



Computer Science 2B

Practical Assignment 01

2016-08-16

Deadline: 2016-08-23 12h00

Marks: 50

This practical assignment must be uploaded to eve.uj.ac.za **before** 2016-08-23 12h00. Late or incorrect submissions **will not be accepted**, and will therefore not be marked. You are **not allowed to collaborate** with any other student.

The Java Development Kit (JDK) has been installed on the laboratory computers along with the [Eclipse](#) Integrated Development Environment (IDE).

This practical will focus on creating a server application.

In this practical, we will be implementing a protocol for a magic 8 ball server. In order to test the implemented protocol, we can interact with it using *Telnet* or [PuTTY](#) and typing requests that facilitate typical usage. The magic 8 ball server should run on port **8888** and displays *"Waiting for connections..."* when the server is started.

When a client successfully connects to the server, it should respond with a **"01 WELCOME - You may ask 5 questions"** message and a client may only ask the magic 8 ball, 5 questions until it displays a **"05 GOODBYE - 5 Questions answered"** message to the client, which is followed by the connection being terminated. When the client wants to ask a question, it sends a **"READY"** message to the server and it promptly responds with a **"02 ASK your question or DONE"** message.

Once the server is ready, we are finally ready to ask questions. In order to ask a question, the client sends a message in the following format:

"ASK [Question]"

Where the "Question" part can be any question the client wishes to ask. Once the question is received by the server, it analyses the question and responds to it in the following way (in the **"03 [Answer]"** message format):

- If the Question starts with a *"Why"*, the server should respond with **"Because it is just like that"**.
- If the Question starts with an *"Are"*, the server randomly responds with either a **"Yes"**, **"No"** or **"Maybe"**.

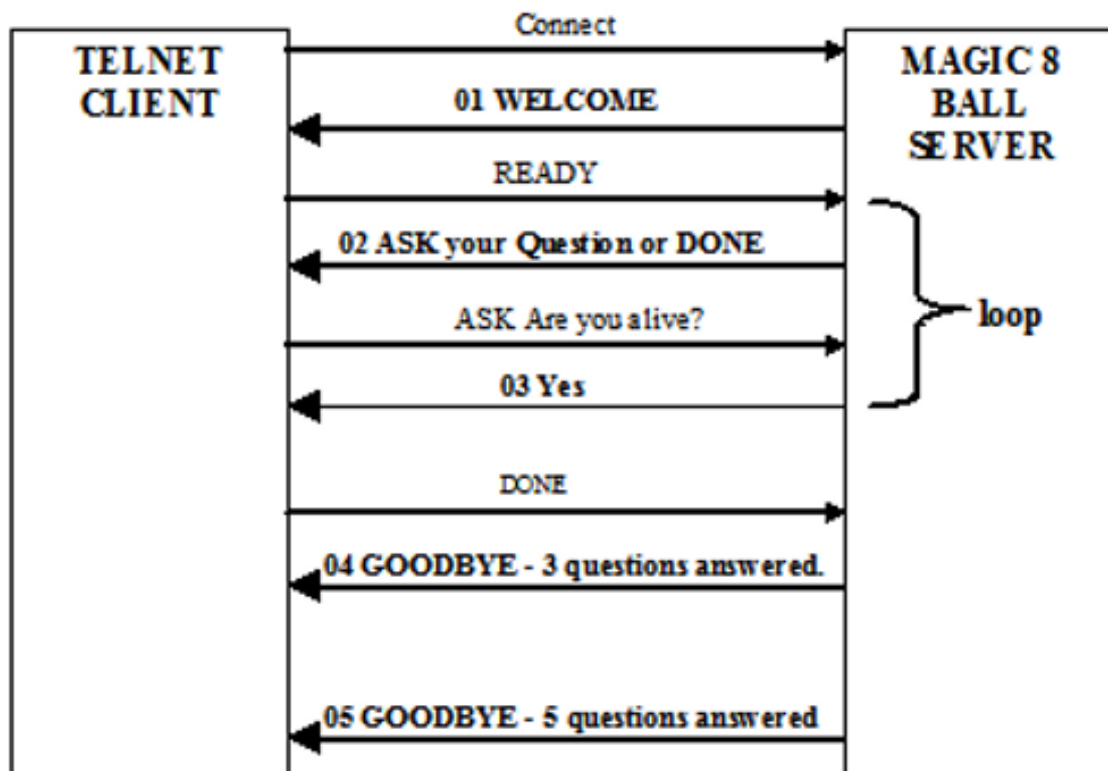


Figure 1: A typical example of Client-Server interaction for Magic 8 Ball

- For anything else, the server should randomly respond with either **"42"**, **"Please ask again later"** or **"Meh"**.

However, if the client sends a **"DONE"** message to the server, it should respond with a **"04 GOODBYE - [x] questions answered"**, where x is the amount of questions asked, and terminates the connection at its end.

Marksheet

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| 1. Server messages displayed in correct order. | [10] |
| 2. Questions answered correctly. | [5] |
| 3. Server terminates connection after 5 questions. | [5] |
| 4. Server terminates once DONE command is sent. | [5] |
| 5. Coding convention and commenting. | [5] |
| 6. Correct execution. | [20] |