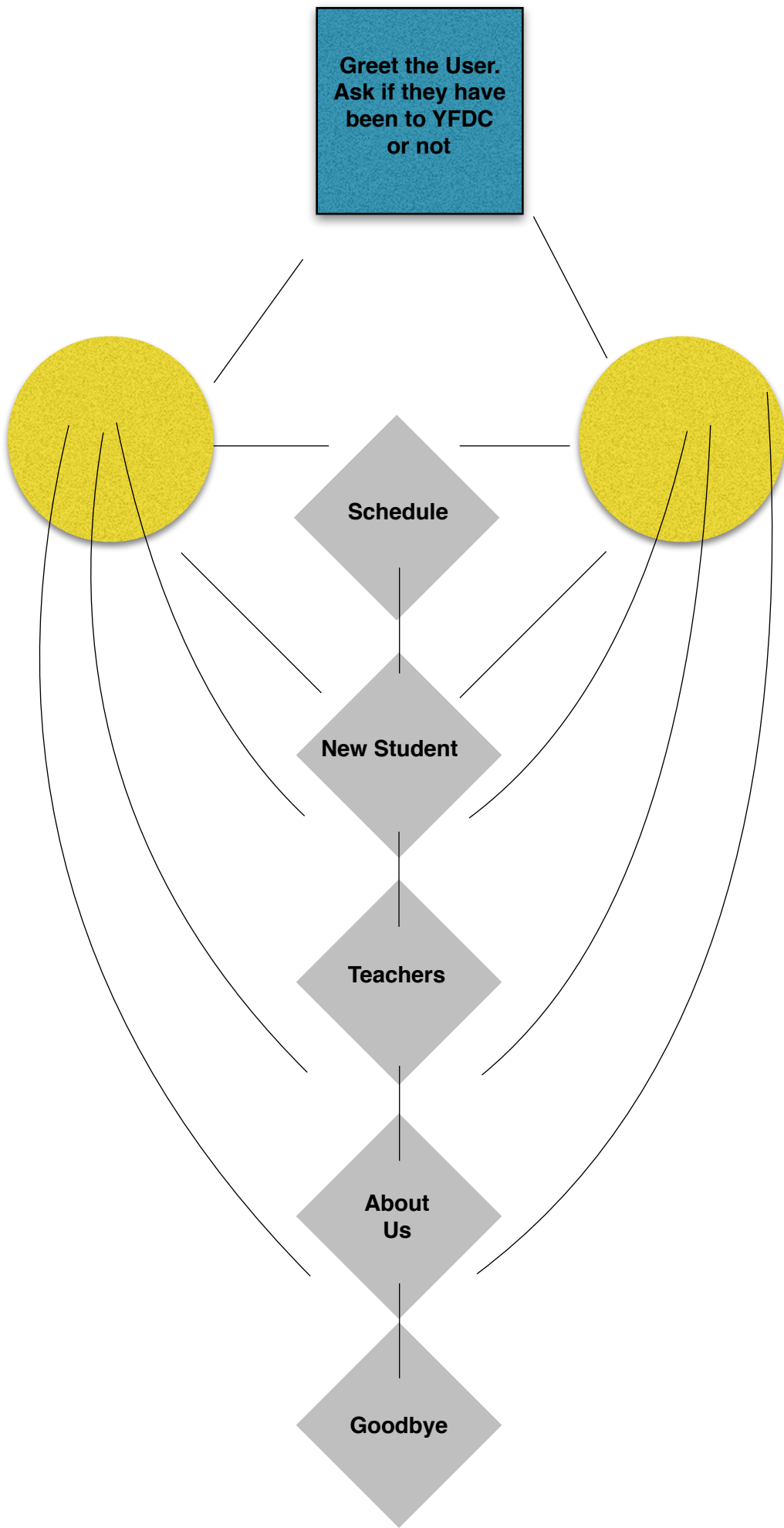


Chat Bots

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Introduction

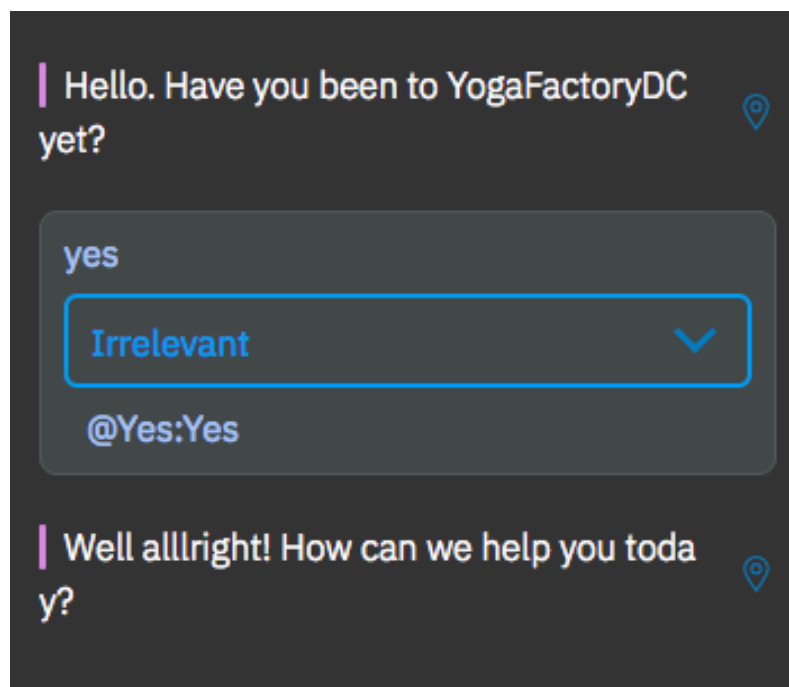
Many small businesses are faced with the constant challenge of how to acquire new customers. It can be the difference between survival and success. It has been shown that one way to acquire new customers is to increase client facing interactions. Some businesses chose to host or participate in public events with this in mind. Others promote their business in an attempt to reach their targeted audience. Yet another way to interact with customers is through chat bots. The basic formula of increasing customer engagement leading to increased customer acquisition is important for any small business as even a minor uptick to customer acquisition can lead to significant long term gains. By creating a custom chat bot for YogaFactoryDC, a local yoga studio, the customer interaction and therefore customer acquisition is increased. The end user will interact with the bot by asking it questions, and the bot will respond with answers that have been trained through Watson. Several different entities and intents will be utilized to accomplish this and the tasks encompass basic knowledge of the entire yoga studio.

Implementation

Intent in the context of a chat bot is to define a purpose of dialogue. One challenge of chat bots is trying to decipher what a user means. Given the innate linguistic complexity of any language, as well as the vast diversity of different users language style, just understanding a user is an accomplishment in itself. In order to make this process manageable for a bot, intents are

used. 7 different intents were created in order to enable this chat bot to interact with common customer questions. The #About_Us intent is used to describe the yoga studio. The #Classes intent is used to find out about different kinds of classes offered at YFDC. The #New_student_intro is used to educate the client about a new student introductory offer. This offer is only valid for new clients. The #Schedule_LookUp Intent is used to direct the student to the latest schedule. The #Teacher intent is used to direct the client to the teacher website that describes each individual teacher. The last intent is the #Goodbye intent. This is used to draw the conversation to a close.

Entities can be used to work with more detailed information within the conversation. 9 entities were created and included different teacher names: @emily, @leslie, @phillip, @zeb as well as @class to differentiate between different kinds of classes. Using the intents and entities created, the dialog was constructed. The dialog portion of a chat bot served more or less as a road map for the conversation. It began with a welcome message, and asked the user if they had been to YFDC or not. If the user entered no, the chat bot responded with information regarding a new student deal. If the user responded yes, they were welcomed and asked how they could be of service. This brings up an interesting point in the flow of the conversation. While the user was prompted to a yes or no question in the initial node, from here out each node was

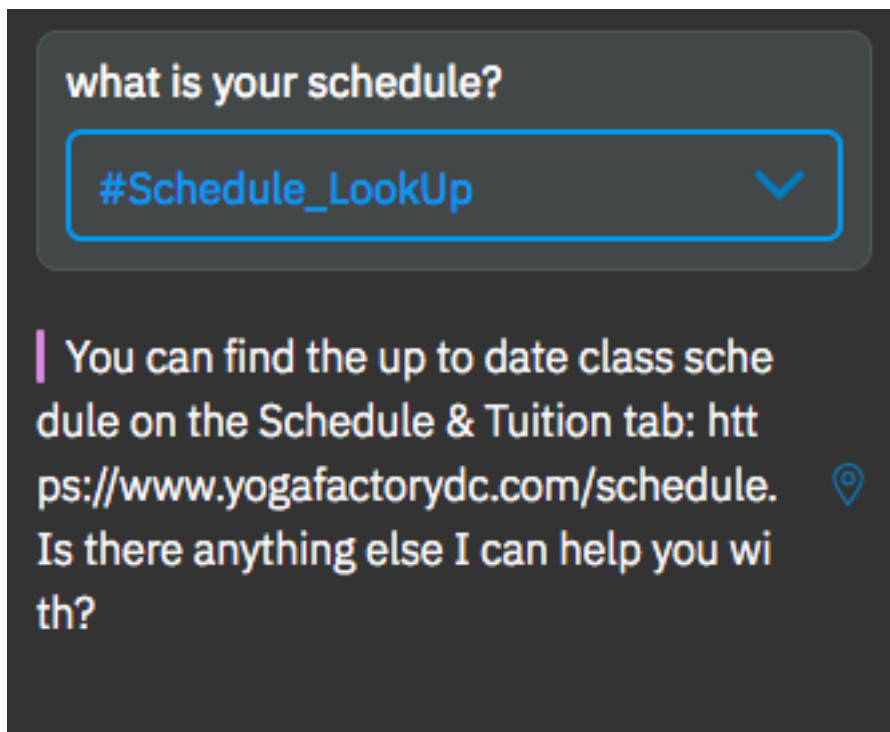
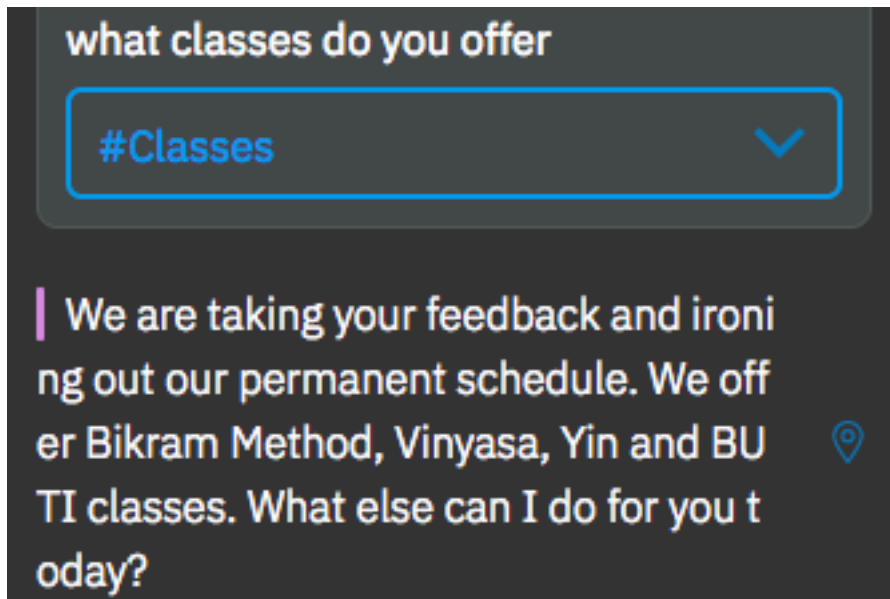


independent. In other words, a user ask a question at the #Classes intent, and then hop directly to any of the other intents without having to answer additional questions. This was done intentionally. While it may be more useful to require a response and multiple child nodes in

other areas, the ability of the user to obtain relevant and predictable information was deemed more important. This chat bot was meant to give the student more of an overview of the yoga studio. These questions are common, and easy to anticipate. The user is able to determine what

kinds of classes are offered using the #Classes intent. This is the most common question. The next question is when the classes are offered, or what is the schedule.

Because the schedule does change frequently, it was determined that the best way to answer this question was to refer the client to the URL that will always contain the most up to date schedule. Given the alternative of having to continuously change the chat bot with each schedule

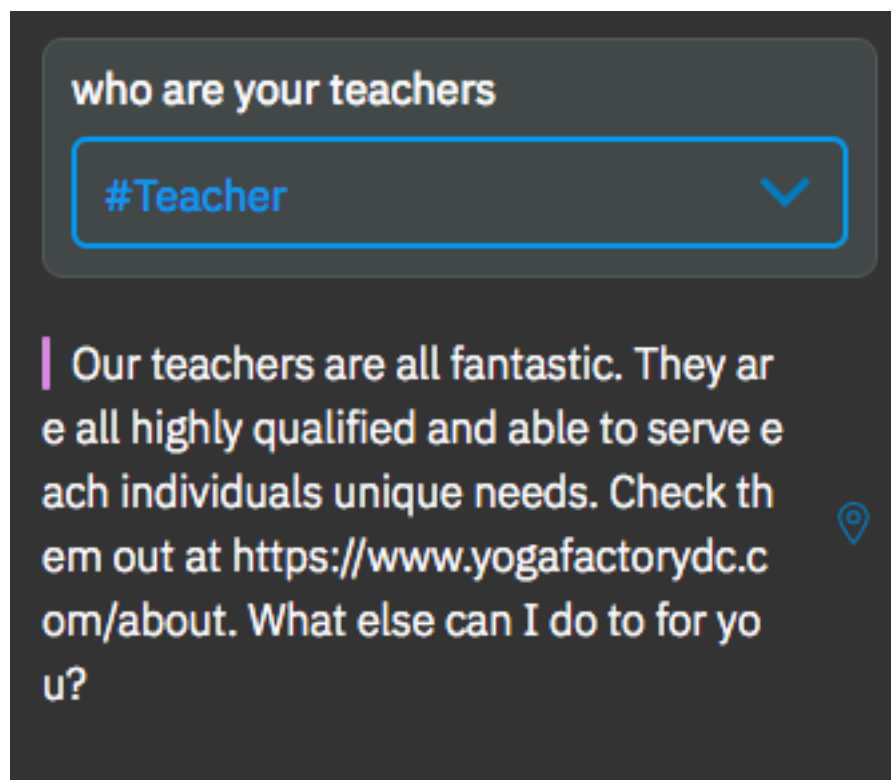
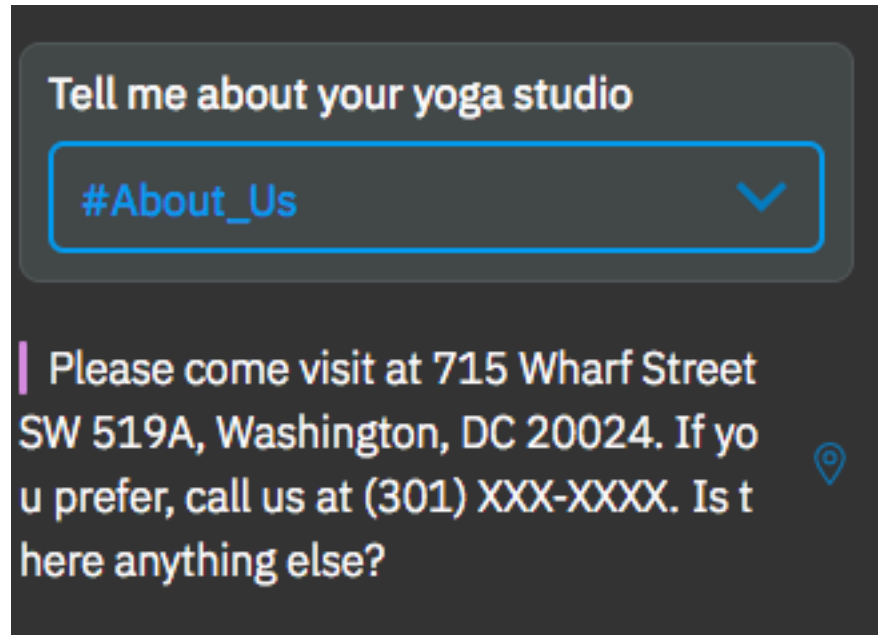


modification, this was the best option. The next node was dealing with the #About_Us intent.

This intent was meant to inform the client about the basics of the yoga studio. Interaction with the customer was again emphasized, so a phone number was provided to encourage communication between the studio owner and the client. The following node dealt with teachers. Many yoga teachers travel and do not stay in one

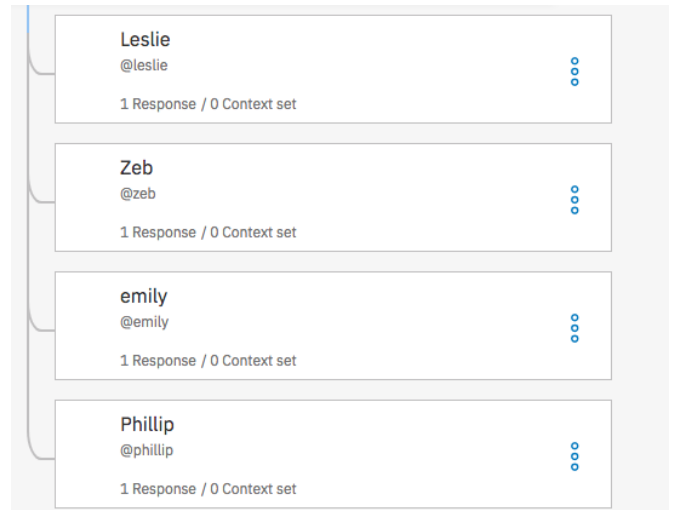
studio, instead opting to teach at several locations. Because of this, the best option was to again refer the student to the teacher panel of the web page. This provided the most up to date teachers that are currently teaching at the studio.

Again, compared to the alternative of constantly editing the chat bot, this was deemed to be the best overall option for the studio. This node was chosen to have child nodes. There are some teachers that are likely to stay at the studio. This includes each



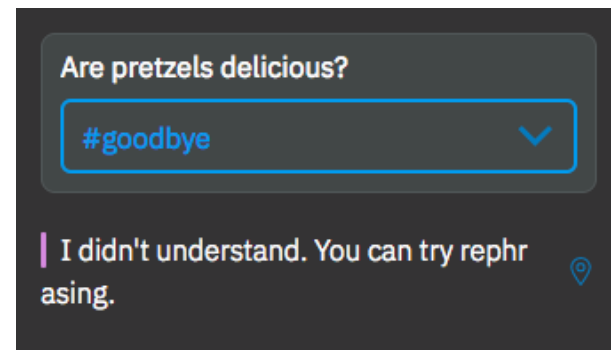
of the three owners, as well as the studio manager.

These 4 sub-nodes were utilized every time the name of each teacher(Phil, Zeb, Emily, Leslie) were mentioned in response to teachers. The following node was the Intro node, and served to provide a more specific inquiry into each of the new student offering. Because of the flow of the diagram, it was



possible to directly access this node in the beginning of the conversation, after a user was first

informed about it. The last two nodes are the Anything else and Goodbye nodes. They each serve to make sure the customer has been served to the best of the chat bots ability, and once this was confirmed, the conversation was drawn to a close. Additionally if input was entered



that was irrelevant, any 1 of 3 responses was output, each of which encouraged the user to change the question. Through this try-it-out method, the chat bot was appropriately trained to come up with the responses for each question and intent listed above.

Analysis, Enhancement & Conclusion

This chat bot was effective at providing the user with an overview of a local small business yoga studio, as well as directing them to the appropriate URL should they have a question involving an answer that may change over time. One problem that surfaced had to do with the “yes” and “no” entity. While this was necessary because of the initial yes or no question, there are other

scenarios which a user may want to type yes/no. In this case, the user was incorrectly directed to the top of the dialog loop. A suggested improvement would be to rephrase the question in a way that prompt the user to answer in a different way - apart from yes or no, and creating different entities that are more specific to the question. In order to improve on this chat bot, two additional Watson services were recommended. Tone analyzer could be used to interpret the tone of the user that is interacting with the chat bot. By doing this the chat bot could be more interactive and engaging with the user. Adding a layer of sensitivity to user tones can integrate more complex responses that engage the user more effectively. The next Watson service to be utilized was Personality Insights. Using the personality insights could be a way of effectively interacting with the user to recommend a specific type of class. By gathering some basic data, even if only a few questions, a profile could be created. Depending on the results of the profile, a user would be recommended to go to a unique type of class. One limitation is that this chat bot is trained by one person. For it to be able to interact with everyone, it would need to be more sensitive to many different kinds of speech. Different people speak and type with all kinds of unique nuances. In order to better this, a much larger training section would be required. It is recommended that a record of all conversations is kept, and the chatbot is updated with training from each conversation every 3 months to enable a broader perspective with with the chat bot can communicate with. The biggest takeaway I had from this assignment was that chat bots are actually relatively simple. I had imagined them to be much more complex, but Watson has made it simple enough that just about every customer facing website should at least consider utilizing one. Another take-away is that the dialog flow of a chat bot can be completely unique to each bot. There is no one flow that is appropriate for each bot. The last take-away from this

assignment was having to do with training the chat bot. By simply using the chat bot, it was remarkably simple to effectively train it. Watson has made this process much simpler than imagined. Overall I found this assignment very rewarding. Previously I had assumed a chat bot would be something very complex, vague and difficult to understand. After having built my first chat bot, it is clear that they are much more accessible, and a new found respect for many of the challenges NLP presents.

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