Limitations

The first error that was noticed when testing the application is that it sometimes won't recognize the time of the appointment, after debugging the issue, it was clear that the speech-to-text module would convert the utterance "one" to "1", while the grammar expected 'string' numbers e.g, one, two, three, …etc. This limitation was eliminated by editing the grammar and changing all string numbers to numerical digits.

Furthermore, after extending the application by adding a TODO item and Timer apps, it was hard to manage everything inside the Machine in index.tsx, the xstate would confuse some states and it would get stuck in a loop. Therefore, a dmMain.ts was added as a controller, that is, a proxy between the Machine in index.tsx and all the other app services e.g., timer and appointment. The dmMain doesn't have any explicit functionality other than delegating the right task to the right app based on the user input.

Next, when implementing the Timer, intent examples for setting the time were added to the rasa nlu model e.g., "for 5 minutes and 3 seconds". When it was re-trained with the new intents, the model started to confuse the time setting intent with the intent to use the timer app in few cases, like when the user says: "set a timer for 5 minutes", this utterance should have the intent to activate the Timer app, while it confuses it with the duration intent used after the Timer is activated. To fix this issue, more intent examples were added to timer intent in nlu.yml and the number of epochs for the DIETclassifier in config.yml were increased. Increasing the number of epochs is not really needed to predict the right intent and solve the timer-time issue, but it helps increasing the model's confidence level after predicting the right intent.

Also, since the dmAppointment uses a grammar object, the user is limited to a set of predefined utterances in order to get the correct intent. For instance, when the programs asks the user about the day and time when setting an appointment, the user should respond with "on <day>" and "at <time>" respectively, otherwise, if the user says only "<day>", the app will not understand the user's intent. This limitation can be eliminated by adding more examples to the grammar object or simply use rasa nlu model.