

Name: _____

- Pull up **Lab04** in IntelliJ
- Pull up **Index page**: Verify that there are links/buttons for **AddNumbers**, **MultiplyNumbers**, and **GuessingGame**.
- Go to **Add Numbers** from **Index page**: **AddNumbers** page appears, with three number fields.
- Enter *three numbers*: Get correct sum.
- Delete *third number*: Get correct error message: **Please enter 3 numbers** (required), fields have original values (extra credit).
- Replace *third number* with **abc**: Get correct error message: **Invalid double** (required), fields have original values (extra credit).
- Go back to the **Index Page**.
- Go to **Multiply Numbers**: **MultiplyNumbers** page appears, with two number fields.
- Enter *two numbers*: Get correct product.
- Delete *first number*: Get correct error message: **Please enter 2 numbers** (required), all fields have original values (extra credit).
- Replace *first number* with **abc**: Get correct error message: **Invalid double** (required), all fields have original values (extra credit).
- Go back to **Index Page**.
- Go to **Guessing Game**: **GuessingGame** page appears, **Start Game** displayed.
- Use 33 as the number: Press correct buttons, application eventually guesses 33. Sequence of computer guesses: **50** -> **25** -> **37** -> **31** -> **34** -> **32** -> **33**.
- Pull up **Numbers.java**: Verify encapsulation. Model attributes are private, and public constructor(s), getters, setters have been provided.
- Pull up **addNumbersServlet.java**: Verify **ONLY error message** and **model** parameters are being set in the HTTP request.
- In **addNumbersServlet.java**: Verify MVC is followed. **NO** direct calls to **Numbers** model setter methods. Only controller methods used to change **Numbers** model attributes.
- In **multiplyNumbersServlet.java**: Verify MVC is followed. **NO** direct calls to **Numbers** model setter methods. Only controller methods used to change **Numbers** model attributes.
- Pull up **addNumbers.jsp**: Verify it **ONLY** pulls model data directly from **Numbers** model parameter.
- Run JUnit tests for **NumbersControllerTests.java** and **NumbersTests.java** methods: Test cases exist and pass. Complete test cases cover **constructor(s)**, **getter(s)**, **setter(s)**, and **add** and **multiply** methods.