

# Palindrome Mastery ErrorLog

The first error I experienced was attempting to copy my first ArrayList.

```
package Mastery;

import java.util.Collections;
import java.util.Scanner;
import java.util.ArrayList;

public class Palindrome {

    public static void main(String[] args) {

        ArrayList<Character> letter = new ArrayList<Character>();
        ArrayList<Character> reverseLetter = new ArrayList<Character>();

        Scanner input = new Scanner(System.in);

        System.out.print("Enter a word: ");
        String word = input.nextLine();
        word = word.replaceAll(" ", "");

        int length = word.length();

        for(int i = 0; i < length; i++) {
            letter.add(word.charAt(i));
        }

        System.out.print(letter);
        Collections.reverse(letter);
        System.out.print(letter);
        System.out.println();

    }

}
```

I attempted to copy the first ArrayList by simply assigning the second ArrayList as the first using the '=' operator. Unfortunately this only created a shallow copy, as a reference to the first. So any changes I made to the second ArrayList would be reflected in the first, such as the Collections.reverse() method. To resolve this logic error I utilized the .clone method to create a deep copy.

The revised code is seen below:

```
package Mastery;

import java.util.Collections;
import java.util.Scanner;
import java.util.ArrayList;

public class Palindrome {

    public static void main(String[] args) {

        ArrayList<Character> letter = new ArrayList<Character>();

        Scanner input = new Scanner(System.in);

        System.out.print("Enter a word: ");
        String word = input.nextLine();
        word = word.replaceAll(" ", "");

        int length = word.length();

        for(int i = 0; i < length; i++) {
            letter.add(word.charAt(i));
        }

        ArrayList<Character> reverseLetter = (ArrayList<Character>)letter.clone();
        Collections.reverse(reverseLetter);

        System.out.print(letter);
        System.out.print(reverseLetter);
        System.out.println();

    }

}
```

The second logic error came from capitalization.

```
package Mastery;

import java.util.Collections;
import java.util.Scanner;
import java.util.ArrayList;

public class Palindrome {

    public static void main(String[] args) {

        ArrayList<Character> letter = new ArrayList<Character>();

        Scanner input = new Scanner(System.in);

        System.out.print("Enter a word: ");
        String word = input.nextLine();
        word = word.replaceAll(" ", "");

        int length = word.length();

        for(int i = 0; i < length; i++) {
            letter.add(word.charAt(i));
        }

        ArrayList<Character> reverseLetter = (ArrayList<Character>)letter.clone();
        Collections.reverse(reverseLetter);

        System.out.print(letter);
        System.out.print(reverseLetter);
        System.out.println();

        if (letter.equals(reverseLetter) == true) {
            System.out.print(letter + " IS a palindrome.");
        } else {
            System.out.print(letter + " is NOT a palindrome.");
        }

    }

}
```

The if-else statement compared the two arrays using the .equals() method, as I had never specified capitalization results like the one depicted below would occur:

```
Enter a word: Mom
[M, o, m][m, o, M]
[M, o, m] is NOT a palindrome.
```

To resolve this I utilized the `.toLowerCase()` method after declaring the string. The revised code is seen below:

```
package Mastery;

import java.util.Collections;
import java.util.Scanner;
import java.util.ArrayList;

public class Palindrome {

    public static void main(String[] args) {

        //Creates letter ArrayList object
        ArrayList<Character> letter = new ArrayList<Character>();

        //Preparing for user input
        Scanner input = new Scanner(System.in);

        //Prompts and records user input
        System.out.print("Enter a word: ");
        String word = input.nextLine();

        //Converts to lowercase and removes spaces from the word/phrase
        word = word.toLowerCase();
        word = word.replaceAll(" ", "");

        //Gets length of user input
        int length = word.length();

        //Loops for the number of characters in the word/phrase
        for(int i = 0; i < length; i++) {
            //Adds char from word/phrase to ArrayList
            letter.add(word.charAt(i));
        }

        //Creates a second ArrayList object and reverses it
        ArrayList<Character> reverseLetter = (ArrayList<Character>)letter.clone();
        Collections.reverse(reverseLetter);

        //Checks if both ArrayList objects are equal
        if (letter.equals(reverseLetter) == true) {
            //Prints object is a palindrome
            System.out.print(word + " IS a palindrome.");
        } else {
            //Prints object isn't a palindrome
            System.out.print(word + " is NOT a palindrome.");
        }

    }

}
```

During the coding process I didn't encounter any runtime or syntax errors.