Quiz Servlet Lab

Write a Servlet application that presents a series of quiz questions. Each question displays a sequence of numbers and asks the participant to guess the next number of the sequence. For example, the first sequence is 3 1 4 1 5.

The Number Quiz

Your current score is 0.

Guess the next number in the sequence.

3, 1, 4, 1, 5

Your answer: [   ]

[Submit]

To solve the puzzle, you need to find the pattern. In this case, we have the first digits of π. If you type in the next number in the sequence (the number 9) . . .

The Number Quiz

Your current score is 0.

Guess the next number in the sequence.

3, 1, 4, 1, 5

Your answer: [9]

[Submit]

. . . the score goes up by 1:

The Number Quiz

Your current score is 1.

Guess the next number in the sequence.

1, 1, 2, 3, 5

Your answer: _____

[Submit]

Store 5 number sequences in a Java class, which simulates a database. Use the following sequences (correct answers are included):

```java
private static String[] questions = {
    "3, 1, 4, 1, 5", // pi
    "1, 1, 2, 3, 5", // fibonacci
    "1, 4, 9, 16, 25", // squares
    "2, 3, 5, 7, 11", // primes
    "1, 2, 4, 8, 16" // powers of 2
};
private static int[]    answers = {9, 8, 36, 13, 32};
```

After the user has completed the quiz, display something like the following:

The Number Quiz

Your current score is 2.

You have completed the Number Quiz, with a score of 2 out of 5.

Do not use JavaScript in this project at all.

- Good design will be to have all the **quiz logic separate from the presentation**
  - Quiz should be separate from servlet's code
  - Should be able to reuse same quiz class(es) in desktop app and web app
  - should not have to modify quiz in any way to do a console app

- One way of doing, (not recommended way)
    - **HttpSession s = request.getSession**()
    - **s.setAttribute("currentQuestion", 1);**
    - mixes quiz logic into the servlet/presentation processing

- Recommended
    - class *Quiz* to encapsulate the quiz logic and state info
    - if attribute *quiz* is null
        - **s.setAttribute("quiz", new Quiz**());   **//can save objects in the session**
    - in subsequent requests
        - **{Quiz q = (Quiz) s.getAttribute("quiz");**