Write Up on Mr Mainframe (M)

**Bold text** = Work In progress on current branch

## Incorrect processing occurrences

* M frequently malfunctions on questions which contain ‘in’, such as “how many cats in the world”
  + This is because it does not understand words as complex structures but instead as simple strings
* M also is not able to answer possessive questions, such as “what is your name”
  + This has not been implemented yet as it is not a necessary feature of a pub quiz bot, and would require M to save a file containing facts about itself and others around it
* M occasionally misunderstands questions due to the NLP library misinterpreting the type of words
  + An attempt to fix this for some common words has been made in the form of lists of words in the correct types, allowing the incorrect type to be replaced with the correct one
* M does not understand spelling mistakes from the user
  + This means that seemingly obvious sentences can be misunderstood
* M only can process single clauses at a time, so a multi-claused sentence will not be understood
  + For example, it is not possible to say “I have a dog, who is brown”
* Finally, M does not carry information as a continuous thread from the previous conversation, so asking a question like “What is London” followed by “Where is it” would confuse it

## Improvements

* **I would like to implement a smart word system, but this may require a complete rewrite**
  + **This would allow more information about a word to be stored, for instance a noun could store its pronouns and adjectives. This would allow for more intelligent answers due to a deeper understanding**
* I would like to allow M to store facts on itself and the people around it
  + This would mean that M would be more like a real human, as you could say “my favourite colour is blue”, and m would be able to respond to you asking it “what is my favourite colour”
* I could try to use a different NLP library, but the current one is satisfactory when combined with a large enough database of words
* A major improvement could come from spellchecking and autocorrecting
  + This would allow a much easier to speak to bot
* Multi-clause processing would be easy or tricky to implement, depending on the current status of implementation of retaining information from the previous conversation. If this had already been implemented then each clause could simply be processed as separate statements, and only the output of the final clause would be retained
* Carrying information between individual interactions could be done by persisting an extra sentence
  + Every time the user inputs something, the more recent details replace the older ones
  + This means previous facts could easily be referenced

## Going forward

* Going forward, I will definitely continue to update M
* After implementing most of the above improvements, I would like to host M online
* This would allow faster processing speeds and easy updates
* I would also like to either develop a front end for M, or release it to a social media platform as a bot
  + This way it could be tested by many people and feedback could be implemented to make it more robust in the real world
  + It would also be interesting to see if, eventually, M could pass the Turing test, and fool someone into believing that it is a human
* One final, and highly experimental feature that could be intriguing to implement is a neural network
  + The fixed response AI would be used to train the neural network, as it would be a fast alternative to talking to it by hand
  + This may create some unpredictable results, but may create a more natural feeling bot

# Example Questions

* “Who is David Cameron”
* “when was the berlin wall build”
* “who is Donald trump”
* “what is a car”
* “who are the Jedi”
* NOTE: if the program says “drone or drones may refer to:” or similar, wiki has found multiple links with this name, this will soon be fixed. If you want to see this webpage, answer yes to it when it asks and it will bring up the source webpage. If not, simply answer no.