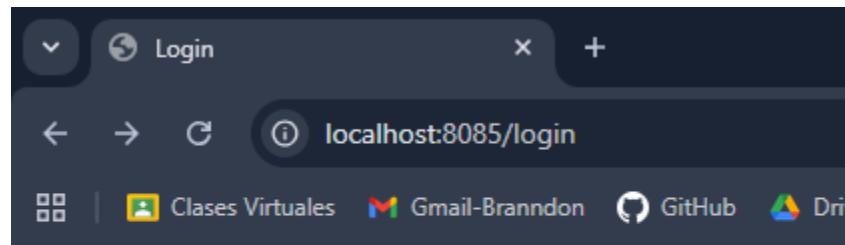


## 1. Interfaz del aplicativo

### 1.1.



### Iniciar sesión

Usuario:  Contraseña:

### 1.2. Inicio del dashboard

A screenshot of a web browser window titled "Dashboard - Gestión de Mesas". The address bar shows "localhost:8085". Below the address bar is a toolbar with various icons. The main content area has a header "Gestión de pedidos de mesas" with a logo. It displays a "Panel principal" with six cards arranged in a grid: "Usuarios" (User icon), "Clientes" (Client icon), "Mesas" (Table icon), "Pedidos" (Order icon), "Productos" (Product icon), and "Pagos" (Payment icon). The "Mesas" card is highlighted with a blue border. At the bottom left, there is a footer bar with the URL "localhost:8085/mesas/listar".

### 1.3. Clientes

- Tabla Clientes

#### Clientes

Clientes				
<a href="#">Aregar Cliente</a>				
Documento	Nombre	Teléfono	Email	Acciones
1141316283	Ana María Update validacion	3134304238	ana@correo.com	<a href="#">Editar</a> <a href="#">Eliminar</a>

- Formulario crear

#### Agregar Cliente

Documento

Nombre

Teléfono

Email

[Guardar](#) [Cancelar](#)

## Clients

Agregar Cliente

Documento	Nombre	Teléfono	Email	Acciones
1141316283	Ana María Update validacion	3134304238	ana@correo.com	<button>Editar</button> <button>Eliminar</button>
5555555	Cliente ejemplo	9999999	9@gmail.com	<button>Editar</button> <button>Eliminar</button>

- Formulario editar

### Editar Cliente

Documento

5555555

Nombre

Cliente ejemplo-ACTUALIZAR

Teléfono

9999999

Email

9@gmail.com

Guardar

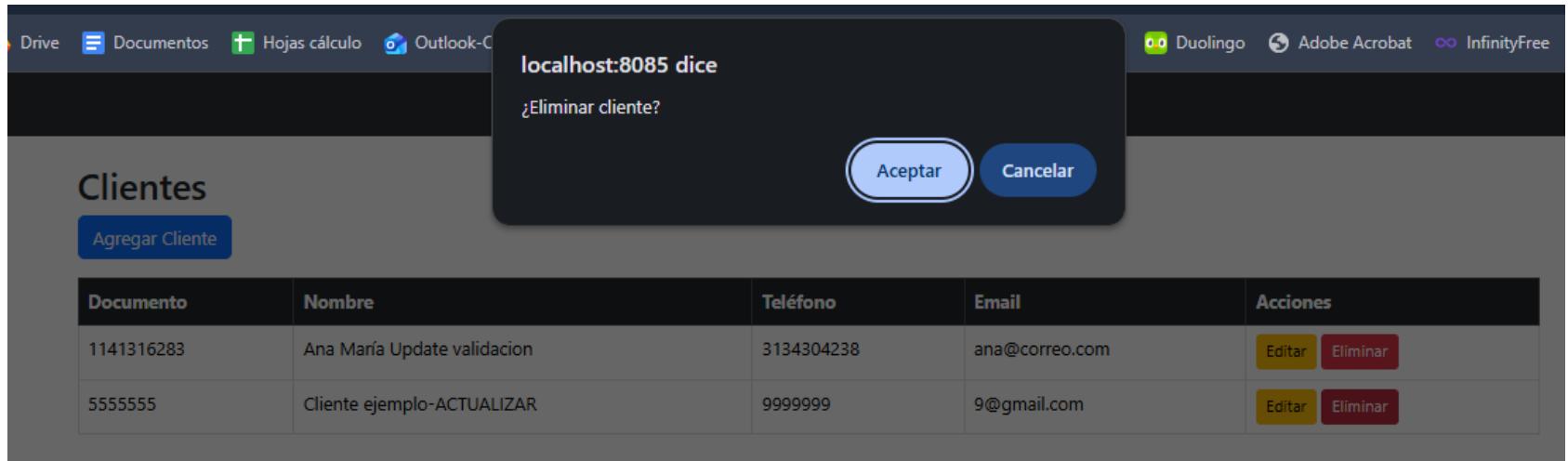
Cancelar

## Clients

Agregar Cliente

Documento	Nombre	Teléfono	Email	Acciones
1141316283	Ana María Update validacion	3134304238	ana@correo.com	<button>Editar</button> <button>Eliminar</button>
5555555	Cliente ejemplo-ACTUALIZAR	9999999	9@gmail.com	<button>Editar</button> <button>Eliminar</button>

- Eliminar



## Clientes

[Agregar Cliente](#)

Documento	Nombre	Teléfono	Email	Acciones
1141316283	Ana María Update validacion	3134304238	ana@correo.com	<button>Editar</button> <button>Eliminar</button>

## 1.4. Mesas

### 1.4.1. Tabla

#### Listado de Mesas

Registrar nueva mesa

Número	Capacidad	Estado	Pedidos	Acciones
1	4	LIBRE	<button>Crear Pedido</button>	<button>Editar</button> <button>Eliminar</button>

### 1.4.2. Crear

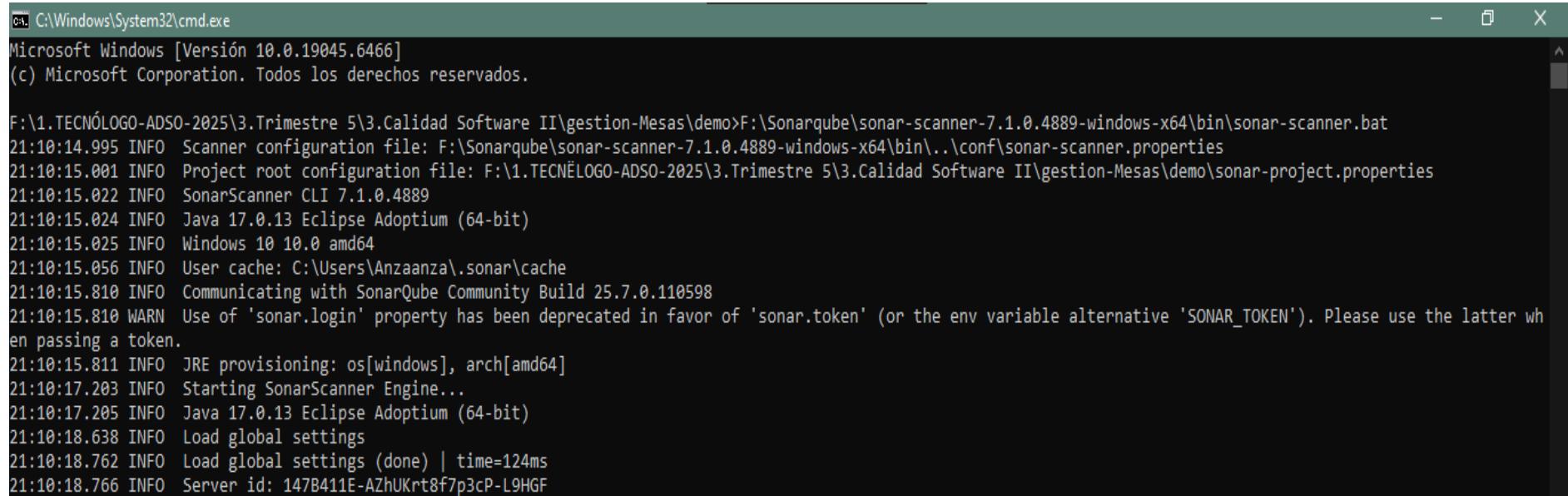
## 2. Iniciamos el servidor:

```
Starting SonarQube...
2025.12.04 21:00:23 INFO app[][[o.s.a.AppFileSystem] Cleaning or creating temp directory F:\Sonarqube\sonarqube-25.7.0.110598\temp
2025.12.04 21:00:23 INFO app[][[o.s.a.es.EsSettings] Elasticsearch listening on [HTTP: 127.0.0.1:9001, TCP: 127.0.0.1:{}]
2025.12.04 21:00:23 INFO app[][[o.s.a.ProcessLauncherImpl] Launch process[ELASTICSEARCH] from [F:\Sonarqube\sonarqube-25.7.0.110598\elasticsearch]: C:\Program Files\Java\jdk-17\bin\java -Xms4m -Xmx64m -XX:+UseSerialGC -Dcli.name=server -Dcli.script=./bin/elasticsearch -Dcli.libs=lib/tools/server-cli -Des.path.home=F:\Sonarqube\sonarqube-25.7.0.110598\elasticsearch -Des.path.conf=F:\Sonarqube\sonarqube-25.7.0.110598\temp\conf\es -Des.distribution.type=tar -cp F:\Sonarqube\sonarqube-25.7.0.110598\elasticsearch\lib\cli-launcher* org.elasticsearch.launcher.cliToolLauncher
2025.12.04 21:00:23 INFO app[][[o.s.a.SchedulerImpl] Waiting for Elasticsearch to be up and running
Standard Commons Logging discovery in action with spring-jcl: please remove commons-logging.jar from classpath in order to avoid potential conflicts
2025.12.04 21:00:56 INFO app[][[o.s.a.ProcessLauncherImpl] Process[es] is up
2025.12.04 21:00:56 INFO app[][[o.s.a.ProcessLauncherImpl] Launch process[WEB_SERVER] from [F:\Sonarqube\sonarqube-25.7.0.110598]: C:\Program Files\Java\jdk-17\bin\java -Djava.awt.headless=true -Dfile.encoding=UTF-8 -Djava.io.tmpdir=F:\Sonarqube\sonarqube-25.7.0.110598\temp -XX:-OmitStackTraceInFastThrow --add-opens=java.base/java.util=ALL-UNNAMED --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.rmi/sun.rmi.transport=ALL-UNNAMED --add-exports=java.base/jdk.internal.ref=ALL-UNNAMED --add-opens=java.base/java.nio=ALL-UNNAMED --add-opens=java.base/java.nio.ch=ALL-UNNAMED --add-opens=java.base/sun.management=ALL-UNNAMED --add-opens=java.util.concurrent=ALL-UNNAMED --add-opens=java.util.concurrent.atomic=ALL-UNNAMED --add-opens=java.util.function=ALL-UNNAMED --add-opens=java.util.regex=ALL-UNNAMED -Xmx512m -Xms128m -XX:+HeapDumpOnOutOfMemoryError -Dhttp.nonProxyHosts=localhost|127.*|[::1] -cp ./lib/sonar-application-25.7.0.110598.jar;F:\Sonarqube\sonarqube-25.7.0.110598\lib\jdbc\h2\h2-2.3.232.jar org.sonar.server.app.WebServer F:\Sonarqube\sonarqube-25.7.0.110598\temp\sq-process12462105426867549655properties
Standard Commons Logging discovery in action with spring-jcl: please remove commons-logging.jar from classpath in order to avoid potential conflicts
2025.12.04 21:01:13 INFO app[][[o.s.a.SchedulerImpl] Process[web] is up
2025.12.04 21:01:13 INFO app[][[o.s.a.ProcessLauncherImpl] Launch process[COMPUTE_ENGINE] from [F:\Sonarqube\sonarqube-25.7.0.110598]: C:\Program Files\Java\jdk-17\bin\java -Djava.awt.headless=true -Dfile.encoding=UTF-8 -Djava.io.tmpdir=F:\Sonarqube\sonarqube-25.7.0.110598\temp -XX:-OmitStackTraceInFastThrow --add-opens=java.base/java.util=ALL-UNNAMED --add-exports=java.base/jdk.internal.ref=ALL-UNNAMED --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.nio=ALL-UNNAMED --add-opens=java.base/sun.nio.ch=ALL-UNNAMED --add-opens=java.util.concurren... --add-opens=java.util.function=ALL-UNNAMED --add-opens=java.util.regex=ALL-UNNAMED --add-opens=java.util.stream=ALL-UNNAMED -Xmx512m -Xms128m -XX:+HeapDumpOnOutOfMemoryError -Dhttp.nonProxyHosts=localhost|127.*|[::1] -cp ./lib/sonar-application-25.7.0.110598.jar;F:\Sonarqube\sonarqube-25.7.0.110598\lib\jdbc\h2\h2-2.3.232.jar org.sonar.ce.app.CeServer F:\Sonarqube\sonarqube-25.7.0.110598\temp\sq-process9081261274895927267properties
Standard Commons Logging discovery in action with spring-jcl: please remove commons-logging.jar from classpath in order to avoid potential conflicts
2025.12.04 21:01:18 INFO app[][[o.s.a.SchedulerImpl] Process[ce] is up
2025.12.04 21:01:18 INFO app[][[o.s.a.SchedulerImpl] SonarQube is operational
```

## 3. Generamos un nuevo token:

The screenshot shows the SonarQube community interface. At the top, there's a navigation bar with links for Projects, Issues, Rules, Quality Profiles, Quality Gates, Administration, and More. Below that, a secondary navigation bar shows the user is logged in as 'Administrator'. Underneath, there are tabs for Profile, Security, Notifications, and Projects, with 'Profile' being the active tab. The main content area is titled 'Generate Tokens'. It has three input fields: 'Name' (with placeholder 'Enter Token Name'), 'Type' (with placeholder 'Select Token Type'), and 'Expires in' (set to '30 days'). A 'Generate' button is located to the right of these fields. Below the form, a green success message box states: 'New token "ScannerLocal" has been created. Make sure you copy it now, you won't be able to see it again!'. At the bottom of the message box is a copy icon. To the left of the message box, the generated token value 'sqa\_5ea777b423e14421bed9e6a19d47063f6634003e' is displayed.

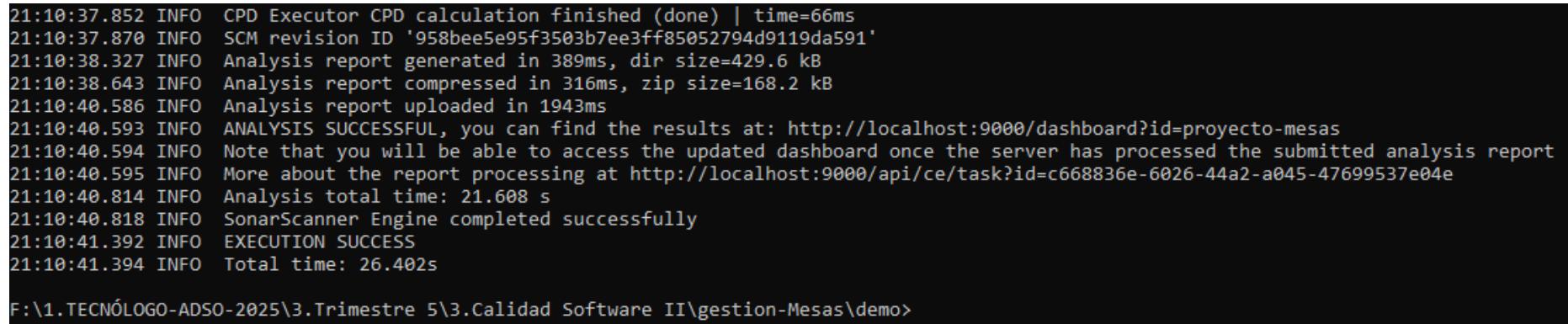
#### 4. Inicializamos el scanner



```
C:\Windows\System32\cmd.exe
Microsoft Windows [Versión 10.0.19045.6466]
(c) Microsoft Corporation. Todos los derechos reservados.

F:\1.TECNÓLOGO-ADSO-2025\3.Trimestre 5\3.Calidad Software II\gestion-Mesas\demo>F:\Sonarqube\sonar-scanner-7.1.0.4889-windows-x64\bin\sonar-scanner.bat
21:10:14.995 INFO Scanner configuration file: F:\Sonarqube\sonar-scanner-7.1.0.4889-windows-x64\bin\..\conf\sonar-scanner.properties
21:10:15.001 INFO Project root configuration file: F:\1.TECNÉLOGO-ADSO-2025\3.Trimestre 5\3.Calidad Software II\gestion-Mesas\demo\sonar-project.properties
21:10:15.022 INFO SonarScanner CLI 7.1.0.4889
21:10:15.024 INFO Java 17.0.13 Eclipse Adoptium (64-bit)
21:10:15.025 INFO Windows 10 10.0 amd64
21:10:15.056 INFO User cache: C:\Users\Anzaanza\.sonar\cache
21:10:15.810 INFO Communicating with SonarQube Community Build 25.7.0.110598
21:10:15.810 WARN Use of 'sonar.login' property has been deprecated in favor of 'sonar.token' (or the env variable alternative 'SONAR_TOKEN'). Please use the latter when passing a token.
21:10:15.811 INFO JRE provisioning: os[windows], arch[amd64]
21:10:17.203 INFO Starting SonarScanner Engine...
21:10:17.205 INFO Java 17.0.13 Eclipse Adoptium (64-bit)
21:10:18.638 INFO Load global settings
21:10:18.762 INFO Load global settings (done) | time=124ms
21:10:18.766 INFO Server id: 147B411E-AZhUKrt8f7p3cP-L9HGF
```

Luego esperamos el mensaje de éxito

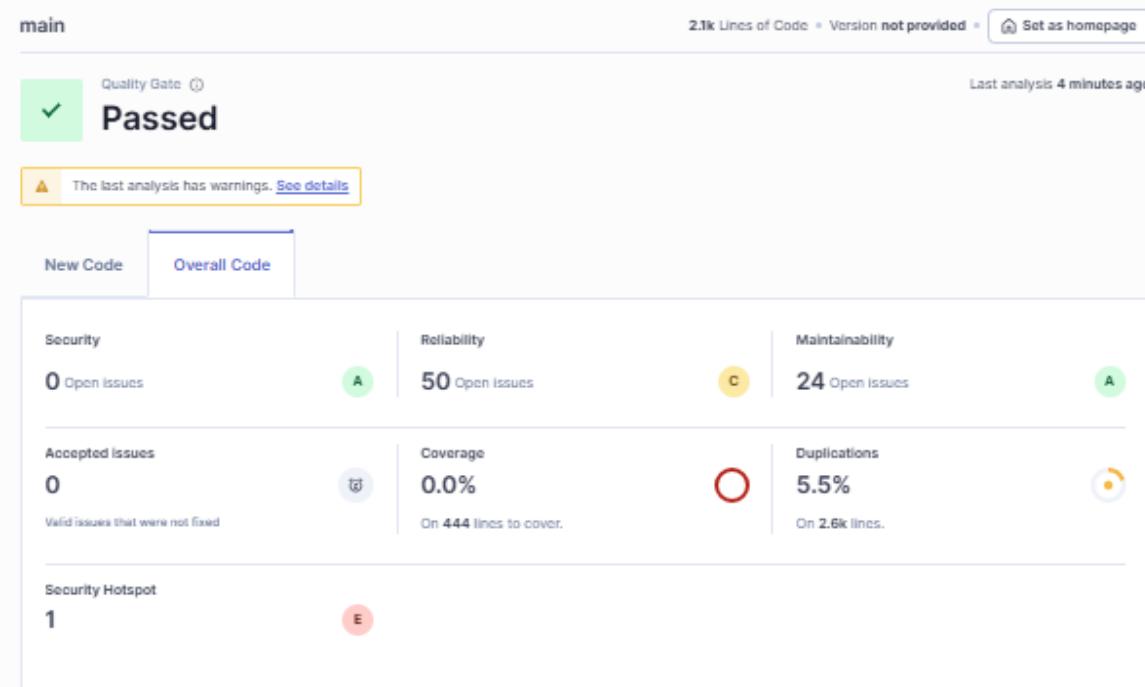


```
21:10:37.852 INFO CPD Executor CPD calculation finished (done) | time=66ms
21:10:37.870 INFO SCM revision ID '958bee5e95f3503b7ee3ff85052794d9119da591'
21:10:38.327 INFO Analysis report generated in 389ms, dir size=429.6 kB
21:10:38.643 INFO Analysis report compressed in 316ms, zip size=168.2 kB
21:10:40.586 INFO Analysis report uploaded in 1943ms
21:10:40.593 INFO ANALYSIS SUCCESSFUL, you can find the results at: http://localhost:9000/dashboard?id=proyecto-mesas
21:10:40.594 INFO Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report
21:10:40.595 INFO More about the report processing at http://localhost:9000/api/ce/task?id=c668836e-6026-44a2-a045-47699537e04e
21:10:40.814 INFO Analysis total time: 21.608 s
21:10:40.818 INFO SonarScanner Engine completed successfully
21:10:41.392 INFO EXECUTION SUCCESS
21:10:41.394 INFO Total time: 26.402s

F:\1.TECNÓLOGO-ADSO-2025\3.Trimestre 5\3.Calidad Software II\gestion-Mesas\demo>
```

5. Vamos a <http://localhost:9000/projects> y en los scanner vemos el de este proyecto, ‘projeto-mesas’

The screenshot shows the SonarQube community interface. At the top, there is a warning message: "Embedded database should be used for evaluation purposes only. It doesn't support scaling, upgrading to a new SonarQube Server version, or migration to another database engine. [Learn more](#)". Below the header, there are tabs for Projects, Issues, Rules, Quality Profiles, Quality Gates, Administration, and More. A search bar and a "Create Project" button are also present. The main area displays a summary of four projects, with "projeto-mesas" being the active one. The project summary includes metrics: Security (E 1), Reliability (D 857), Maintainability (A 1.6k), Hotspots Reviewed (E 0.0%), Coverage (0.0%), and Duplications (13.9%). The project status is "Passed". Below the summary, detailed analysis results for "projeto-mesas" are shown, indicating 0 info issues, 50 low issues, 24 medium issues, 0 high issues, and 2 blocker issues. The last analysis was 3 minutes ago, involving 2.1k Lines of Code in Java, HTML, etc. The bottom of the page includes links for SonarSource SA, Community Build v25.7.0.110598, and various documentation and plugin links.



## 6. Correcciones.

### 6.1. Security Hospost



#### 6.1.1. Error: "Make sure not using resource integrity feature is safe here."

src/main/resources/templates/index.html

[Open in IDE](#)

```
....  
98     <i class="bi bi-cash-stack icono-menu"></i>  
99     <h4 class="mt-3 text-dark">Pagos</h4>  
100    </div>  
101    </a>  
102    </div>  
103  
104    </div>  
105  
106    </main>  
107  
108    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>  
109  
110    </body>  
111    </html>
```

Make sure not using resource integrity feature is safe here.

- Solución: Generar un hash para el archivo de JavaScript de Bootstrap con la herramienta <https://www.srihash.org/>

# SRI Hash Generator

Enter the URL of the resource you wish to use:

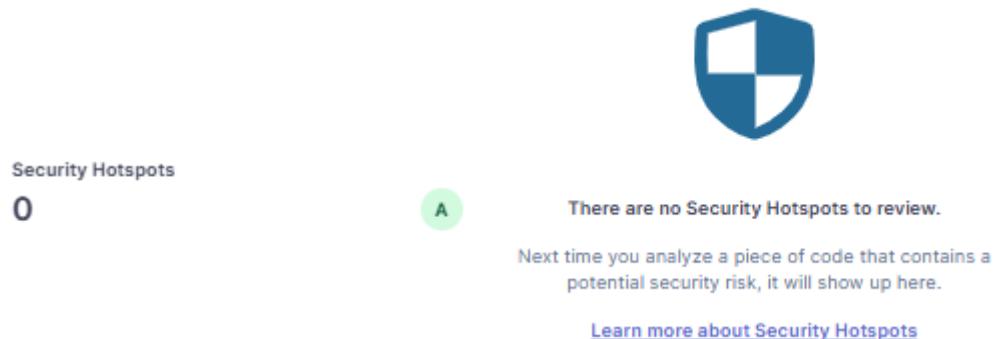
https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js

SHA-256 ▾ Hash!

```
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js" integrity="sha256-CD0y6cOibCWEEdsRizuaHf8dSGGJRYuBG+moJimHGw=" crossorigin="anonymous"></script>
```

Copy

- Despues de la corrección



## 6.2. Severity

### 6.2.1. Error “Define una constante en lugar de duplicar este literal "redirect:/clientes/listar" 4 veces.”

- Detalles del error

The screenshot shows the SonarQube interface for a Java project. At the top, it displays "Software qualities impacted" and "Maintainability" with a "High" severity level. A tooltip on the right indicates "Define a constant instead of duplicating this literal "redirect:/clientes/listar" 4 times." and lists four locations of duplication.

Below the header, the code editor shows a file named "ClienteController.java". Line 36 contains the problematic code: `return "redirect:/clientes/listar";`. A red box highlights this line, and a callout box from the SonarQube UI reiterates the duplication warning.

```
projecto-mesas > src/.../com/gestion_mesas/demo/controller/ClienteController.java
```

```
31     brannd..  
32  
33     @PostMapping("/guardar")  
34     public String guardar(@Valid @ModelAttribute("cliente") Cliente cliente, BindingResult result) {  
35         if (result.hasErrors()) return "cliente/formGuardar";  
36         clienteService.guardar(cliente);  
37         return "redirect:/clientes/listar";
```

Define a constant instead of duplicating this literal "redirect:/clientes/listar" 4 times.

- Solución: Definir una constante para la URL de redireccionamiento.

```

ClienteController.java ×

1 package com.gestion_mesas.demo.controller;
2
3 > import ...
4
5
6 @Controller no usages Branndon-Schneyder-Suarez-Jimenez*
7 @RequestMapping("/clientes")
8 public class ClienteController {
9     private static final String REDIRECT_LISTAR = "redirect:/clientes/listar"; 4 usages
10    private final ClienteService clienteService; 6 usages
11
12    > public ClienteController(ClienteService clienteService) { this.clienteService = clienteService; }
13
14    @GetMapping("/listar") no usages Branndon-Schneyder-Suarez-Jimenez
15    public String listar(Model model) {
16        model.addAttribute(attributeName: "listaClientes", clienteService.listar());
17        return "cliente/listar";
18    }
19
20
21    @GetMapping("/formGuardar") no usages Branndon-Schneyder-Suarez-Jimenez
22    public String formGuardar(Model model) {
23        model.addAttribute(attributeName: "cliente", new Cliente());
24        return "cliente/formGuardar";
25    }
26
27
28    @PostMapping("/guardar") no usages Branndon-Schneyder-Suarez-Jimenez*
29    public String guardar(@Valid @ModelAttribute("cliente") Cliente cliente, BindingResult result) {
30        if (result.hasErrors()) return "cliente/formGuardar";
31        clienteService.guardar(cliente);
32        return REDIRECT_LISTAR;
33    }
34
35
36    @PostMapping("/eliminar/{id}") no usages Branndon-Schneyder-Suarez-Jimenez*
37    public String eliminar(@PathVariable Long id) {
38        clienteService.eliminar(id);
39        return REDIRECT_LISTAR;
40    }
41
42    @GetMapping("/formAct/{id}") no usages Branndon-Schneyder-Suarez-Jimenez*
43    public String formAct(@PathVariable Long id, Model model) {
44        Cliente c = clienteService.buscarPorId(id);
45        if (c == null) return REDIRECT_LISTAR;
46        model.addAttribute(attributeName: "cliente", c);
47        return "cliente/formAct";
48    }
49
50    @PostMapping("/actualizar") no usages Branndon-Schneyder-Suarez-Jimenez*
51    public String actualizar(@Valid @ModelAttribute("cliente") Cliente cliente, BindingResult result) {
52        if (result.hasErrors()) return "cliente/formAct";
53        clienteService.guardar(cliente);
54        return REDIRECT_LISTAR;
55    }
56
57    @PostMapping("/eliminar/{id}") no usages Branndon-Schneyder-Suarez-Jimenez*
58    public String eliminar(@PathVariable Long id) {
59        clienteService.eliminar(id);
60        return REDIRECT_LISTAR;
61    }

```

### 6.2.2. Error: "Define a constant instead of duplicating this literal "redirect:/mesas/listar" 3 times."

- Detalles del error

The screenshot shows the SonarQube interface for a Java file named `MesaController.java`. A modal window is open, indicating a code smell related to maintainability. The title of the modal is "Software qualities impacted" and it highlights "Maintainability" with a "High" priority. The main message in the modal states: "Define a constant instead of duplicating this literal 'redirect:/mesas/listar' 3 times." Below this, it says there are 3 locations of duplication. The code in the file is as follows:

```
66 brannnd..    mesa.setCapacidad(Integer.parseInt(dto.getCapacidad()));  
67     mesa.setEstado(dto.getEstadoMesa());  
68  
69     mesaService.guardarMesa(mesa);  
70  
71     return "redirect:/mesas/listar";
```

A red box highlights the string "redirect:/mesas/listar" at line 71, which is underlined with a red wavy line. A callout box below this line contains the same error message: "Define a constant instead of duplicating this literal 'redirect:/mesas/listar' 3 times." Navigation options like "Open in IDE" and "See all issues in this file" are visible at the top of the modal.

- Solución: Definir una constante para la URL de redirección.

The image shows two code editors side-by-side, both titled "MesaController.java". The left editor contains the original Java code, and the right editor contains the refactored Java code.

**MesaController.java (Original Code - Left):**

```
1 package com.gestion_mesas.demo.controller;
2
3 > import ...
4
5
6 @Controller no usages ↳ Brandon-Schneyder-Suarez-Jimenez
7 @RequestMapping("/mesas")
8
9 public class MesaController {
10
11     private static final String REDIRECT_LISTAR = "redirect:/mesas/listar"; 3 usages
12
13     public final MesaService mesaService; 7 usages
14
15     public final PedidoService pedidoService; 2 usages
16
17     public MesaController(MesaService mesaService, PedidoService pedidoService) {
18         this.mesaService = mesaService;
19         this.pedidoService= pedidoService;
20     }
21
22
23     @GetMapping("/listar") no usages ↳ Brandon-Schneyder-Suarez-Jimenez
24     public String listar(Model model) {
25         List<Mesa> listaMesas = mesaService.listarMesas();
26
27         Map<Long, Pedido> pedidosActivos = new HashMap<>();
28
29
30         for(Mesa m : listaMesas) {
31             Pedido activo = pedidoService.obtenerPedidoActivo(m.getIdMesa());
32             pedidosActivos.put(m.getIdMesa(), activo);
33         }
34
35
36         model.addAttribute( attributeName: "listaMesas", listaMesas);
37         model.addAttribute( attributeName: "pedidosActivos", pedidosActivos);
38
39         return "mesa/listar";
40     }
41
42
43     @GetMapping("/formGuardan") no usages ↳ Brandon-Schneyder-Suarez-Jimenez
44     public String mostrarFormGuardar(Model model) {
45         model.addAttribute( attributeName: "mesaCreateDTO", new MesaCreateDTO());
46
47         // Enviar el enum a la vista del formulario de crear
48         model.addAttribute( attributeName: "estadosMesa", Mesa.estadoMesa.values());
49
50         return "mesa/formGuardan";
51     }
52
53
54     @PostMapping("/guardar") no usages ↳ Brandon-Schneyder-Suarez-Jimenez
55     public String guardarMesa(
56         @Valid @ModelAttribute("mesaCreateDTO") MesaCreateDTO dto,
57         BindingResult result,
58         Model model
59     ) {
```

**MesaController.java (Refactored Code - Right):**

```
21     public class MesaController {
22
23         public String guardarMesa(
24             @Valid @ModelAttribute("mesaCreateDTO") MesaCreateDTO dto,
25             BindingResult result
26         ) {
27
28             if (result.hasErrors()) {
29                 // Volver a enviar el enum a la vista del formulario de crear con el fin de
30                 model.addAttribute( attributeName: "estadosMesa", Mesa.estadoMesa.values());
31
32                 return "mesa/formGuardan";
33             }
34
35
36             Mesa mesa = new Mesa();
37
38             mesa.setNumero(Integer.parseInt(dto.getNumero()));
39             mesa.setCapacidad(Integer.parseInt(dto.getCapacidad()));
40             mesa.setEstado(dto.getEstadoMesa());
41
42             mesaService.guardarMesa(mesa);
43
44             return REDIRECT_LISTAR;
45         }
46
47
48         @GetMapping("/formAct/{id}") no usages ↳ Brandon-Schneyder-Suarez-Jimenez
49         public String mostrarFormAct(@PathVariable Long id, Model model) {
50
51             Mesa mesa = mesaService.buscarById(id);
52
53
54             MesaUpdateDTO dto = new MesaUpdateDTO();
55             dto.setIdMesa(mesa.getIdMesa());
56             dto.setNumero(String.valueOf(mesa.getNumero()));
57             dto.setCapacidad(String.valueOf(mesa.getCapacidad()));
58             dto.setEstadoMesa(mesa.getEstado());
59
60
61             model.addAttribute( attributeName: "mesaUpdateDTO", dto);
62             model.addAttribute( attributeName: "estadoMesa", Mesa.estadoMesa.values());
63
64             return "mesa/formAct";
65         }
66
67
68         @PostMapping("/actualizar") no usages ↳ Brandon-Schneyder-Suarez-Jimenez
69         public String actualizarMesa(
70             @Valid @ModelAttribute("mesaUpdateDTO") MesaUpdateDTO dto,
71             BindingResult result
72         ) {
73
74             if (result.hasErrors()) {
75                 return "/mesa/formAct";
76             }
77
78         }
79
80
81     }
```

```
99         Mesa mesaActual = mesaService.buscarById(dto.getIdMesa());
100        mesaActual.setNumero(Integer.parseInt(dto.getNumero()));
101        mesaActual.setCapacidad(Integer.parseInt(dto.getCapacidad()));
102        mesaActual.setEstado(dto.getEstadoMesa());
103
104        mesaService.guardarMesa(mesaActual);
105
106        return REDIRECT_LISTAR;
107    }
108
109    @PostMapping("/eliminar/{id}") no usages → Brannion-Schneyder-Suarez-Jimenez *
110    public String eliminarMesa(@PathVariable Long id) {
111        mesaService.eliminarMesa(id);
112        return REDIRECT_LISTAR;
113    }
114
115}
```

6.2.3. Error: Rename this constant name to match the regular expression `^[A-Z][A-Z0-9]*(_[A-Z0-9]+)*$`

- Detalles del error:

### Software qualities impacted

Maintainability  High 

src/.../entity/DetallePago.java

Rename this constant name to match the regular expression `^[A-Z][A-Z0-9]*(_[A-Z0-9]+)*$!`.

Rename this constant name to match the regular expression `^[A-Z][A-Z0-9]*(_[A-Z0-9]+)*$!`.

Rename this constant name to match the regular expression `^[A-Z][A-Z0-9]*(_[A-Z0-9]+)*$!`.

Rename this constant name to match the regular expression `^[A-Z][A-Z0-9]*(_[A-Z0-9]+)*$!`.

[Open in IDE](#)[See all issues in this file](#)

†..

```
28  brannnd...
29
30      @Column(name = "monto_pago", nullable = false)
31      private Double montoPago;
32
33      public enum MetodoPago {
34          Efectivo,
```

Rename this constant name to match the regular expression '^[A-Z][A-Z0-9]\*(\_[A-Z0-9]+)\*\$'.

```
34          Tarjeta_Credito,
```

Rename this constant name to match the regular expression '^[A-Z][A-Z0-9]\*(\_[A-Z0-9]+)\*\$'.

```
35          Tarjeta_Debito,
```

Rename this constant name to match the regular expression '^[A-Z][A-Z0-9]\*(\_[A-Z0-9]+)\*\$'.

```
36          Neki
```

Rename this constant name to match the regular expression '^[A-Z][A-Z0-9]\*(\_[A-Z0-9]+)\*\$'.

- Solución: Renombrar los miembros del enum para que coincidan con el patrón solicitado por SonarQube (^[A-Z][A-Z0-9]\*(\_[A-Z0-9]+)\*\$)

Antes:

```
public enum MetodoPago { 4 usages  ↗ Brannnd-Schneyder-Suarez-Jimenez
    Efectivo,  no usages
    Tarjeta_Credito,  no usages
    Tarjeta_Debito,  no usages
    Neki  no usages
}
```

Después:

```
public enum MetodoPago { 4 usages Branndon-Schneyder-Suarez-Jimenez *
    EFECTIVO, no usages
    TARJETA_CREDITO, no usages
    TARJETA_DEBITO, no usages
    NEQUI no usages
}
```

- Comprobante corregido:

This issue is **Closed (Fixed)**. It was detected in the file below and is no longer being detected.

projecto-mesas > src/.../com/gestion\_mesas/demo/entity/DetallePago.java [Open](#) [Open in IDE](#) [See all issues in this file](#) [New Code](#)

```
1  brannd... package com.gestion_mesas.demo.entity;
2
3  import jakarta.persistence.*;
4
5  import java.time.LocalDateTime;
6
7  @Entity
8  public class DetallePago {
9      @Id
```

6.2.4. Error: Add a nested comment explaining why this method is empty, throw an UnsupportedOperationException or complete the implementation

- Detalles del error:

src/.../entity/Usuario.java

Add a nested comment explaining why this method is empty, throw an UnsupportedOperationException or complete the implementation.

Software qualities impacted

Maintainability High

Open in IDE See all issues in this file

```
 proyecto-mesas > src/.../com/gestion_mesas/demo/entity/Usuario.java
```

19 brann...  
20 @ManyToOne  
21 @JoinColumn(name = "id\_rol", nullable=false)  
22 private Rol rol;  
23  
24 public Usuario() {  
25 }  
26 // getters y setters  
27  
28 public Long getIdUsuario() {  
29 return idUsuario;  
30 }  
31 public void setIdUsuario(Long idUsuario) {  
32 this.idUsuario = idUsuario;  
33 }

Add a nested comment explaining why this method is empty, throw an UnsupportedOperationException or complete the implementation.

- Solución: Agregar un comentario anidado que explique por qué este método está vacío el constructor.

Antes

```
public Usuario() { 3 usages Branndon-Schneyder-Suarez-Jimenez
}
```

Después

```
public Usuario() { 3 usages Branndon-Schneyder-Suarez-Jimenez +1
    // Constructor requerido por JPA para crear instancias de la entidad.
}
```

- Comprobante corregido:

This issue is **Closed (Fixed)**. It was detected in the file below and is no longer being detected.

proyecto-mesas > src/.../com/gestion\_mesas/demo/entity/Usuario.java   Open in IDE See all issues in this file ⊕

```
1  brannd... package com.gestion_mesas.demo.entity;
2
3  import jakarta.persistence.*;
4
5  @Entity
6  @Table(name = "USUARIO")
7  public class Usuario {
8      @Id
9      @GeneratedValue(strategy = GenerationType.IDENTITY)

```

### 6.2.5. Error “Define a constant instead of duplicating this literal "ADMIN" 3 times.”

- Detalle del error:

The screenshot shows the SonarQube interface for a Java file named AdminInitializer.java. The top right corner displays a summary card with the title "Software qualities impacted" and a "Maintainability" rating of "High". Below this, a sidebar provides inspection details: "src/.../config/AdminInitializer.java", "Define a constant instead of duplicating this literal \"ADMIN\" 3 times.", "3 locations", and three "Duplication" findings. A "Navigate locations" button is also present.

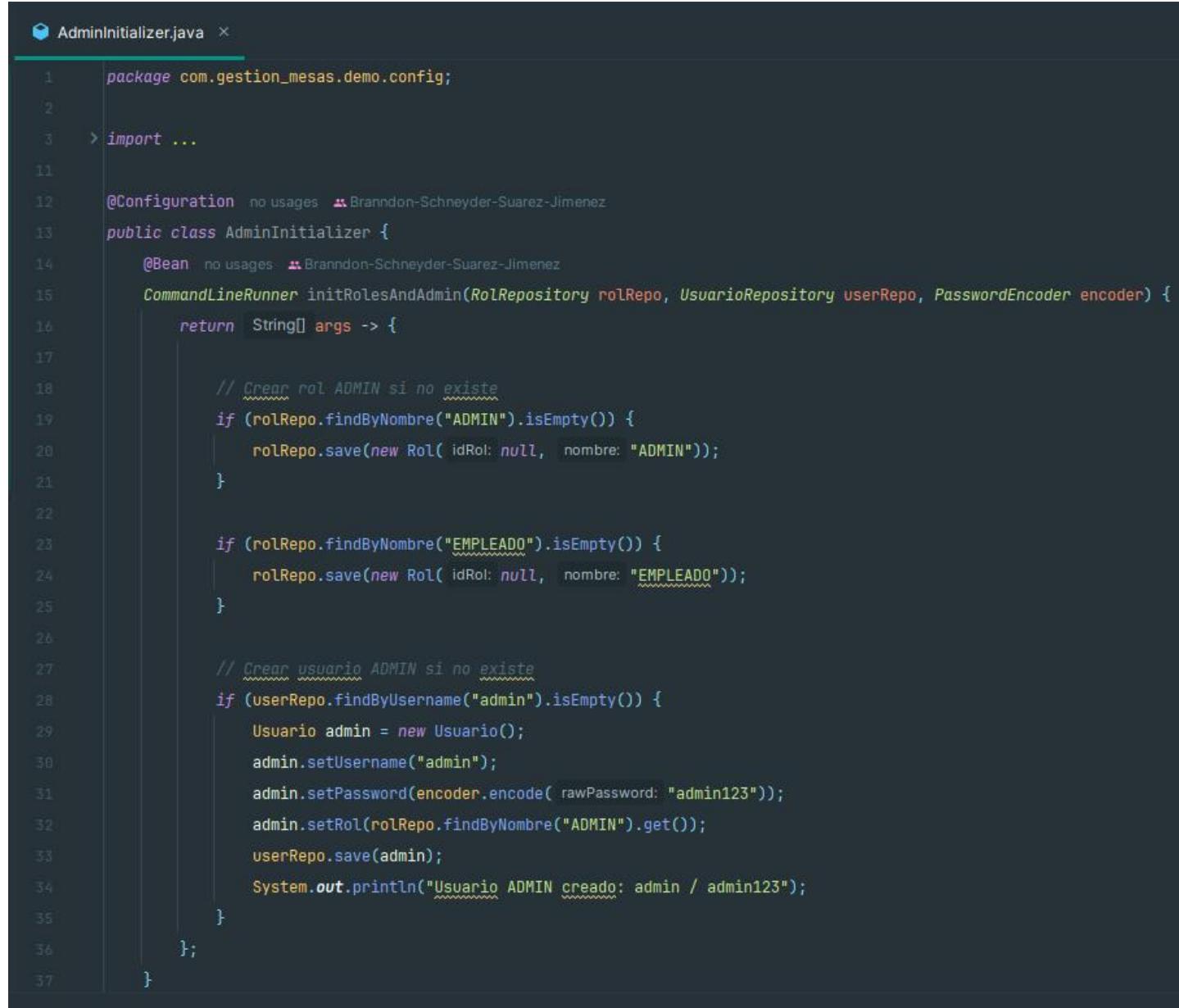
The main content area shows the Java code with SonarQube annotations. The code is as follows:

```
14  brannnd...
15      @Bean
16      CommandLineRunner initRolesAndAdmin(RolRepository rolRepo, UsuarioRepository userRepo, PasswordEncoder encoder) {
17          return args -> {
18              // Crear rol ADMIN si no existe
19              if (rolRepo.findByNombre("ADMIN").isEmpty()) {
20                  rolRepo.save(new Rol(null, "ADMIN"));
21              }
22
23              if (rolRepo.findByNombre("EMPLEADO").isEmpty()) {
24                  rolRepo.save(new Rol(null, "EMPLEADO"));
25              }
26
27              // Crear usuario ADMIN si no existe
28              if (userRepo.findByUsername("admin").isEmpty()) {
29                  Usuario admin = new Usuario();
30                  admin.setUsername("admin");
31                  admin.setPassword(encoder.encode("admin123"));
32                  admin.setRol(rolRepo.findByNombre("ADMIN").get());
33              }
34          }
35      }
36  }
```

A red callout box highlights the line "if (rolRepo.findByNombre("ADMIN").isEmpty()) {" with the message "Define a constant instead of duplicating this literal "ADMIN" 3 times." This indicates that the string "ADMIN" is being used as a literal three times in the code, which is a violation of the rule.

- Solución: definir constantes para las cadenas "ADMIN" y "EMPLEADO" dentro de tu clase AdminInitializer

Antes:



```
AdminInitializer.java

1 package com.gestion_mesas.demo.config;
2
3 > import ...
4
5
6 @Configuration no usages ↵ Branndon-Schneyder-Suarez-Jimenez
7 public class AdminInitializer {
8
9     @Bean no usages ↵ Branndon-Schneyder-Suarez-Jimenez
10    CommandLineRunner initRolesAndAdmin(RolRepository rolRepo, UsuarioRepository userRepo, PasswordEncoder encoder) {
11        return String[] args -> {
12
13            // Crear rol ADMIN si no existe
14            if (rolRepo.findByNombre("ADMIN").isEmpty()) {
15                rolRepo.save(new Rol( idRol: null, nombre: "ADMIN"));
16            }
17
18            // Crear rol EMPLEADO si no existe
19            if (rolRepo.findByNombre("EMPLEADO").isEmpty()) {
20                rolRepo.save(new Rol( idRol: null, nombre: "EMPLEADO"));
21            }
22
23            // Crear usuario ADMIN si no existe
24            if (userRepo.findByUsername("admin").isEmpty()) {
25                Usuario admin = new Usuario();
26                admin.setUsername("admin");
27                admin.setPassword(encoder.encode( rawPassword: "admin123"));
28                admin.setRol(rolRepo.findByNombre("ADMIN").get());
29                userRepo.save(admin);
30                System.out.println("Usuario ADMIN creado: admin / admin123");
31            }
32        };
33    };
34}
```

Después:

```
AdminInitializer.java ×

1 package com.gestion_mesas.demo.config;
2
3 > import ...
11
12 @Configuration no usages ↗ Branndon-Schneyder-Suarez-Jimenez *
13 public class AdminInitializer {
14     private static final String ROL_ADMIN = "ADMIN"; 3 usages
15     private static final String ROL_EMPLEADO = "EMPLEADO"; 2 usages
16
17     @Bean no usages ↗ Branndon-Schneyder-Suarez-Jimenez *
18     CommandLineRunner initRolesAndAdmin(RolRepository rolRepo, UsuarioRepository userRepo, PasswordEncoder encoder) {
19         return String[] args -> {
20
21             // Crear rol ADMIN si no existe
22             if (rolRepo.findByNombre(ROL_ADMIN).isEmpty()) {
23                 rolRepo.save(new Rol( idRol: null, ROL_ADMIN));
24             }
25
26             if (rolRepo.findByNombre(ROL_EMPLEADO).isEmpty()) {
27                 rolRepo.save(new Rol( idRol: null, ROL_EMPLEADO));
28             }
29
30             // Crear usuario ADMIN si no existe
31             if (userRepo.findByUsername("admin").isEmpty()) {
32                 Usuario admin = new Usuario();
33                 admin.setUsername("admin");
34                 admin.setPassword(encoder.encode( rawPassword: "admin123"));
35                 admin.setRol(rolRepo.findByNombre(ROL_ADMIN).get());
36                 userRepo.save(admin);
37                 System.out.println("Usuario ADMIN creado: admin / admin123");
38             }
39         };
40     };
41 }
```

- Comprobante corregido:

This issue is **Closed (Fixed)**. It was detected in the file below and is no longer being detected.

proyecto-mesas > src.../com/gestion\_mesas/demo/config/AdminInitializer.java

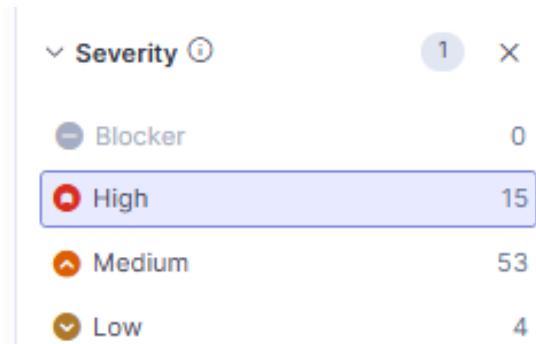
[Open in IDE](#) [See all issues in this file](#)

```
1 brannd... package com.gestion_mesas.demo.config;
2
3 import com.gestion_mesas.demo.entity.Rol;
4 import com.gestion_mesas.demo.entity.Usuario;
5 import com.gestion_mesas.demo.repository.RolRepository;
6 import com.gestion_mesas.demo.repository.UsuarioRepository;
7 import org.springframework.boot.CommandLineRunner;
8 import org.springframework.context.annotation.Bean;
9 import org.springframework.context.annotation.Configuration;
```

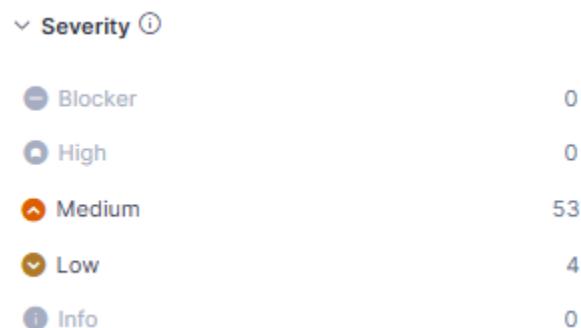
\*\*\*

## 7. Comparación de cantidad de errores altos antes y después de las correcciones

Antes



Después



Nota: Los otros 15 errores altos se distribuían en los vistos en este documento, solo que en archivos diferentes.

8.