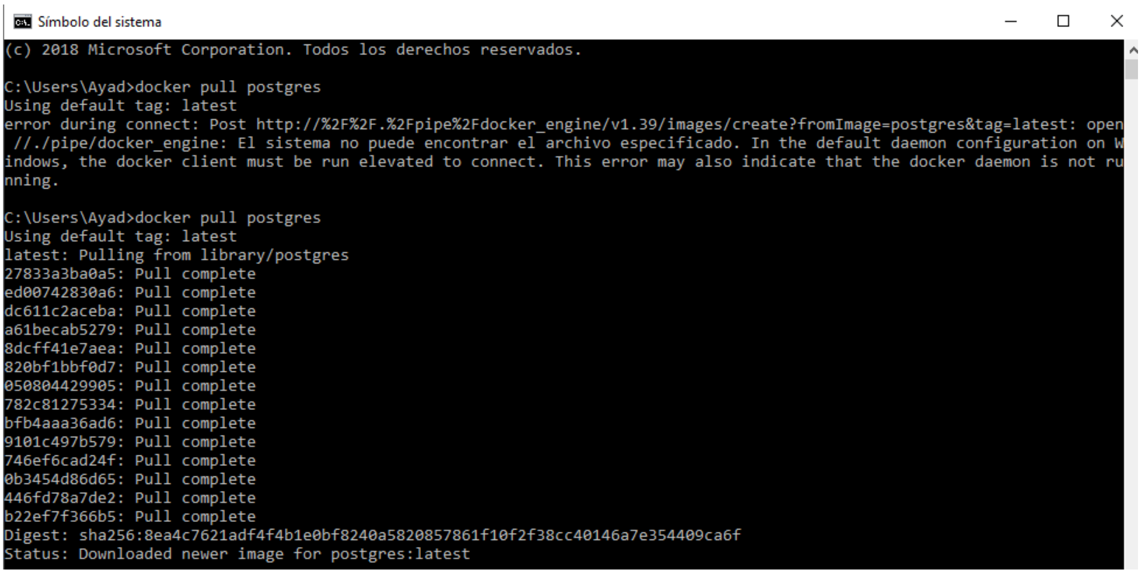
2018/19

Spring-101-Actividad01

AYAD MERCER LAAOUISI JONES

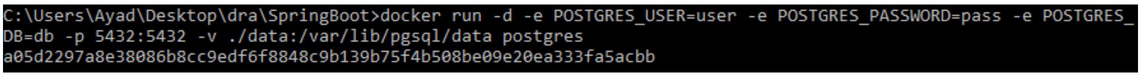
Spring-101

Primero descargamos la imagen del contenedor.



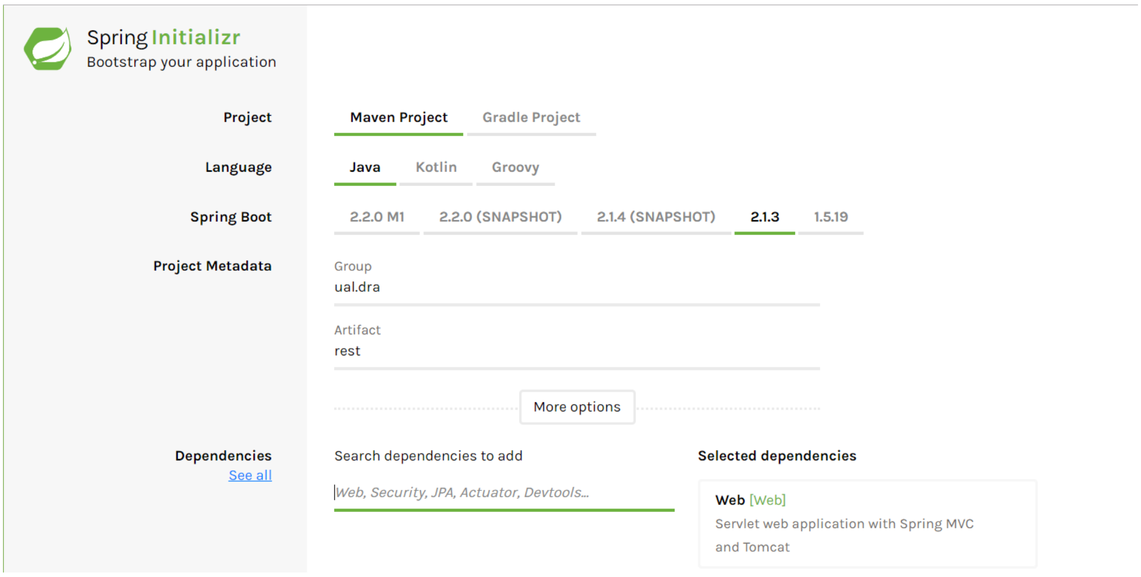
```
(c) 2018 Microsoft Corporation. Todos los derechos reservados.

C:\Users\Ayad>docker pull postgres
Using default tag: latest
error during connect: Post http://%2F%2F.%2Fpipe%2Fdocker_engine/v1.39/images/create?fromImage=postgres&tag=latest: open
 //./pipe/docker_engine: El sistema no puede encontrar el archivo especificado. In the default daemon configuration on W
indows, the docker client must be run elevated to connect. This error may also indicate that the docker daemon is not ru
nning.

C:\Users\Ayad>docker pull postgres
Using default tag: latest
latest: Pulling from library/postgres
27833a3ba0a5: Pull complete
ed00742830a6: Pull complete
dc611c2aceba: Pull complete
a61becab5279: Pull complete
8dcff41e7aea: Pull complete
820bf1bbf0d7: Pull complete
050804429905: Pull complete
782c81275334: Pull complete
bfb4aaa36ad6: Pull complete
9101c497b579: Pull complete
746ef6cad24f: Pull complete
0b3454d86d65: Pull complete
446fd78a7de2: Pull complete
b22ef7f366b5: Pull complete
Digest: sha256:8ea4c7621adf4f4b1e0bf8240a5820857861f10f2f38cc40146a7e354409ca6f
Status: Downloaded newer image for postgres:latest
```

Ejecutamos la siguiente orden en nuestro terminal en el directorio SpringBoot.



```
C:\Users\Ayad\Desktop\dra\SpringBoot>docker run -d -e POSTGRES_USER=user -e POSTGRES_PASSWORD=pass -e POSTGRES_
DB=db -p 5432:5432 -v ./data:/var/lib/pgsql/data postgres
a05d2297a8e38086b8cc9edf6f8848c9b139b75f4b508be09e20ea333fa5acbb
```

Creamos nuestro proyecto Spring Boot.



Spring Initializr
Bootstrap your application

Project: [✓ Maven Project] Gradle Project

Language: [✓ Java] Kotlin Groovy

Spring Boot: 2.2.0 M1 2.2.0 (SNAPSHOT) 2.1.4 (SNAPSHOT) [✓ 2.1.3] 1.5.19

Project Metadata

Group: ual.dra

Artifact: rest

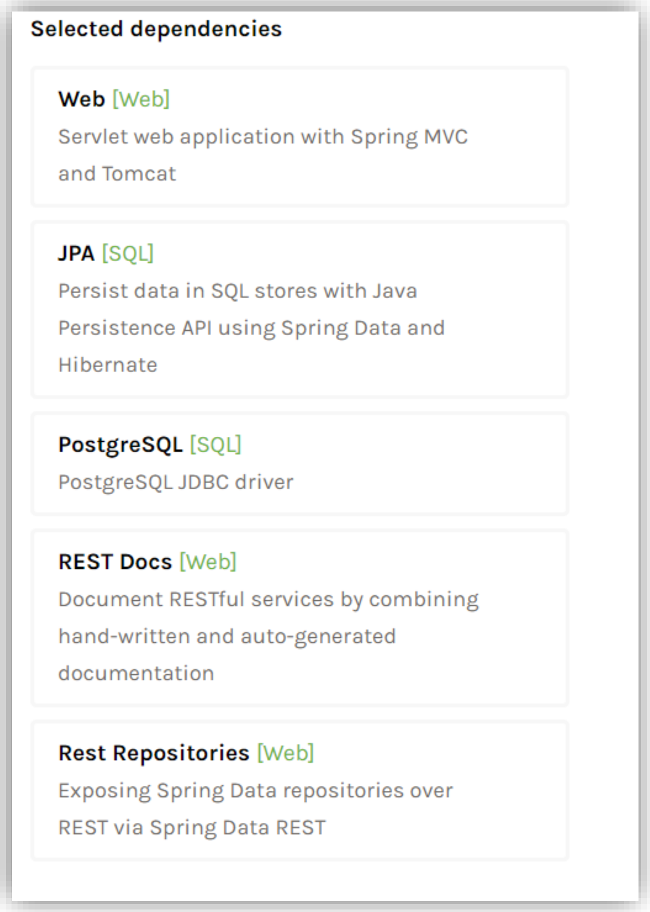
Dependencies

See all
Search dependencies to add
Web, Security, JPA, Actuator, Devtools...

Selected dependencies

Web [Web]
Servlet web application with Spring MVC and Tomcat

Seleccionamos las dependencias que vamos a utilizar.



Selected dependencies

Web [Web]
Servlet web application with Spring MVC and Tomcat

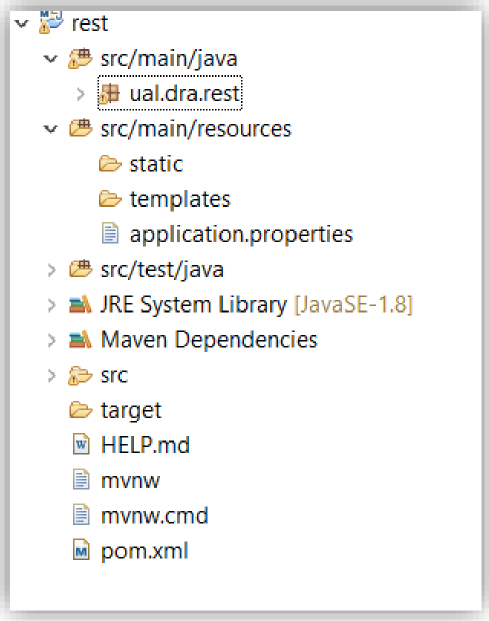
JPA [SQL]
Persist data in SQL stores with Java Persistence API using Spring Data and Hibernate

PostgreSQL [SQL]
PostgreSQL JDBC driver

REST Docs [Web]
Document RESTful services by combining hand-written and auto-generated documentation

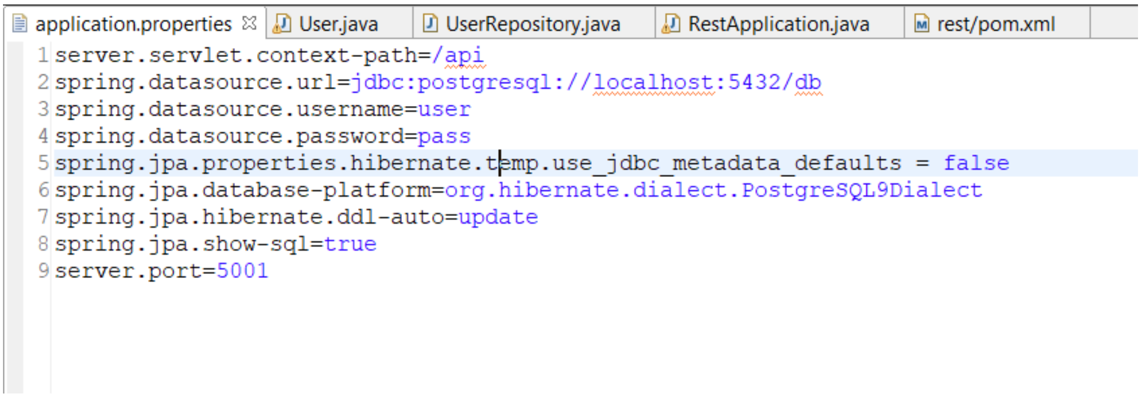
Rest Repositories [Web]
Exposing Spring Data repositories over REST via Spring Data REST

Importamos nuestro proyecto Spring boot a eclipse.



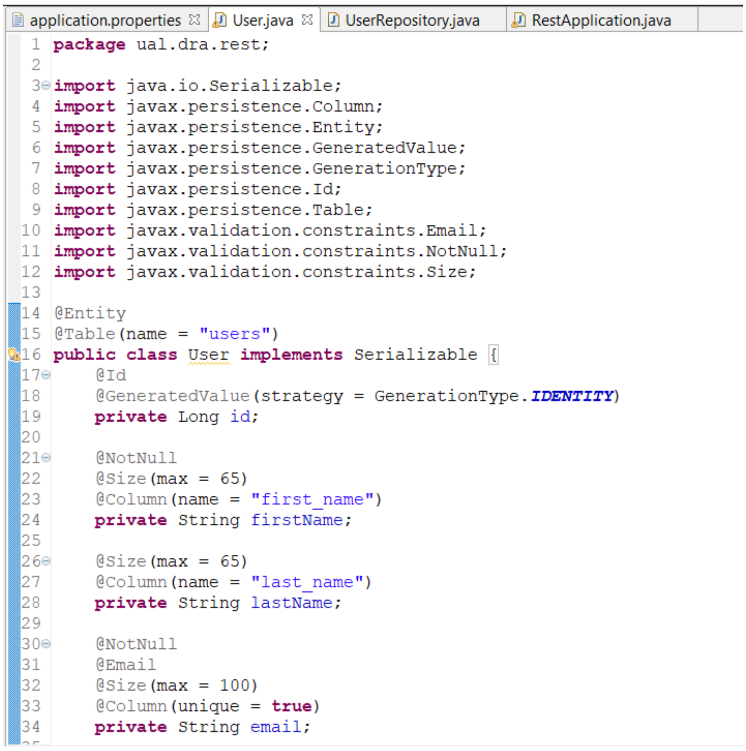
```
rest
  src/main/java
    ual.dra.rest
  src/main/resources
    static
    templates
    application.properties
  src/test/java
  JRE System Library [JavaSE-1.8]
  Maven Dependencies
  src
  target
  HELP.md
  mvnw
  mvnw.cmd
  pom.xml
```

Configuramos la base de datos de nuestro archivo de propiedades del proyecto de Spring Boot.



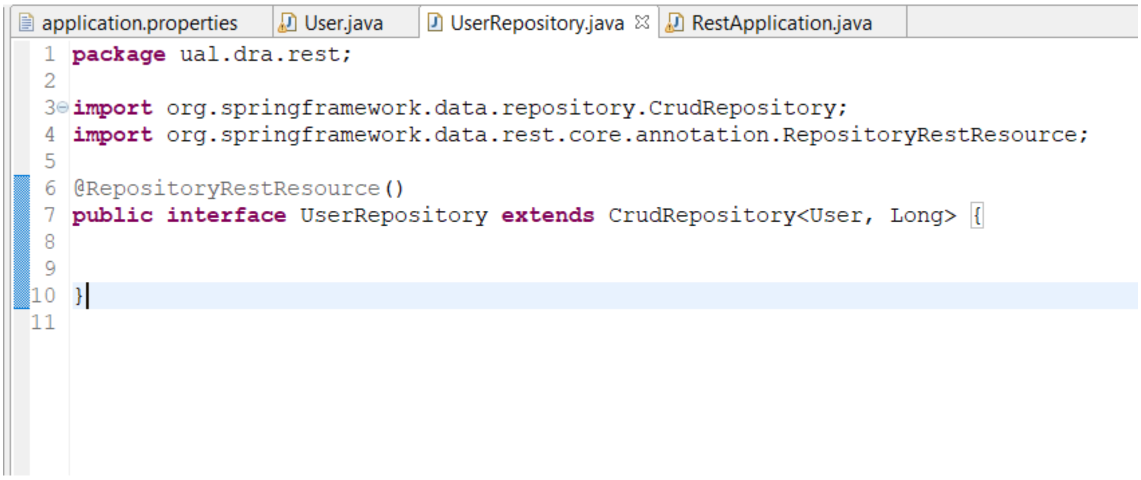
```
server.servlet.context-path=/api
spring.datasource.url=jdbc:postgresql://localhost:5432/db
spring.datasource.username=user
spring.datasource.password=pass
spring.jpa.properties.hibernate.temp.use_jdbc_metadata_defaults = false
spring.jpa.database-platform=org.hibernate.dialect.PostgreSQL9Dialect
spring.jpa.hibernate.ddl-auto=update
spring.jpa.show-sql=true
server.port=5001
```

Creamos nuestra clase usuario.



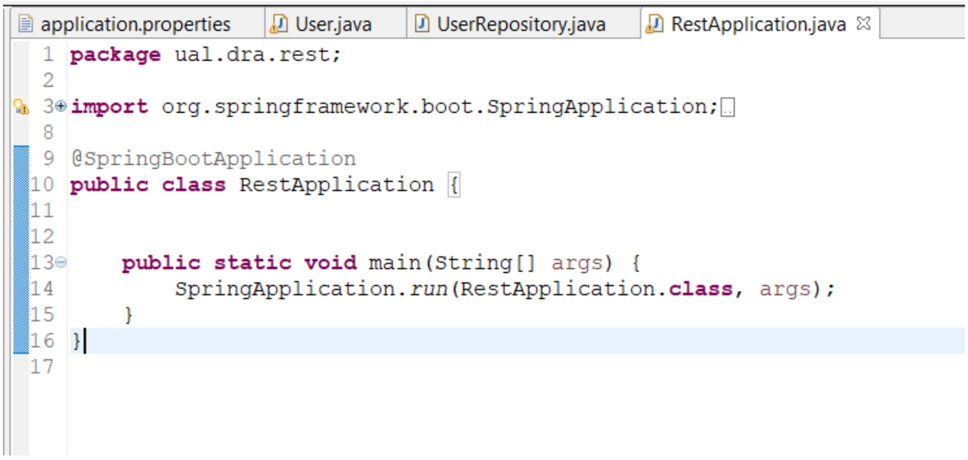
```
package ual.dra.rest;

import java.io.Serializable;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.Table;
import javax.validation.constraints.Email;
import javax.validation.constraints.NotNull;
import javax.validation.constraints.Size;

@Entity
@Table(name = "users")
public class User implements Serializable {
    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long id;

    @NotNull
    @Size(max = 65)
    @Column(name = "first_name")
    private String firstName;

    @Size(max = 65)
    @Column(name = "last_name")
    private String lastName;

    @NotNull
    @Email
    @Size(max = 100)
    @Column(unique = true)
    private String email;
```

Creamos un archivo interfaz UserRepository.



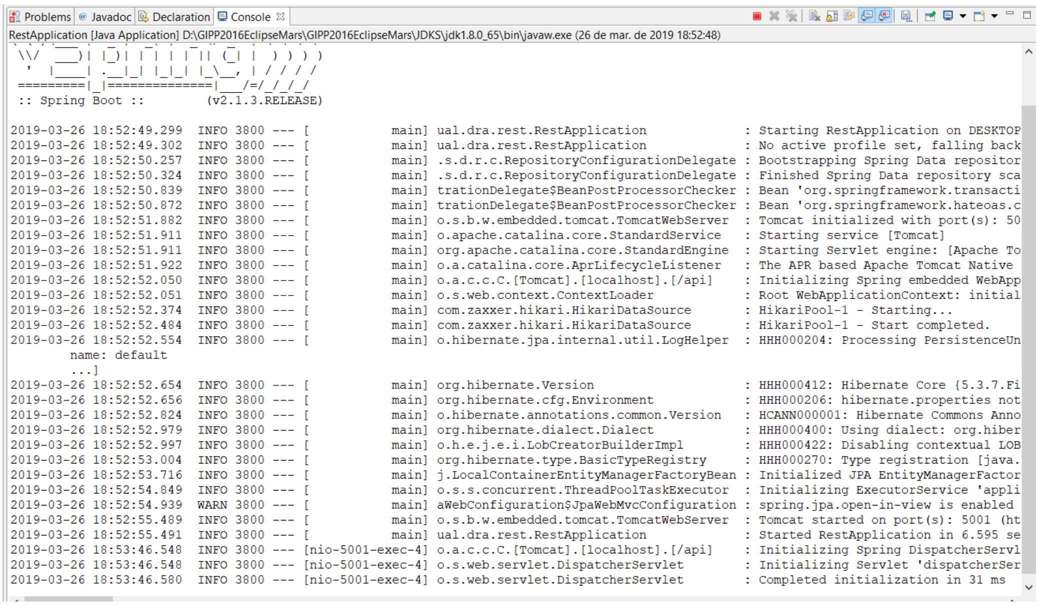
```
package ual.dra.rest;

import org.springframework.data.repository.CrudRepository;
import org.springframework.data.rest.core.annotation.RepositoryRestResource;

@RepositoryRestResource()
public interface UserRepository extends CrudRepository<User, Long> {


}
```

Modificamos nuestro archivo principal de la aplicación.



```java
package ual.dra.rest;

import org.springframework.boot.SpringApplication;

@SpringBootApplication
public class RestApplication {


    public static void main(String[] args) {
        SpringApplication.run(RestApplication.class, args);
    }
}
```

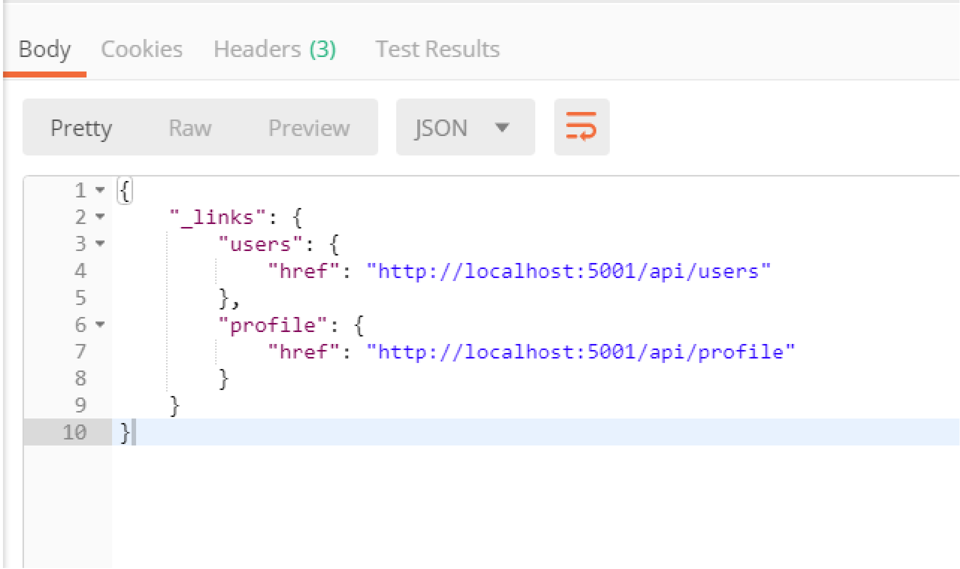
Ejecutamos nuestro proyecto.



RestApplication [Java Application] D:\GIPP2016EclipseMars\GIPP2016EclipseMars\JDKS\jdk1.8.0_65\bin\javaw.exe (26 de mar. de 2019 18:52:48)

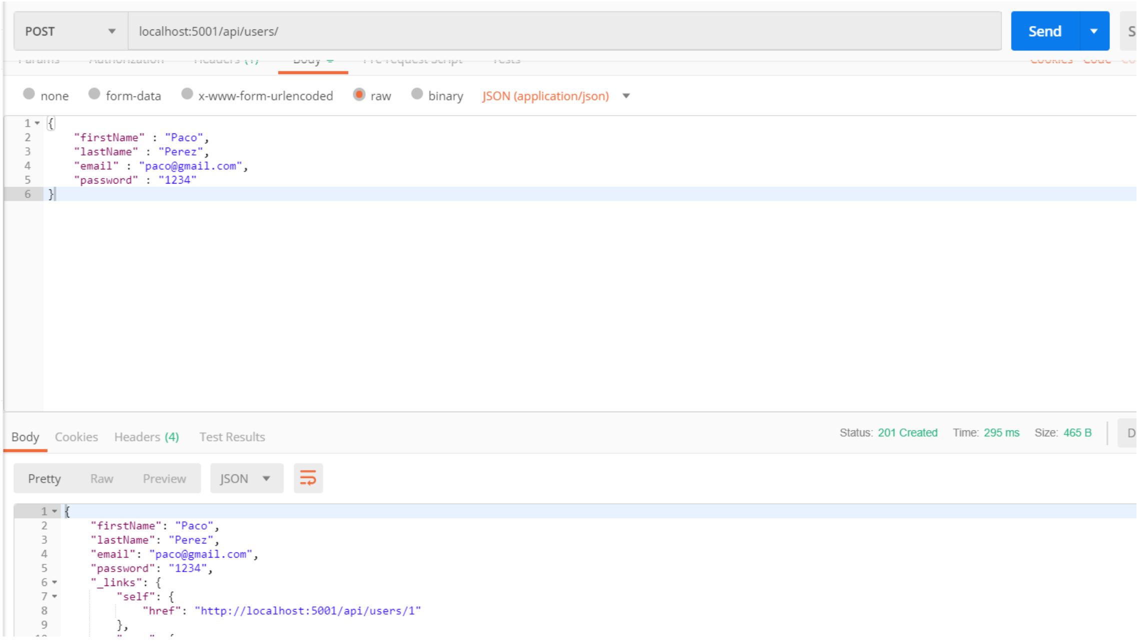
```
 \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
  '  |____| .__|_| |_|_| |_\__, | / / / /
 =========|_|==============|___/=/_/_/_/
 :: Spring Boot ::        (v2.1.3.RELEASE)

2019-03-26 18:52:49.299  INFO 3800 --- [           main] ual.dra.rest.RestApplication             : Starting RestApplication on DESKTOP
2019-03-26 18:52:49.302  INFO 3800 --- [           main] ual.dra.rest.RestApplication             : No active profile set, falling back
2019-03-26 18:52:50.257  INFO 3800 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data repositor
2019-03-26 18:52:50.324  INFO 3800 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository sca
2019-03-26 18:52:50.839  INFO 3800 --- [           main] trationDelegate$BeanPostProcessorChecker : Bean 'org.springframework.transacti
2019-03-26 18:52:50.872  INFO 3800 --- [           main] trationDelegate$BeanPostProcessorChecker : Bean 'org.springframework.hateoas.c
2019-03-26 18:52:51.882  INFO 3800 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 50
2019-03-26 18:52:51.911  INFO 3800 --- [           main] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
2019-03-26 18:52:51.911  INFO 3800 --- [           main] org.apache.catalina.core.StandardEngine  : Starting Servlet engine: [Apache To
2019-03-26 18:52:51.922  INFO 3800 --- [           main] o.a.catalina.core.AprLifecycleListener   : The APR based Apache Tomcat Native
2019-03-26 18:52:52.050  INFO 3800 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/api]    : Initializing Spring embedded WebApp
2019-03-26 18:52:52.051  INFO 3800 --- [           main] o.s.web.context.ContextLoader            : Root WebApplicationContext: initial
2019-03-26 18:52:52.374  INFO 3800 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Starting...
2019-03-26 18:52:52.484  INFO 3800 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Start completed.
2019-03-26 18:52:52.554  INFO 3800 --- [           main] o.hibernate.jpa.internal.util.LogHelper  : HHH000204: Processing PersistenceUn
        name: default
        ...]
2019-03-26 18:52:52.654  INFO 3800 --- [           main] org.hibernate.Version                    : HHH000412: Hibernate Core {5.3.7.Fi
2019-03-26 18:52:52.656  INFO 3800 --- [           main] org.hibernate.cfg.Environment            : HHH000206: hibernate.properties not
2019-03-26 18:52:52.824  INFO 3800 --- [           main] o.hibernate.annotations.common.Version   : HCANN000001: Hibernate Commons Anno
2019-03-26 18:52:52.979  INFO 3800 --- [           main] org.hibernate.dialect.Dialect            : HHH000400: Using dialect: org.hiber
2019-03-26 18:52:52.997  INFO 3800 --- [           main] o.h.e.j.e.i.LobCreatorBuilderImpl        : HHH000422: Disabling contextual LOB
2019-03-26 18:52:53.004  INFO 3800 --- [           main] org.hibernate.type.BasicTypeRegistry     : HHH000270: Type registration [java.
2019-03-26 18:52:53.716  INFO 3800 --- [           main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactor
2019-03-26 18:52:54.849  INFO 3800 --- [           main] o.s.s.concurrent.ThreadPoolTaskExecutor  : Initializing ExecutorService 'appli
2019-03-26 18:52:54.939  WARN 3800 --- [           main] aWebConfiguration$JpaWebMvcConfiguration : spring.jpa.open-in-view is enabled
2019-03-26 18:52:55.489  INFO 3800 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port(s): 5001 (ht
2019-03-26 18:52:55.491  INFO 3800 --- [           main] ual.dra.rest.RestApplication             : Started RestApplication in 6.595 se
2019-03-26 18:53:46.548  INFO 3800 --- [nio-5001-exec-4] o.a.c.c.C.[Tomcat].[localhost].[/api]    : Initializing Spring DispatcherServl
2019-03-26 18:53:46.548  INFO 3800 --- [nio-5001-exec-4] o.s.web.servlet.DispatcherServlet        : Initializing Servlet 'dispatcherSer
2019-03-26 18:53:46.580  INFO 3800 --- [nio-5001-exec-4] o.s.web.servlet.DispatcherServlet        : Completed initialization in 31 ms
```

Probamos nuestra Api Rest.



```json
{
    "_links": {
        "users": {
            "href": "http://localhost:5001/api/users"
        },
        "profile": {
            "href": "http://localhost:5001/api/profile"
        }
    }
}
```

Introducimos un usuario y cómo podemos observar funciona correctamente.



localhost:5001/api/users/

JSON (application/json)

```
{
    "firstName" : "Paco",
    "lastName" : "Perez",
    "email" : "paco@gmail.com",
    "password" : "1234"
}
```

Status: 201 Created Time: 295 ms Size: 465 B

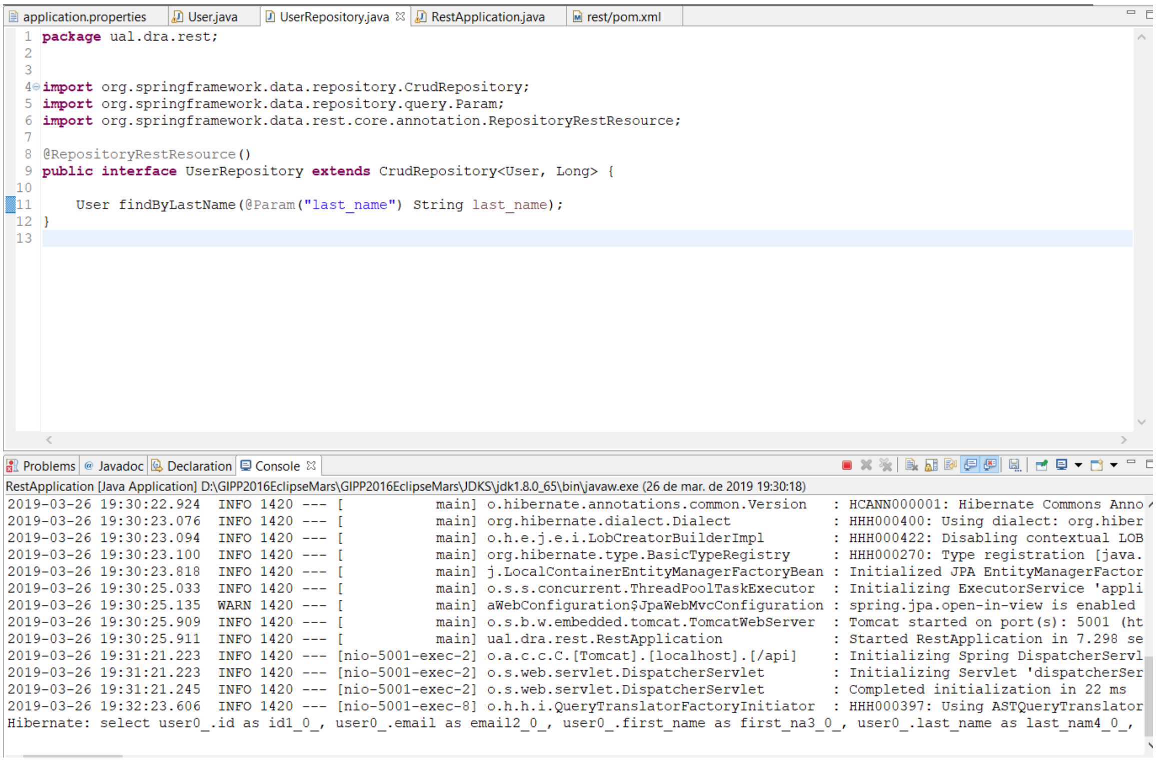
JSON

```
{
    "firstName": "Paco",
    "lastName": "Perez",
    "email": "paco@gmail.com",
    "password": "1234",
    "_links": {
        "self": {
            "href": "http://localhost:5001/api/users/1"
        },
```

Actividades 3

- Implementar un método que permita buscar un usuario mediante su apellido.

Añadimos la siguiente línea a nuestra interfaz y ejecutamos de nuevo para probar el funcionamiento.

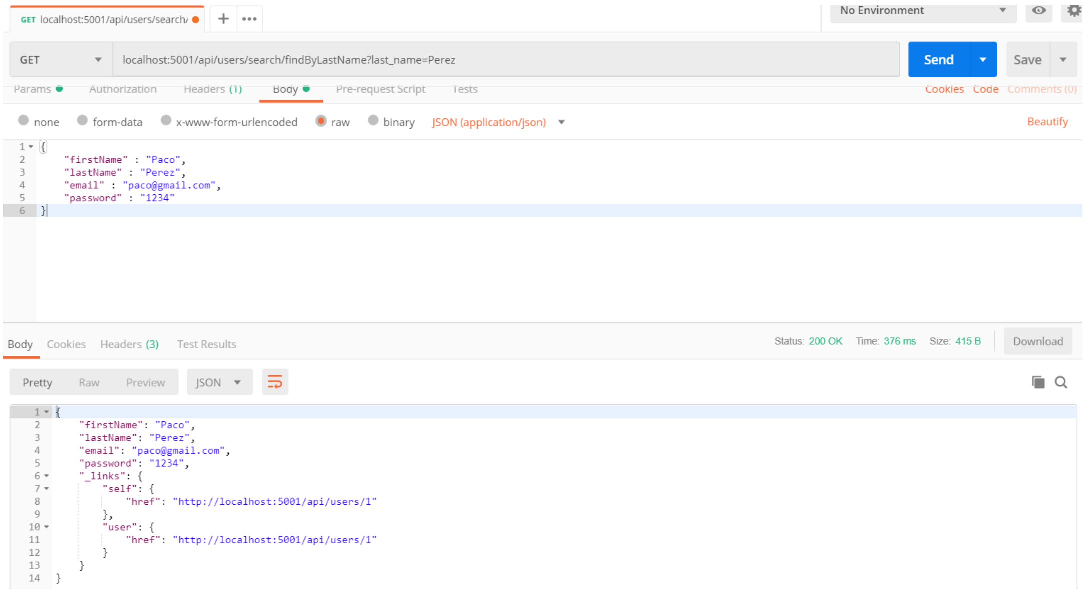


```java
package ual.dra.rest;


import org.springframework.data.repository.CrudRepository;
import org.springframework.data.repository.query.Param;
import org.springframework.data.rest.core.annotation.RepositoryRestResource;

@RepositoryRestResource()
public interface UserRepository extends CrudRepository<User, Long> {

    User findByLastName(@Param("last_name") String last_name);
}

```

RestApplication [Java Application] D:\GIPP2016EclipseMars\GIPP2016EclipseMars\JDKS\jdk1.8.0_65\bin\javaw.exe (26 de mar. de 2019 19:30:18)

```
2019-03-26 19:30:22.924  INFO 1420 --- [           main] o.hibernate.annotations.common.Version   : HCANN000001: Hibernate Commons Anno
2019-03-26 19:30:23.076  INFO 1420 --- [           main] org.hibernate.dialect.Dialect            : HHH000400: Using dialect: org.hiber
2019-03-26 19:30:23.094  INFO 1420 --- [           main] o.h.e.j.e.i.LobCreatorBuilderImpl        : HHH000422: Disabling contextual LOB
2019-03-26 19:30:23.100  INFO 1420 --- [           main] org.hibernate.type.BasicTypeRegistry     : HHH000270: Type registration [java.
2019-03-26 19:30:23.818  INFO 1420 --- [           main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactor
2019-03-26 19:30:25.033  INFO 1420 --- [           main] o.s.s.concurrent.ThreadPoolTaskExecutor  : Initializing ExecutorService 'appli
2019-03-26 19:30:25.135  WARN 1420 --- [           main] aWebConfiguration$JpaWebMvcConfiguration : spring.jpa.open-in-view is enabled
2019-03-26 19:30:25.909  INFO 1420 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port(s): 5001 (ht
2019-03-26 19:30:25.911  INFO 1420 --- [           main] ual.dra.rest.RestApplication             : Started RestApplication in 7.298 se
2019-03-26 19:31:21.223  INFO 1420 --- [nio-5001-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/api]    : Initializing Spring DispatcherServl
2019-03-26 19:31:21.223  INFO 1420 --- [nio-5001-exec-2] o.s.web.servlet.DispatcherServlet        : Initializing Servlet 'dispatcherSer
2019-03-26 19:31:21.245  INFO 1420 --- [nio-5001-exec-2] o.s.web.servlet.DispatcherServlet        : Completed initialization in 22 ms
2019-03-26 19:32:23.606  INFO 1420 --- [nio-5001-exec-8] o.h.h.i.QueryTranslatorFactoryInitiator  : HHH000397: Using ASTQueryTranslator
Hibernate: select user0_.id as id1_0_, user0_.email as email2_0_, user0_.first_name as first_na3_0_, user0_.last_name as last_nam4_0_,
```

Probamos el funcionamiento de la búsqueda por apellido y cómo podemos observar funciona correctamente.



GET localhost:5001/api/users/search/findByLastName?last_name=Perez

○ none ○ form-data ○ x-www-form-urlencoded ● raw ○ binary JSON (application/json)

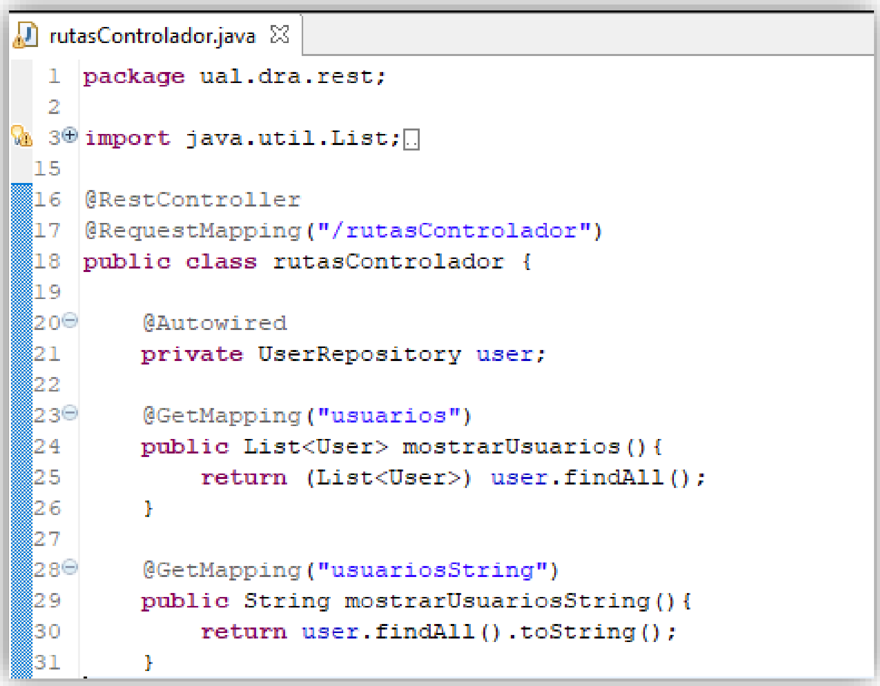
```
{
    "firstName" : "Paco",
    "lastName" : "Perez",
    "email" : "paco@gmail.com",
    "password" : "1234"
}
```

Status: 200 OK Time: 376 ms Size: 415 B

```
{
    "firstName": "Paco",
    "lastName": "Perez",
    "email": "paco@gmail.com",
    "password": "1234",
    "_links": {
        "self": {
            "href": "http://localhost:5001/api/users/1"
        },
        "user": {
            "href": "http://localhost:5001/api/users/1"
        }
    }
}
```

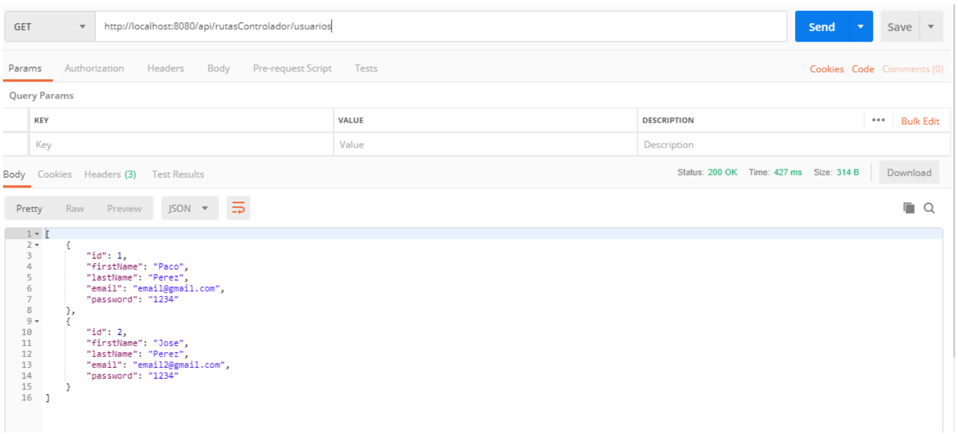
- Implementar un controlador para generar rutas personalizadas en nuestra API.

Implementamos un controlador con rutas personalizadas en nuestra Api para mostrar de diferente modo el listado de usuarios.



```java
package ual.dra.rest;

import java.util.List;

@RestController
@RequestMapping("/rutasControlador")
public class rutasControlador {

    @Autowired
    private UserRepository user;

    @GetMapping("usuarios")
    public List<User> mostrarUsuarios(){
        return (List<User>) user.findAll();
    }

    @GetMapping("usuariosString")
    public String mostrarUsuariosString(){
        return user.findAll().toString();
    }
```

Probamos la primera ruta y cómo podemos observar funciona correctamente, nos muestra nuestros usuarios.

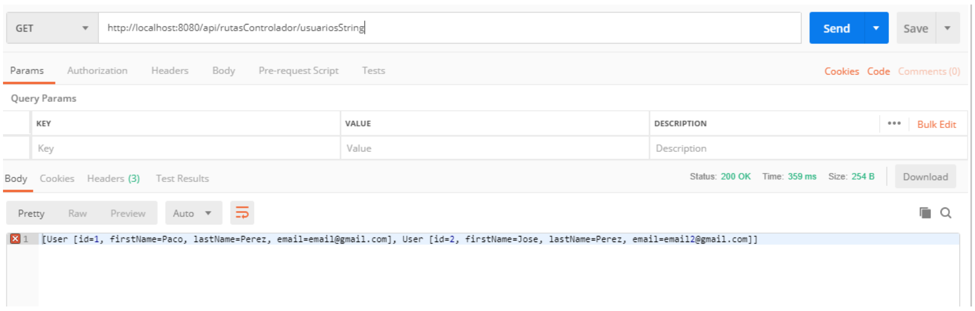


http://localhost:8080/api/rutasControlador/usuarios

Status: 200 OK Time: 427 ms Size: 314 B

```
[
    {
        "id": 1,
        "firstName": "Paco",
        "lastName": "Perez",
        "email": "email@gmail.com",
        "password": "1234"
    },
    {
        "id": 2,
        "firstName": "Jose",
        "lastName": "Perez",
        "email": "email2@gmail.com",
        "password": "1234"
    }
]
```

Probamos de la segunda manera y nos muestra nuestra clase toString de la clase usuario. He creado la clase toString porque no estaba el método.

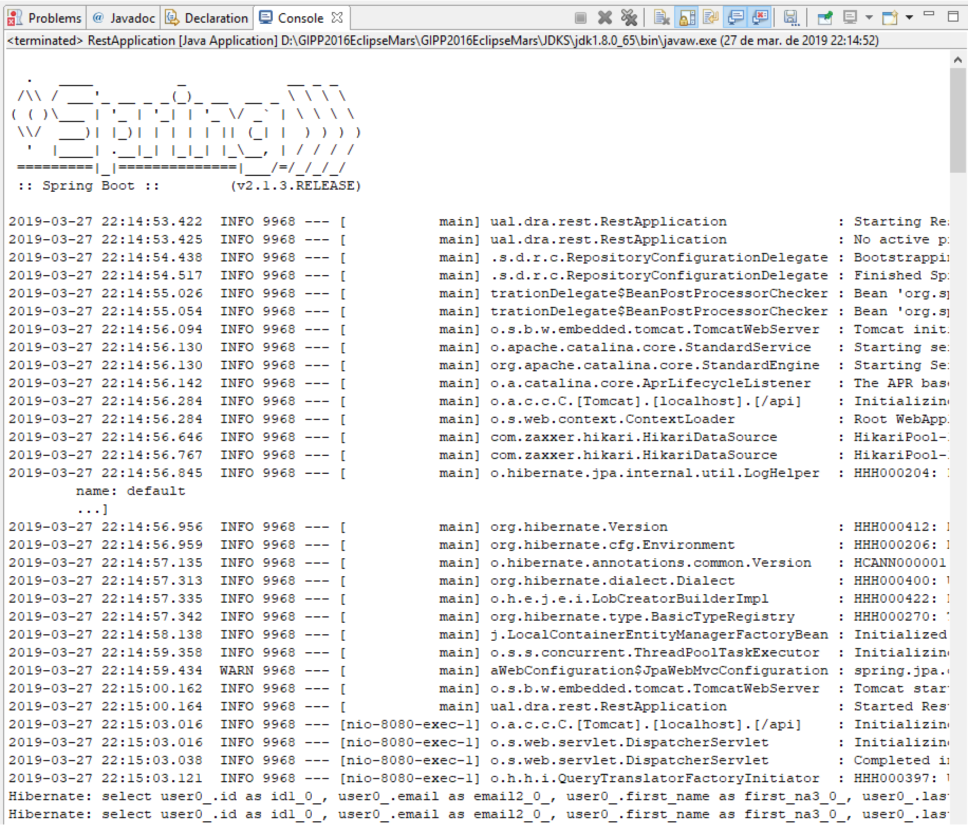


http://localhost:8080/api/rutasControlador/usuariosString

Status: 200 OK Time: 359 ms Size: 254 B

```
[User [id=1, firstName=Paco, lastName=Perez, email=email@gmail.com], User [id=2, firstName=Jose, lastName=Perez, email=email2@gmail.com]]
```

Podemos ver en nuestra consola las acciones para mostrar el resultado.



```
<terminated> RestApplication [Java Application] D:\GIPP2016EclipseMars\GIPP2016EclipseMars\JDKS\jdk1.8.0_65\bin\javaw.exe (27 de mar. de 2019 22:14:52)

  .   ____          _            __ _ _
 /\\ / ___'_ __ _ _(_)_ __  __ _ \ \ \ \
( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
 \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
  '  |____| .__|_| |_|_| |_\__, | / / / /
 =========|_|==============|___/=/_/_/_/
 :: Spring Boot ::        (v2.1.3.RELEASE)

2019-03-27 22:14:53.422  INFO 9968 --- [           main] ual.dra.rest.RestApplication             : Starting Re
2019-03-27 22:14:53.425  INFO 9968 --- [           main] ual.dra.rest.RestApplication             : No active p
2019-03-27 22:14:54.438  INFO 9968 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrappi
2019-03-27 22:14:54.517  INFO 9968 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Sp
2019-03-27 22:14:55.026  INFO 9968 --- [           main] trationDelegate$BeanPostProcessorChecker : Bean 'org.s
2019-03-27 22:14:55.054  INFO 9968 --- [           main] trationDelegate$BeanPostProcessorChecker : Bean 'org.s
2019-03-27 22:14:56.094  INFO 9968 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat init
2019-03-27 22:14:56.130  INFO 9968 --- [           main] o.apache.catalina.core.StandardService   : Starting se
2019-03-27 22:14:56.130  INFO 9968 --- [           main] org.apache.catalina.core.StandardEngine  : Starting Se
2019-03-27 22:14:56.142  INFO 9968 --- [           main] o.a.catalina.core.AprLifecycleListener   : The APR bas
2019-03-27 22:14:56.284  INFO 9968 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/api]    : Initializin
2019-03-27 22:14:56.284  INFO 9968 --- [           main] o.s.web.context.ContextLoader             : Root WebApp
2019-03-27 22:14:56.646  INFO 9968 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-
2019-03-27 22:14:56.767  INFO 9968 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-
2019-03-27 22:14:56.845  INFO 9968 --- [           main] o.hibernate.jpa.internal.util.LogHelper  : HHH000204: 
        name: default
        ...]
2019-03-27 22:14:56.956  INFO 9968 --- [           main] org.hibernate.Version                    : HHH000412: 
2019-03-27 22:14:56.959  INFO 9968 --- [           main] org.hibernate.cfg.Environment            : HHH000206: 
2019-03-27 22:14:57.135  INFO 9968 --- [           main] o.hibernate.annotations.common.Version   : HCANN000001
2019-03-27 22:14:57.313  INFO 9968 --- [           main] org.hibernate.dialect.Dialect            : HHH000400: 
2019-03-27 22:14:57.335  INFO 9968 --- [           main] o.h.e.j.e.i.LobCreatorBuilderImpl        : HHH000422: 
2019-03-27 22:14:57.342  INFO 9968 --- [           main] org.hibernate.type.BasicTypeRegistry     : HHH000270: 
2019-03-27 22:14:58.138  INFO 9968 --- [           main] j.LocalContainerEntityManagerFactoryBean : Initialized
2019-03-27 22:14:59.358  INFO 9968 --- [           main] o.s.s.concurrent.ThreadPoolTaskExecutor  : Initializin
2019-03-27 22:14:59.434  WARN 9968 --- [           main] aWebConfiguration$JpaWebMvcConfiguration : spring.jpa.
2019-03-27 22:15:00.162  INFO 9968 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat star
2019-03-27 22:15:00.164  INFO 9968 --- [           main] ual.dra.rest.RestApplication             : Started Res
2019-03-27 22:15:03.016  INFO 9968 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/api]    : Initializin
2019-03-27 22:15:03.016  INFO 9968 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet        : Initializin
2019-03-27 22:15:03.038  INFO 9968 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet        : Completed i
2019-03-27 22:15:03.121  INFO 9968 --- [nio-8080-exec-1] o.h.h.i.QueryTranslatorFactoryInitiator  : HHH000397: 
Hibernate: select user0_.id as id1_0_, user0_.email as email2_0_, user0_.first_name as first_na3_0_, user0_.las
Hibernate: select user0_.id as id1_0_, user0_.email as email2_0_, user0_.first_name as first_na3_0_, user0_.las
```