

# Assignment: Guess the Number REST Service

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**Due** No Due Date    **Points** 100    **Submitting** a website url

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## Guess the Number

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In this activity, you will write a REST server to facilitate playing a number guessing game known as "Bulls and Cows". In each game, a 4-digit number is generated where every digit is different. For each round, the user guesses a number and is told the exact and partial digit matches.

- An exact match occurs when the user guesses the correct digit in the correct position.
- A partial match occurs when the user guesses the correct digit but in the wrong position.

Once the number is guessed (exact matches for all digits) the user wins the game.

## Requirements

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You'll create a Spring Boot REST application using JDBC Template to access the database.

A Game should have an answer and a status (in progress or finished). While the game is in progress, users should not be able to see the answer. The answer will be a 4-digit number with no duplicate digits.

Each Round will have a guess, the time of the guess, and the result of the guess in the format "e:0:p:0" where "e" stands for exact matches and "p" stands for partial matches.

You will need several REST endpoints for this:

- "begin" - POST – Starts a game, generates an answer, and sets the correct status. Should return a 201 CREATED message as well as the created gameId.
- "guess" – POST – Makes a guess by passing the guess and gameId in as JSON. The program must calculate the results of the guess and mark the game finished if the guess is correct. It returns the Round object with the results filled in.
- "game" – GET – Returns a list of all games. Be sure in-progress games do not display their answer.
- "game/{gameId}" - GET – Returns a specific game based on ID. Be sure in-progress games do not display their answer.
- "rounds/{gameId}" – GET – Returns a list of rounds for the specified game sorted by time.

You should include a Service layer to manage the game rules, such as generating initial answers for a game and calculating the results of a guess.

All of your public DAO interface methods should be tested thoroughly.

## Additional Notes

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- Use Postman to verify your endpoints behave the way you expect them to be.

## Submitting Your Assessment

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When you are satisfied that your project meets all requirements take the following actions:

1. Submit your files following instructions provided in the course.
2. If you are attending the Guild online, schedule a time with a staff member to review your code. If you are attending the Guild in person, your code will be reviewed during the weekly code review.

3. Be prepared to answer questions about your code and thought processes.

Website URL

Copy and paste the link to the web site you'd like to submit for this assignment.

Website URL:

Comments...

### Guess the Number Rubric

Criteria	Ratings			Pts
JdbcTemplate Configuration JdbcTemplate is properly configured in application.properties and is injected into Daos.	5.0 pts Meets Expectations	3.0 pts Needs Improvement	0.0 pts Not Submitted	5.0 pts
JdbcTemplate CRUD Data is retrieved, created, updated, and deleted in the database using JdbcTemplate.	15.0 pts Meets Expectations	8.0 pts Needs Improvement	0.0 pts Not Submitted	15.0 pts
Dao tests Dao tests use a test database. They do not alter the application database.	5.0 pts Meets Expectations	3.0 pts Needs Improvement	0.0 pts No Submission	5.0 pts
Java class model The Java class model represents the correct data and relationships. The query strategy supports the model.	5.0 pts Full Marks		0.0 pts No Marks	5.0 pts
Code Review: HTTP methods, URLs, and JSON During the code review, the apprentice can pinpoint where HTTP methods, URLs, and JSON are used and can explain what they do.	5.0 pts Full Marks		0.0 pts No Marks	5.0 pts

Criteria	Ratings		Pts
<b>Spring Boot Application</b> The application runs as a Spring Boot application. Dependencies are injected with annotations.	<b>5.0 pts</b> <b>Full Marks</b>	<b>0.0 pts</b> <b>No Marks</b>	5.0 pts
<b>Service Components</b> The application uses service components to store and apply game rules.	<b>10.0 pts</b> <b>Full Marks</b>	<b>0.0 pts</b> <b>No Marks</b>	10.0 pts
<b>Testing</b> Game rules are tested and verified correct.	<b>5.0 pts</b> <b>Full Marks</b>	<b>0.0 pts</b> <b>No Marks</b>	5.0 pts
<b>Spring MVC Controller</b> The application handles HTTP requests with at least one Spring MVC controller.	<b>5.0 pts</b> <b>Full Marks</b>	<b>0.0 pts</b> <b>No Marks</b>	5.0 pts
<b>Controllers and Daos</b> Controllers never directly access a Dao.	<b>5.0 pts</b> <b>Full Marks</b>	<b>0.0 pts</b> <b>No Marks</b>	5.0 pts

Criteria	Ratings		Pts
Controller Handler Methods Controller handler methods are configured via annotations with correct URL and HTTP method.	10.0 pts Full Marks	0.0 pts No Marks	10.0 pts
Game Play Can play a full Guess the Number game with Postman.	20.0 pts Full Marks	0.0 pts No Marks	20.0 pts
Code Style The code style adheres to all Java code conventions and idioms.	5.0 pts Full Marks	0.0 pts No Marks	5.0 pts
Total Points: 100.0			