Andium Cowsay Converter (ACC)

Your task is to author a system consisting of two Java applications that together form a cowsay converter. The system should allow for a user to input text no longer than 80 characters (white space included) and to receive that text transformed into cowsay.

The purpose of this challenge is to assess the candidate's ability to author applications in Java and to use the JNI. In addition, the challenge is meant to assess the candidate's ability to differentiate between Linux Interprocess Communication (IPC) mechanisms, choose an appropriate mechanism based on project requirements, and implement a solution.

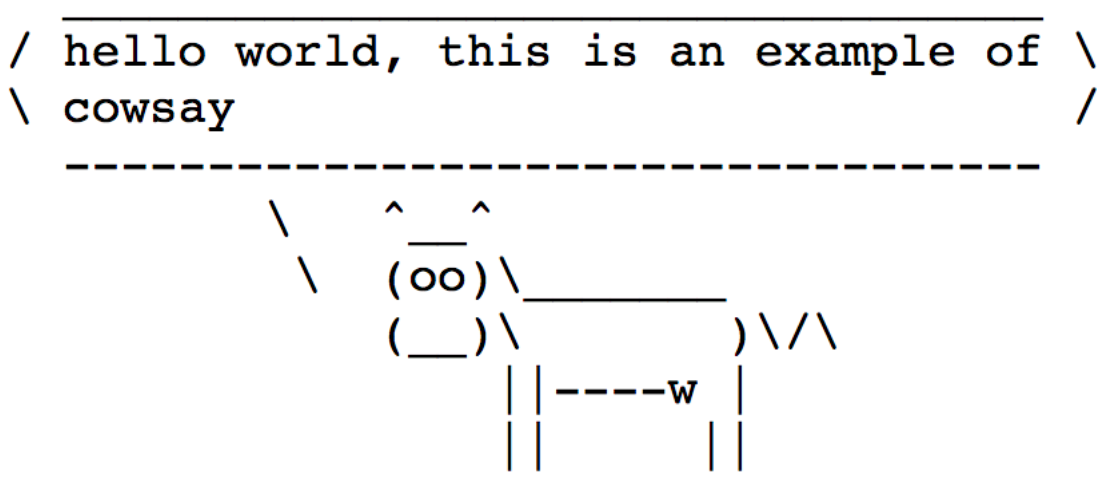
Requirements

- Java applications must execute as separate OS processes in separate JVM instances.
- The Java application that generates the final cowsay text must be separate from the Java application that takes user input and prints the cowsay output.
- IPC between the two Java applications must be accomplished through functions implemented with the JNI. In other words, IPC between the two applications should not be written in Java.
- The user can input up to 80 characters for conversion to cowsay.

Sample

Input: 'hello world, this is an example of cowsay'

Output:



Testing

Your application will be tested using Ubuntu 16.04 64-bit with Oracle JDK 8.

Delivery

Please push the following to your private GitHub repo[1]

- Source code
- Build scripts (you're free to use a build system such is Gradle if you'd like, but shell scripts are also fine)
- A test application that implements at least three test cases
- A brief README file that answers the following questions
    - What IPC mechanism did you choose and why?
    - What tradeoffs did you consider in choosing your IPC mechanism?
    - How would your system scale to thousands of messages per second given the IPC mechanism you chose?
    - If required to scale, would you use the same IPC mechanism that you chose? Why? If not, which would you use otherwise?

Additional Comments

Please send any questions or clarifications to Rameen Aryanpur at raryanpur@andium.com. Also, don't worry about scaling the cowsay text bubble based on how many characters are input by the user! A fixed size text bubble based on the maximum possible number of input characters is fine.

Good luck!

[1] This will be provided to you