## Units 2, 4, 7 FRQ: 3 Array/ ArrayList

Name

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1.  SHOW ALL YOUR WORK. REMEMBER THAT PROGRAM SEGMENTS ARE TO BE WRITTEN IN JAVA.

    - Assume that the classes listed in the Java Quick Reference have been imported where appropriate.
    - Unless otherwise noted in the question, assume that parameters in method calls are not `null` and that methods are called only when their preconditions are satisfied.
    - In writing solutions for each question, you may use any of the accessible methods that are listed in classes defined in that question. Writing significant amounts of code that can be replaced by a call to one of these methods will not receive full credit.

A student plans to analyze product reviews found on a Web site by looking for keywords in posted reviews. The `ProductReview` class, shown below, is used to represent a single review. A product review consists of a product name and a review of that product.

```
public class ProductReview
{
    private String name;

    private String review;

    /** Constructs a ProductReview object and initializes the
    instance variables. */
    public ProductReview(String pName, String pReview)
    {
        name = pName;

        review = pReview;

    }
   /** Returns the name of the product. */
    public String getName()
    { return name; }
   /** Returns the review of the product. */
    public String getReview()
    { return review; }

}
```

The `ReviewCollector` class, shown below, is used to represent a collection of reviews to

be analyzed.

```
public class ReviewCollector
{
    private ArrayList<ProductReview> reviewList;

    private ArrayList<String> productList;

    /** Constructs a ReviewCollector object and initializes the
    instance variables. */
    public ReviewCollector()
    {
      reviewList = new ArrayList<ProductReview>();

      productList = new ArrayList<String>();

    }
    /** Adds a new review to the collection of reviews, as described
    in part (a). */
    public void addReview(ProductReview prodReview)

    { /* to be implemented in part (a) */ }

    /** Returns the number of good reviews for a given product name,
    as described in part (b). */
    public int getNumGoodReviews(String prodName)

    { /* to be implemented in part (b) */ }

    // There may be instance variables, constructors, and methods
    not shown.

    }
```

(a) Write the `addReview` method, which adds a single product review, represented by a `ProductReview` object, to the `ReviewCollector` object. The `addReview` method does the following when it adds a product review.

- The `ProductReview` object is added to the `reviewList` instance variable.
- The product name from the `ProductReview` object is added to the `productList` instance variable if the product name is not already found in `productList`.

Elements may be added to `reviewList` and `productList` in any order.

Complete method `addReview`.

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```
/** Adds a new review to the collection of reviews, as described
in part (a). */
public void addReview(ProductReview prodReview)
```

📝 Please respond on separate paper, following directions from your teacher.

(b) Write the `getNumGoodReviews` method, which returns the number of good reviews for a given product name. A review is considered good if it contains the string `"best"` (all lowercase). If there are no reviews with a matching product name, the method returns `0`. Note that a review that contains `"BEST"` or `"Best"` is not considered a good review (since not all the letters of `"best"` are lowercase), but a review that contains `"asbestos"` is considered a good review (since all the letters of `"best"` are lowercase).

Complete method `getNumGoodReviews`.

```
/** Returns the number of good reviews for a given product name,
as described in part (b). */
public int getNumGoodReviews(String prodName)
```

- Class information for this question

```
public class ProductReview
private String name
private String review
public ProductReview(String pName, String pReview)
public String getName()
public String getReview()
public class ReviewCollector
private ArrayList<ProductReview> reviewList
private ArrayList<String> productList
public ReviewCollector()
public void addReview(ProductReview prodReview)
public int getNumGoodReviews(String prodName)
```

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