## Spring Boot, JPA, and Web Services Quiz - 50 points

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GitHub URL: <https://github.com/Melqr/FSTC-SWD02-SCB--Submission>

GitHub Assessment - 20 points - [Based on GitHub Practical](https://docs.google.com/spreadsheets/d/1iNm0TGutc1UghshK5A6Ga0GZq0n7MKN0/edit?gid=1324934410#gid=1324934410)

Objective Ques - 20 points - As quiz below

GitHub Contributions Ques - 10 points - [Based on GitHub Sharing](https://github.com/pcyuen98/spring-boot-basic/issues)

Please save your file format as

FSTC-SWD02(SCB)-SpringBoot-<Name>.docx

Upload into your answer into

<https://drive.google.com/drive/u/0/folders/1l8cfc7TvyIvf-_Ub_yz3-_wkDPWxLEpp>

## Instructions: Choose the best answer for each question.

## Day 1: Introduction to Spring Boot and Core Concepts

**1. Which of the following is a key benefit of Spring Boot for rapid application development?**

a) Manual configuration of all beans

b) Extensive XML configuration files

c) Auto-configuration and embedded servers

d) Limited support for RESTful APIs

Answer: C

**2.What is the primary tool recommended for generating a new Spring Boot project?**

a) Maven command line

b) Spring Initializr

c) Eclipse new project wizard directly

d) Copying an existing project

Answer: B

**3.The @RestController annotation in Spring Boot combines which two annotations?**

a) @Controller and @ResponseBody

b) @Service and @Controller

c) @Component and @Repository

d) @RequestMapping and @ResponseBody

Answer: A

**4.Which HTTP method is typically used to create a new resource in a RESTful API?**

a) GET

b) PUT

c) DELETE

d) POST

Answer: D

## Day 2: Web Development with Spring Boot

**5.What is the main purpose of a Data Transfer Object (DTO) in Spring Boot web applications?**

a) To store persistent data in the database

b) To transfer data between different layers (e.g., controller to service) in a specific format

c) To define the application's business logic

d) To handle security authentication

Answer: B

**6.The Model-View-Controller (MVC) architecture in Spring Web MVC primarily aims to:**

a) Store all application data in a single file

b) Separate concerns for UI, data, and logic

c) Directly connect the database to the user interface

d) Minimize the use of annotations

Answer: B

**7.Which annotation is commonly used to indicate a class that holds business logic in Spring?**

a) @Controller

b) @Repository

c) @Service

d) @Component

Answer: C

**8.When handling errors in Spring Boot, what is a common approach to map specific exceptions to HTTP status codes?**

a) Using try-catch blocks everywhere

b) Implementing a global exception handler with @ControllerAdvice and @ExceptionHandler

c) Returning null from controller methods

d) Relying solely on default browser error pages

Answer: B

## Day 3: Data Persistence with Spring Data JPA

**9.Spring Data JPA simplifies database interactions by:**

a) Requiring manual SQL queries for every operation

b) Providing automatic implementation for common CRUD operations through interfaces

c) Eliminating the need for a database altogether

d) Only supporting NoSQL databases

Answer: B

**10.In JPA, a class annotated with @Entity represents:**

a) A web service endpoint

b) A business logic component

c) A table in the relational database

d) A Spring bean configuration

Answer: C

**11.Which annotation is used to specify the primary key of an entity in JPA?**

a) @Column

b) @Table

c) @Id

d) @GeneratedValue

Answer: C

**12.To define a one-to-many relationship where one Department has multiple Employees, which annotation would you typically use on the Department side collection of employees?**

a) @OneToOne

b) @ManyToOne

c) @ManyToMany

d) @OneToMany

Answer: D

## Day 4: Advanced Topics and Best Practices

**13.Which file is typically used for externalized configuration in a Spring Boot application?**

a) web.xml

b) application.properties or application.yml

c) spring-context.xml

d) hibernate.cfg.xml

Answer: B

**14.For monitoring and managing Spring Boot applications in production, which module provides production-ready features like health checks and metrics?**

a) Spring Boot Data

b) Spring Boot Security

c) Spring Boot Web

d) Spring Boot Actuator

Answer: D

**15.What is the primary benefit of using a logging framework (like Logback or Log4j2) over simple System.out.println() for debugging?**

a) It makes the application run faster.

b) It allows configurable log levels, output destinations, and formats without code changes.

c) It is the only way to see error messages.

d) It reduces the overall application size.

Answer: B

**16.What is the purpose of @Value annotation in Spring Boot?**

a) To mark a method as a value-returning function.

b) To inject values from properties files or environment variables into fields.

c) To define a default value for a method parameter.

d) To indicate a static final constant.

Answer: B

## Day 5: Project Development and Deployment

**17.How is a typical Spring Boot application packaged for deployment?**

a) As a WAR file (Web Archive)

b) As an EAR file (Enterprise Archive)

c) As an executable JAR file (Java Archive)

d) As a ZIP file containing source code

Answer: C

**18.What is a key advantage of Spring Boot's embedded server (e.g., Tomcat, Jetty)?**

a) It requires an external application server to be installed separately.

b) It simplifies deployment as the application runs standalone.

c) It increases the complexity of project setup.

d) It limits the application to run only on specific operating systems.

Answer: B

**19.Which of the following is a common tool used for static code analysis to improve code quality (as mentioned in Day 4 cleanup)?**

a) Postman

b) Maven

c) SonarLint

d) Docker

Answer: C

**20.When troubleshooting a Spring Boot application that won't start, what is often the first place to check?**

a) The browser console

b) The database logs

c) The application's console output or log files

d) The pom.xml file for missing dependencies

Answer: C

## 

## Sharing and Collaboration Question

(10 Points)

Based on the [GitHub Issue URL](https://github.com/pcyuen98/spring-boot-basic/issues), Share the issue or new skills you had over the module and explain how you solved or a technical lesson learnt.

It needs to have a meaningful title, either Error or Info

It must have an error stack if any

A simple description of the error

If it is an info, please write more details and provide a sample [supporting URL](https://github.com/pcyuen98/spring-boot-basic/issues/13) . You can take the sample Info ques on R&D tab on [practical spreadsheet](https://docs.google.com/spreadsheets/d/1iNm0TGutc1UghshK5A6Ga0GZq0n7MKN0/edit?gid=1324934410#gid=1324934410)

**Note**: You can share more than one solution or error :)

Your GitHub Issue URL - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_