

(a) According to your instructor's general course policies, when, and under what conditions may students make use of a laptop or other electronic device during lecture?

(b) Implement a method that will accept an `ArrayList` of `Strings` and return the longest `String` in the `ArrayList`. In the event of a tie, you should return the `String` that is closest to the front of the `ArrayList`. For example, if the `ArrayList` contains the following:

```
"The", "quiz", "was", "easy", "to", "do."
```

the method should return `quiz`. If the `ArrayList` is `null` or empty, an empty `String` should be returned.

1. Explain why the following code will compile regardless of what types of objects `first` and `second` are:

```
boolean answer = first.equals(second);
```

2. Suppose that the `Animal` class is a parent of the `Dog` class. Indicate which of the following are legal Java statements:

```
Object o1 = new Object();
```

```
Animal a1 = new Object();
```

```
Dog d1 = new Object();
```

```
Object o2 = new Animal();
```

```
Animal a2 = new Animal();
```

```
Dog d2 = new Animal();
```

```
Object o3 = new Dog();
```

```
Animal a3 = new Dog();
```

```
Dog d3 = new Dog();
```

Suppose `First` is an interface with two methods: `iMethodA()` and `iMethodB()`. Suppose further that `Parent` is a class with the following methods: a constructor that accepts a `String` as an argument, an overridden `equals()` method, and `pMethodA()`.

(a) Show the class declaration (just the first line) of a `Child` that inherits from `Parent` and implements the `First` interface.

(b) List the method signatures for all of the methods that **must** be implemented by the `Child` class.

(c) List all of the reference types that can refer to a `Child` object. I.e., what can replace `XXX` in the following line of code?

```
XXX obj = new Child ();
```

(a) One override of `showOptionDialog` accepts an array. How is the array used by the method?

(b) What is the *messageType* used for in the `JOptionPane` class?

(c) What method was used to make the `JFrame` object appear on the screen?

(d) What method was used to set the text in the title bar of the `JFrame` window?

Write implement a class called `Quiz5` that will create a `JFrame` with one button that displays “Ouch” on the console whenever it is pressed.

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Write a program that asks the user to enter their weight in pounds and displays their weight in kilograms. The program must use dialog boxes for user interaction and use exception handling to prevent a system crash. If the user's input is invalid (including values less than 5 pounds or greater than 600 pounds), the program should reprompt the user for input. You may choose to close the program or reprompt if "Cancel" is selected.

Describe how the `DataOutputStream` and `FileOutputStream` classes differ. When would you choose to use the `DataOutputStream`?

Identify and describe at least two errors (logic or syntax) in the following code:

```
public static void writeBytes(String filename, String append) {
    try (FileOutputStream out = new FileOutputStream(filename, append)) {
        out.write("d");
        out.write(1000000);
        out.write(-1000000);
    } catch (FileNotFoundException e) {
        System.err.println("File_not_found");
        System.err.println(e.getMessage());
    }
}
```