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# System Requirements Specification

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**For**

**Appointment  
Scheduler Application**

**Version 1.0**

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# APPOINTMENT SCHEDULER APPLICATION

## System Requirements Specification

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## BACKEND-SPRING BOOT RESTFUL APPLICATION

### 1 PROJECT ABSTRACT

The **Appointment Scheduler Application** is implemented using Spring Boot with a MySQL database. The application aims to provide a comprehensive platform for patients to book an appointment for a doctor.

**Following is the requirement specifications:**

	Appointment Scheduler Application
Modules	
1	Doctor
2	Schedule
Doctor Module Functionalities	
1	List all doctors
2	Get doctor by id
3	Create doctor
4	Update doctor by id
5	Delete doctor by id
6	Get doctor by speciality
Schedule Module Functionalities	
1	Create an appointment
2	Update an appointment by id
3	Get an appointment by id
4	Get list of all appointments for a doctor on particular day

## 2 ASSUMPTIONS, DEPENDENCIES, RISKS / CONSTRAINTS

### 2.1 DOCTOR CONSTRAINTS

- When fetching a doctor by ID, if the doctor ID does not exist, the operation should throw a not found exception.
- When updating a doctor, if the doctor ID does not exist, the operation should throw a not found exception.
- When removing a doctor, if the doctor ID does not exist, the operation should throw a not found exception.

### 2.2 SELL CONSTRAINTS

- When deleting a schedule by ID, if the schedule ID does not exist, the operation should throw a not found exception.
- When fetching a schedule by ID, if the schedule ID does not exist, the operation should throw a not found exception.
- When updating a schedule by ID, if the schedule ID does not exist, the operation should throw a not found exception.

## Common Constraints

- For all rest endpoints receiving @RequestBody, validation check must be done and must throw custom exception if data is invalid
- All the business validations must be implemented in dto classes only.
- All the database operations must be implemented on entity object only
- Do not change, add, remove any existing methods in service layer
- In Repository interfaces, custom methods can be added as per requirements.
- All RestEndpoint methods and Exception Handlers must return data wrapped in **ResponseEntity**

## 3 BUSINESS VALIDATIONS - Doctor

- Name is not blank.
- Hospital name should not be blank.
- Speciality names should not be blank.
- DailyTime name should not be blank.

## 4 BUSINESS VALIDATIONS - Schedule

- Name is not blank.
- Doctor should not be blank.
- Day should not be blank.
- Time should not be blank.
- Timings should not be blank.

## 5 REST ENDPOINTS

Rest End-points to be exposed in the controller along with method details for the same to be created

### 5.1 DOCTORCONTROLLER

URL Exposed		Purpose
1. /api/doctors		Fetches all the doctors
Http Method	GET	
Parameter	-	
Return	List<Doctor>	
2. /api/doctors/{id}		Get a doctor by id
Http Method	GET	
Parameter 1	Long (id)	
Return	Doctor	
3. /api/doctors		Create a new doctor
Http Method	POST	
Parameter	-	
Return	Doctor	
4. /api/doctors/{id}		Updates existing doctor by id
Http Method	PUT	
Parameter 1	Long (id)	
Return	Doctor	
5. /api/doctors/{id}		Deletes a doctor by id
Http Method	DELETE	
Parameter 1	Long (id)	
Return	-	

6. /api/doctors/specialty/{specialty}		Fetches all doctor with given specialty
Http Method	GET	
Parameter 1	String (specialty)	
Return	List<Doctor>	

## 5.2 SCHEDULCONTROLLER

URL Exposed		Purpose
1. /api/schedules/appointment		Creates a new Schedule
Http Method	POST	
Parameter	-	
Return	Schedule	
2. /api/schedules/appointment/{id}		Updates a schedule by id
Http Method	PUT	
Parameter 1	Long (id)	
Return	Schedule	
3. /api/schedules/appointment/{id}		Fetches a schedule by id
Http Method	GET	
Parameter	Long (id)	
Return	Schedule	
4. /api/schedules/doctor/{id}/{day}		Fetches the list of all schedules for a doctor by given id on given day
Http Method	GET	
Parameter	Long (id) String (day)	
Return	List<Schedule>	

## 6 TEMPLATE CODE STRUCTURE

### 6.1 PACKAGE: COM.APPOINTMENT

#### Resources

<b>AppointmentSchedulerApplication</b> (Class)	This is the Spring Boot starter class of the application.	Already Implemented
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### 6.2 PACKAGE: COM.APPOINTMENT.REPOSITORY

#### Resources

Class/Interface	Description	Status
<b>DoctorRepository</b> (interface)	<ul style="list-style-type: none"><li>Repository interface exposing CRUD functionality for doctor entity.</li><li>You can go ahead and add any custom methods as per requirements.</li></ul>	Partially implemented.
<b>ScheduleRepository</b> (interface)	<ul style="list-style-type: none"><li>Repository interface exposing CRUD functionality for schedule entity.</li><li>You can go ahead and add any custom methods as per requirements.</li></ul>	Partially implemented.

## 6.3 PACKAGE: COM.APPOINTMENT.SERVICE

### Resources

Class/Interface	Description	Status
<b>DoctorService (interface)</b>	<ul style="list-style-type: none"><li>Interface to expose method signatures for doctor related functionality.</li><li>Do not modify, add or delete any method.</li></ul>	Already implemented.
<b>ScheduleService (interface)</b>	<ul style="list-style-type: none"><li>Interface to expose method signatures for schedule related functionality.</li><li>Do not modify, add or delete any method.</li></ul>	Already implemented.

## 6.4 PACKAGE: COM.APPOINTMENT.SERVICE.IMPL

Class/Interface	Description	Status
<b>DoctorServiceImpl (class)</b>	<ul style="list-style-type: none"><li>Implements DoctorService.</li><li>Contains template method implementation.</li><li>Need to provide implementation for doctor related functionalities.</li><li>Do not modify, add or delete any method signature</li></ul>	To be implemented.
<b>ScheduleServiceImpl (class)</b>	<ul style="list-style-type: none"><li>Implements ScheduleService.</li><li>Contains template method implementation.</li><li>Need to provide implementation for schedule related functionalities.</li></ul>	To be implemented.



	<ul style="list-style-type: none"> <li>Do not modify, add or delete any method signature</li> </ul>	
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## 6.5 PACKAGE: COM.APPOINTMENT.CONTROLLER

### Resources

Class/Interface	Description	Status
<b>DoctorController (Class)</b>	<ul style="list-style-type: none"> <li>Controller class to expose all rest-endpoints for doctor related activities.</li> <li>May also contain local exception handler methods</li> </ul>	To be implemented
<b>ScheduleController (Class)</b>	<ul style="list-style-type: none"> <li>Controller class to expose all rest-endpoints for schedule related activities.</li> <li>May also contain local exception handler methods</li> </ul>	To be implemented

## 6.6 PACKAGE: COM.APPOINTMENT.DTO

### Resources

Class/Interface	Description	Status
<b>DoctorDTO (Class)</b>	Use appropriate annotations from the Java Bean Validation API for validating attributes of this class.	Partially implemented.

<b>ScheduleDTO (Class)</b>	Use appropriate annotations from the Java Bean Validation API for validating attributes of this class.	Partially implemented.
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## 6.7 PACKAGE: COM.APPOINTMENT.ENTITY

### Resources

Class/Interface	Description	Status
<b>Doctor (Class)</b>	<ul style="list-style-type: none"> <li>• This class is partially implemented.</li> <li>• Annotate this class with proper annotation to declare it as an entity class with <b>id</b> as primary key.</li> <li>• Map this class with a <b>doctor table</b>.</li> <li>• Generate the <b>id</b> using the IDENTITY strategy</li> </ul>	Partially implemented.
<b>Sell (Class)</b>	<ul style="list-style-type: none"> <li>• This class is partially implemented.</li> <li>• Annotate this class with proper annotation to declare it as an entity class with <b>id</b> as primary key.</li> <li>• Map this class with a <b>schedule table</b>.</li> <li>• Generate the <b>id</b> using the IDENTITY strategy</li> </ul>	Partially implemented.

## 6.8 PACKAGE: COM.APPOINTMENT.EXCEPTION

### Resources

Class/Interface	Description	Status
NotFoundException (Class)	<ul style="list-style-type: none"><li>• Custom Exception to be thrown when trying to fetch or delete the product/sell info which does not exist.</li><li>• Need to create Exception Handler for same wherever needed (local or global)</li></ul>	Already implemented.

## 1 EXECUTION STEPS TO FOLLOW FOR BACKEND

1. All actions like build, compile, running application, running test cases will be through Command Terminal.
2. To open the command terminal the test takers need to go to the Application menu (Three horizontal lines at left top) -> Terminal -> New Terminal.
3. cd into your backend project folder
4. To build your project use command:  
**mvn clean package -Dmaven.test.skip**
5. To launch your application, move into the target folder (**cd target**). Run the following command to run the application:  
**java -jar <your application jar file name>**
6. This editor Auto Saves the code.
7. If you want to exit(logout) and continue the coding later anytime (using Save & Exit option on Assessment Landing Page) then you need to use **CTRL+Shift+B**-command compulsorily on code IDE. This will push or save the updated contents in the internal

git/repository. Else the code will not be available in the next login.

8. These are time bound assessments the timer would stop if you logout and while logging in back using the same credentials the timer would resume from the same time it was stopped from the previous logout.
9. To test any Restful application, the last option on the left panel of IDE, you can find ThunderClient, which is the lightweight equivalent of POSTMAN.
10. To test any UI based application the second last option on the left panel of IDE, you can find Browser Preview, where you can launch the application.
11. Default credentials for MySQL:
  - a. Username: **root**
  - b. Password: **pass@word1**
11. To login to mysql instance: Open new terminal and use following command:
  - a. **sudo systemctl enable mysql**
  - b. **sudo systemctl start mysql**
  - c. **mysql -u root -p**

**The last command will ask for password which is 'pass@word1'**

12. Mandatory: Before final submission run the following command:

**mvn test**

13. You need to use **CTRL+Shift+B** - command compulsorily on code IDE, before final submission as well. This will push or save the updated contents in the internal git/repository, and will be used to evaluate the code quality.