Errors and limitations

I have identified 4 main limitations to the product, presented below. I will offer solutions, which I have implemented, to 3 of them.

1. One grammar for person/day/time

Having only one grammar for all acceptable inputs leads to issues when the user offers an 'acceptable' word according to the grammar, but not according to the current question. For example, if one says "Tuesday" when asked "Who are you meeting?", the system will accept that as a word in the grammar and move on to saving the information and on to the next question, even though the *person* variable within the context will be undefined, as the value of "Tuesday", within the grammar, does not contain a *person* key.

2. Low reactivity leading to repetition

The speed of the system as is is quite slow compared to human-to-human conversation. The system expects the user to reply with only one word, but remains in 'listening' mode for more than enough time; this can lead to the user being unsure whether or not the system has understood them, and can lead them to repeat the word. This leads to inputs such as "Tuesday Tuesday", which the system identifies as being outside of the grammar.

3. User expectations of what to say

The questions do not always indicate clearly what kind of answer format is expected. For example, to answer "Who are you meeting?", the user might answer using the person's full name, while the system expects (according to the grammar) only the first name. This leads to situations where the name is not recognized as acceptable though it does refer to an acceptable person.

4. Time format

The time format in the grammar is specific, using a 24 base (as opposed to AM/PM). Additionally, identifying times outside of the full hour, such as 11:30, is tricky – as the system recognizes the string "11:30" as pronounced "eleven colon thirty", which is a very unnatural way for a human to say that time.

Solutions

1. Separate Grammars

To solve limitation 1, I've created separate grammars for person, day, time, and yes/no. I moved both the grammars and the functions linked to them to another file, grammars.ts, and import only the necessary functions to dm.ts. I also added functions for getting the correct utterance when checking if the word is in the grammar, so the user can understand if a word is acceptable within the context of the question.

2. & 3. Checking only the first pronounced word

To solve limitations 2 and 3, I split the hypothesis of what was heard and check only whether the first word is in the appropriate grammar. This solves both repetition (isolating the first instance), and full names (isolating the first name), though problems linked to self-repair may remain.