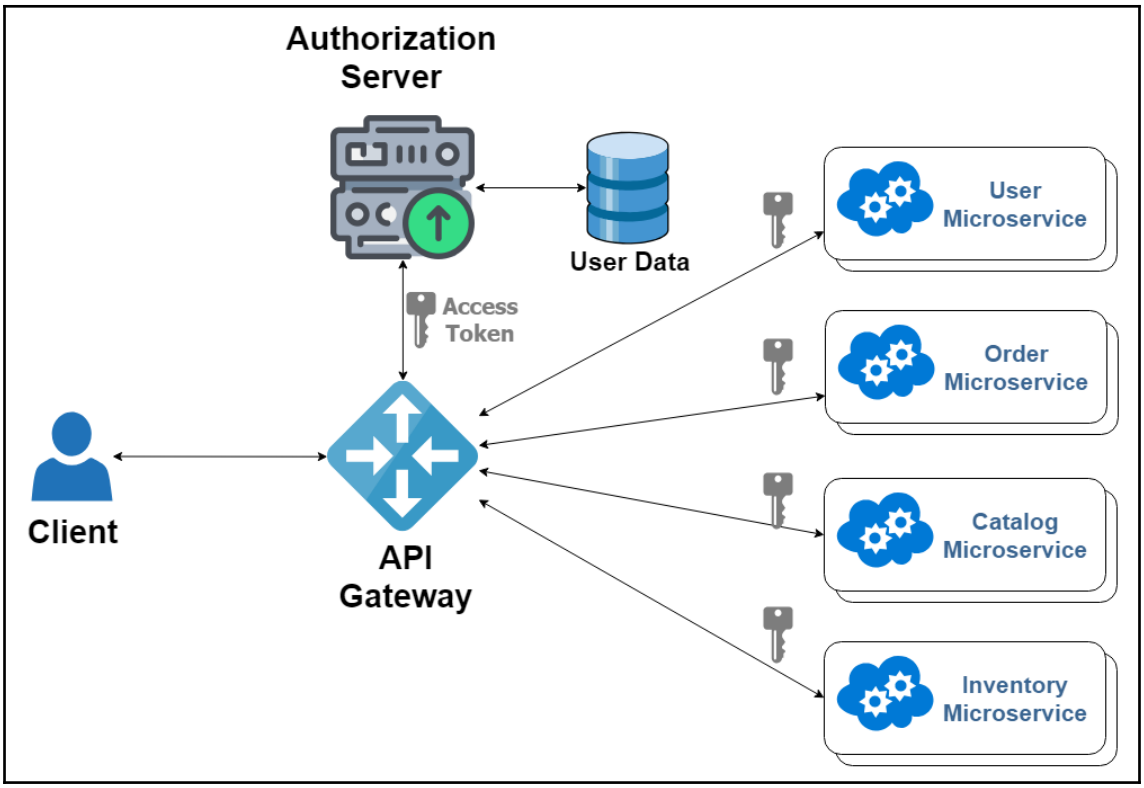

Micro Service 1
Micro Service 2
Micro Service 3
Spring Cloud Config
git


type filter text
Launch Group
Maven Build
Node.js Application
OSGi Framework
Pivotal tc Server
Spring Boot App
catalog-service - C
catalog-service - C
eureka-discovery-s
inventory-service -
order-service - Orc
spring-cloud-confi
test - TestApplicati
user-service - User
zuul-api-gateway -
Spring Boot Devtools
Filter matched 46 of 48 items
Name: catalog-service - CatalogServiceApplication (8792)
Spring Boot
Arguments
JRE
Classpath
Source
Program arguments:
Variables...
VM arguments:
-Dserver.port=8792
Variables...
Working directory:
Default:
${workspace_loc:catalog-service}
Other:
Workspace...
File System...
Variables...
Revert
Apply

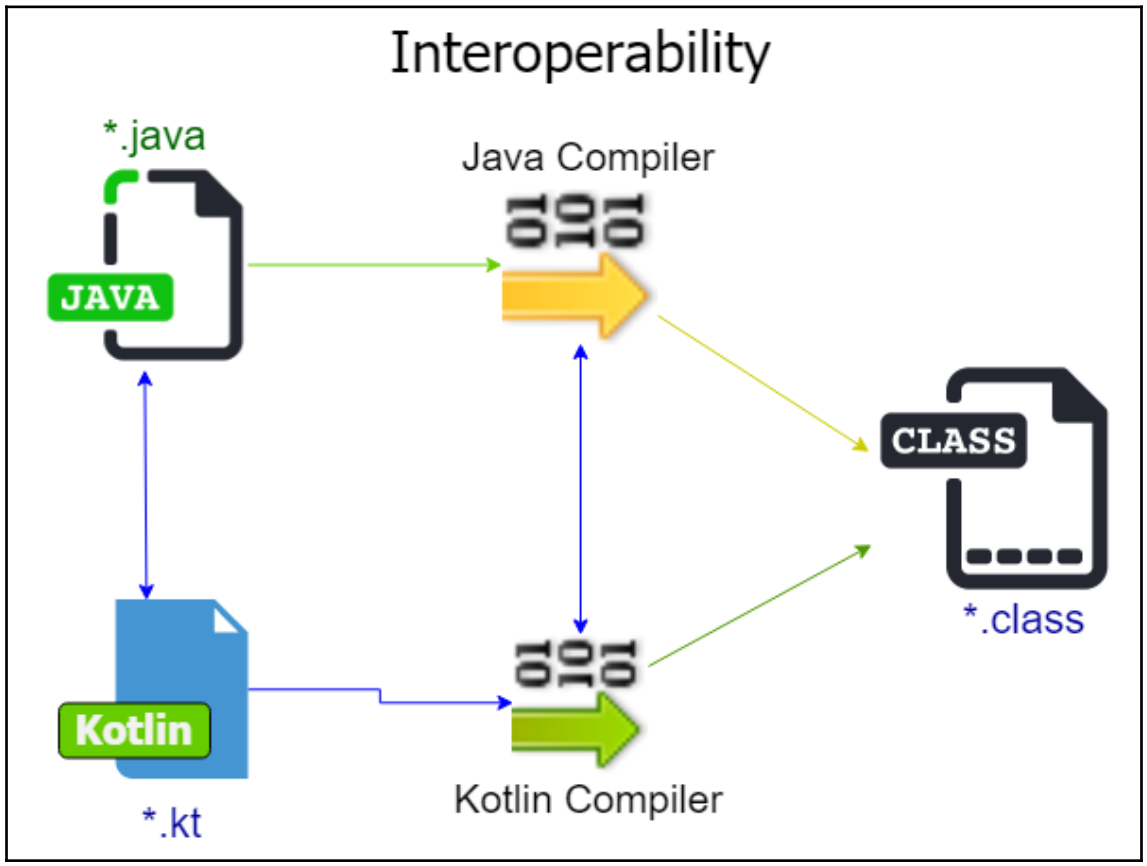


Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
CATALOG-SERVICE	n/a (2)	(2)	UP (2) - nil.mshome.net:catalog-service:8792 , nil.mshome.net:catalog-service:8799
INVENTORY-SERVICE	n/a (1)	(1)	UP (1) - nil.mshome.net:inventory-service:8793

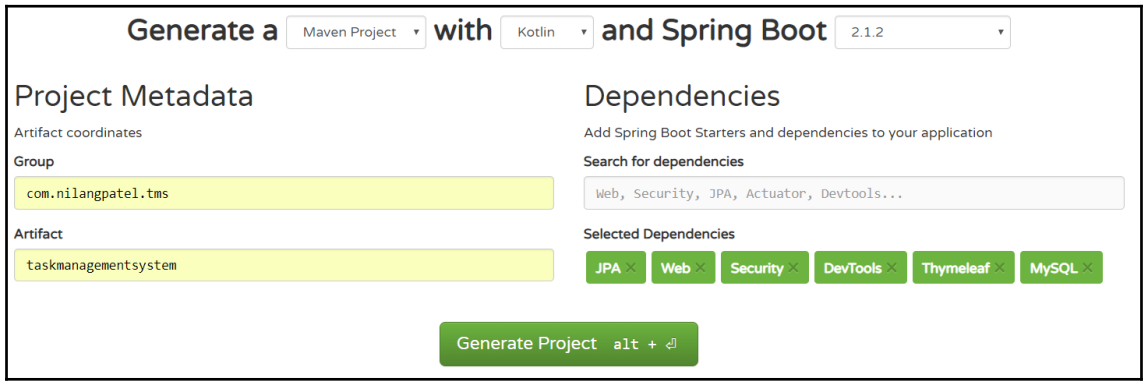

Authorization Server
User Data
Access Token
Client
API Gateway
User Microservice
Order Microservice
Catalog Microservice
Inventory Microservice

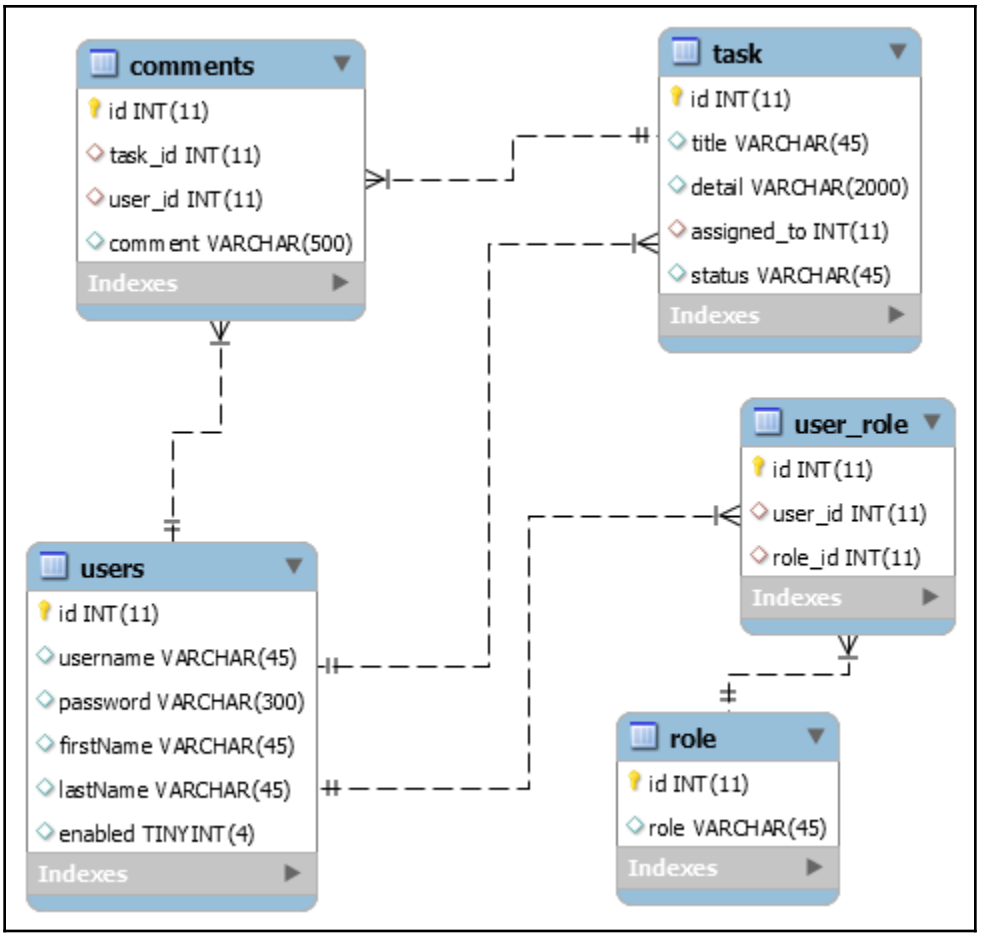
Chapter 7: Task Management System Using Spring and Kotlin

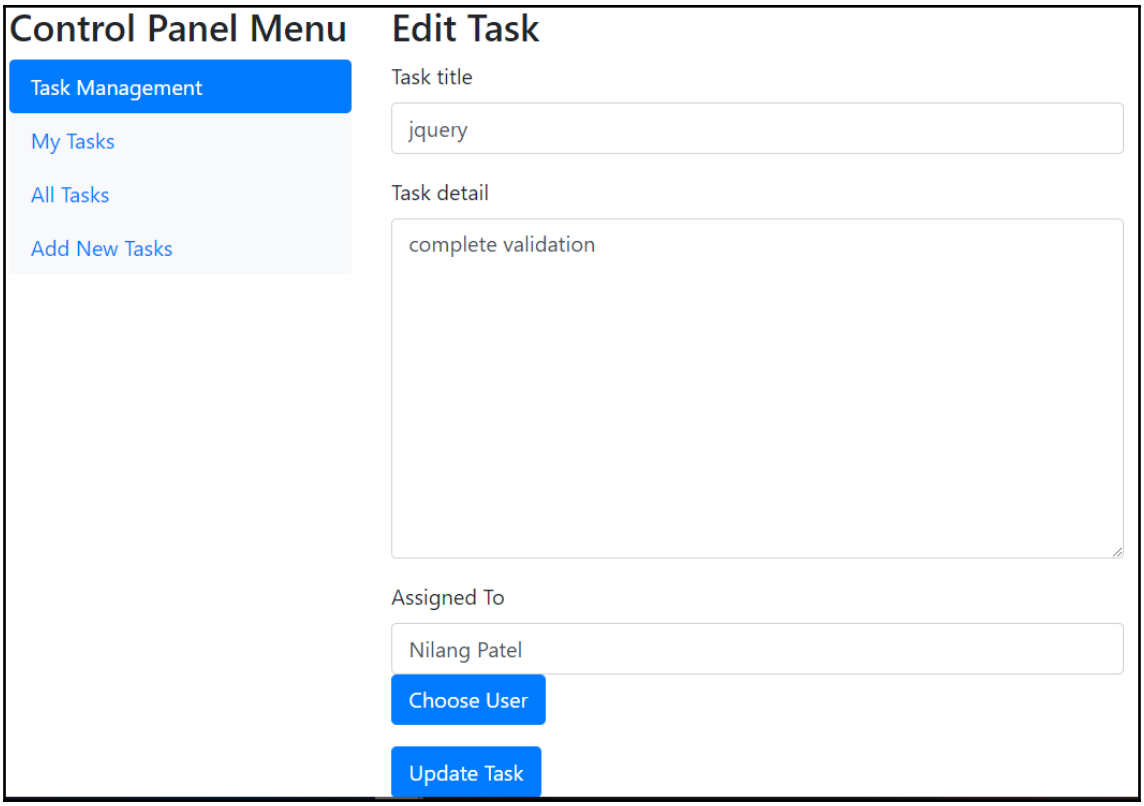


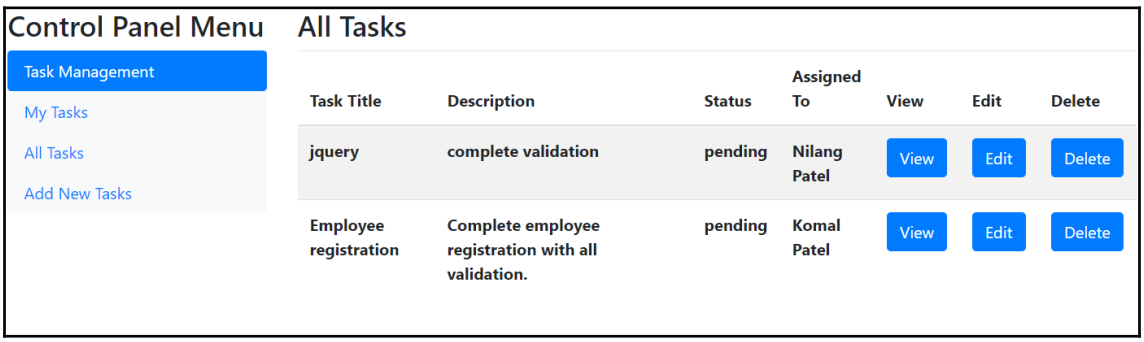

```
HHHHHAAAAAAAAAAA...Jake Lion is Barking ...
Bhao bhao ...Boomer Dog is barking ...
Haaaaooooooo...Lilli Fox is barking ...
```

```
HHHHHAAAAAAAAAAA...Lio Lion is Barking ...
Bhao bhao ...Tommy Dog is barking ...
Haaaaooooooo...Chiku Fox is barking ...
```




comments
id INT(11)
task_id INT(11)
user_id INT(11)
comment VARCHAR(500)
Indexes
task
id INT(11)
title VARCHAR(45)
detail VARCHAR(2000)
assigned_to INT(11)
status VARCHAR(45)
Indexes
user_role
id INT(11)
user_id INT(11)
role_id INT(11)
Indexes
users
id INT(11)
username VARCHAR(45)
password VARCHAR(300)
firstName VARCHAR(45)
lastName VARCHAR(45)
enabled TINYINT(4)
Indexes
role
id INT(11)
role VARCHAR(45)
Indexes


Control Panel Menu
Task Management
My Tasks
All Tasks
Add New Tasks
Edit Task
Task title
jquery
Task detail
complete validation
Assigned To
Nilang Patel
Choose User
Update Task


Control Panel Menu
Task Management
My Tasks
All Tasks
Add New Tasks
All Tasks
Task Title
Description
Status
Assigned To
View
Edit
Delete
jquery
complete validation
pending
Nilang Patel
View
Edit
Delete
Employee registration
Complete employee registration with all validation.
pending
Komal Patel
View
Edit
Delete

Control Panel Menu
Task Management
My Tasks
My Tasks
Task Title
Description
Status
Assigned To
View
jquery
complete validation
pending
Nilang Patel
View