

Results of the Evaluation Questionnaires

Transforming DMN Decision Tables into Chatbots

► QUESTIONS

Q0 - Did you finish the conversation with the chatbot and come to a decision?

Q1 - How was your interaction with the chatbot ? (1-Not fluent at all; 4-Very fluent)

Q2 - How useful did you find the assistance provided by the chatbot in case you asked for it? (don't answer if you didn't use it) (1-Not useful at all; 4-Highly useful)

Q3 - Considering the decision table below, did the Decision-support Chatbot ask you the right questions to come to a decision? (1-It did not at all; 4-It absolutely did)

Q4 - Do you see potential for this kind of applications in organisations? (1-No potential at all; 4-Large potential)

Q5 - What did you like/dislike about the chatbot?

Q6 - Do you have any suggestions in order to improve the Decision-Support Chatbot?

► RESPONSES OVERVIEW

Total participation: 30 Questionnaire 1: 17 - Questionnaire 2: 13

| | Answer: 1 | Answer: 2 | Answer: 3 | Answer: 4 | Tot. Answers |
|----|-----------|-----------|-----------|-----------|--------------|
| Q1 | 4 | 12 | 13 | 1 | 30 |
| Q2 | 5 | 6 | 14 | 3 | 28 |
| Q3 | 3 | 3 | 4 | 20 | 30 |
| Q4 | 2 | 4 | 11 | 13 | 30 |
| Q1 | 13% | 40% | 43% | 3% | 100% |
| Q2 | 17% | 20% | 47% | 10% | 93% |
| Q3 | 10% | 10% | 13% | 67% | 100% |
| Q4 | 7% | 13% | 37% | 43% | 100% |

► DETAILED ANSWERS

| Time stamp | Questionnaire | Q0 | Q1 | Q2 | Q3 | Q4 |
|--------------------|---------------|-----|----|----|----|----|
| 3/23/2020 13:22:02 | 1 | Yes | 3 | 3 | 4 | 4 |
| 3/23/2020 15:11:10 | 1 | Yes | 3 | | 4 | 4 |
| 3/23/2020 16:00:30 | 1 | Yes | 2 | 4 | 4 | 3 |
| 3/23/2020 17:09:53 | 1 | No | 2 | 1 | 4 | 2 |
| 3/23/2020 17:38:46 | 1 | Yes | 3 | 2 | 4 | 4 |
| 3/23/2020 17:44:41 | 1 | Yes | 3 | 2 | 4 | 3 |
| 3/23/2020 18:38:50 | 1 | No | 1 | 1 | 1 | 1 |
| 3/23/2020 18:49:55 | 1 | Yes | 2 | 3 | 4 | 3 |
| 3/23/2020 18:59:03 | 1 | Yes | 3 | 3 | 2 | 4 |
| 3/23/2020 19:24:45 | 1 | No | 1 | 1 | 1 | 4 |
| 3/23/2020 19:36:34 | 1 | Yes | 2 | 2 | 4 | 4 |
| 3/23/2020 20:17:37 | 1 | Yes | 3 | 3 | 3 | 3 |
| 3/23/2020 20:42:00 | 1 | Yes | 3 | 3 | 4 | 3 |
| 3/23/2020 21:09:41 | 1 | No | 3 | 4 | 4 | 3 |
| 3/23/2020 22:48:08 | 1 | Yes | 2 | | 4 | 4 |
| 3/24/2020 11:33:12 | 1 | Yes | 2 | 2 | 3 | 3 |
| 3/24/2020 12:07:41 | 1 | Yes | 2 | 3 | 3 | 3 |
| 3/23/2020 13:27:42 | 2 | Yes | 3 | 3 | 4 | 4 |
| 3/23/2020 15:17:11 | 2 | Yes | 3 | 3 | 4 | 3 |
| 3/23/2020 16:09:57 | 2 | Yes | 3 | 4 | 4 | 3 |
| 3/23/2020 17:10:05 | 2 | No | 2 | 1 | 4 | 2 |

| | | | | | | |
|--------------------|---|-----|---|---|---|---|
| 3/23/2020 17:48:07 | 2 | Yes | 1 | 3 | 2 | 2 |
| 3/23/2020 18:23:35 | 2 | Yes | 2 | 3 | 4 | 4 |
| 3/23/2020 18:40:53 | 2 | No | 1 | 1 | 1 | 1 |
| 3/23/2020 18:51:49 | 2 | Yes | 2 | 3 | 4 | 3 |
| 3/23/2020 18:59:23 | 2 | Yes | 3 | 3 | 3 | 4 |
| 3/23/2020 19:39:01 | 2 | Yes | 2 | 3 | 4 | 4 |
| 3/23/2020 20:44:35 | 2 | Yes | 3 | 3 | 4 | 4 |
| 3/23/2020 22:54:33 | 2 | Yes | 4 | 2 | 4 | 4 |
| 3/24/2020 11:36:53 | 2 | Yes | 2 | 2 | 2 | 2 |

Q5 - What did you like/dislike about the chatbot?

Questionnaire 1:

- I liked how it reminded me of what it needed from me
- I liked work automation. However, it was hard to get into the context of the decision-making problem. Having the question about the existence of a customer not followed by the question about their name in case the answer was "yes" was also not intuitive. Another drawback can be the fact that the user has to know exactly which words to use to interact with the chatbox.
- The set of questions is very limited. If you make a mistake in one answer, the bot doesn't point to a hint on how to fix the error, but suggests to use the command HELP. The scale of the parameters is not specified: why is Application Risk Score around ~100 and Credit Score around ~600? I was using other scale (1-10, 0-100, ...) and didn't understand why never got Categories different to HIGH.
- I need more contextual information
- no me gustó que a priori no se indicara un posible ejemplo del input que esperaba el chatbot
- Not naturwl
- I can compose a complex sentence with all the needed data, which is good, but if it has incomplete data sometimes the chatbot cannot fully understand the sentence and ask me about data I included in the sentence.
- Add value ranges information to help on answering.
- Too rigid
- It seems extremly limited to this application domain
- Didn't show the ranges
- Easy to use
- I didn't know the values for the risk score and credit score
- Falta interacción más humana, que haga que parezca que estoy hablando con asistente "humano" aunque sea virtual. En este caso, se parece más a un "sencillo" algoritmo de preguntas y respuestas
- It does not give any information about what those values are (if you are not a specialized person)
- Estando basado en el tipo de tabla que se muestra, es fácilmente implementable en una organización tras la toma de datos y un análisis estadístico simple.

Questionnaire 2:

- I liked the very structured way of the discussion. It almost felt like a robot, haha.
- The scope may be a bit limited. The description of the exercise states "This chatbot will help you get the value of a RISK CATEGORY for a person". However, the person in question is not relevant during the chat. When I entered "I want to know the risk category for Mr. Smith", the chatbox returned "[empty response]".
- The set of questions is very limited. If you make a mistake in one answer, the bot doesn't point to a hint on how to fix the error, but suggests to use the command HELP. The scale of the parameters is not specified: why is Application Risk Score around ~100 and Credit Score around ~600? I was using other scale (1-10, 0-100, ...) and didn't understand why never got Categories different to HIGH.
- ni siquiera me preguntó el credit score... y no sabía que eso fuera una opción viable
- More information about the Rangel and meaning of the variables
- I think it is too tight to this only example
- Easy to use
- me ha gustado un poco más que el caso 1, porque es más humano/cercano, es importante la interacción/relación
- It does not give information if required.

Q6 - Do you have any suggestions in order to improve the Decision-Support Chatbot?

Questionnaire 1:

- I did not know the decision table before I entered any values. Perhaps the chatbot could have told me about the range of values that are possible (or likely) for the data it requested.
- I think it's more valuable when decisions are more complex. With such an easy scenario it might be more straightforward to provide the decision table to the user.
- The last point commented on the previous field (specify the scale).
- Allow for a more fluent discussion. For instance, when I ask something unrelated, it just says "I'm sorry, I didn't understand you. Can you provide a valid value to make the decision? (Enter HELP for more information)"
- Change the example to another one in which any reader can feel empathy with
- Hire a human being
- Didn't catch a zero value in Risk Score
- To improve the help assistant
- Display risk score and credit score values
- explicar los rangos inferiores y superiores, explicar (quizá es porque no he usado la ayuda) qué significa "3" frente a "300"... y que el chatbot salude y despida la interacción humana
- It provides some information if requested
- Si, una vez fijada la tabla se puede recurrir a algoritmos de aprendizaje basado en reglas de asociación para la toma de decisiones y otras aproximaciones más elaboradas.

Questionnaire 2:

- I think it would be important to explicitly state the variable for which the bot expects an answer. I tried to mess it a little, and it would then say: "Can you give me a valid value?" If you forget, it is a little effort for the bot to remind me of the variable it is interested in. Also, I imagine that the robot can tell me **why** the value I provided is not valid (different type/out of range/etc).
- The last point commented on the previous field (specify the scale).
- comentar a priori ejemplos de las preguntas y sus posibles respuestas
- nada, muchas gracias