



Tecnológico de Monterrey

Final Project

Programming languages

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Chabot developed in prolog to know the
proposals of the candidates for the
presidency of Mexico 2018

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Problematic

The elections to elect the president of Mexico will take place on July 1, 2018, this entails a great responsibility in all Mexicans to elect the best candidate, since he will represent the country for the next 6 years. Mexico has a very broad history of oppression and corruption to the people, so it is important to be informed about candidates for presidency and seek the common good.

One of the biggest problems is the number of votes registered in the country compared to the population there are, currently there are approximately 87 million Mexicans of whom not all vote, in the last votes only 36 million Mexicans voted. The problem is how they get resources for the campaigns, multiplies the total number of citizens and multiplies by 65% of the minimum wage, hence 30% is distributed equally and the rest is given as a percentage of the number of votes of each party, each vote costs the parties so it is important that citizens are aware of who will be our representatives, what are their proposals and so finally be able to decide who is our vote, as they vote without knowing or to know the proposals of the candidates is to vote blindly and worsen the situation of the country [1] [2].

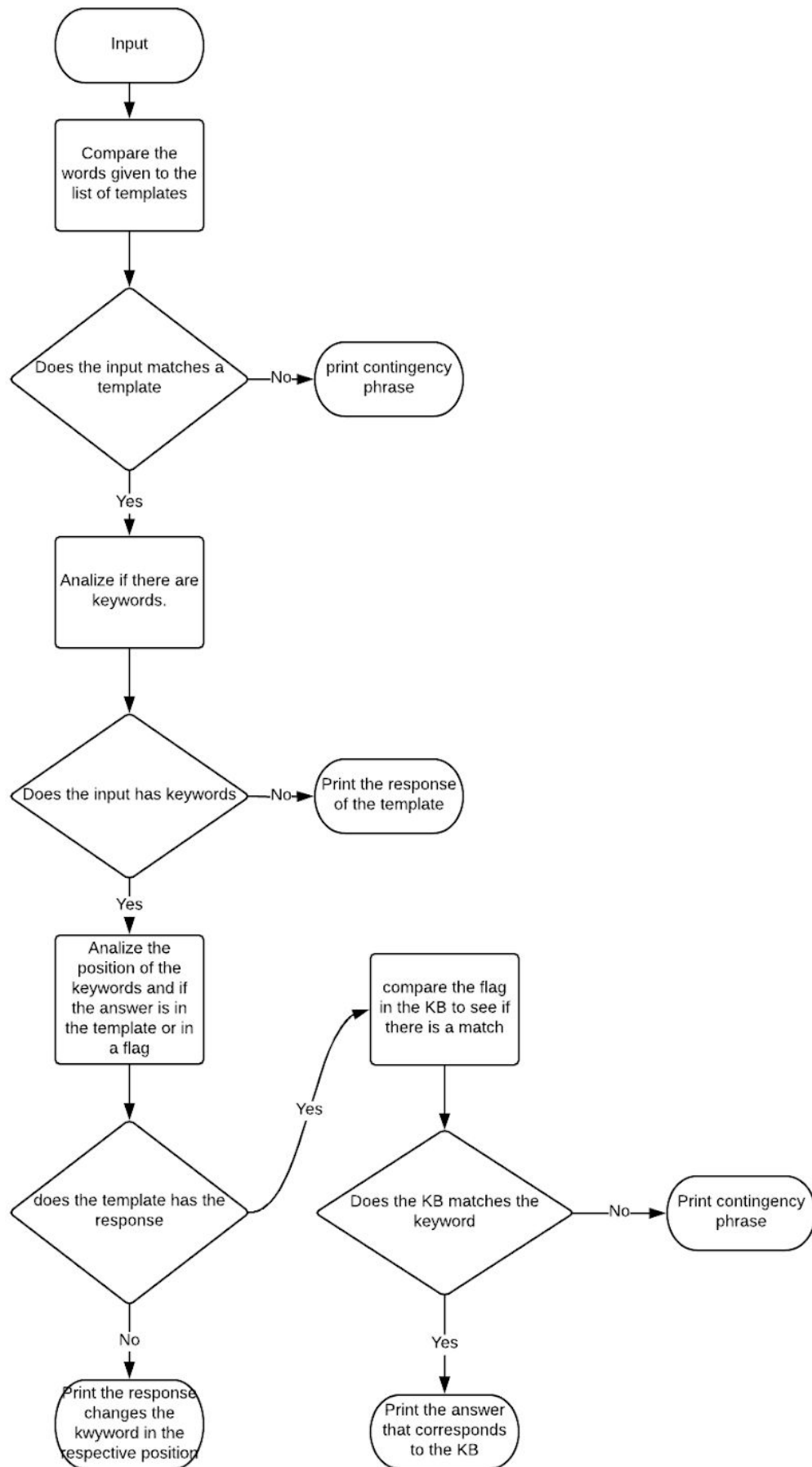
Solution

A solution that I propose to be able to help the Mexican population to know who to vote for is to generate a chatbot that is able to tell you the proposals of the candidates separated by the most common sectors, so whoever decides to use this program will be able to know them without having to read the files that send to the INE with more than 60 pages, to carry out this solution it will be necessary to read these documents, remove the proposals and categorize them in sectors so that the user can obtain the information he desires in a more dynamic and fast way [3] [4] [5] [6].

To fulfill this objective, the program will be done in prolog, the reason of this decision is due to the paradigm seen in class "logic paradigm". The logical programming revolves around the concept of predicate, or relationship between elements. The logic that is sought in the system is that given a number of keywords generates a response to those words belong, if requested information of a candidate, the system will be able to take the name of the candidate, which is our predicate, and look for the elements that relate to this in order to generate an output with the desired response [7].

The basis for the chat to work by generating answers that match what the user asks is based on compare word by word entered against a base of responses according to each input. The keywords allow you to search for matches in the different lists and, if necessary, change these words by the location where the answer carries the keyword.

The following diagram explains the flow of the system.



The function that compares the input with the templates is match.

In the stimulus the key words are in the predicates, the rest of the words are only atomic terms, when a non-atomic data is found the atom function ignores and continues the comparison of the words, if a template is found that is the same, the function will return the answer and a list with the indexes of the keywords, if any [8]9.

The substitute function is the one that cracks the magic in the system, its task is to change the keywords in the corresponding positions of the answers, in this way there is congruence in the context.

That is not all this function also detects the flags, answers based on the KB of proposals, and will look for the functions that belong to that flag to be able to compare the keywords with the KB and thus be able to generate a response based on the KB or in a contingency response.

It is important to mention that this function also uses prolog functions, they are mentioned below:

nth0: returns the element of a list at a given position [9].

select: replaces the value of an item in one list with another based on its values[10].

append: concatenates two lists. In this case, the words of the answer are concatenated, along with the word replaced in the position where there is a number, word by word [11].

Finally, the following code shows how is the process of interaction between the user and the system:

```
2
3 chat:- writeln('Hola y bienvenido al chatbot de las elecciones, aqui podras encontrar informacion acerca de las propuestas
4 de los candidatos a la presidencia Mexico 2018. Quienes hablar de un candidato en especial o de algun sector en especial?'),
5 readln(Input),
6 chat(Input),!.
7 chat(Input):- Input == ['adios'],
8 writeln('Adios, espero haber sido de gran ayuda'), !.
9 chat(Input) :-
10 template(stimulus, Resp, Indstimulus),
11 match(stimulus, Input),
12 substitute(Indstimulus, Input, 0, Resp, R),
13 writeln(R),
14 readln(Input1),
15 chat(Input1), !.
```

The "readln" function converts the user's queries into a list. Then the program will choose the first template of the knowledge base, then the stimulus of that template, and the user's query (Input), are entered the "match" function. If the stimulus does not match the query, Prolog will start the backtracking, choosing the following template and repeating the operation. The last template of the knowledge base makes the "match" function return true if none of the other stimuli of the other templates matches the user's query. This prevents the Eliza loop from breaking and ends the program abruptly.

Set up instructions

1. Go to the follow link and download the zip

<https://www.dropbox.com/s/wykh2mdcynu0so/Chat.zip?dl=0>

2.- unzip the file in your computer

3.- run chat.exe and start chatting

Results

If the installation process is followed correctly you can have a conversation as shown below:

Hola y bienvenido al chatbot de las elecciones, aqui podras encontrar informacion acerca de las propuestas de los candidatos a la presidencia Mexico 2018. Menciona el candidato y el sector que te interesa saber?

|: quienes son los candidatos

[Los candidatos a la presidencia son: AMLO por Morena, Meade por el PRI, Anaya por el pan
Margarita como independiente y el Bronco igual como independiente pero este aun no tiene propuestas. Quieres hablar de alguno en especial?]

|: hablemos de anaya

[No mencionase que sector te interesa saber de, anaya, ?]

|: cuales son los sectores?

[Los sectores a los que las propuestas van dirigidas son: corrupcion, economia, desarrollo, educacion, social, seguridad e internacional]

|: de anaya el sector de corrupcion

[Las propuestas de Anaya para combatir la corrupcion son:
1.- Destituir de cargos publicos a politicos negligentes y con falta de sensibilidad como los responsables del Socavon
2.- Terminar con el pacto de impunidad
3.- Acabar con la colusion entre contratistas y gobernantes "que saquean el erario y saquean el pueblo
4.- Continuar con la construccion del aeropuerto internacional utilizando los parametros internacionales mas elevados en materia de transparencia y rendicion de cuentas]

|: sobre meade del sector corrupcion

[Las propuestas de Meade para combatir la corrupcion son:
1.- Si el corrupto o delincuente no puede explicar de donde sale el dinero, que lo regrese
2.- Exigir consistencia en las declaraciones patrimoniales
3.- Ver y escuchar el malestar de los mexicanos frente a la corrupcion, atenderla y resolverla]

|: adios

Adios, espero haber sido de gran ayuda

The following table shows the expected answer for each possible question in the context of the project, also shows if the answer was the expected one during the first test. This first test will allow us to know if the project is ready for its tests with users.

Question	Expected Answer	Given Answer	Does it pass?
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Ask for the candidates	Show all the candidates.	[Los candidatos a la presidencia son: AMLO por Morena, Meade por el PRI, Anaya por el pan Margarita como independiente y el Bronco igual como independiente pero este aun no tiene propuestas. Quieres hablar de alguno en especial?]	Yes
Ask for the sectors	Show all the sectors.	[Los sectores a los que las propuestas van dirigidas son: corrupcion, economia, desarrollo, educacion, social, seguridad, internacional o todos]	Yes
Ask for the proposals of a sector with a specific candidate	Show the proposals of that candidate in that sector.	[Las propuestas de Anaya para combatir la corrupcion son: 1.- Destituir de cargos publicos a politicos negligentes y con falta de sensibilidad como los responsables del Socavon 2.- Terminar con el pacto de impunidad 3.- Acabar con la colusion entre contratistas y gobernantes "que saquean el erario y saquean el pueblo 4.- Continuar con la construccion del aeropuerto internacional utilizando los parametros internacionales mas elevados en materia de transparencia y rendicion de cuentas]	Yes
Ask for all the proposals of a specific candidate	Show all the proposals of that candidate.	[Las propuestas de AMLO para combatir la corrupcion son: 1.- Terminar con la corrupcion 2.- Fondos de corrupcion para desarrollo 3.- Reducir el gasto corriente, se refiere a la adquisicion de bienes y servicios que realiza el sector publico durante su mandato sin incrementar el patrimonio federal 4.- cortar vilegios que hay en el gobierno 5.- Reducir el gasto corriente para aumentar la inversion publica, que se va a utilizar como capital semilla y se va a complementar con inversion vada, para impulsar proyectos productivos, crear empleos y asi lograr que haya crecimiento economico en el pais 6.- Impedir el amiguismo, el influyentismo, ni el nepotismo...	Yes
Ask for all the proposals for a specific sector	Show all the proposals of all the candidates in that sector.	[Las propuestas de amlo para mejorar la economia son: 1.- Darle autonomia al Banco de Mexico 2.- No habra aumento de impuestos en terminos reales 3.- Sumir los vilegios y fueros de los funcionarios publicos 4.- Descentralizar el gobierno federal 5.- Rescatar al campo y a sus pobladores 6.- Fijar precios de garantia para los productos agricolas, producir fertilizantes y distribuir a precios bajos 7.- Detener la caida de la produccion de energeticos y derivados petroleros 8.- El Estado desarrollara el poder economico y el fortalecimiento del mercado interno, no aumentaran los impuestos ni la deuda publica 9.- Duplicar las pensiones a adultos mayores	Yes

		<p>Las propuestas de anaya para mejorar la eocnomia son:</p> <p>1.- Todos los ciudadanos, por el simple hecho de ser mexicanos, recibirán una cantidad del Estado que les garantice vivir con un mínimo de dignidad</p> <p>2.- Subir el salario mínimo, de 88 pesos (actual) a 187 pesos diarios</p> <p>3.- Pasar de la economía de la manufactura a la economía del conocimiento</p> <p>4.- Eliminar los gastos burocráticos. En lugar de pagarles a los burocratas que hacen estudios socioeconomicos, mejor le entregamos el dinero directamente a la gente...</p>	
Ask for a candidate without the sector	A response asking for the sector.	[No mencionase que sector te interesa saber de,anaya,?]	Yes
Ask for a sector or candidate that does not exists	A response that tells that the candidate or sector does not exists.	[amor,no es un candidato o un sector]	Yes
Ask for something that does not go with the context	A contingenc y message.	[Podrias darte a explicar un poco mas ?]	Yes
Ask for a candidate with another name	A response showing how to name the candidates.	[Favor de referise a,ricardo,como anaya]	Yes

Conclusions

The implementation of this chat shows the apparent intelligence of a system layers to maintain a conversation but really everything is a logical system that works through the coincidence of the user's queries and the stimuli is done term by term, all this thanks to the logical programming, which allows us to work around predicates and thus be able to generate logical systems, although the way to learn a new paradigm is not easy, the fact of creating projects of this complexity helps us to understand more and more that the way to program It is important to select the correct paradigm for better efficiency. This system can

be greatly improved if the necessary time is dedicated and more templates are generated that help us to cover all the possibilities of answering each question.

I believe that what has been done is enough to understand and learn the basic concept of a logical system that is able to work through keywords to generate predetermined answers or questions, I would like to be able to carry out projects of this type later on, where the impact may be greater, since now I see the endless things that can be done with the logical paradigm.

Tests

For the tests the following template will be used where the following will be specified:

1. If the system failed or was successfully executed
2. if it is necessary to add a valid template to the system
3. if something important about the candidates was omitted

test			
Does failed	yes	no	Why?
Enough templates	yes	no	Added templates
Information omitted	yes	no	Added information

test 1			
Does failed	yes	no	Why?
		x	Not filed but did not answer any question
Enough templates	yes	no	Added templates
		x	1.-me, interesa, saber, sobre, el, sector, de, s(), del, candidato, s() 2.-me, interesa, saber, del, candidato, s(), sus, propuestas, en, s() 3.-como, va, a, mejorar, la, s(), s()
Information omitted	yes	no	Added information
		x	
this chabot is important for the majority of people who are votant that will decide the future			

of our country they realize how “good” are the candidates and their proposals through a validated information

test 2			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
		x	1.- quisiera, saber, propuestas, de, s(), del, candidato, s() 2.-del, sector, de, s(), s(), los, candidatos
Information omitted	yes	no	Added information
		x	
<u>In times of election is important to have citizens that take decisions based on true information</u>			

test 3			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
		x	1.- del, candidato, s(), en, el, sector, de, s() 2.-que, hara, s(), para, combatir, s() 3.-quisiera, saber, de, s(), los, candidatos, las, propuestas, del, sector, s()
Information omitted	yes	no	Added information
		x	
<u>Is nice to know the proposals of all the candidates about corruption, that something that worry me</u>			

test 4			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
		x	1.-que, propone, s(), en, s() 2.- dime, las, s(), de, s()

Information omitted	yes	no	Added information
		x	

test 5			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
		x	1.- de, s(), el, sector, de, s()
Information omitted	yes	no	Added information
		x	

test 6			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
	x		
Information omitted	yes	no	Added information
		x	
Is hard to know how to use it, but one you learn how to ask it's easy to know all the proposals, i definitely would use this for knowledge			

test 7			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
		x	1.-sobre, s(), del, sector, s() 2.- de, s(), s() 3,. idea if the sentence"ayuda"
Information omitted	yes	no	Added information
		x	

test 8

Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
		x	1.-candidatos, s(), s() 2.-del, candidato, s(), en, s(), los, sectores
Information omitted	yes	no	Added information
		x	

test 9			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
		x	1.- de, las, propuestas, de, s() 2.-s(), propuestas, de, s()
Information omitted	yes	no	Added information
		x	
I like it, not very easy to use but it's fine, I think that this has potential to help the country			

test 10			
Does failed	yes	no	Why?
		x	
Enough templates	yes	no	Added templates
	x		1.- del, candidato, s(), s(), las, propuestas
Information omitted	yes	no	Added information
		x	

Reference

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