



UNSW
THE UNIVERSITY OF NEW SOUTH WALES

Cognitive Services: Chatbot Development

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Never Stand Still

Faculty of Engineering

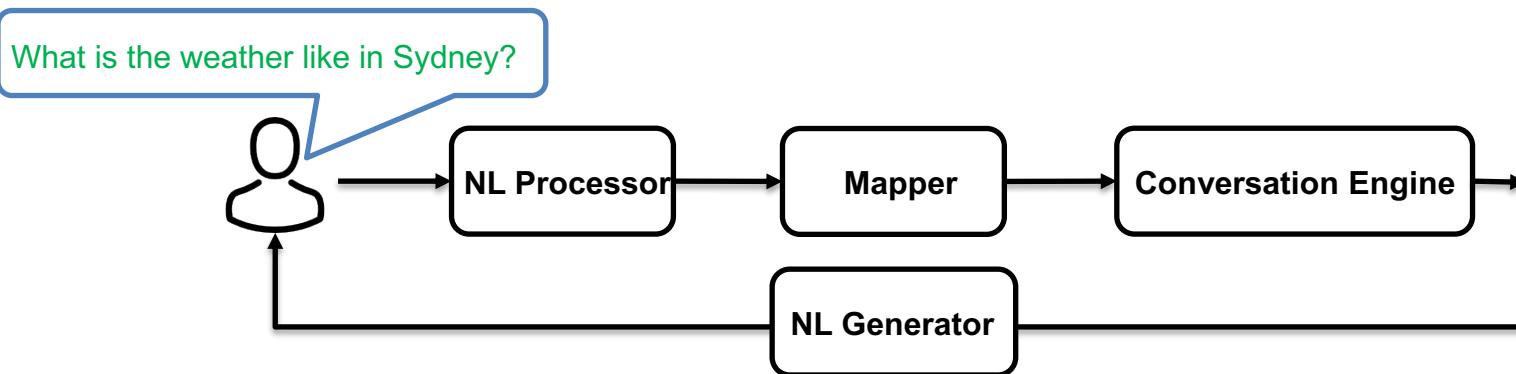
Computer Science and Engineering

Cognitive Services - ChatBots

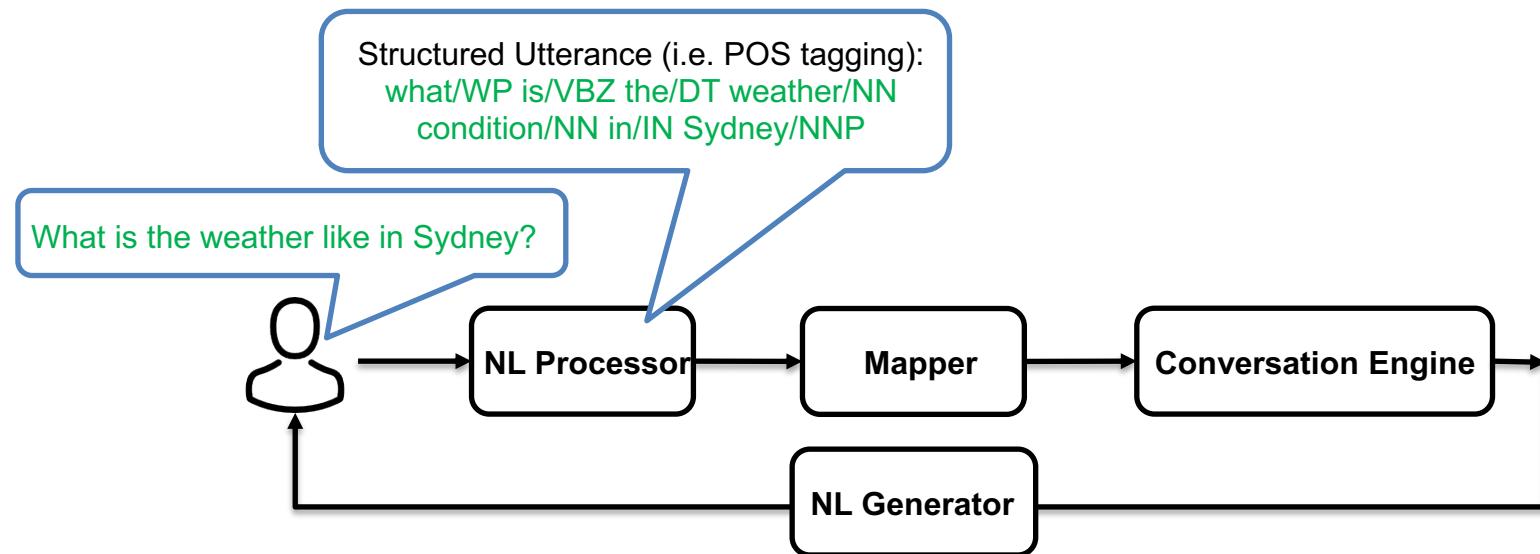
- Conversational services: interact with users using ***natural language expressions, both voice and text***
- Designed to mimic human interaction
- Use ***software services*** to serve ***user services***
- Apple Siri, Microsoft Cortana, Google Assistant, Amazon Alexa



Chatbots - Architecture

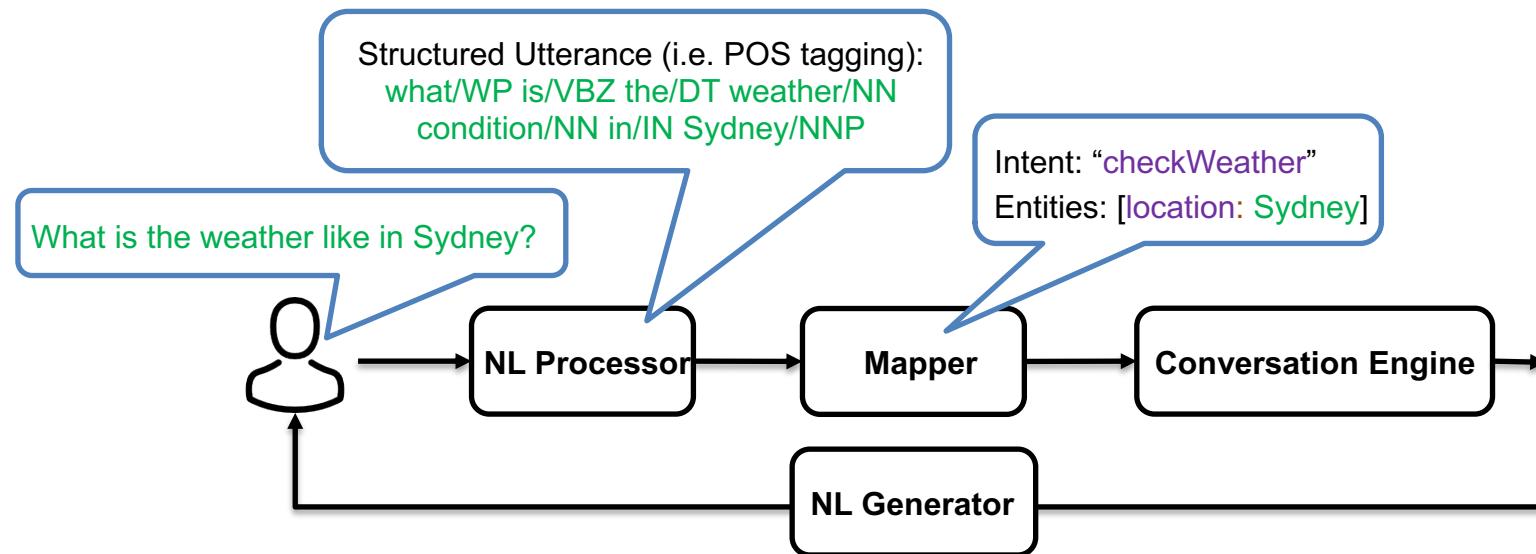


Chatbots - Architecture

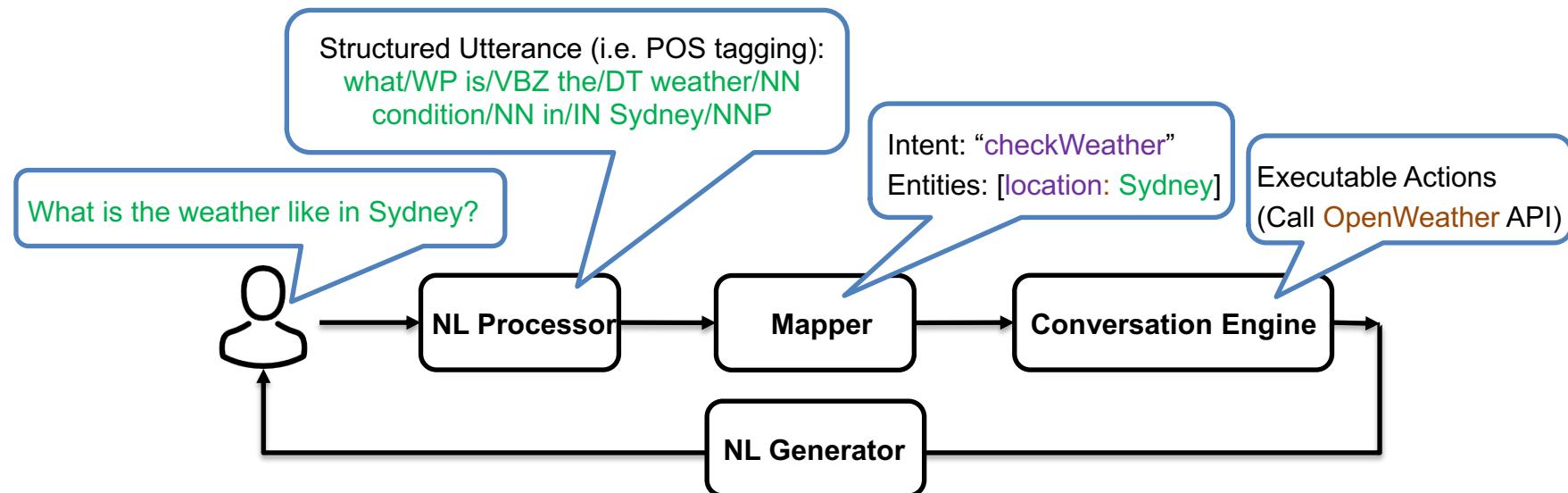


Part of speech labels: <https://stackoverflow.com/questions/1833252/java-stanford-nlp-part-of-speech-labels>

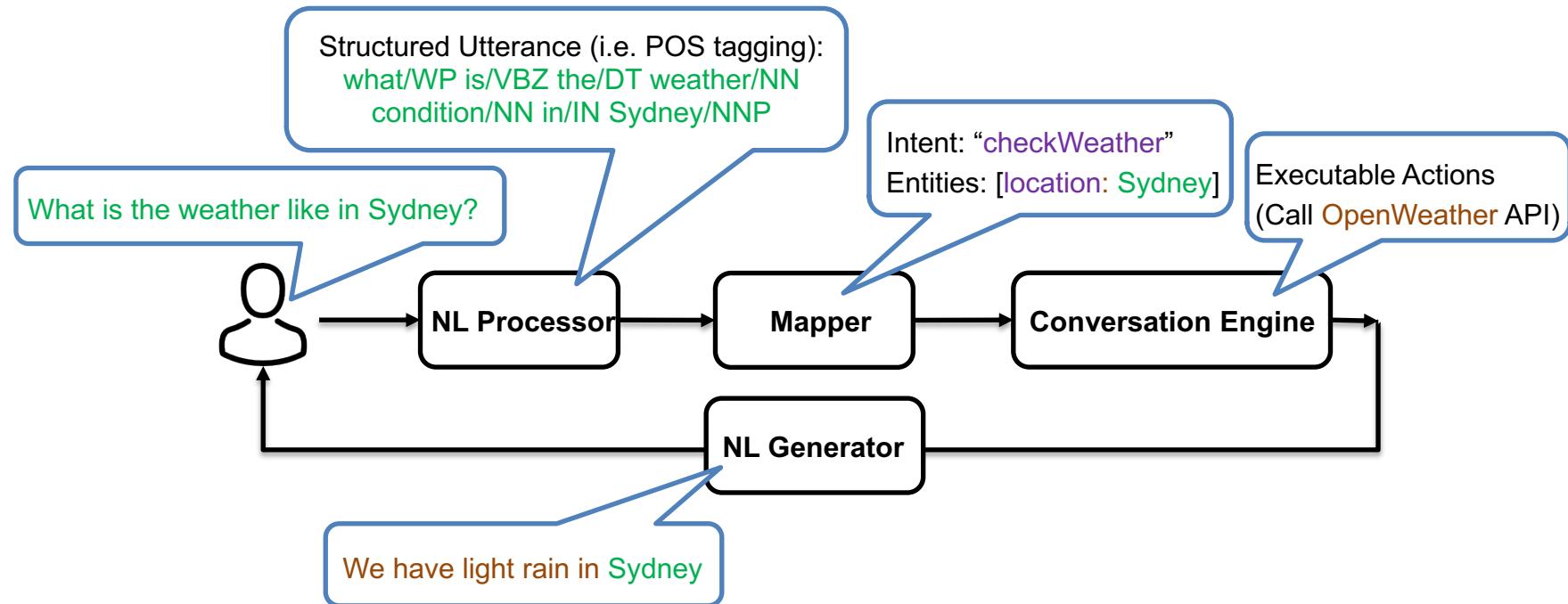
Chatbots - Architecture



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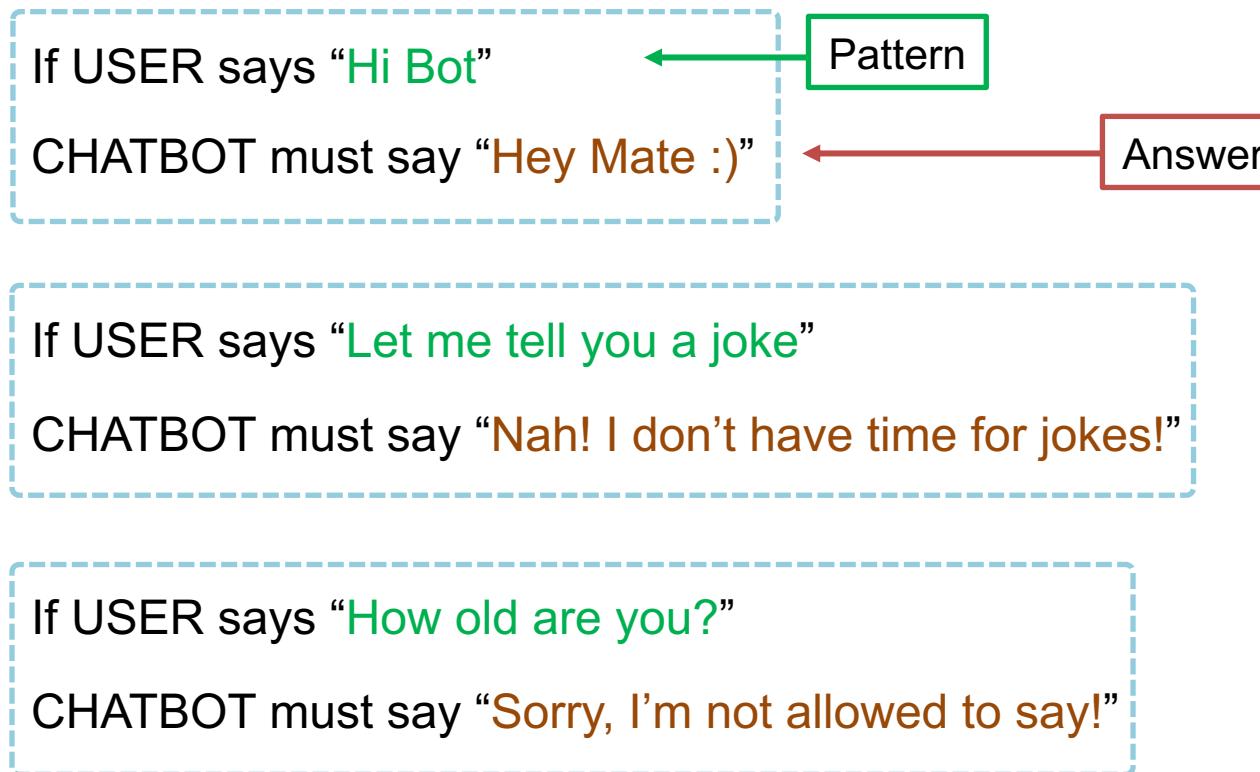
Chatbots - Architecture



Chatbot Development/Design - Techniques

- **Rule Based (Deterministic)**
 - *Defining static rules (If...Then...) to dictate the behaviour of chatbot*

Rule Based Techniques - Example



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- Quick bootstrapping
- No coding (Design the conversation using cards/buttons/etc)
- Fast and accurate (IF...Then...)
- Could be smart enough if bot developer anticipates possible situations (flows)
- For simple use cases (e.g. order pizza, flight booking)

Flow Based Environments (Components)

Hi there. I'm Manny, a CrossFit chatbot. Check out my menu or ask me a specific question.

+ Add button



CrossFit Workouts: 3 Killer workouts of the day.

Love it or hate it, CrossFit has found its place in the fitness world. Not sure what you think about it?

cross.fit

Show Schedule `cordm`

+ Add button



Contact Information

Subtitle or description

URL

+ Add button

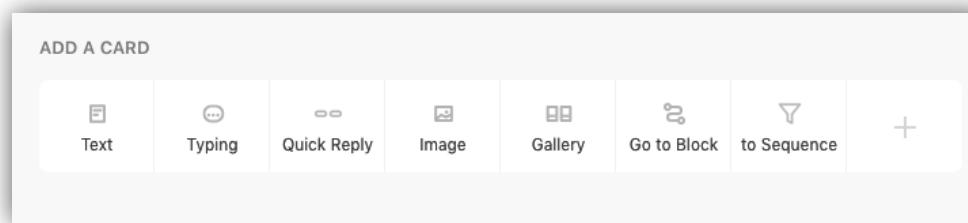
Add a card:

- Gallery
- Text card
- Image
- Plugins

<https://chatfuel.com>

Flow Based Environments (Components)

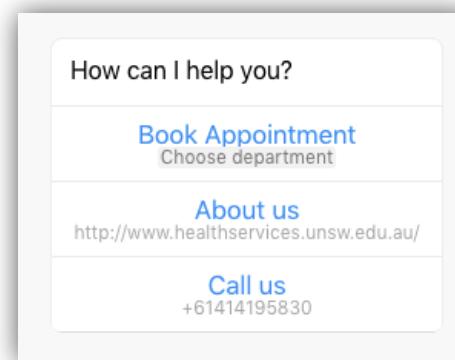
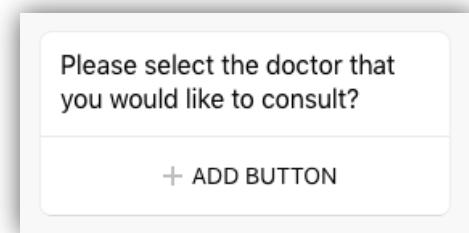
- **Card:** It is the most basic building component of a bot. It can contain anything from a simple text message, carousel, quick replies, image and other plugins.



<https://chatfuel.com>

Flow Based Environments (Components - Cards)

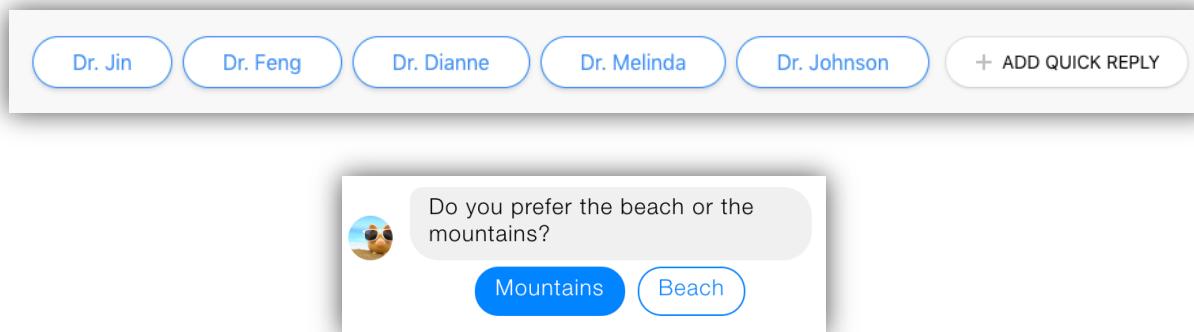
- **Text:** A text card can only contain text and a maximum of three buttons.



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Flow Based Environments (Components - Cards)

- **Quick Reply:** Allow you to get message recipient input by sending buttons in a message.



Flow Based Environments (Components - Cards)

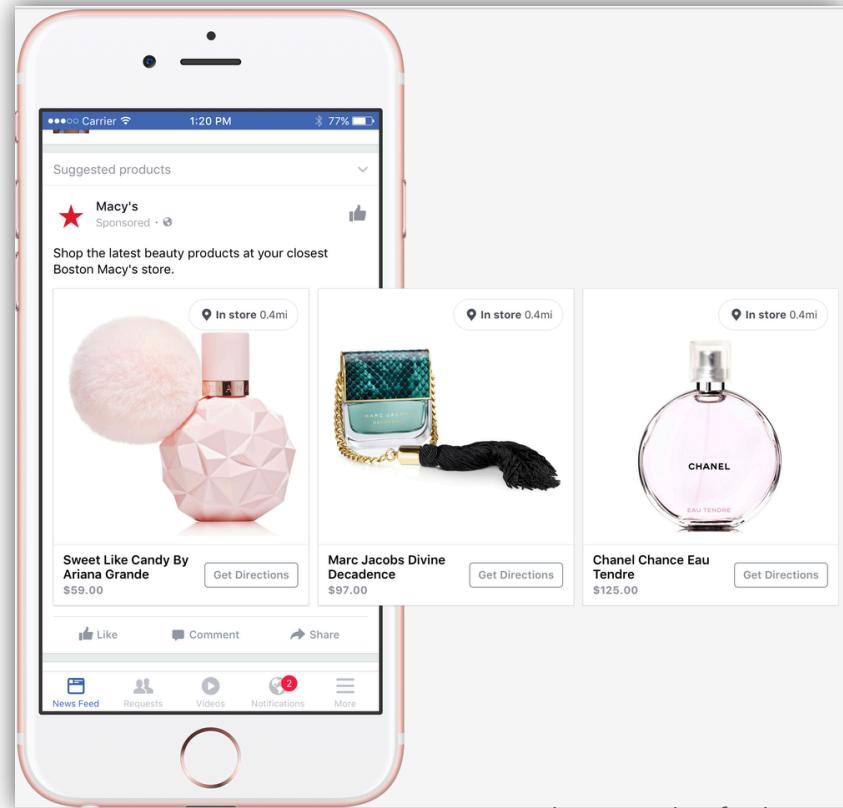
- **Gallery/Carousel:** It allows you to send multiple images, titles and multiple links for each element.

| | | |
|---|---|--|
|  |  |  |
| Cardiologist | Clinical Care | General Surgery |
| Branch of medicine that deals with diseases and abnormalities of the heart URL | Consists of the health professionals, physicians, advanced practice URL | A surgical specialty that focuses on abdominal contents including URL |
| Select Choose doctor | Select Choose doctor | Select Choose doctor |
| + ADD BUTTON | + ADD BUTTON | + ADD BUTTON |

+

Flow Based Environments (Components - Cards)

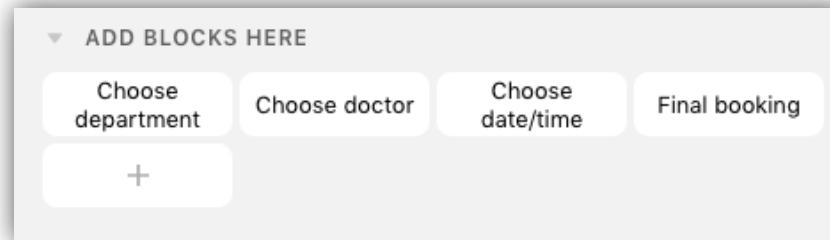
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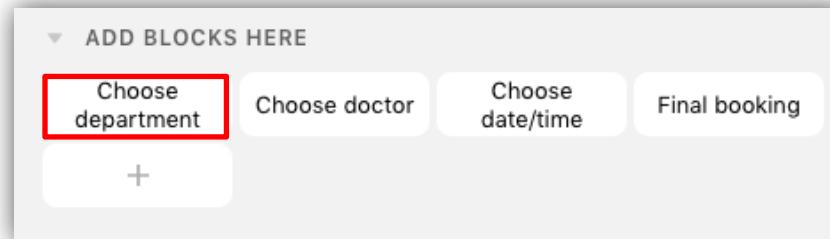
- **Block:** It consists of one or more message cards that are sent together to a bot user. You can link blocks with each other using buttons in text cards or in gallery cards.



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Flow Based Environments (Components - Block)

Choose department

Sure, please select the department of your appointment

+ ADD BUTTON

 Cardiologist
Branch of medicine that deals with diseases and abnormalities of the heart
URL

 Clinical Care
Consists of the health professionals, physicians, advanced practice URL

 General Surgery
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ADD A CARD

Text Typing Quick Reply Image Gallery Go to Block to Sequence +

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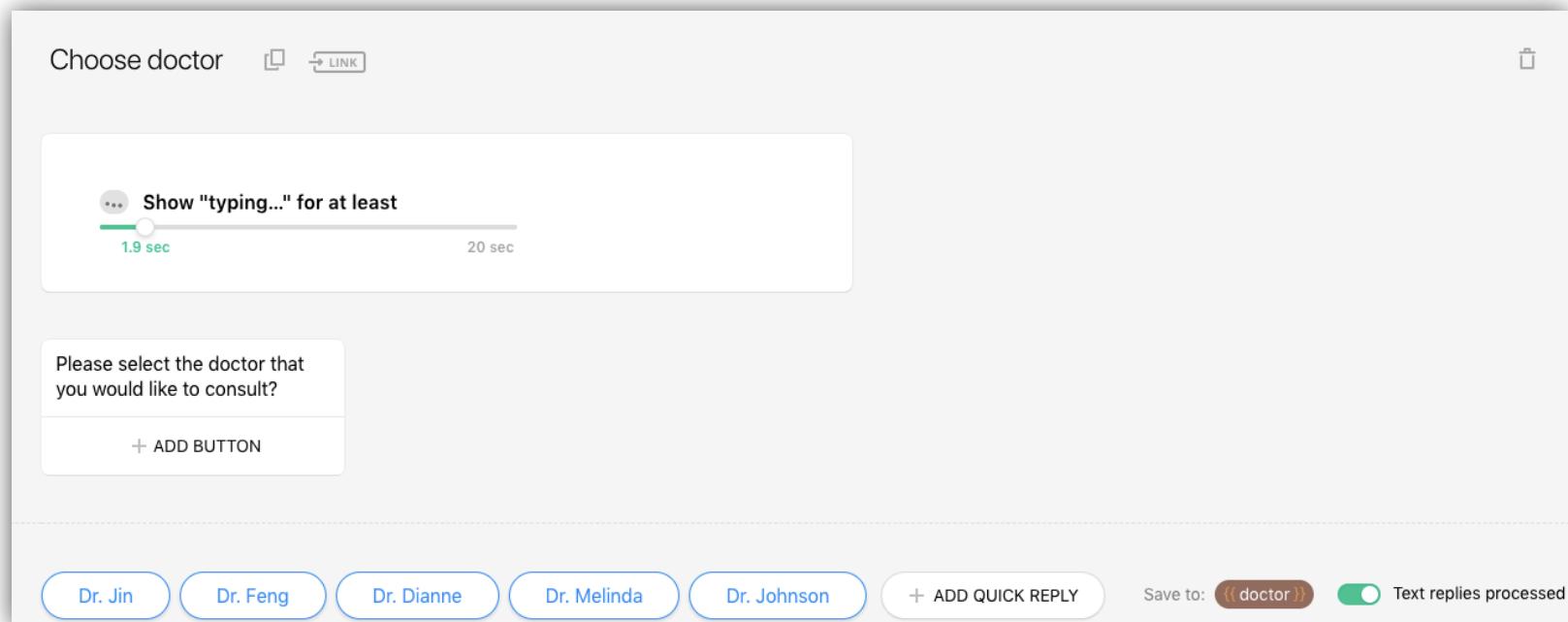
Choose doctor   

Show "typing..." for at least
1.9 sec 20 sec

Please select the doctor that you would like to consult?

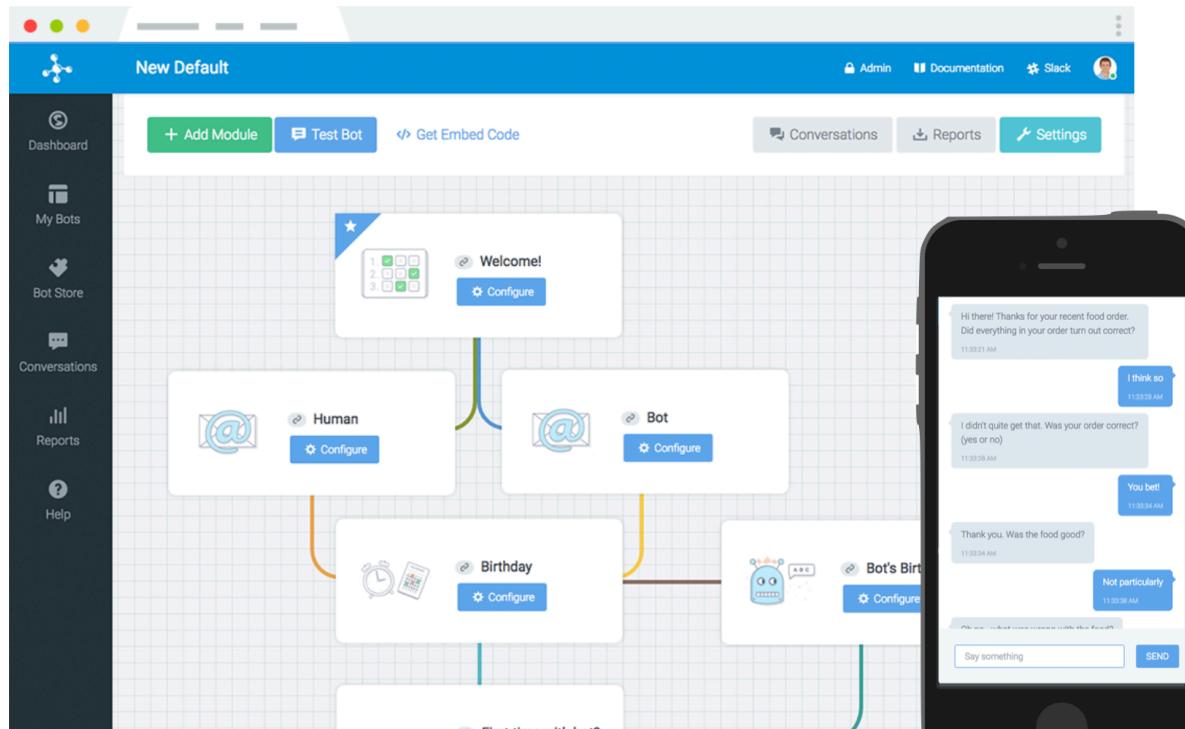
+ ADD BUTTON

Dr. Jin Dr. Feng Dr. Dianne Dr. Melinda Dr. Johnson + ADD QUICK REPLY Save to: {{doctor}} Text replies processed



<https://chatfuel.com>

Flow Based - Platform Example (Motion.ai)



<https://www.motion.ai>

Flow Based Platforms



DEMO

Let's do an activity!

- 1) Goto <https://www.facebook.com/pages/creation/> and create a Facebook Page (**Page Name** and **Category** are up to you)
- **Note:** You must first convert your Facebook account to a Developer Account, you can do this at developers.facebook.com.
- 2) Goto <https://chatfuel.com/>, login with your Facebook account
- 3) Create a Blank bot
- 4) Add “Book appointment”, “About us”, “Contact us” options into the **Welcome message** block.
- 5) Add more elements (text, cards, buttons, etc) to complete the flow of conversation (fill all options from step 4)
- 6) Connect your chatbot to the Facebook Page, you have created before in step 1, using **Configure** side menu in Chatfuel.
- 7) Open your Facebook account on your laptop (or Facebook Messenger app in your mobile phone) and search the name of created Facebook Page.
- 8) Press/click on **Get Started** button, your bot should show the options you added in **Welcome message**. Choose one option and check if the bot works properly.
- 9) **To challenge yourself** - Connect your chatbot to a backend to return a random reservation ID to user.

(*HINT: Use JSON API Plugin in Chatfuel*)

Flow Based Chatbots - Examples (Demos)

- Coursera bot - <https://youtu.be/n3j20UvZNec>
- Student Loan bot - <https://youtu.be/JRbefrnNCro>
- The Ellen Show bot - https://youtu.be/wvrCKaVF_7o
- PokemonGo bot - https://youtu.be/0zQs4pm_W2c
- BMW bot - <https://youtu.be/zu4modAhVpA>
- Mancity bot - <https://youtu.be/0kmpv-Yx7WY>
- Insurance bot - <https://youtu.be/lNk6HUhFrdc>