ECOLE NORMALE SUPÉRIEURE DE
L'ENSEIGNEMENT TECHNIQUE DE MOHAMMEDIA

UNIVERSITÉ HASSAN II DE CASABLANCA

ENSET

المدرسة العليا لأساتذة التعليم التقني
المحمدية
جامعة الحسن الثاني بالدار البيضاء

DEPARTEMENT MATHEMATIQUES ET INFORMATIQUE

Filière :

« Génie du Logiciel et des Systèmes Informatiques Distribués »

GLSID

Compte rendu

Activité 4 : Mapping des associations en JPA Hibernate Spring Data

Année Universitaire : 2021-2022

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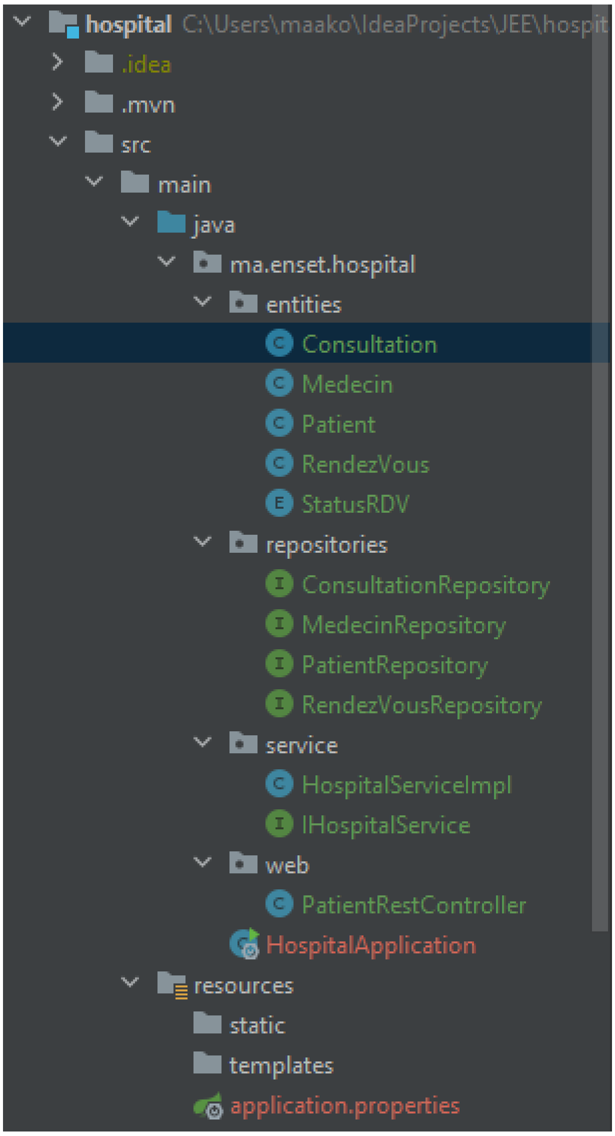
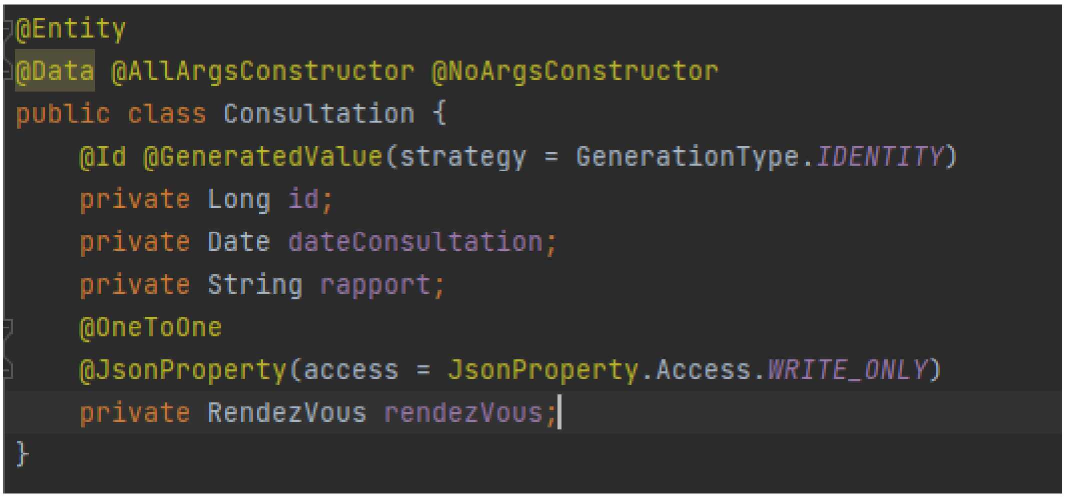
La structure du projet :



```
hospital C:\Users\maako\IdeaProjects\JEE\hospit
  .idea
  .mvn
  src
    main
      java
        ma.enset.hospital
          entities
            Consultation
            Medecin
            Patient
            RendezVous
            StatusRDV
          repositories
            ConsultationRepository
            MedecinRepository
            PatientRepository
            RendezVousRepository
          service
            HospitalServiceImpl
            IHospitalService
          web
            PatientRestController
          HospitalApplication
      resources
        static
        templates
        application.properties
```

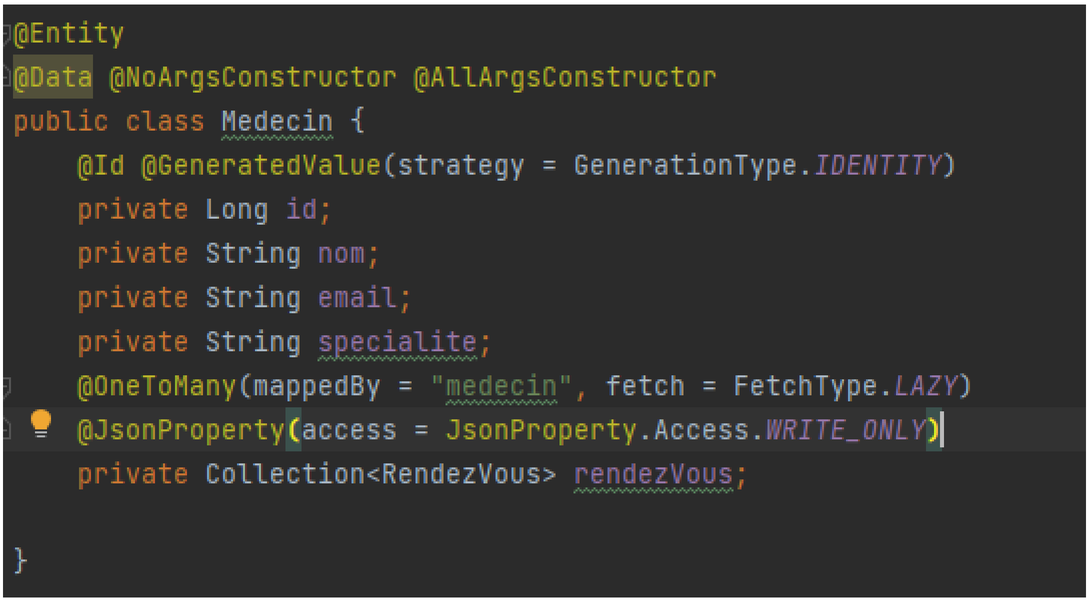
I. *Le package « entities »*

- Classe « Consultation »



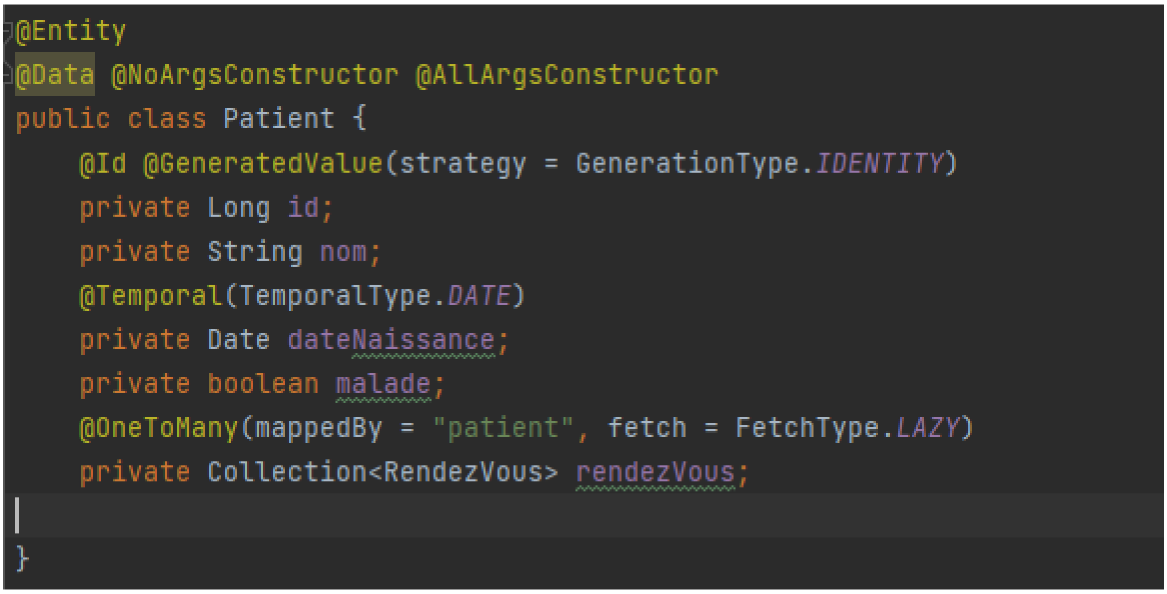
```java
@Entity
@Data @AllArgsConstructor @NoArgsConstructor
public class Consultation {
    @Id @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long id;
    private Date dateConsultation;
    private String rapport;
    @OneToOne
    @JsonProperty(access = JsonProperty.Access.WRITE_ONLY)
    private RendezVous rendezVous;
}
```

- Classe « Medecin »



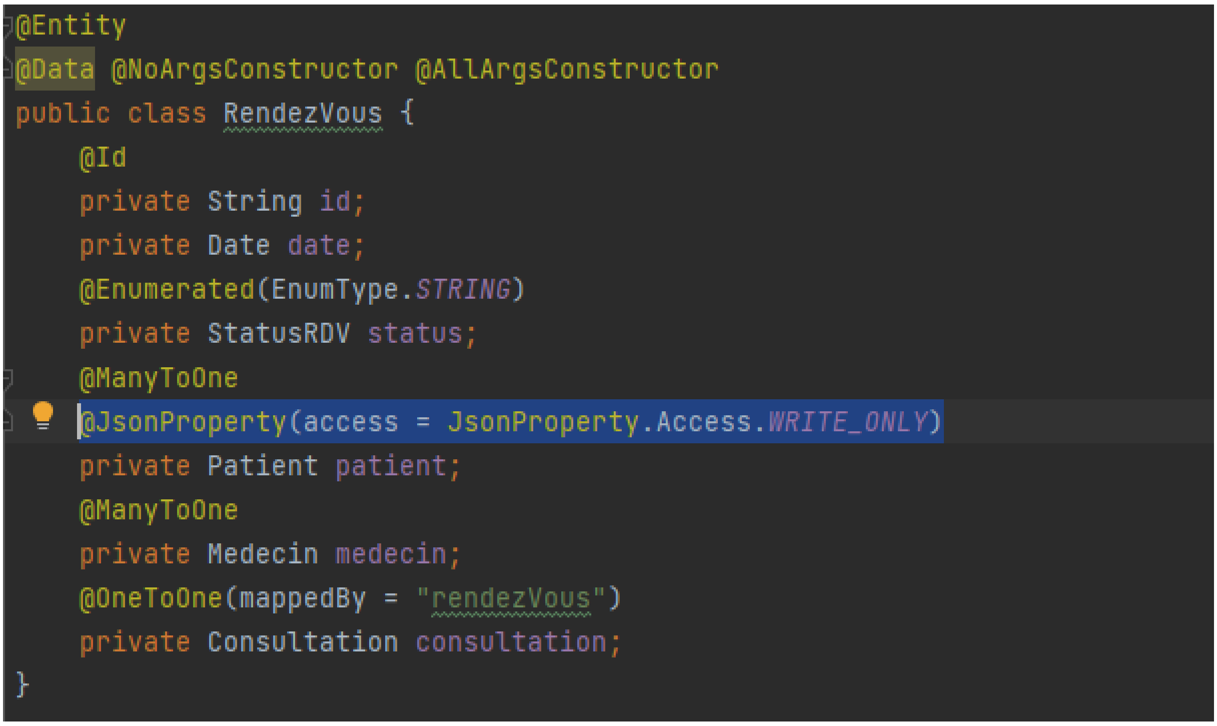
```java
@Entity
@Data @NoArgsConstructor @AllArgsConstructor
public class Medecin {
    @Id @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long id;
    private String nom;
    private String email;
    private String specialite;
    @OneToMany(mappedBy = "medecin", fetch = FetchType.LAZY)
    @JsonProperty(access = JsonProperty.Access.WRITE_ONLY)
    private Collection<RendezVous> rendezVous;

}
```

- Classe « Patient »



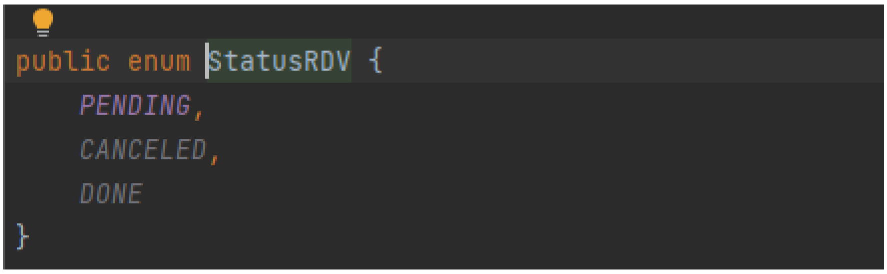
```java
@Entity
@Data @NoArgsConstructor @AllArgsConstructor
public class Patient {
    @Id @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long id;
    private String nom;
    @Temporal(TemporalType.DATE)
    private Date dateNaissance;
    private boolean malade;
    @OneToMany(mappedBy = "patient", fetch = FetchType.LAZY)
    private Collection<RendezVous> rendezVous;

}
```

- Classe « RendezVous »



```java
@Entity
@Data @NoArgsConstructor @AllArgsConstructor
public class RendezVous {
    @Id
    private String id;
    private Date date;
    @Enumerated(EnumType.STRING)
    private StatusRDV status;
    @ManyToOne
    @JsonProperty(access = JsonProperty.Access.WRITE_ONLY)
    private Patient patient;
    @ManyToOne
    private Medecin medecin;
    @OneToOne(mappedBy = "rendezVous")
    private Consultation consultation;
}
```

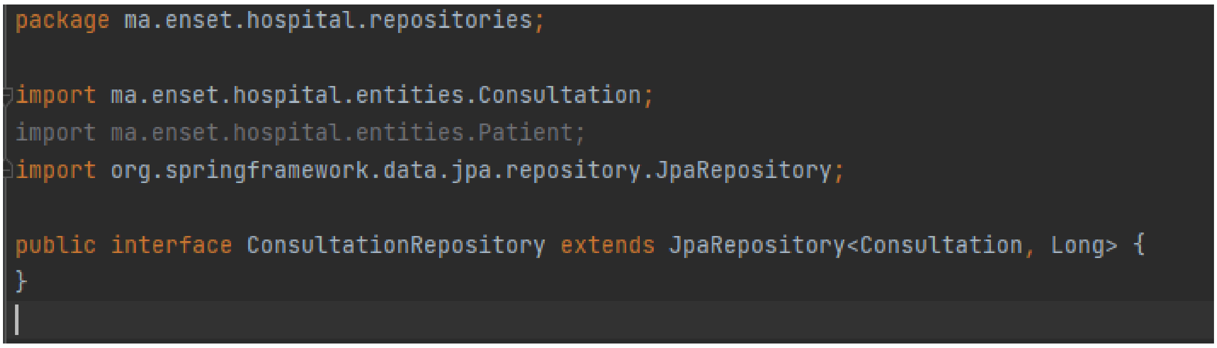
- Classe « StatusRDV »



```java
public enum StatusRDV {
    PENDING,
    CANCELED,
    DONE
}
```

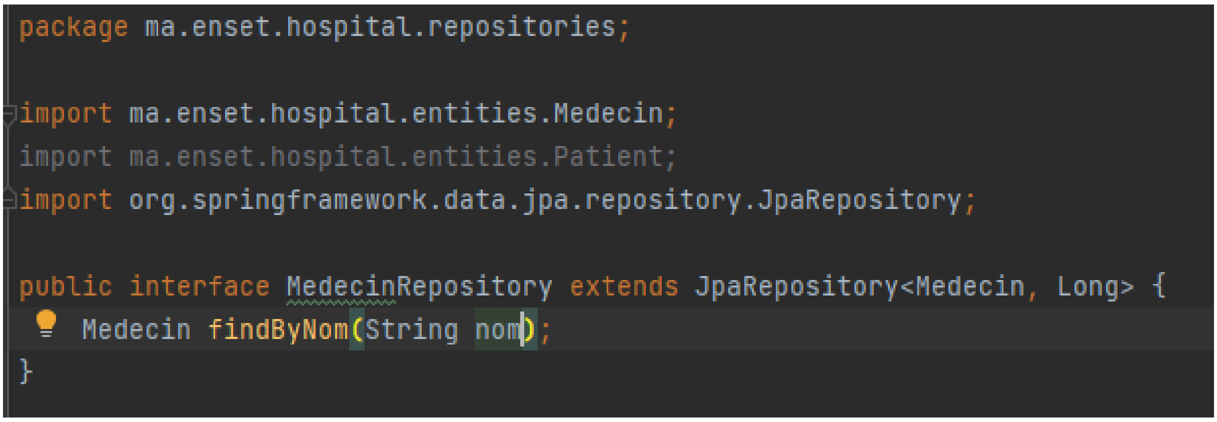
II. *Le package « repositories »*

- L'interface « ConsultationRepository »



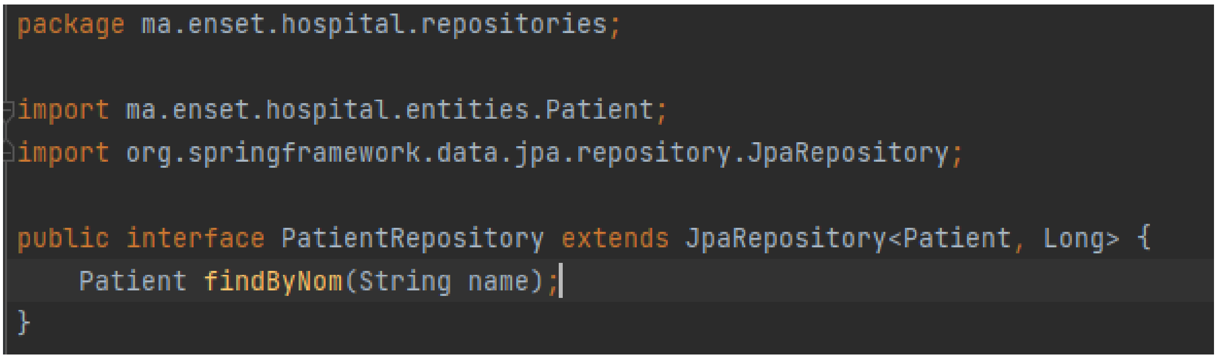
```java
package ma.enset.hospital.repositories;

import ma.enset.hospital.entities.Consultation;
import ma.enset.hospital.entities.Patient;
import org.springframework.data.jpa.repository.JpaRepository;

public interface ConsultationRepository extends JpaRepository<Consultation, Long> {
}
```

- L'interface « MedecinRepository »



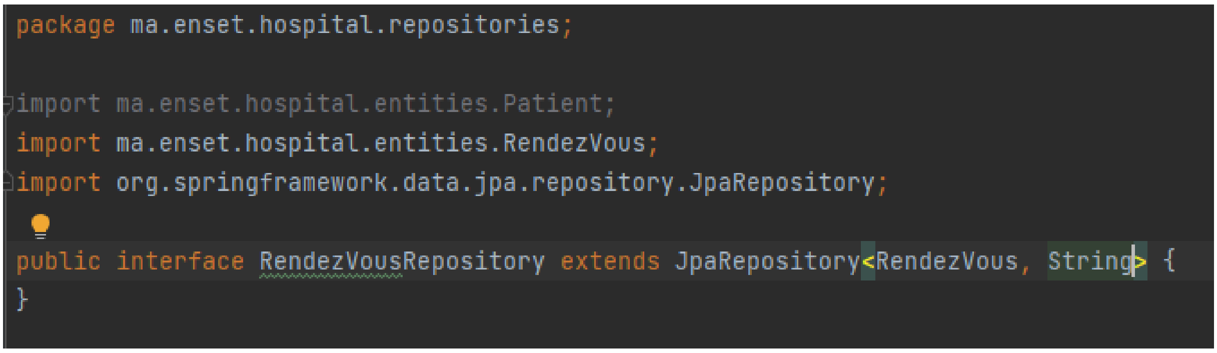
```
package ma.enset.hospital.repositories;

import ma.enset.hospital.entities.Medecin;
import ma.enset.hospital.entities.Patient;
import org.springframework.data.jpa.repository.JpaRepository;

public interface MedecinRepository extends JpaRepository<Medecin, Long> {
    Medecin findByNom(String nom);
}
```

- L’interface « PatientRepository »



```
package ma.enset.hospital.repositories;

import ma.enset.hospital.entities.Patient;
import org.springframework.data.jpa.repository.JpaRepository;

public interface PatientRepository extends JpaRepository<Patient, Long> {
    Patient findByNom(String name);
}
```

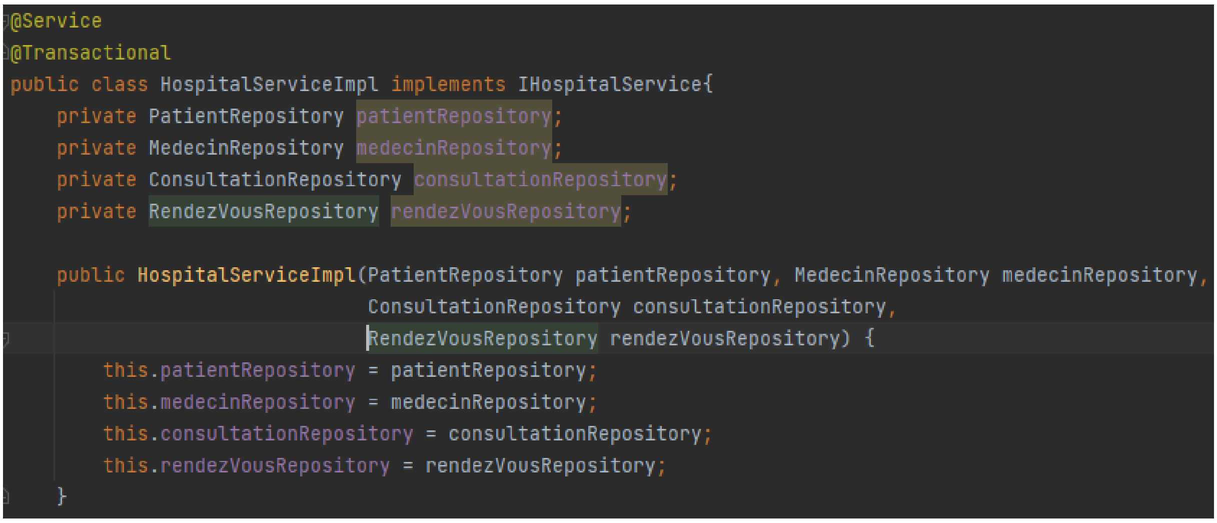
- L’interface « RendezVousRepository »



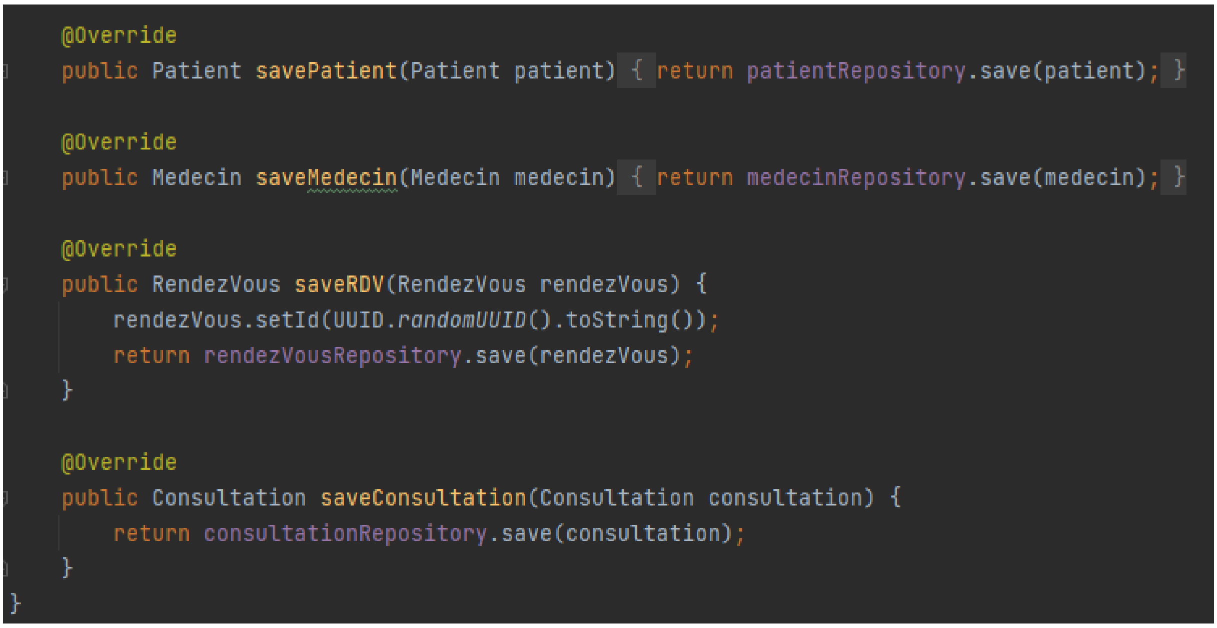
```
package ma.enset.hospital.repositories;

import ma.enset.hospital.entities.Patient;
import ma.enset.hospital.entities.RendezVous;
import org.springframework.data.jpa.repository.JpaRepository;

public interface RendezVousRepository extends JpaRepository<RendezVous, String> {
}
```

III. Le package « service »

- Classe « HospitalServiceImpl »

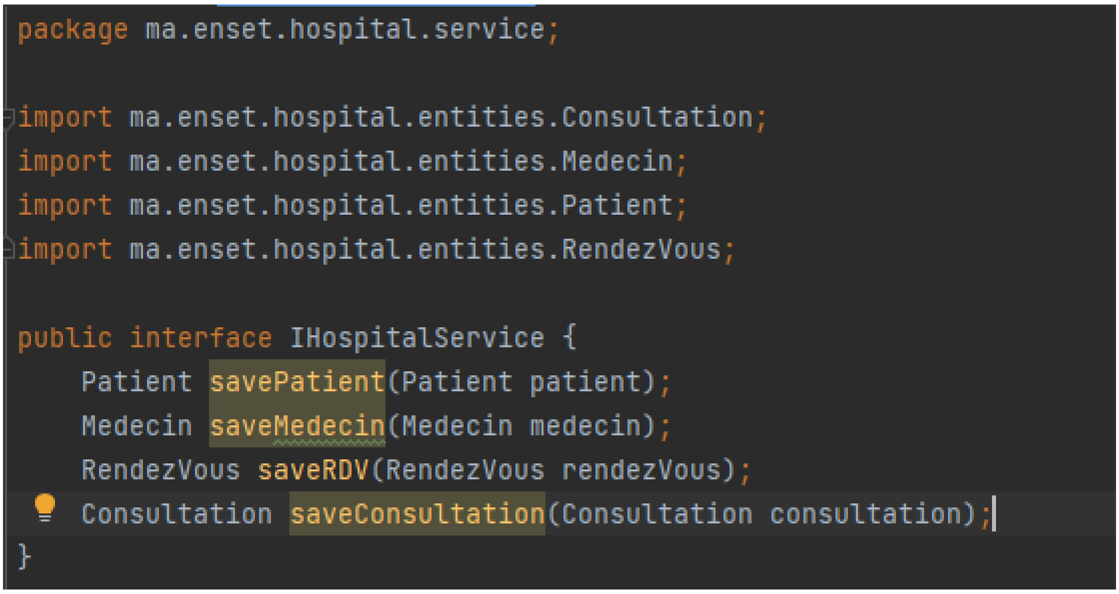


```
@Service
@Transactional
public class HospitalServiceImpl implements IHospitalService{
    private PatientRepository patientRepository;
    private MedecinRepository medecinRepository;
    private ConsultationRepository consultationRepository;
    private RendezVousRepository rendezVousRepository;

    public HospitalServiceImpl(PatientRepository patientRepository, MedecinRepository medecinRepository,
                               ConsultationRepository consultationRepository,
                               RendezVousRepository rendezVousRepository) {
        this.patientRepository = patientRepository;
        this.medecinRepository = medecinRepository;
        this.consultationRepository = consultationRepository;
        this.rendezVousRepository = rendezVousRepository;
    }
```



```
    @Override
    public Patient savePatient(Patient patient) { return patientRepository.save(patient); }

    @Override
    public Medecin saveMedecin(Medecin medecin) { return medecinRepository.save(medecin); }

    @Override
    public RendezVous saveRDV(RendezVous rendezVous) {
        rendezVous.setId(UUID.randomUUID().toString());
        return rendezVousRepository.save(rendezVous);
    }

    @Override
    public Consultation saveConsultation(Consultation consultation) {
        return consultationRepository.save(consultation);
    }
}
```

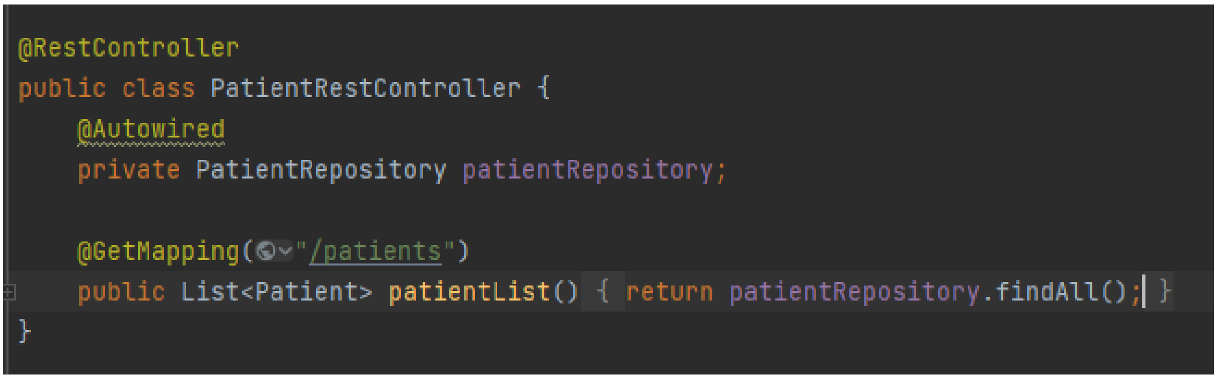
- L’interface « IHospitalService »



```
package ma.enset.hospital.service;

import ma.enset.hospital.entities.Consultation;
import ma.enset.hospital.entities.Medecin;
import ma.enset.hospital.entities.Patient;
import ma.enset.hospital.entities.RendezVous;

public interface IHospitalService {
    Patient savePatient(Patient patient);
    Medecin saveMedecin(Medecin medecin);
    RendezVous saveRDV(RendezVous rendezVous);
    Consultation saveConsultation(Consultation consultation);
}
```

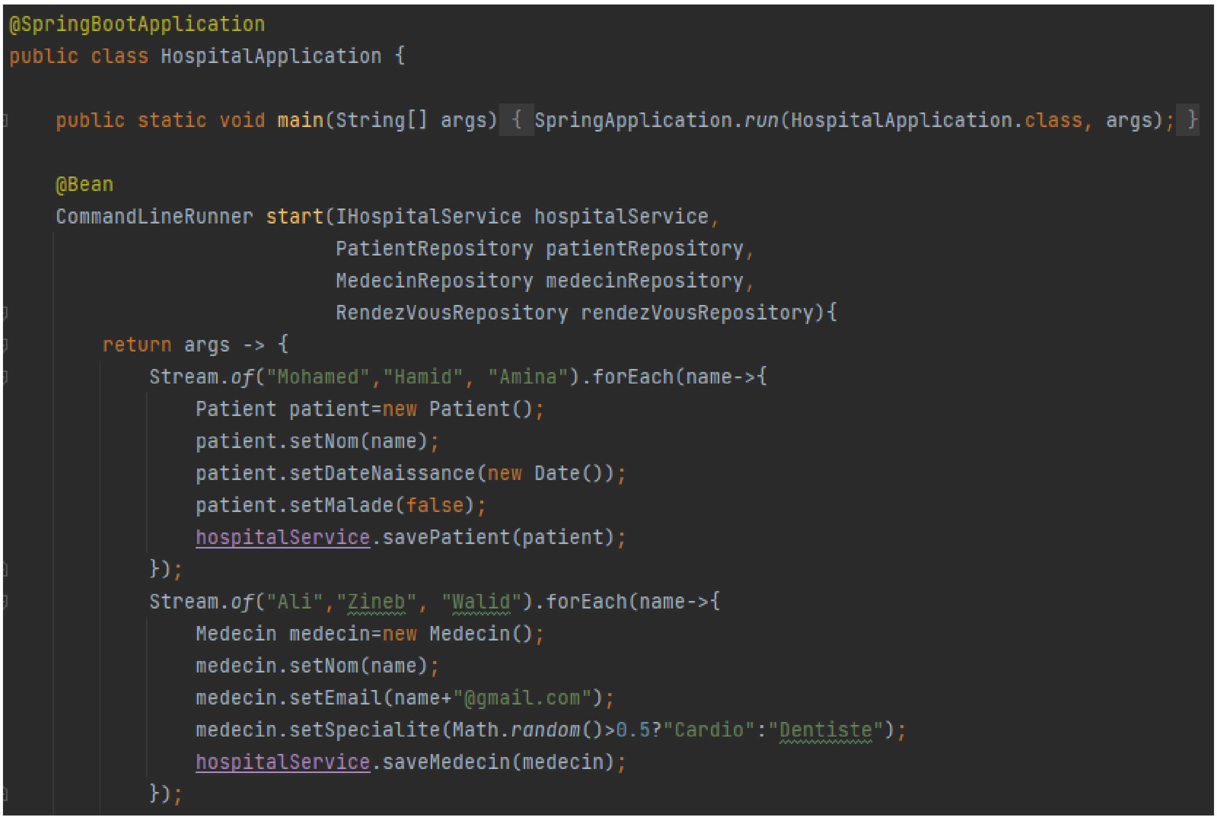
IV. Le package « web »

- Classe « PatientRestController »

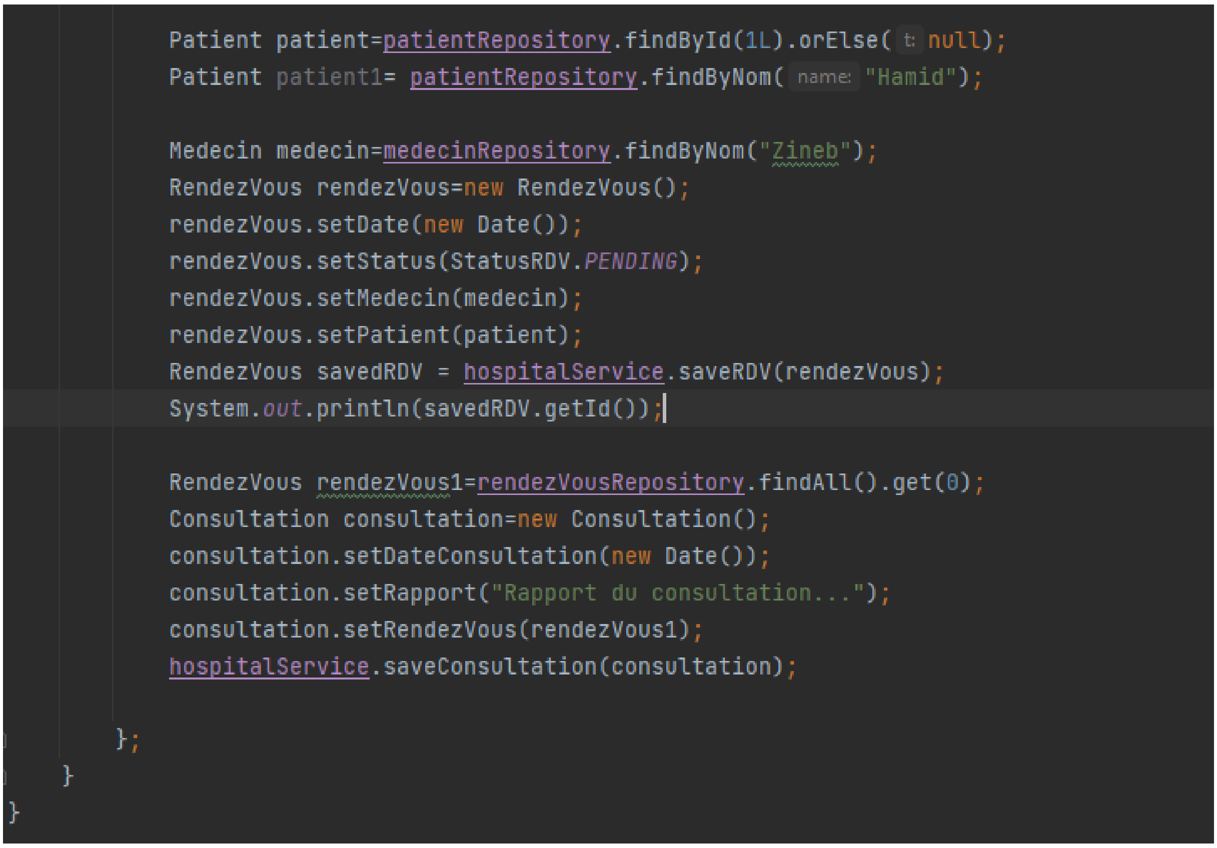


```
@RestController
public class PatientRestController {
    @Autowired
    private PatientRepository patientRepository;

    @GetMapping("/patients")
    public List<Patient> patientList() { return patientRepository.findAll(); }
}
```

V. Présentation

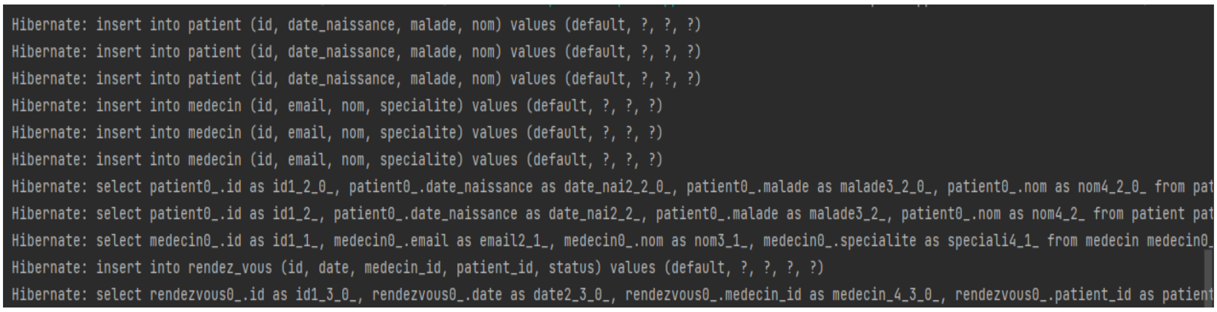


```
@SpringBootApplication
public class HospitalApplication {

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

    @Bean
    CommandLineRunner start(IHospitalService hospitalService,
                            PatientRepository patientRepository,
                            MedecinRepository medecinRepository,
                            RendezVousRepository rendezVousRepository){
        return args -> {
            Stream.of("Mohamed","Hamid", "Amina").forEach(name->{
                Patient patient=new Patient();
                patient.setNom(name);
                patient.setDateNaissance(new Date());
                patient.setMalade(false);
                hospitalService.savePatient(patient);
            });
            Stream.of("Ali","Zineb", "Walid").forEach(name->{
                Medecin medecin=new Medecin();
                medecin.setNom(name);
                medecin.setEmail(name+"@gmail.com");
                medecin.setSpecialite(Math.random()>0.5?"Cardio":"Dentiste");
                hospitalService.saveMedecin(medecin);
            });
```

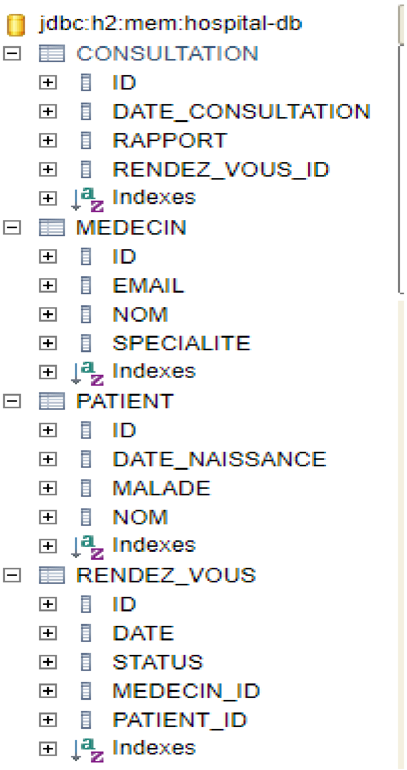


```
            Patient patient=patientRepository.findById(1L).orElse( t: null);
            Patient patient1= patientRepository.findByNom( name: "Hamid");

            Medecin medecin=medecinRepository.findByNom("Zineb");
            RendezVous rendezVous=new RendezVous();
            rendezVous.setDate(new Date());
            rendezVous.setStatus(StatusRDV.PENDING);
            rendezVous.setMedecin(medecin);
            rendezVous.setPatient(patient);
            RendezVous savedRDV = hospitalService.saveRDV(rendezVous);
            System.out.println(savedRDV.getId());

            RendezVous rendezVous1=rendezVousRepository.findAll().get(0);
            Consultation consultation=new Consultation();
            consultation.setDateConsultation(new Date());
            consultation.setRapport("Rapport du consultation...");
            consultation.setRendezVous(rendezVous1);
            hospitalService.saveConsultation(consultation);

        };
    }
}
```

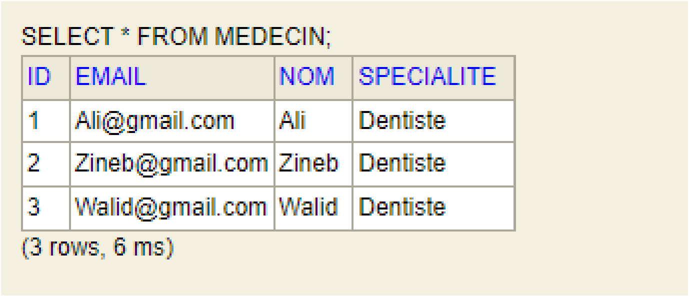
VI. L’exécution



```
Hibernate: insert into patient (id, date_naissance, malade, nom) values (default, ?, ?, ?)
Hibernate: insert into patient (id, date_naissance, malade, nom) values (default, ?, ?, ?)
Hibernate: insert into patient (id, date_naissance, malade, nom) values (default, ?, ?, ?)
Hibernate: insert into medecin (id, email, nom, specialite) values (default, ?, ?, ?)
Hibernate: insert into medecin (id, email, nom, specialite) values (default, ?, ?, ?)
Hibernate: insert into medecin (id, email, nom, specialite) values (default, ?, ?, ?)
Hibernate: select patient0_.id as id1_2_0_, patient0_.date_naissance as date_nai2_2_0_, patient0_.malade as malade3_2_0_, patient0_.nom as nom4_2_0_ from pat
Hibernate: select patient0_.id as id1_2_, patient0_.date_naissance as date_nai2_2_, patient0_.malade as malade3_2_, patient0_.nom as nom4_2_ from patient pat
Hibernate: select medecin0_.id as id1_1_, medecin0_.email as email2_1_, medecin0_.nom as nom3_1_, medecin0_.specialite as speciali4_1_ from medecin medecin0_
Hibernate: insert into rendez_vous (id, date, medecin_id, patient_id, status) values (default, ?, ?, ?, ?)
Hibernate: select rendezvous0_.id as id1_3_0_, rendezvous0_.date as date2_3_0_, rendezvous0_.medecin_id as medecin_4_3_0_, rendezvous0_.patient_id as patient
```



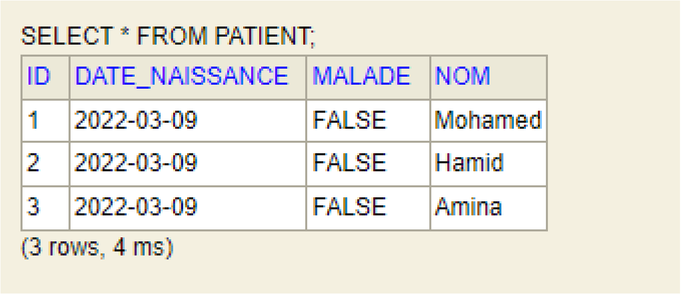
```
jdbc:h2:mem:hospital-db
⊟ CONSULTATION
    ⊞ ID
    ⊞ DATE_CONSULTATION
    ⊞ RAPPORT
    ⊞ RENDEZ_VOUS_ID
    ⊞ Indexes
⊟ MEDECIN
    ⊞ ID
    ⊞ EMAIL
    ⊞ NOM
    ⊞ SPECIALITE
    ⊞ Indexes
⊟ PATIENT
    ⊞ ID
    ⊞ DATE_NAISSANCE
    ⊞ MALADE
    ⊞ NOM
    ⊞ Indexes
⊟ RENDEZ_VOUS
    ⊞ ID
    ⊞ DATE
    ⊞ STATUS
    ⊞ MEDECIN_ID
    ⊞ PATIENT_ID
    ⊞ Indexes
```



SELECT * FROM MEDECIN;

ID	EMAIL	NOM	SPECIALITE
1	Ali@gmail.com	Ali	Dentiste
2	Zineb@gmail.com	Zineb	Dentiste
3	Walid@gmail.com	Walid	Dentiste

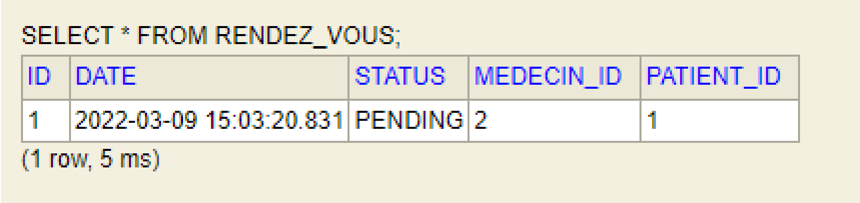
(3 rows, 6 ms)



SELECT * FROM PATIENT;

ID	DATE_NAISSANCE	MALADE	NOM
1	2022-03-09	FALSE	Mohamed
2	2022-03-09	FALSE	Hamid
3	2022-03-09	FALSE	Amina

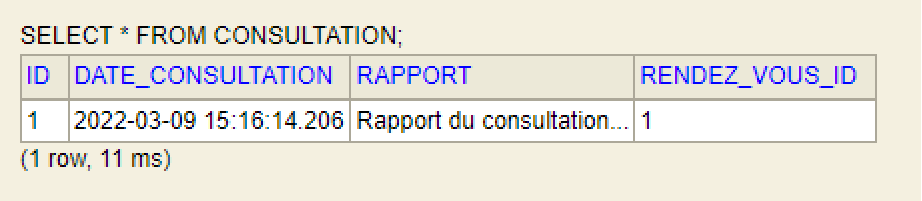
(3 rows, 4 ms)



SELECT * FROM RENDEZ_VOUS;

ID	DATE	STATUS	MEDECIN_ID	PATIENT_ID
1	2022-03-09 15:03:20.831	PENDING	2	1

(1 row, 5 ms)

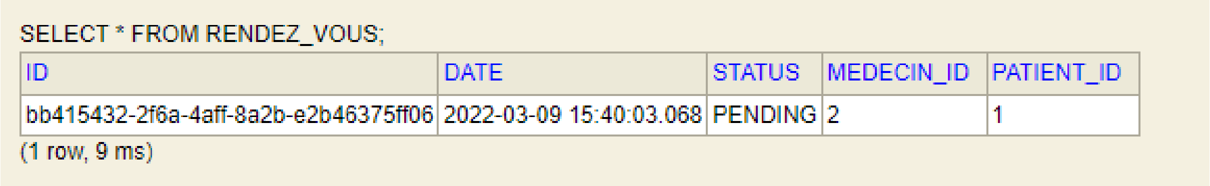


SELECT * FROM CONSULTATION;

ID	DATE_CONSULTATION	RAPPORT	RENDEZ_VOUS_ID
1	2022-03-09 15:16:14.206	Rapport du consultation...	1

(1 row, 11 ms)

L'entité « Rendez_Vous » avec in ID de type String

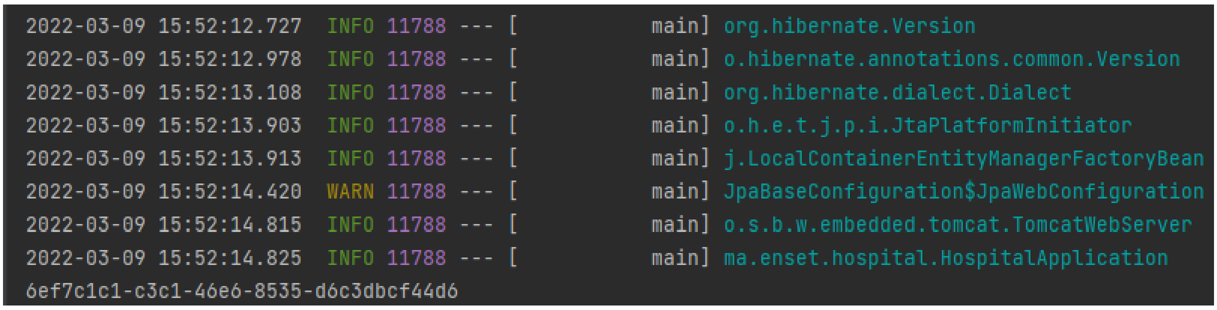


SELECT * FROM RENDEZ_VOUS;

ID	DATE	STATUS	MEDECIN_ID	PATIENT_ID
bb415432-2f6a-4aff-8a2b-e2b46375ff06	2022-03-09 15:40:03.068	PENDING	2	1

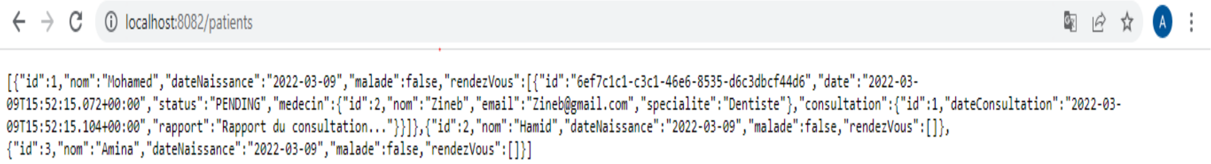
(1 row, 9 ms)

L'affichage de l'ID du première élément du « Rendez_Vous »



```
2022-03-09 15:52:12.727  INFO 11788 --- [           main] org.hibernate.Version
2022-03-09 15:52:12.978  INFO 11788 --- [           main] o.hibernate.annotations.common.Version
2022-03-09 15:52:13.108  INFO 11788 --- [           main] org.hibernate.dialect.Dialect
2022-03-09 15:52:13.903  INFO 11788 --- [           main] o.h.e.t.j.p.i.JtaPlatformInitiator
2022-03-09 15:52:13.913  INFO 11788 --- [           main] j.LocalContainerEntityManagerFactoryBean
2022-03-09 15:52:14.420  WARN 11788 --- [           main] JpaBaseConfiguration$JpaWebConfiguration
2022-03-09 15:52:14.815  INFO 11788 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer
2022-03-09 15:52:14.825  INFO 11788 --- [           main] ma.enset.hospital.HospitalApplication
6ef7c1c1-c3c1-46e6-8535-d6c3dbcf44d6
```

L'affichage des enregistrements sous forme d'un fichier JSON.



[{"id":1,"nom":"Mohamed","dateNaissance":"2022-03-09","malade":false,"rendezVous":[{"id":"6ef7c1c1-c3c1-46e6-8535-d6c3dbcf44d6","date":"2022-03-09T15:52:15.072+00:00","status":"PENDING","medecin":{"id":2,"nom":"Zineb","email":"Zineb@gmail.com","specialite":"Dentiste"},"consultation":{"id":1,"dateConsultation":"2022-03-09T15:52:15.104+00:00","rapport":"Rapport du consultation..."}}]},{"id":2,"nom":"Hamid","dateNaissance":"2022-03-09","malade":false,"rendezVous":[]},
{"id":3,"nom":"Amina","dateNaissance":"2022-03-09","malade":false,"rendezVous":[]}]