Credit Name: CSE 2120 Data Structures 1

Assignment: Palindrome

How has your program changed from planning to coding to now? Please Explain

```
System.out.println("This is the Palindrome application. You can enter a message to see if it is a Palindrome or not");
//User enters a message
System.out.println("Please enter a message: ");

String message = input.nextLine();

message = message.replaceAll("\\W", "").toUpperCase();
```

Firstly, I prompted the user to enter message that we would check to identify whether or not it was a palindrome.

Then I removed all white spacing within the message to account for cases where the palindrome is more than one word. I removed white spacing using the .replaceAll method. Then I converted the message into uppercase so all the characters are like.

```
        //convert message into an array of characters
        char[] messageChar = message.toCharArray();

        //declare an array list to hold characters in the reverse order
        ArrayList<Character> revMessage = new ArrayList<Character>();
```

I then converted the message into a character array. This is because we will compare individual characters of the message between the original message and reversed message. As such i declared an array lists to hold the message's characters in the reverse order. We will then compare the characters in both loops to see if they match.

```
for(int i = messageChar.length-1; i>=0;i--)
{
    revMessage.add(messageChar[i]) ;
}
```

To add the characters in reverse order, I used a for loop starting from the last index in the character array for the original message. I needed to subtract 1 to account for 0-based indexing. Then until i = 0 which is the first character in the original list, i added the characters in reverse order as i decreases by 1 through every recursion.

```
        for(int j =0; j< messageChar.length;j++)
        {
            if(revMessage.get(j) != messageChar[j])
            {
                pdrome = false;
                break;
            }
            else
            {
                pdrome = true;
            }
        }

        if (pdrome == false)
        {
            System.out.print("Your message is NOT a Palindrome.");
        }

        else
        {
            System.out.print("The message IS a Palindrome.");
        }
    }
```

The last step is to compare both char lists. I started with a for loop to continue for the length of the phrase. I set up a boolean variable pdrome which is false if the reverse character isnt the same as the original. On the other hand it remains true otherwise.

At the end if pdrome is false the message is not a palindrome and it is a palindrome otherwise.