

AP*-style free response

- 4.1 Consider the following incomplete declaration of a Code class which represents a code consisting of letters and digits. The actual code is stored internally as a String variable, myCode. Portions of the code may be hidden by changing the corresponding letter or digit to an X. Hidden portions may later be recovered.

```
public class Code
{
    private String myCode;
    // additional instance variables

    public Code(String code)
    {
        myCode = code;
        // possibly additional statements
    }

    public String getCode()
    {
        return myCode;
    }

    // precondition: p1 >= 0, p1 < p2,
    //                p2 <= myCode.length()
    // Replaces the characters in the code starting at
    // position p1 until position p2-1 inclusive with an X
    public void hide(int p1, int p2)
    {
        // to be implemented
    }

    // precondition: p1 >= 0, p1 < p2,
    //                p2 <= myCode.length()
    // Restores to their original values the characters in
    // the code starting at position p1 until position
    // p2-1 inclusive
    public void recover(int p1, int p2)
    {
        // to be implemented
    }
}
```

The methods `hide` and `recover` work as described in the comments. Note that if `hide` is called for a portion of the code that is already hidden, it has no effect and if `recover` is called for a portion of the code that is already “clear,” it has no effect.

Suppose the following code is created:

```
code code = new Code("ABCdef123ghi456jklMNO");
```

The following sequence of method calls results in the instance variable `myCode` having the indicated values.

	Value of <code>myCode</code>
<code>code.hide(2, 7);</code>	ABXXXXX23ghi456jklMNO
<code>code.recover(5, 9);</code>	ABXXXf123ghi456jklMNO
<code>code.hide(3, 14);</code>	ABXXXXXXXXXXXXX6jklMNO
<code>code.hide(6, 10);</code>	ABXXXXXXXXXXXXX6jklMNO
<code>code.recover(5, 6);</code>	ABXXXfXXXXXXXXX6jklMNO
<code>code.recover(0, 14);</code>	ABCdef123ghi456jklMNO

- Thinking ahead to implementing the `hide` and `recover` methods, declare in this part any additional instance variables you will need and any additional code you may need in the constructor.

```
// instance variables  
String myCode;
```

```
Code(String code)  
{  
    myCode = code;  
  
}
```

- Implement the `hide` method.
- Implement the `recover` method.