1 A cookie server: Getting some wisdom

What we’re after: As a first foray into programming with sockets, we will create a fortune cookie server (for brevity, dropping the fortune from the name). Specifically, our goal would be to create a client/server pair that behaves as follows:

- The client establishes a connection with the server.
- The server transmits a randomly chosen fortune—a message that, one hopes, conveys some wisdom—to the client.
- The client and server disconnect.
- The client displays the fortune.

How to get started: You will write your own Java code from scratch, creating two programs: CookieServer and CookieClient. The essential Java classes that you will need are the Socket and ServerSocket classes. They each contain a large number of methods, so here is a listing of the ones most relevant here:

- In ServerSocket, ServerSocket (int port): The constructor for listening on the given port for a new connection. Remember that using this constructor only creates the socket; it does not itself listen for a connection.
- In ServerSocket, accept(): Listens for a connection, and once one is made, accepts it. This method returns a Socket.
- In ServerSocket, close(): Close all connections through the given socket and tear down any listeners.
- In Socket, Socket(String host, int port): The constructor for initiating a connection to the given host on the given port.
- In Socket, getInputStream(): Returns an InputStream through which data can be read from the socket.
- In Socket, getOutputStream(): Returns an OutputStream through which data can be written to the socket.
- In Socket, close(): Close all connections through the given socket.
How your code should behave: In one window, you should be able to run the server, which will wait for a connection, provide a fortune, and then exit. Using it should look something like this:

(remus)$ java CookieServer 12345
Listening on port 12345...
Connection established
Fortune sent
Exiting

On the client side, which would need to be run in a separate terminal, using it should look like this:

(romulus)$ java CookieClient remus.amherst.edu 12345
Connecting to remus.amherst.edu:12345...
Connection established
Your fortune: To get the best grade, stop worrying about grades. --Prof. Kaplan
Exiting

Your server should, ideally, have access to a collection of fortunes, and it should choose one of them at random to send. Where should you get the fortunes? I hear that the Internet may have some that you can use. Alternatively, you could make some up.

2 How to submit your work

Don’t! This is just for your exploration and edification.