**Levels Beyond Coding Assessment – Back End Design Guide**

1. **Installation Instructions**: TBD
2. **Specifications**: Note-Taking Application
   1. Must be written in JAVA
   2. API must be accessible via url: *http://[host]/api/notes*
   3. Must meet RESTful JSON API best practices
   4. Each note must utilize the following data model:

*{*

*"id" : 1,*

*"body" : "Ask Larry about the TPS reports."*

*}*

* 1. Must provide the following functionality:
     1. Create
     2. Read
     3. Update
     4. Delete
     5. Search/Query
  2. Must include instructions for setup and installation for Windows and Mac. Easy setup is desired.

1. **Assumptions**:
   1. The order of notes is unimportant, since no Insert functionality is required by the specification. This assumption is confirmed by the required note data model which doesn’t lend kindly to Inserts. This also implies the Delete functionality should/may delete the text without deleting the actual structure of the data. In other words, no shifting operation will be required.
   2. Security is not a primary design consideration.
   3. Memory is needed for this application but there are no requirements. A DB, HD file, RAM or other memory may be used.
2. **Testing Criteria**:
   1. Create a New Note:

*curl -i -H "Content-Type: application/json" -X POST -d '{"body" : "Pick up milk!"}' http://localhost/api/notes* **should return***:*

*{*

*"id" : 2,*

*"body" : "Pick up milk!"*

*}*

* 1. Read an Existing Note:

*curl -i -H "Content-Type: application/json" -X GET http://localhost/api/notes/1* **should return***:*

*{*

*"id" : 1,*

*"body" : "Ask Larry about the TPS reports."*

*}*

* 1. Read *all* Existing Notes:

*curl -i -H "Content-Type: application/json" -X GET http://localhost/api/notes* **should return***:*

*[*

*{*

*"id" : 2,*

*"body" : "Pick up milk!"*

*},*

*{*

*"id" : 1,*

*"body" : "Ask Larry about the TPS reports."*

*}*

*]*

* 1. Search/Query *all* Existing Notes:

*curl -i -H "Content-Type: application/json" -X GET http://localhost/api/notes?query=milk* **should return***: a list of every note with the word 'milk' in it.*

1. **Development** Environment (Options Considered):
   1. NetBeans:
      1. NetBeans IDE 8.2 with JDK 8
      2. NetBeans Project:
         1. Type: Java – Web Application
   2. Manual:
      1. Compilation String: *"C:\Program Files\Java\jdk1.8.0\_181\bin\javac.exe" HelloWorldApp.java*
      2. Run string: *java -cp . HelloWorldApp*
   3. Eclipse: Not yet tried.
   4. Visual Studio: Most familiar with this IDE and probably should have utilized it.
2. **Challenges**:
   1. Note – the actual logic is trivial to write.
   2. Re-acclimating to Java is the largest challenge as the learning curve is large; I once considered it my native language, but it’s been too many years and much has changed.
   3. Getting the software to work on MacOS, since I have no Mac on hand and I am traditionally a windows or linux person.
   4. Re-Leaning an appropriate IDE and associated templates, navigators, automation and similar functionality provided.
   5. Learning more about Jersey, Maven and general java packages and package structures.
   6. Learning more about managing a webserver running Java based web services, as I’ve only used PHP/Python for this in the past
   7. Using curl from windows (*disregard, tool found: curl-7.61.1-win64-mingw*)
3. **Useful Resources**:
   1. [JAVA SDK 8](https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html)
   2. [NetBeans IDE 8.2](https://netbeans.org/downloads/start.html?platform=windows&lang=en&option=all)
   3. [Getting Started](https://docs.oracle.com/cd/E19226-01/820-7627/giqaa/index.html)
   4. [Curl For Windows](https://curl.haxx.se/dlwiz/?type=bin&os=Win64)
4. **Limitations**:
   1. Unfortunately and to my complete surprise, my skills in Java have devolved to the point where I do not think that I can complete this simple application in the allotted time. Refer to challenges section for study guidance and seek input from colleagues to overcome these challenges; refer to the next section, other thoughts, for ETA.
5. **Other Thoughts**:
   1. Many hours were spent trying to understand NetBeans development as I had never used it before, or at least in many years; no hours were spent writing the actual logic for this task. As is my typical mantra, ‘the hardest part of my job is setting up a development environment and acclimation to new bulky components’. In reality, acclimating to Java would be a 2-4 week task for me and then learning various aspects of web services specifically and NetBeans IDE would be another 1-2 weeks.
   2. All this being said… I’m seriously eager to re-learn Java.
   3. Because of these points I’m calling it quits on this task early… only because I know I won’t be able to show off any skills in the time remaining.
6. **Commit justification**: NA