

COMPUTER PROGRAMMING IN JAVA
COLUMBIA UNIVERSITY HIGH SCHOOL SCIENCE HONORS PROGRAM

Intro to AI: Chatbots and Turing Tests
Assignments
2007 Apr 12 Sat

For this assignment we are going to be implementing a chatbot that will (hopefully) pass a simplified version of the Turing test.

Our version of the Turing test will work as follows:

- There are two players in each round, an Interrogator and a Subject. It is the Interrogator's job to guess whether the Subject is a Human or a Computer.
- The Interrogator is allowed to ask as many questions as they like, but only 4 questions will be answered.
- The Subject is allowed to punt a question at any time.
- All questions must be yes/no questions.
- All questions and answers must be written in all **lower** case.
- Punctuation is not allowed in question or answer.
- Numbers must be written as digits (i.e. "one" is not allowed).
- No contractions are allowed.
- The questions must be limited to learning about the target's classes.

Valid questions include:

are you taking 5 classes this semester
did you like biology
is physics the hardest class you took

Invalid questions include:

what is the square root of pi
did newton invent calculus
did hemingway die at the age of 22

There is a point system, as follows:

- Each Interrogator and each Subject starts off with 10 points at the beginning of each round.
- The Interrogator loses a point for each question asked, regardless of whether or not it is answered (or punted), repeated or not, and valid or invalid. This is to force the Interrogator to ask questions carefully.
- The Subject loses a point for each question punted, regardless of the nature of the question (valid, invalid, repeat, etc). This is to force the Subject to punt wisely.

- After the Subject answers 4 questions, the round is over. At this time, the Interrogator makes a guess, Human or Computer. If the Interrogator guesses right, s/he gets the number of points s/he has remaining (and the Subject gets 0); if the Interrogator guesses wrong, then the Interrogator gets 0 points and the Subject gets his/her remaining points.

Setup

- 1) After you log into CUNIX from Putty, execute the following command:

```
ssh YOURUSERNAME@mango
```

Type in your password (note that it will not show up on the screen).

- 2) Download the zip file from the course webpage onto your CUNIX account:

```
wget http://www.cs.columbia.edu/~mwc2110/intro-ai-chat-turing-test/chatbot.zip
```

- 3) In CUNIX, unzip the file:

```
unzip chatbot.zip
```

- 4) You will now have a directory called “chatbot”. Go into that directory, and display the list of files:

```
cd chatbot  
ls -l
```

- 5) Execute the following command to make sure all the files are executable:

```
chmod u+x *.sh
```

Development and Testing

- 1) To begin with, have one member of your team log in, and be the Subject:

```
./start-subject.sh YOURTEAMNAME
```

- 2) Now, have another member log in, and be the Interrogator:

```
./start-interrogator.sh YOURTEAMNAME OTHERTEAMNAME
```

This is how you will test your AIs. Put all your code in Computer.java, and compile as normal. Read the Computer.java file carefully; there is one place to put your code, and all you have to do is set the variable “response” to either true or false. Do not return any values, and do not change any of the rest of the code.