```
package com.dai.webServer.Resources;
import java.net.URI; import java.util.List; import java.util.Optional; import
com.dai.webServer.Mqtt.; import org.json.simple.; import org.json.simple.parser.JSONParser;
import org.json.simple.parser.ParseException; import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.ResponseEntity; import org.springframework.web.bind.annotation.CrossOrigin;
          org.springframework.web.bind.annotation.DeleteMapping;
        org.springframework.web.bind.annotation.GetMapping;
                                                                  import
org.springframework.web.bind.annotation.PathVariable; import org.springframework.web.bind.annotation.PostM
         org.springframework.web.bind.annotation.PutMapping;
import
                                                                  import
org.springframework.web.bind.annotation.RequestBody; import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RestController;
                                                                  import
org.springframework.web.servlet.support.ServletUriComponentsBuilder;
import com.dai.webServer.Exceptions.UtilizadorNotFoundException; import
com.dai.webServer.Objects.User; import com.dai.webServer.Repos.UtilizadorRepository;
@CrossOrigin(origins = "http://localhost:5000", maxAge = 3600) @RequestMap-
ping("/") @RestController public class UserResources {
@Autowired
private UtilizadorRepository utilizadorRepository;
@GetMapping("/utilizador")
public List<User> retrieveAllUsers() {
    return utilizadorRepository.findAll();
}
@GetMapping("/utilizador/{id}")
public User retrieveUser(@PathVariable long id) {
    Optional<User> utilizador = utilizadorRepository.findById(id);
    if (!utilizador.isPresent())
        throw new UtilizadorNotFoundException("id-" + id);
    return utilizador.get();
}
//IDK tho
@PostMapping("/login")
public User verifyUser(@RequestBody User utilizador) {
String email = utilizador.getEmail();
String password = utilizador.getPassword();
User returned = findUserByEmail(email);
String passBase = returned.getPassword();
```

```
return returned;
}
@PostMapping("/mail")
public User getUser(@RequestBody User utilizador) {
String email = utilizador.getEmail();
User returned = findUserByEmail(email);
    return returned;
}
public User findUserByEmail(String email) {
    Optional<User> utilizador = utilizadorRepository.findByEmail(email);
    if (!utilizador.isPresent())
        throw new UtilizadorNotFoundException("id-" + email);
    return utilizador.get();
} @DeleteMapping("/utilizador/{id}") public void deleteUser(@PathVariable
long id) { utilizadorRepository.deleteById(id); }
@PostMapping("/utilizador")
public ResponseEntity<Object> createUser(@RequestBody User utilizador) {
    User savedUser = utilizadorRepository.save(utilizador);
    URI location = ServletUriComponentsBuilder.fromCurrentRequest().path("/{id}")
            .buildAndExpand(savedUser.getId_user()).toUri();
    return ResponseEntity.created(location).build();
}
@PostMapping("/changeLight")
```

```
public void createUser(@RequestBody String light) throws ParseException {
    JSONParser parser = new JSONParser();
    JSONObject jsonObject = (JSONObject) parser.parse(light);
       /*
          */
    /* Object dataF = jsonObject.get("id"); */
    String topic = (String) jsonObject.get("topic");
    String id = (String) jsonObject.get("id");
    JSONObject rgsJson = (JSONObject) jsonObject.get("rgb");
    String rgb = (String) rgsJson.toJSONString();
    /* String state = (String) jsonObject.get("state"); */
   Publisher pub = new Publisher();
    System.out.println(topic);
    System.out.println(id);
    System.out.println(rgb);
    /* System.out.println(state); */
    /* String mensagem = new StringBuilder().append(state).append(rgb).toString(); */
    /* System.out.println(state); */
    pub.sendMessage(topic, rgb, id);
}
@PutMapping("/utilizador/{id}")
public ResponseEntity<Object> updateUser(@RequestBody User utilizador, @PathVariable long id
    Optional<User> userOptional = utilizadorRepository.findById(id);
    if (!userOptional.isPresent())
       return ResponseEntity.notFound().build();
   utilizador.setId_user(id);
    utilizadorRepository.save(utilizador);
```

```
return ResponseEntity.noContent().build();
}
```