Report Lab2

Errors and Limitations

The app cannot move freely but moves rather sequentially to move its "slots". If a user provides all the user supplied all or a significant chunk of information at the beginning of the conversation (e.g., in the answer: "who are you meeting with?") the system would fail.

Further, there is an issue with the ambiguity of time-expressions. Sometimes a person might say at 1300 (thirteen hundred) whereas at other times they might say on "1:00 pm".

The relevant entities provided in the responses also might also be encapsulated in a phrase or sentence. E.g., "yes, it will be". One solution to this would be to use some form of partial matching. Yet again, responses might be ambiguous, this would need to be detected.

Delay / lag. Possible improvement strategy: Add a "beep" signal for the user to wait for. Downside: Makes interaction less natural but more explicit (follows user design principles).

Repairs are not always recognized.

Fix: Fuzzy Matching

One example where the system fails is when it possibly mismatches items due to spelling. For example: "mum" is not recognized because the lexical entry for the term is "mom". For this I used an external library (fuse-js) to implement fuzzy matching. To make it work just add: yarn add fuse.js.

The tradeoff for this decision is that we might get quite a few false positives. One "tuning parameter" we can play with is the threshold. A higher threshold in fuse-js. The higher the threshold the more relaxed is the matching. Essentially, we increased the systems recognition sensitivity, but at the same time it might recognize things falsely that are not in the grammar.

Fix: Entity Constraints

Slips might happen when a user answers with the wrong entity, i.e. gives a date instead of a name. This can happen when the user repeatedly goes through the dialogue procedure. To avoid this the grammar is restricted to the entity type that is necessary. Otherwise, the user is informed that the uttered item is not in the grammar for the given entity.