



The Wine Sommelier

At your service whenever you need

TEAM 4. AI PRACTITIONER
CHATBOT PROJECT



Alvin Quek
Ace of Spades



Charlotte Queck
Ace of Hearts



Eugene Ong
Ace of Clubs



Seamus Wan
Ace of Diamonds

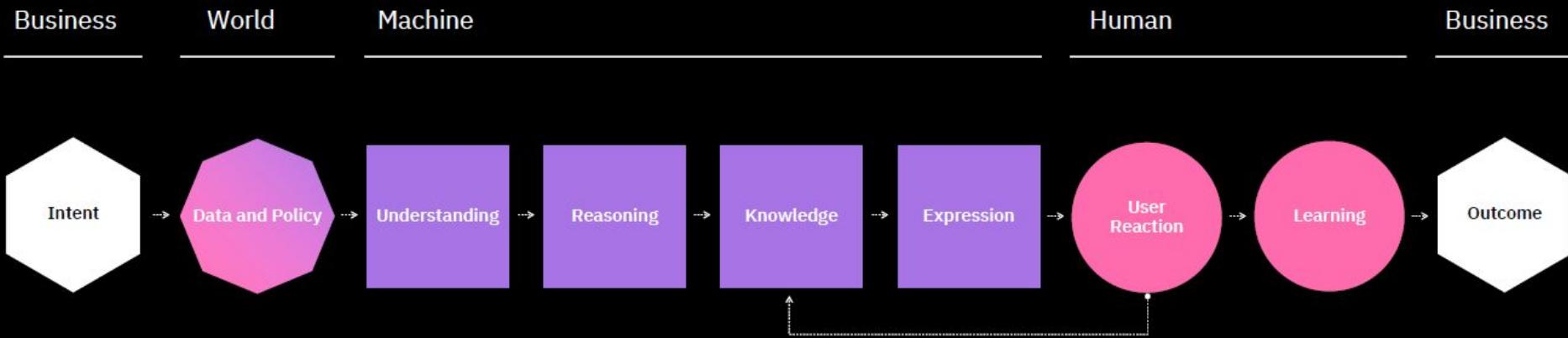


Team ACES

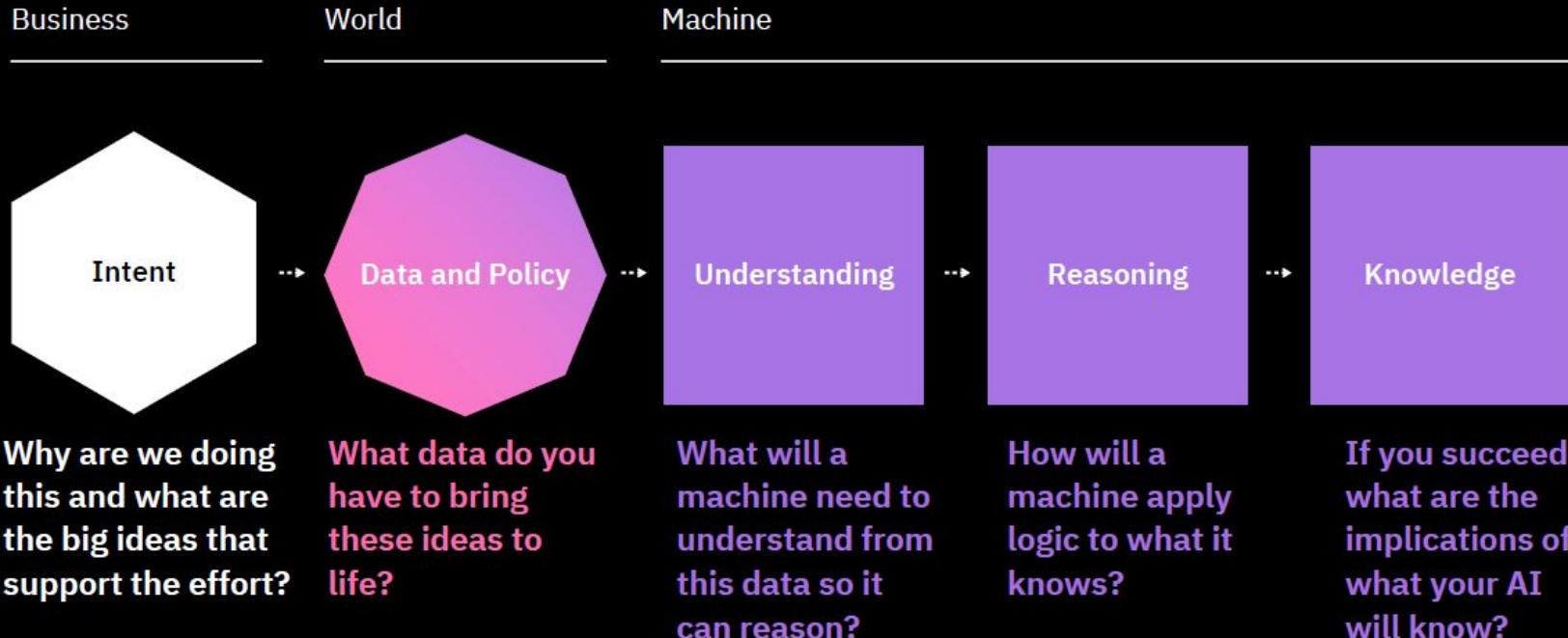
Content	Slide no.	Content	Slide no.	Content	Slide No.
Cover Page	1	Prioritization Grid	16	Understanding - Intent	32 - 37
Team	2	Master Storyboard	17	Understanding - Entities	38 - 40
Content Page	3	MVP	18	Understanding / Reasoning (Wine Recommendation to Purchase Process)	41 - 56
AI Context model	4	Proposed Workflow	19	Knowledge	57 - 60
AI Essential Framework	5	Business Intent	20	Expression - Best Practise	61
Wine	6	Prototyping of Chatbot	21	Expression - Integrations	62
Business Opportunity	11	Data & Policy	22	User Feedback	63
Business Problem	12	Data Understanding	23	Learning	64 - 66
User Persona	13	Understanding	26	Outcome	67
Pain Point	14	Flow/Tools for Chatbot	29	Summary	68
Current Workflow	15	Chatbot - dialogue	31	Reflection	69
				End	70

Agenda

AI/Human Context Model



AI / Context Model



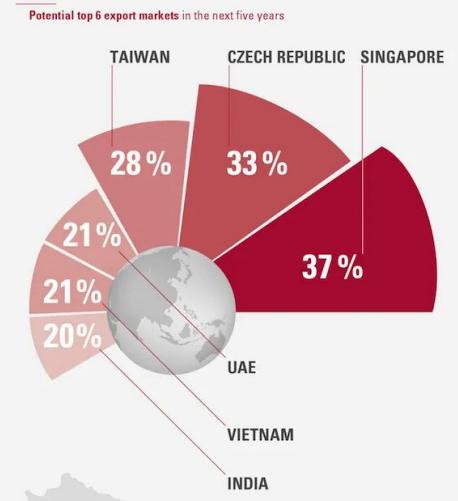
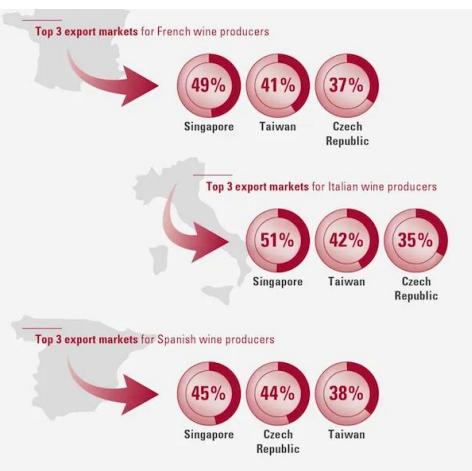
AI Essential Framework

Singapore Wine Industry

1. Highly developed and competitive

2. Number one emerging market for producers to enter over the next five years
(ProWein Business Report 2019)

3. Six Southeast Asian countries claimed the top 10 as emerging sales markets for producers and exporters
Vietnam (5th, 21%)
Thailand (7th, 15%)
Malaysia (8th, 12%)
Philippines (9th, 11%) and
Indonesia (10th, 10%) are all represented.



Essential information on wine market in Singapore

Top countries by import growth from the world

1. Singapore wine industry is an import reliant market.

- does not produce any wine
- driven by powerful consumer spending and intense urbanization.

2. The high disposable income of locals drives the appeal for premium wine.

- Singapore's trade policies are focused on ensuring a steady supply of high-quality foreign wine into the market.

3. International winemakers control a significant share of the market in Singapore, capitalizing on the lack of domestic winemakers in the nation.

4. Singapore is the top emerging market of choice for international wine exporters.

- One of every two producers from France (49%), Italy (51%), and Spain (45%) list Singapore as their choice of emerging market for 2020.
- 32% of New World wine exporters also list Singapore as a potential market prospect.

5. Singapore is a multicultural country. Estimated 15.6% muslim (2020)

- Southeast Asian region has around 40 % of practicing Muslims, growth is limited to three consumer profiles: visitors, expatriates, and the other 60% of the Southeast Asian population.

1. United States	+1,412 million USD
2. China	+1,145 million USD
3. Germany	+664 million USD
4. France	+570 million USD
5. United Kingdom	+469 million USD
6. Singapore	+312 million USD
7. Italy	+289 million USD
8. Belgium	+246 million USD
9. Poland	+219 million USD
10. Netherlands	+169 million USD
11. Hong Kong	+161 million USD
12. Sweden	+160 million USD
13. South Korea	+148 million USD
14. Denmark	+146 million USD
15. Ukraine	+117 million USD

Average annual growth 2018/2017: +8%

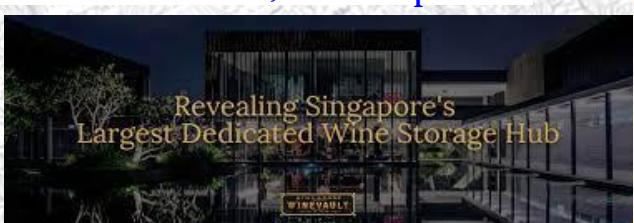
Source: UN Comtrade, last update 2020

Current market trends and suggestions in market trends and suggestions in Singapore?

1.Singapore is rebranding itself as a sophisticated **wine hub** for the new decade.

2.This concept fits in very well with the city-state's **strategic location in the center of Southeast Asia** and it's **excellent transportation links**.

3..Emerging market players should keep in mind factors such as **price, quality, and service** and remember that the **market is both small, and competitive**.



<https://cellar.asia/wine/singapore-wine-market-report/>

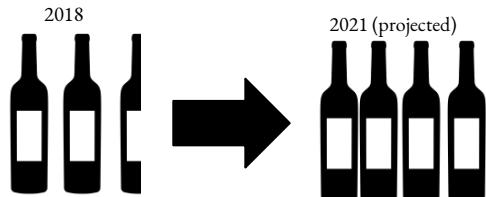
5. Singapore – a new Asian Wine Hub

- a) Launching in Singapore - Good brand positioning and Global Outlook
- b) Efficient Transhipment Centre – Bonded warehousing for Re-Export
- c) Large Number of Foreign Investors

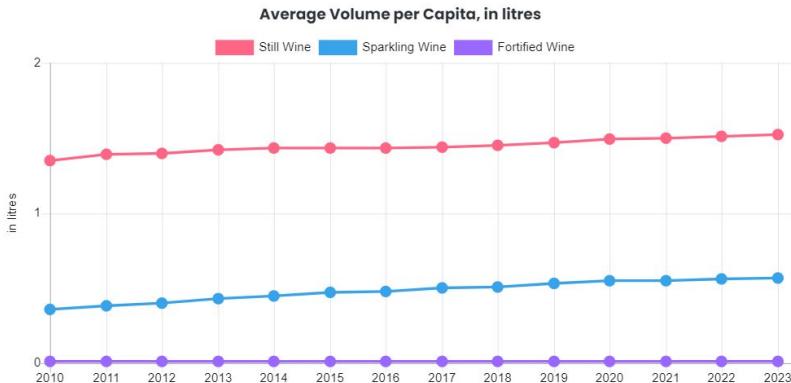


Wine

Wine Consumption in Singapore



By 2021, if Prowein's estimations are correct, the wine market in Singapore will reach a market value of **US\$1.4 billion**, registering an average wine consumption of **four bottles per capita**.



How do the sales of different international wines compare in Singapore?

1. **France** dominates the premium wine market, followed by **Australian wines** and **Chilean wines**.

2. **Still wine** is the most popular wine imported into Singapore, followed by **sparkling**.

-**Prosecco** (Italian white wine) is rising in popularity as consumers look for a cost-friendly alternative to **French Champagne**.

3. The **top five brands of still wine** in Singapore are all Australian wine brands. They include **Jacob's Creek**

<https://cellar.asia/wine/singapore-wine-market-report/>

Wine

The Incredible Ways The 4th Industrial Revolution And AI Are Changing Winemaking

Artificial intelligence touches everything in winemaking from the soil analysis at the vineyards to how consumers select the right vintage to go with dinner.

1. At the vineyard
2. Wine production
3. Virtual sommelier



Virtual sommelier

1. More than 25% of wine drinkers use wine apps to help with purchasing decisions
2. A virtual sommelier can help to make [wine pairing suggestions](#).
 - Take consumer's personal tasting preferences, patterns in the recipes and information about available wine at local retailers to [recommend wines for dishes](#).
 - Smart wine vault that can [track your wine inventory](#)
3. The AI wine recommendations can also impact [wine-buying experience](#).
 - Enjoy [wine-purchasing experience either online or at a retail store](#).
 - Future, a [wine sommelier robot](#) that help you pick out a perfect bottle.

Wine

Significant Growth potential:

1. Digital sales ramped up since Covid
2. New habit of buying wine online is to stay
3. Great interest from Venture capital investors
4. Domestic consumption - Growing middle class
5. Diverse Cuisine & multicultural - pairing with greater variety of wines
6. Sharing the drinking experience - more informed consumers



MATURE	ESTABLISHED	GROWTH	HIGH GROWTH EMERGING	NEW EMERGING
Germany France Austria Italy Argentina South Korea Spain Portugal Chile Uruguay Slovenia Greece Hungary Croatia	Switzerland UK Australia Netherlands Belgium & Lux Denmark New Zealand Ireland Romania South Africa	USA Japan Canada Norway Sweden Finland	China Hong Kong Singapore Macau Brazil Russia Poland Czech Republic Mexico Taiwan Slovakia Estonia	Malaysia Indonesia Thailand Turkey Vietnam Peru Philippines Colombia Angola Nigeria India



Business Opportunity

MAIN BUSINESS PROBLEM IDENTIFIED

When in-store shopping was limited or banned during covid19 restrictions, retailers struggle to stay in business

Tasting room sales, traditionally the biggest portion declined because of decreased tourism

Restaurant sales also declined because of dining-in restrictions

No clear vision from govt-Prata style policy	Imcompetent govt and their policies	Human to human interactions cause covid	wine traders left with wine stocks due to COVID restrictions that unable to sell, also dining restrictions during P2HA mean restaurants do not buy wine	Wine companies currently rely on live agents for support, difficult to find good / qualified staff, difficult to scale up	No customers in wine store durind covid	When in-store shopping was limited or banned during covid19 restrictions, retailers struggle to stay in business
Resistant of vaccination	Wine producer nations riot against covid	Wine store shut down due to Phase 1	due to covid restrictions, walk in sales has been reduced drastically thus the sales has been directed to online sales.	Recommending wine base on key reference point might be a problem for a new join sommelier to the company range of wine	Wine company holds a large inventory of wine which the sommelier have problem replying to all customers' enquiries after office hours where all of them come in.	Tasting room sales, traditionally the biggest portion declined because of decreased tourism

Business Problem

Name : Isabelle Ko

Age : 33

Country : Singapore

Education : Sommelier diploma, Le Cordon Bleu, Paris

Job : Founder, Oh My Dear! boutique wine merchant

Family : Single

Work experience : 10 years

Technical Literacy : Tech Savvy

Wine drinking experience : Expert

Characteristics

Wine lover

Concerns

Providing extensive boutique wine range to customers

Wants

Customers to have good sales experience



User Persona

For beginners

can feel intimidating when visiting a wine club / tasting room

For Intermediate

often paid apps that only help teach about wine but don't offer food and beverage pairing advice.

For seasoned wine drinker

most wine enthusiasts will agree one of best thing to enjoy the beverage is that there's always something to learn and discover. They will like if they know when they can try something new.

Pain Point



Wine Stores

This is where the customers will visit, browse, get recommendations and make their purchases during operating hours of the wine store.

Wine Customers

These are trade customers e.g. restaurants and consumers who buy from the store for diners (restaurants) and personal consumption.

Joyful Purchasers

With their new found wine recommendations from the local sommeliers, wine customers will then purchase the selected wine and enjoy it at the preference of comfort.

Current Workflow

1 🔥 1
Outer Space
 Join Jeff Bezos & Richard Branson to the space. Start a new civilization and start wine in there.

1 🔥 1
DIY Wine
 Sell customers wine kits so they can make their own wine ^ ^

✓ 4 🔥 0
App
 App to capture scan picture of wine and help user to find best match wine
 App recommender allow user to smell recommended wine

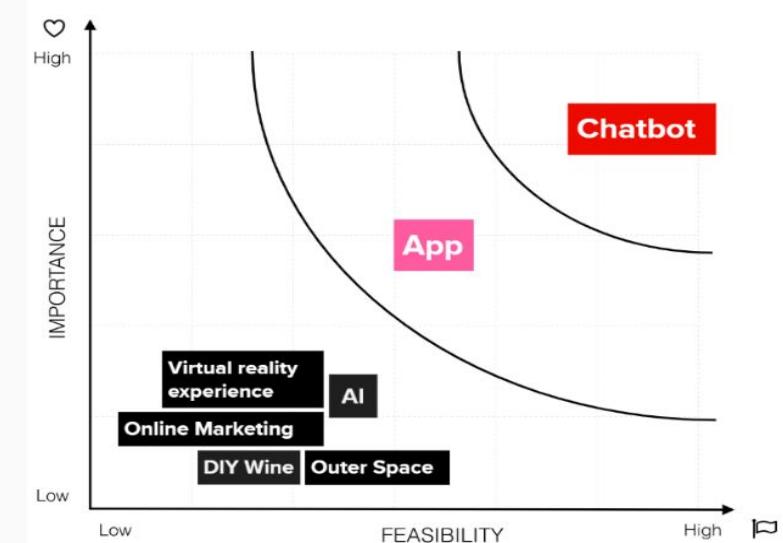
✓ 5 🔥 6
Chatbot
 Create a chatbot that is able to communicate with the client to select and recommend the wine from the library available in the winery

✓ 1 🔥 1
Online Marketing
 Get Wang lei to do live streaming selling for Wine

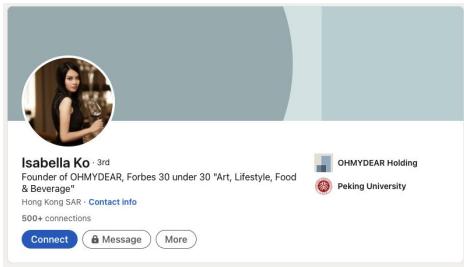
✓ 1 🔥 1
Virtual reality experience
 Create a virtual reality room where clients can enter to visit the wine room and have virtual assistant that can communicate and recommend the wine of the client check.

✓ 1 🔥 2
AI
 Using AI to avoid human to human interaction

Wine trader to pivot from B2B to B2C, create chatbot to serve regular customers so that live agent can serve priority/difficult customers



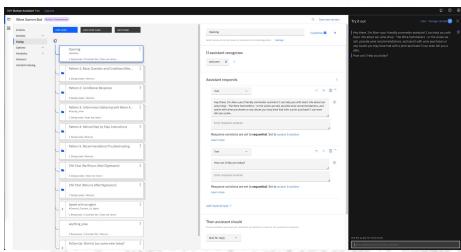
Prioritization Grid



Entrepreneur Ko is having a night out with Director of Wine Sommelier Eugene Ong . She went WS in MBS to look for her favourite wine.

To her disappointed Wine Sommelier was closed due to COVID 19, She decided to check with Eugene Ong and gave him some advice

Eugene Ong took Ms Ko's advice and set up a website, Chatbot and reopen the business



Development of the chat bot with relevant features

The New Website was launched with the integration of the AI chatbot to answer to the needs of the customer

Ms Ko & Mr Ong can now enjoy a night out together and ensure that her customers' enquiries and purchases are catered to while they are away

Master Storyboard

If we provide:

Customers, With a one stop user friendly Chat bot and website that they can easily reach out to our wine 24/7

We will address:

the risk of customer's covid 19 risk by them staying at home ordering wine

By measuring the take up rate and the ratings:

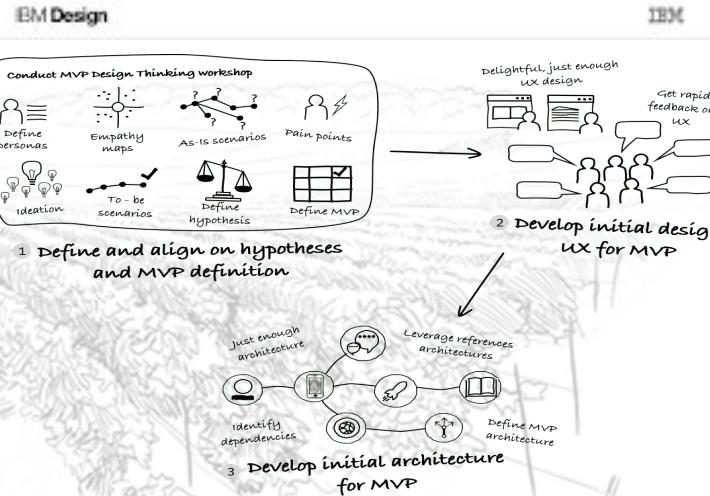
We will know we have arrived when we observed: 100 new sales conversion orders through the chatbot and 75% positive reviews with 4 stars within a month.

Designing an MVP that works for your users

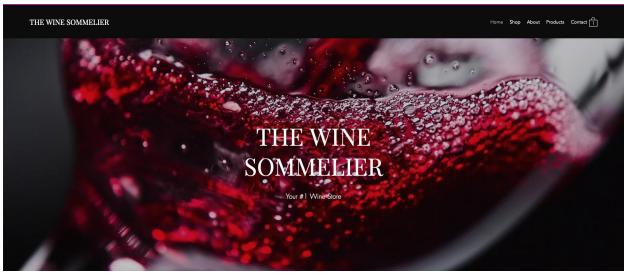
Ariadna Font Litjós, PhD
UX Lead and Development Manager, Watson Explorer

April 12, 2014

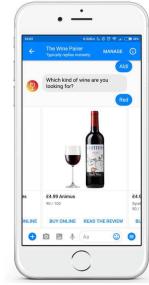
@quicola #designthinking @marux @ibmdesign



MVP



Revamped Website



AI Chatbot with Backend Connections to Watson Discovery Search Skill



Home Delivery Arrangement



Online Payment Gateway



Backend Service Agent

Proposed Workflow

What you trying to achieve with this technology / AI tool

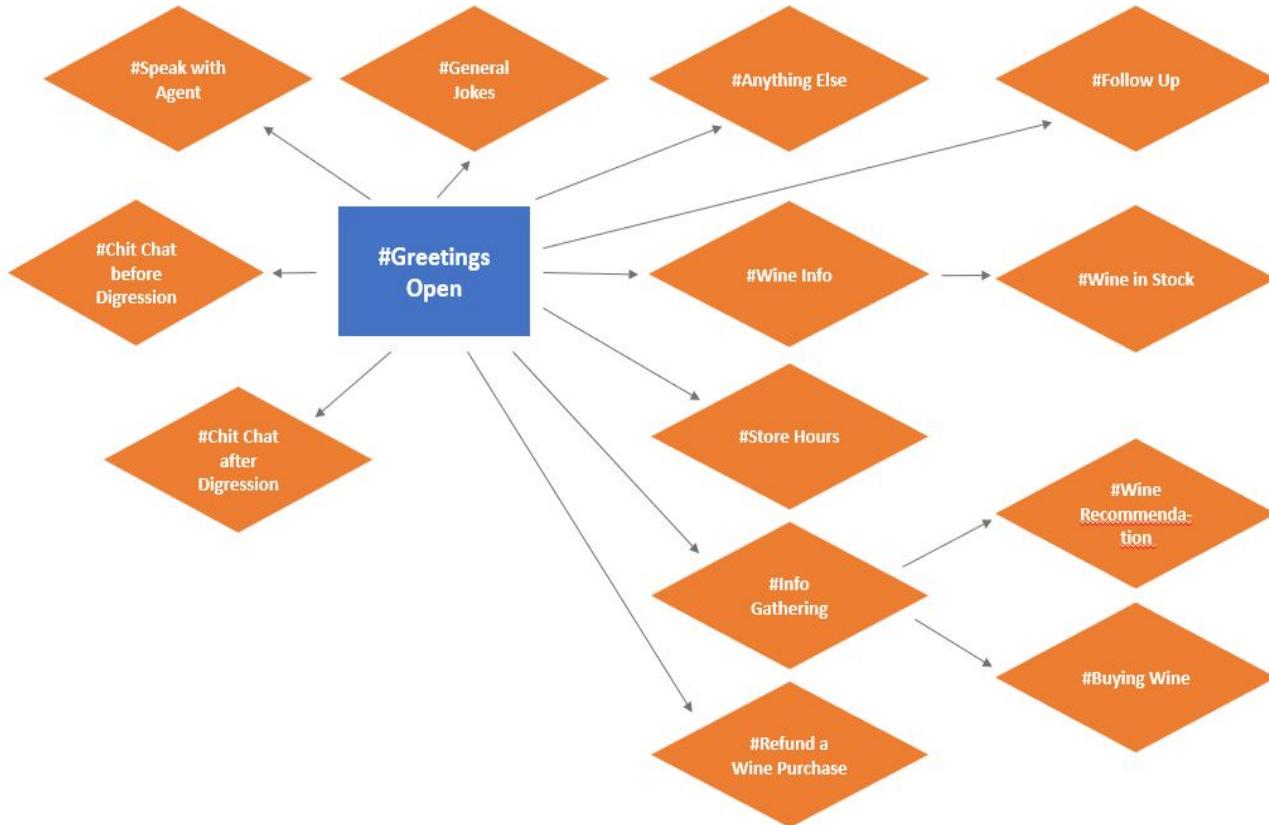
Business intent :

- Facilitate business pivot to sell directly to customers
- Focus limited live agent on order taking and troubleshooting
- Enable customers (particularly those who are digital savvy) to choose and make their purchases easily

Business Intent	To create an AI Chatbot to facilitate the Wine Sommelier recommendation and enquiries.		
Goal	<ul style="list-style-type: none">• Observe 100 new sales conversion orders through the chatbot and 75% positive reviews with 4 stars within a month.• Reduce administrative load of increased enquiries and recommendations by 25%	<ul style="list-style-type: none">• Observe increase in percentage of Sales (Physical vs Chatbot) by 25%• Reduce administrative load of increased enquiries and recommendations by 25%• Scale up range of wine up to 1000 different types.• AI to take over payment, delivery and refund details.• Continuous Dev / Int	<ul style="list-style-type: none">• 50% of all orders to be handled by AI• Increase number of variables by 25%• Average transaction time not more than 5 minutes• Continuous Dev / Int
MVP	1 (Week 1-4)	2 (Week 5-8)	3 (Week 9 onwards)



1. Business Intent



This is a mindmap on the main structure of the Chatbot which will ultimately form the backbone for the SommBot Wine Sommelier

Prototyping of Chatbot

PDPA & Security Data Compliance

Only **live agent** will be in contact with Client personal information for the following purpose for CRM purpose

- Delivery address
- Receiver information

All payment information will go through the bank payment gateway thus no information on payment details will be stored on our **server**.

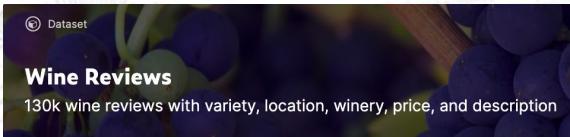
This is to ensure that there is compliance to the **PDPA** and information will not be shared or distributed publicly without any knowledge or approval by the client.



2. Data & Policy

Dataset origins and profile

- Dataset is from **Kaggle** at
<https://www.kaggle.com/zynicide/wine-reviews>
- Consists of **150,000 wine reviews** from Wine Enthusiast magazine (US wine magazine with 4.5 mil readership)



2. Data Understanding

Dataset origins and profile

- Dataset contains information about:

- Country of origin
- Description of wine (Tasting notes)
- Name of wine
- Variety (Chardonnay, Malbec, Zinfandel)
- Others

- Data Cleaning:

- Remove rows with missing data
- Remove duplicate data
- Remove reviewer name
- 140 rows

What original dataset looked like

A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	country	description	designation	points	price	province	region_1	region_2	taster_name	taster_twitter_handle	title	variety	winery
2	0 Italy	Aromas include tropical fruit, lychee, limestone and dried herb. The palate isn't overly expressive, offering unripened apple, citrus and dried sage alongside bright acidity.	Vulkv't Bianco	87		Sicily & Sardinia	Etna		Kerin O'Keeffe	@kerinokeefe	Nicosia 2013 Vulkv't Bianco (Etna)	White Blend	Nicosia
3	1 Portugal	This wine is a bit more austere than its peers, but it's still structured. Firm tannins are filled out with juicy red berry fruits and freshened with acidity. It's already drinkable, although it will certainly be better from 2016.	Avidagos	87	15	Douro			Roger Voss	@vossroger	Quinta dos Avidagos 2011 Avidagos Red (Douro)	Portuguese Red	Quinta dos Avidagos
4	2 US	Tart and snappy, the flavors of lime flesh and rind dominate. Some green pineapple pokes through, with crisp acidity underscoring the flavors. The wine was all stainless-steel fermented.		87	14	Oregon	Willamette Valley	Willamette Valley	Paul Gregutt	@paulgwine-†	Rainstorm 2013 Pinot Gris (Willamette Valley)	Pinot Gris	Rainstorm
5	3 US	Pineapple rind, lemon pith and orange blossom start off the aromas. The palate is a bit more opulent, with notes of honey-drizzled guava and mango giving way to a slightly astringent, semidry finish.	Reserve Late Harvest	87	13	Michigan	Lake Michigan Shore		Alexander Peartree		St. Julian 2013 Reserve Late Harvest Riesling (Lake Michigan Shore)	Riesling	St. Julian
6	4 US	Much like the regular bottling from 2012, this comes across as dry, tart and zingy with citrus, earthy, herbal characteristics. Nonetheless, if you think of it as a pleasantly unfussy country wine, it's a good companion to a hearty winter stew.	Vintner's Reserve Wild Child Block	87	65	Oregon	Willamette Valley	Willamette Valley	Paul Gregutt	@paulgwine-†	Sweet Cheeks 2012 Vintner's Reserve Wild Child Block Pinot Noir (Willamette Valley)	Pinot Noir	Sweet Cheeks
7	5 Spain	Blackberry and raspberry aromas show a typical Navarran whiff of green herbs and, in this case, horseradish. In the mouth, this is fairly full bodied, with tomatoey acidity. Spicy, herbal flavors complement dark plum fruit, while the finish is fresh but grabby.	Ars In Vitro	87	15	Northern Spain	Navarra		Michael Schachner	@wineschach	Tandem 2011 Ars In Vitro Tempranillo-Merlot (Navarra)	Tempranillo-Merlot	Tandem

2. Data Understanding

Word Cloud



2. Data Understanding

Dataset Cleansing and Encoding

- Encoded **colour category** for data (red / white)
- Generated **word cloud** from description to identify significant tasting notes
- **Encoded individual wine URL into the data to link search results to Wine Sommelier Wix site where customers can view more images and details if preferred.**

- Selected **140 varieties** of wines covering -a range of colours (red/white wine)
- varieties (e.g. Chardonnay, Merlot) and
- tasting notes (e.g. cherry, chocolate, lemon, etc.)
to build the chatbot as “**proof of concept**” which can be scaled up subsequently

1	SN	VARIETY	TYPE	NAME	REVIEW	POINTS	PRICE	LOCATION	WINERY	URL
2	WINE001	Cabernet Sauvignon	Red	Sharabella Wines 2008 Padre Amante Reserve Cabernet Sauvignon (Lodi)	Not sure what's going on here but both bottles of this Cab smelled of diesel gasoline, burnt rubber and corn nuts.	80	15	California	Sharabella Wines	https://aqimpossible.wixsite.com/thewinesommelier/product-page... sharabella-wines-2008-padre-amante-reserve-cabernet-sauvignon-lodi

2. Data Understanding

We first tried loading the list in Excel (XLS) format but encountered a 50MB file limit

The screenshot shows the IBM Watson Discovery interface. At the top, there's a navigation bar with icons for back, forward, refresh, and home, followed by the URL <https://us-south.discovery.watson.cloud.ibm.com/>. Below the URL is a search bar and a user profile icon. A red box highlights a message in the top right corner: "1 document did not upload" and "1 of your documents exceeds the 50MB limit". Below this, there's a "Configure data" link. On the left, there's a sidebar with a folder icon labeled "wine" and a blue checkmark, followed by icons for Overview, Errors and warnings (0), and Search settings. The main area has a large circular "Upload" button with an upward arrow icon. Below it, the text "Upload data to get started" is displayed, followed by "Drag and drop your documents here, or" and a "select documents" link. At the bottom, it specifies supported file types: PDF, HTML, JSON, Word, Excel, PowerPoint, PNG, TIFF, JPG, with a note that "50MB max per document".

Limitations

3. Understanding

Converting the file to .CSV format reduced the file size, but resulted in character limit error

The screenshot shows the IBM Watson Discovery interface. In the top navigation bar, the URL is https://us-south.discovery.watson.cloud.ibm.com/regions/us-south/services/crn%3Av1%3Abliuemix%3Apu. The instance name is Watson Discovery-xj. On the left sidebar, there's a folder icon labeled 'wine'. The main content area has tabs: 'Overview' (selected), 'Errors and warnings (1)', and 'Search settings'. Below these tabs is a table with the following data:

Filename	Type	Message	Occurred during	Date	Document ID
WINE LIST AQ ed (1).xlsx	Warning	The document text exceeds the 50000 character limit. Only the first 50000 characters of this document will be enriched.	Enrichments	8/2/2021 4:26:58 am EDT	e1278fb38812f39c47d381fd821dba15

Limitations

3. Understanding

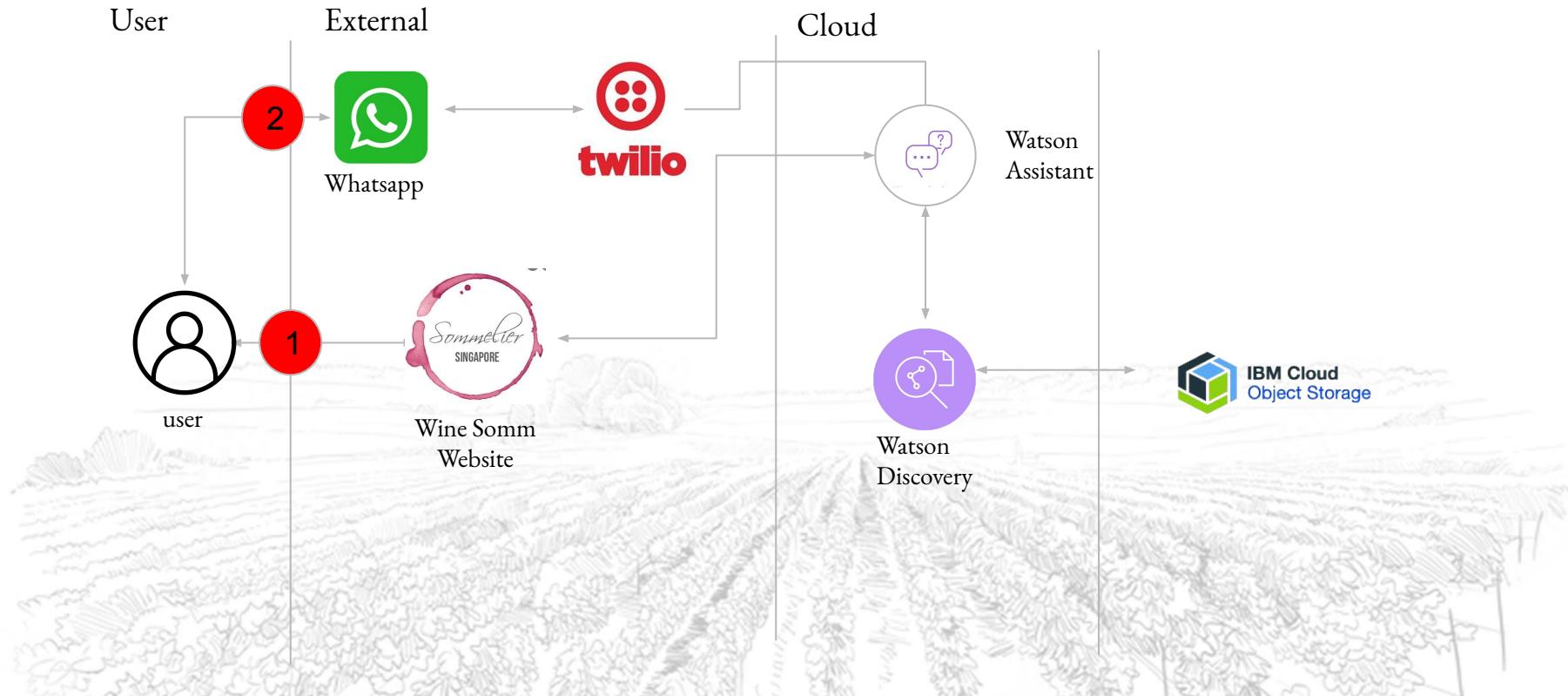
We converted the .CSV file to a .json file which was accepted by Watson

1	SN	VARIETY	TYPE	NAME	REVIEW	POINTS	PRICE	LOCATION	WINERY	URL
2	WINE001	Cabernet Sauvignon	Red	Sharabella Wines 2008 Padre Amante Reserve Cabernet Sauvignon (Lodi)	Not sure what's going on here but both bottles of this Cab smelled of diesel gasoline, burnt rubber and corn nuts.	80	15	California	Sharabella Wines	https://aqimpossible.wixsite.com/thewinesommelier/product-page/sharabella-wines-2008-padre-amante-reserve-cabernet-sauvignon-lodi

```
[  
 {  
   "SN": "WINE001",  
   "VARIETY": "Cabernet Sauvignon",  
   "TYPE": "Red",  
   "NAME": "Sharabella Wines 2008 Padre Amante Reserve Cabernet Sauvignon (Lodi)",  
   "REVIEW": "Not sure what's going on here but both bottles of this Cab smelled of diesel gasoline, burnt rubber and corn nuts.",  
   "POINTS": 80,  
   "PRICE": 15,  
   "LOCATION": "California",  
   "WINERY": "Sharabella Wines",  
   "URL": "https://aqimpossible.wixsite.com/thewinesommelier/product-page/sharabella-wines-2008-padre-amante-reserve-cabernet-sauvignon-lodi"  
 }
```

We had to structure the file into a JSON file to allow the Watson Discovery to better extract field information which we require.

3. Understanding



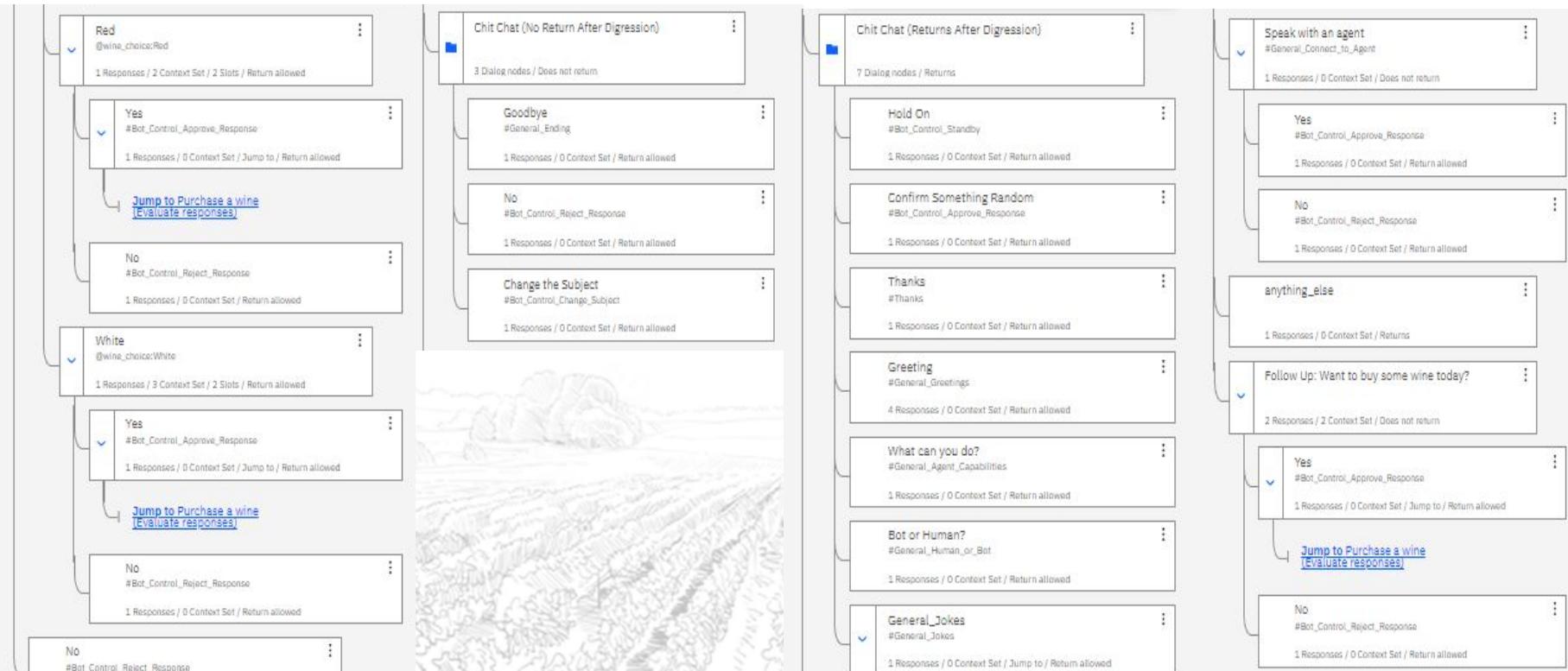
3. Flow / Tools for ChatBot

Wine Somm Bot



3. ChatBot - Dialogue

Pattern 5 : Recommendation or Troubleshooting



3. ChatBot - Dialogue

Understanding - What our machine needs to understand so that it can reason

Our bot will need to know:

User input	User Intent	Watson Assistant Intent
Shop related	Operating hours	#operating_hours
Location	Shop physical location	#general_storelocation
Wine	Name of wine	#wine_selection
Wine Type	To indicate which wine is available	#which_wine

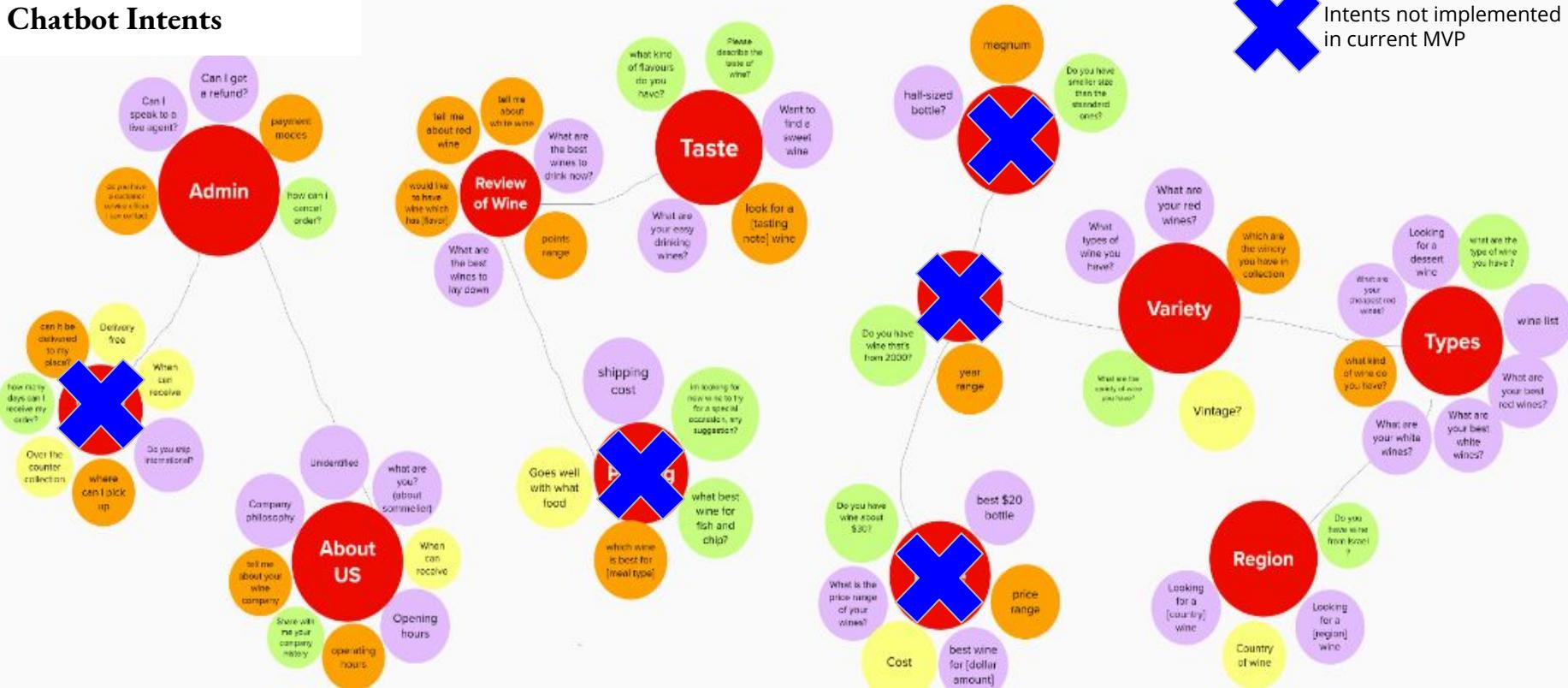
[Click here for full list of intents and entities](#)

3. Understanding

Chatbot Intents



Intents not implemented
in current MVP



3. Understanding - Intents

User Entry	Intent	Chatbot Recognizes
How can I buy a wine?	#buying_wine	User wants to buy a wine
Opening Hours	#Customer_Care_Store_Hours	Find business hours.
Do you have a name?	#General_About_You	Request generic personal attributes.
How can you help me? / What can you do?	#General_Agent_Capabilities	Request capabilities of the bot.
Connect me to a live agent.	#General_Connect_to_Agent	Request a human agent.

3. Understanding - Intents

User Entry	Intent	Chatbot Recognises
Sour Wine?	#which_wine	Asks for wine recommendation
Tks	#Thanks	Thanks
I hate this moscato! / Give me back my money	#returning_wine	User wants to return purchased wine.
Store location	General_StoreLocation	General queries about store location.
Can you tell me a joke?	#General_Jokes	jokes about wines

3. Understanding - Intents

User Entry	Intent	Chatbot Recognizes
Are you human or bot?	#General_Human_or_Bot	Human or Bot
Greetings	#General_Greetings	Good Morning.
Bye	#General_Ending	Ending.Bye Bye.
What can you do	#General_Agent_Capabilities	Agent capabilities query

3. Understanding - Intents

User Entry	Intent	Chatbot Recognizes
Yes	#Bot_Control_Approve_Response	Yes as a response that satisfies a question
Hold on	#Bot_Control_Change_Subject	Recognises user wants to change topic, moves to pattern 1
Do you carry #name of wine	#do_you_carry	Recognize Entity : @wine in the user input sentence and will do a search & match
Anyone there	#Bot_Control_Confirm_Presence	Recognises that user want bot to indicate it is available
I don't want that	#Bot_Control_Reject_Response	Indicate the bot's previous response does not address a question

3. Understanding - Intents

Chatbot Entities

Wine Type	Location	Greetings	Tasting notes	About us	Admin	Taste	Mode of payment	Variety (White)	Pairing	Variety (Red)	
Red	California	Hi	@chocolate	@cherry	@sommbot	@cancelorder	Tasteless	Riesling	@chicken	@pasta	Port Sherry
White	New York	How are you?	@sweet	@drinknow	@aboutus	@paymentmodes	Fruity	Port	@fish	@pizza	Carbernet Sauvignon
	Oregon	Good evening	@plum	@easydrinking		@liveagent	Bitter	Pinot Grigio	@pork	@Chinese	Mellot
	Washington	Good afternoon	@sour	@start		@shipping	Oak	Muscat	Red Meat	@Italian	Malbec
		Good morning				@refund	Sweet	Paynow	White Meat	@Indian	Zinfandel
		Hello				Delivery	Sour	Moscato	@Perankan	@Malay	Shiraz
						Self Pick Up	Paypal	Colombard	@Western		Syrah
							Alipay	Chardonnay			
								Sauvignon Blanc			

3. Understanding - Entities

@Entity	Description	Return Example
@wine_selection	This includes a list of the wine names that will be detected during the wine purchase where Watson Assistant will learn closest match. Eg. Allure NV Bubbly Mos	Allure NV Bubbly Moscato (California)
@color	Color of Wine?	Red or White
@day	Which day of the week?	Monday,Tuesday,Wednesday,Thursday,Friday, Saturday & Sunday
@taste_profile	What taste of wine you looking for?	Plum,peach,tart,grapefruit,orange,apple & chocolate
@wine	Which wine variety?	Colombard,cabernet sauvignon,Malbec,Merlot,pinot noir.
@wine_recommendation	Bot recommend wine to customers	Allure NV Bubbly Moscato (California)
@wine choice	How you select your wine via?	Tasting Notes,white or red.

3. Understanding - Entities

IBM Watson Assistant Trial Upgrade

Wine Somm Bot Version: Development

Intents Entities Dialog Options Versions Content Catalog

Add node Add child node Add folder

1 Dialog node / Returns
Pattern 5: Recommendation/Troubleshooting
1 Dialog node / Returns
Chit Chat (No Return After Digression)
4 Dialog nodes / Does not return
Chit Chat (Returns After Digression)
6 Dialog nodes / Returns
Hold On #Bot_Control_Standby
1 Responses / 0 Context Set / Return allowed
Confirm Something Random #Bot_Control_Approve_Response
1 Responses / 0 Context Set / Return allowed
Thanks #Thanks
1 Responses / 0 Context Set / Return allowed
Greeting #General_Greetings
4 Responses / 0 Context Set / Return allowed
What can you do? #General_Agent_Capabilities
1 Responses / 0 Context Set / Return allowed
Bot or Human? #General_Human_or_Bot
1 Responses / 0 Context Set / Return allowed

Greeting
Node name will not be shown to customers for disambiguation. Settings

If assistant recognizes
#General_Greetings

Assistant responds

If assistant recognizes Respond with

- 1 now().after('04:00:00') && n Hey there! Good morning
- 2 now().after('12:00:00') && n Hey hey. Good afternoon
- 3 now().after('17:00:00') Heyo! Good evening
- 4 Enter condition Hey hi hello!

Add response +

Then assistant should

Choose whether you want your Assistant to continue, or wait for the customer to respond.

Wait for reply

Try it out

Hey there, I'm Alex—your friendly sommelier assistant! I can help you with basic info about our wine shop - The Wine Sommeliers - or the wines we sell, provide wine recommendations, and assist with wine purchases or any issues you may have had with a prior purchase! I can even tell you a joke..

How can I help you today?

Hi #General_Greetings

Heyo! Good evening

Use the up key for most recent

Enter something to test your assistant

The diagram illustrates the flow from dialog nodes to responses. A vertical list of dialog nodes on the left (labeled B) maps to specific responses in the middle pane (labeled C). These responses then map to a greeting in the right pane (labeled A).

Annotations:

- B:** Points to the list of dialog nodes on the left.
- C:** Points to the list of responses in the middle pane.
- A:** Points to the greeting in the right pane.

3. Understanding / Reasoning

Greetings

#General_Greetings

User is greeted real time.
For example ,
If user uses chatbot after 12nn
bot will greet user 'Good afternoon'

Before 12nn - 'Good morning'

now().after('04:00:00') and now().before('11:59:59')

After 12nn - 'Good Afternoon'

now().after('12:00:00') and now().before('16:59:59')

After 5pm - 'Good evening'

now().after('17:00:00')

From 12mn to 4am - Chatbot off work

The screenshot shows the Microsoft Bot Framework designer interface. On the left, a node configuration for a 'Greeting' node is displayed. It includes sections for 'If assistant recognizes' (containing '#General_Greetings'), 'Assistant responds' (with four entries based on time), and 'Then assistant should' (set to 'Wait for reply'). Below this is a summary section for adding an external node name and a status note. On the right, a 'Try it out' window is open, showing a conversation log where the bot greets the user with 'Hey hey. Good afternoon'.

2:51 pm
4/8/2021

3. Understanding / Reasoning

IBM Watson Assistant Trial Upgrade

Wine Somm Bot Version: Development

Intents Entities Dialog Options Versions Content Catalog

Add node Add child node Add folder

```

graph TD
    Start[Get a wine recommendation @which_wine] --> Yes1[Yes #Bot_Control_Approve_Response]
    Yes1 --> Profile1[Profile @wine_choice:(Tasting Notes)]
    Profile1 --> Red1[Red @wine_choice:Red]
    Red1 --> Yes2[Yes #Bot_Control_Approve_Response]
    Yes2 --> Purchase[Purchase a wine]
    Purchase --> No1[No #Bot_Control_Reject_Response]
    No1 --> White1[White @wine_choice:White]
    White1 --> No2[No #Bot_Control_Reject_Response]
    No2 --> ChitChat[Chit Chat (No Return After Digestion)]
  
```

Red Node name will be shown to customers for disambiguation so use something descriptive.

If assistant recognizes @wine_choice:Red

Then check for

Check for	Save it as	If not present, ask	Type
1 @wine	\$wine	Option	Required
2 @wine_select	\$wine_select	Which wine	Required

Add slot +

Assistant responds

Text Enter response text

Response variations are set to sequential. Set to random | multiline Learn more

Add response type +

Try it out

Wine recommendation #which_wine @wine:Wine

I can help with wine recommendations! Just need to ask you a few questions to figure out which wine is best for you. Sound good?

yes

#Bot_Control_Approve_Response

Awesome! To start, do you want us to recommend by Red, White or by Profile?

- Red
- White
- Profile

red

Irrelevant

@wine choice:Red @color:red

You may choose from the following red wines:

- cabernet sauvignon
- malbec
- merlot
- pinot noir
- port
- sherry
- shiraz
- syrah
- zinfandel

Use the up key for most recent

Enter something to test your assistant

3. Understanding / Reasoning

Try it out

Clear Manage Context 2 X

Wine recommendation 1

#which_wine

@wine:Wine

I can help with wine recommendations! Just need to ask you a few questions to figure out which wine is best for you.

Sound good?

User inputs **Wine Recommendation** into Chatbot.

Chatbot **understands** that user is **checking for wine recommendation** based on a **list of examples** that have been entered in the **Intent #which_wine**.

#which_wine

Last updated: 8 days ago Try it

Intent name: #which_wine

Name your intent to match a customer's question or goal

Description (optional): Asks for wine recommendation

User example: Type a user example here
Add unique examples of what the user might say. (Pro tip: Add at least 5 unique examples to help Watson understand)

Show recommendations

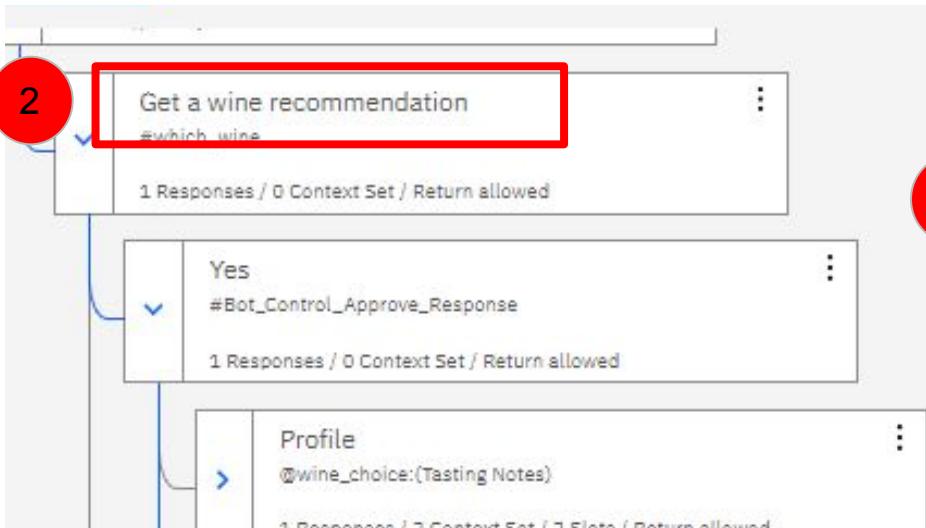
Add example

Annotations: Annotate entities What's this?

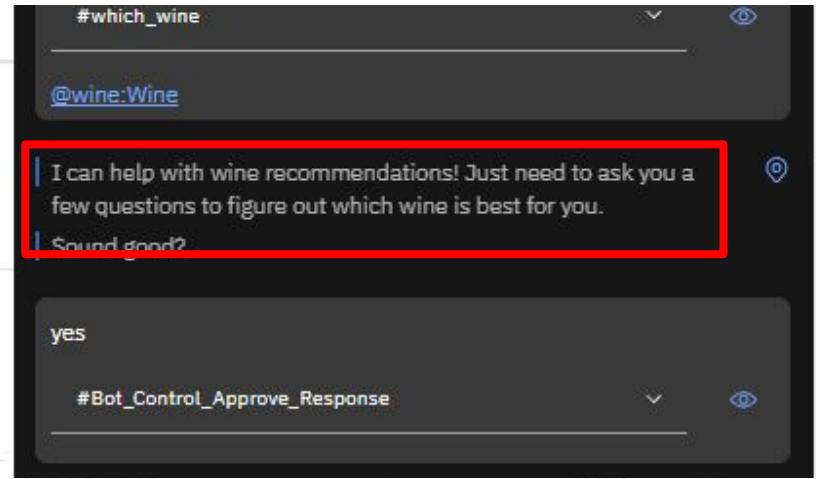
User examples (12) ↑ Added ↑ Conflicts (0) ↑

User Example	Added	Conflicts
can you recommend a sweet wine	8 days ago	
help me choose	8 days ago	
help me choose a wine	8 days ago	
I dont know which wine I should try	8 days ago	
I need help deciding	8 days ago	
I want a sour wine	8 days ago	
recommend something	8 days ago	
tell me about your sour wine	8 days ago	
what is a good wine for me	8 days ago	
what red wine do you have	8 days ago	

3. Understanding / Reasoning



Chatbot recognize wine recommendation
with intent #which_wine



Chatbot response with pre program message
to check for approval response

3. Understanding / Reasoning

4

yes

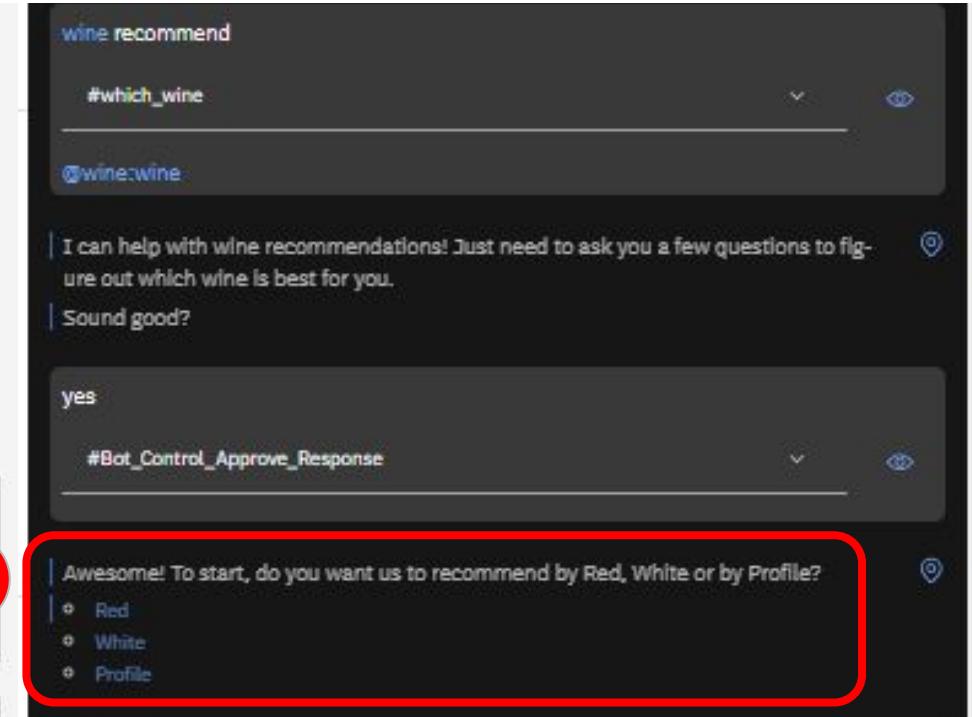
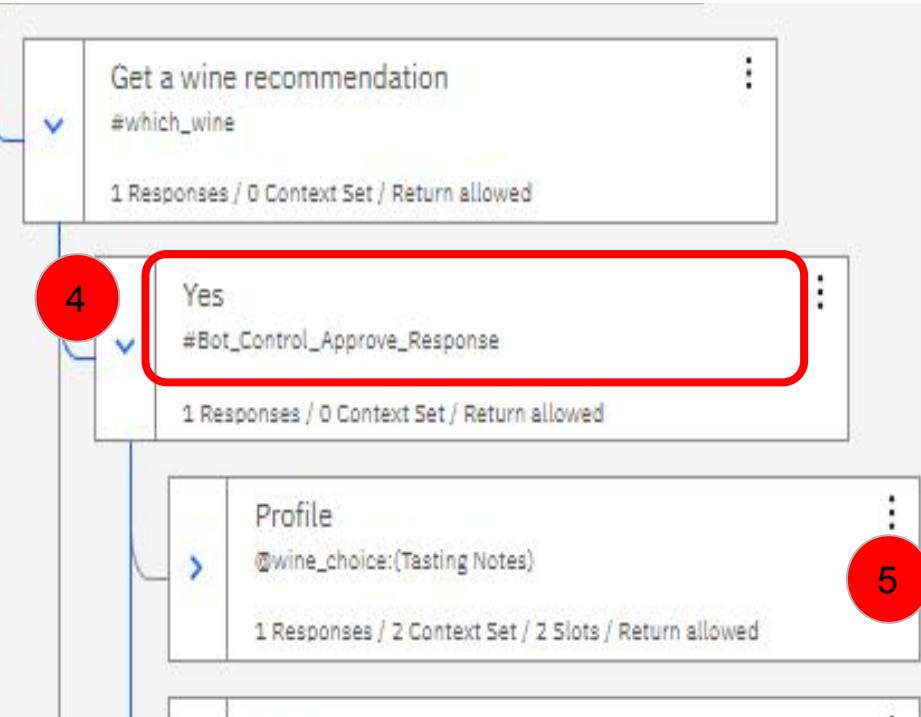
#Bot_Control_Approve_Response

Awesome! To start, do you want us to recommend by Red, White or by Profile?

- Red
- White
- Profile

User inputs yes to Chatbot.

3. Understanding / Reasoning

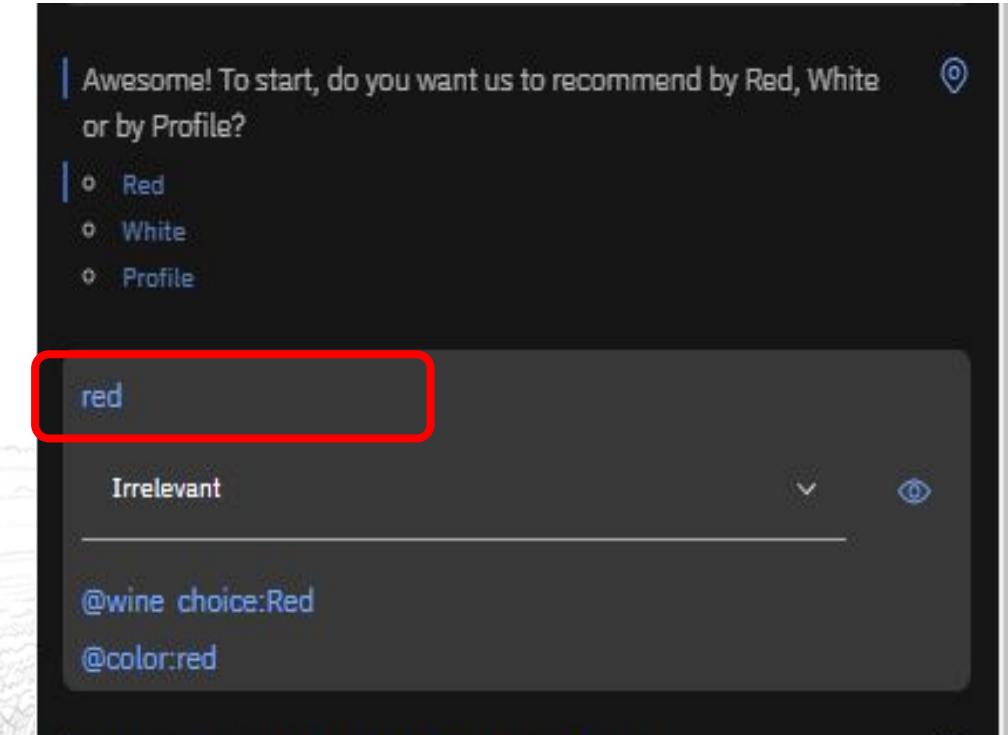


Chatbot recognizes **yes** with intent
#Bot_Control_Approval_Response.

Chatbot responds with 3 options (Red, White, Profile) for user's choice.

3. Understanding / Reasoning

6



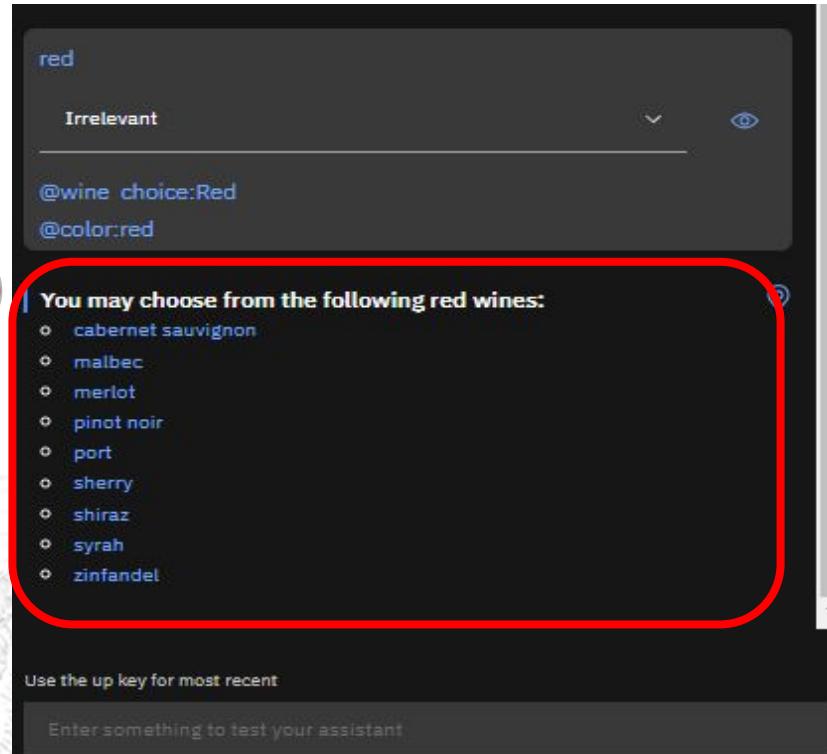
User inputs **red** to Chatbot.

3. Understanding / Reasoning

7



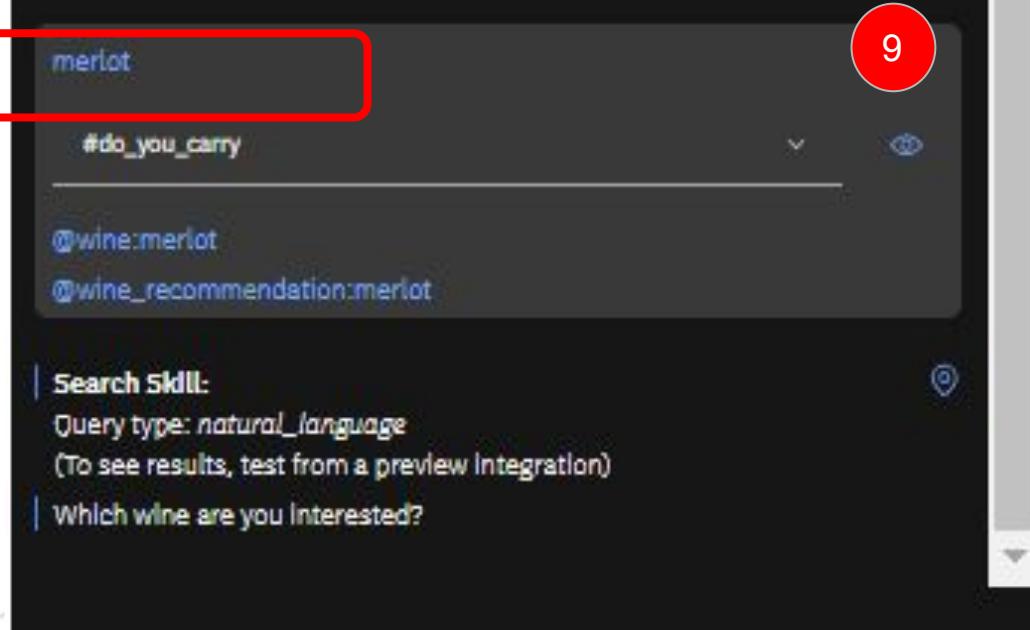
8



Chatbot recognize **red** with entity **@wine_choice: Red.**

Chatbot responds with a list (of red wine) for user's choice.

3. Understanding / Reasoning



User inputs **merlot** to Chatbot.

3. Understanding / Reasoning

Preview
Test your assistant, see what your customers will experience

Try it right here Restart conversation

Assistant preview

merlot

This is the Wine Sommelier Recommendations

Michel-Schlumberger 2012 Le Sage Merlot

Merlot

Tempus Cellars 2007 Seven Hills Merlot

Merlot

JM Cellars 2011 Klipsun Vineyard Merlot

Which wine are you interested?

Michel-Schlumberger 2012 Le Sage Merlot (Dry Creek Valley)

You have selected Michel-Schlumberger 2012 Le Sage Merlot (Dry Creek Valley). Would you like to make a purchase?

Type something...

10

11

12

Chatbot returns the selection from the Watson Discovery Search Skill based on the selection

Present Options > Identify Option Selected > Search Skill

The image displays three sequential screenshots of the Microsoft Bot Framework configuration interface, illustrating a workflow:

- Screenshot 9 (Left): Configure slot 1**

This screen shows the configuration of a slot named "wine". The "Check for" field contains "@wine". The "Save it as" field is set to "wine". The "Slot is required" checkbox is checked. Below this, there's a section for "If slot context variable is not present ask:" with an "Option" dropdown. A title "You may choose from the following red wines:" is followed by a table with six rows, each containing a list label and a value:

List label	Value
1	cabernet sauvignon
2	malbec
3	merlot
4	pinot noir
5	port
6	sherry
- Screenshot 10 (Middle): Configure slot 1**

This screen continues the configuration of slot 1. It shows the "When user responds, if intent or entity is Found" section. Under "If assistant recognizes", there are five entries: 1. @wine:(cabernet sauvignon) with a "Search skill" button and a "Customize handler" button. 2. @wine:(malbec) with a "Search skill" button and a "Customize handler" button. 3. @wine:(merlot) with a "Search skill" button and a "Customize handler" button. 4. @wine:(pinot noir) with a "Search skill" button and a "Customize handler" button. 5. @wine:(port) with a "Search skill" button and a "Customize handler" button.
- Screenshot 11 (Right): Configure handler 1**

This screen shows the configuration of a handler named "handler 1". It starts with "If assistant recognizes" (@wine:(cabernet sauvignon)) and "Then assistant should" (Move on (Default)). A red box highlights the "Search skill" dropdown in the third step of the slot configuration, which corresponds to the "Search skill" button in the middle screenshot.

3. Understanding / Reasoning

Search Skill > Presents Top 3 Selection Based on Highest Search Score > Detects \$wine_selection

The screenshot shows two panels of the Microsoft Bot Framework designer.

Configure slot 2:

- Check for:** \$wine_selection (highlighted with a blue box)
- Save it as:** \$wine_selection (highlighted with a pink box)

If slot context variable is not present ask:

Text: Which wine are you interested? (highlighted with a red box)

Configure handler 1:

- If assistant recognizes:** \$wine_selection (highlighted with a pink box)

Assistant responds:

Text: You have selected \$wine_selection. Would you like make a purchase? (highlighted with a red box)

Annotations:

- A red circle with the number 11 is positioned above the "Configure slot 2" panel.
- A red circle with the number 12 is positioned above the "Configure handler 1" panel.
- A black arrow points from the "Save it as" field in the slot configuration to the "If assistant recognizes" field in the handler configuration.
- A black arrow points from the "Text" field in the slot configuration to the "Text" field in the handler configuration.

3. Understanding / Reasoning

[← Back](#)

Search Skill/Wine2

Cancel

Save

Learn how to troubleshoot and fine tune your search skill. [Learn more](#)

Configure result content

Map your data schema from Discovery to the title, body, and URL fields below to define what results will be surfaced to end users in the preview

Title

NAME | Example: LangeTwins 2010 Estate grown Malbec (Lodi)

Body

VARIETY | Example: Malbec

URL

URL | Example: <https://aqimpossible.wixsite.com/thewinesommelier/product-page/langetwins-2010-estate-grown-malbec-lodi>

Define the text your search skill will display to the end user

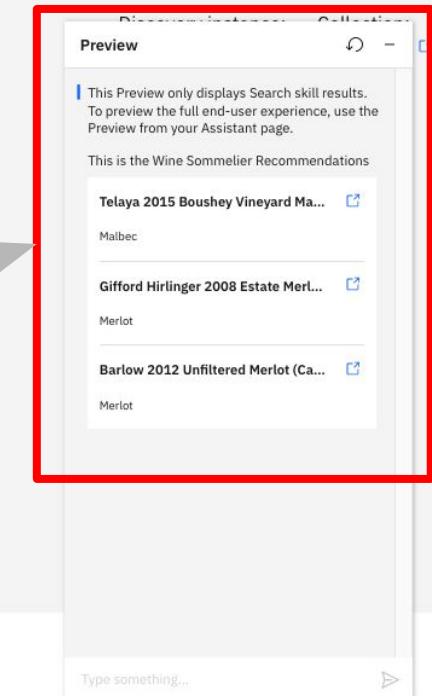
Message

No results found

Connectivity issue

Text to display

This is the Wine Sommelier Recommendations



3. Understanding / Reasoning

Chatbot will detect **Entity @wine_selection** from the **list of dictionary** at Step 11 and saves as **Context \$wine_selection**. This will then move on to Step 12.

Configure slot 2

Check for **@wine_selection** → Save it as **\$wine_selection** 11

If slot context variable is not present ask:

Text: Which wine are you interested?

Enter response variation

Response variations are set to sequential. Set to random | multiline

Add response type +

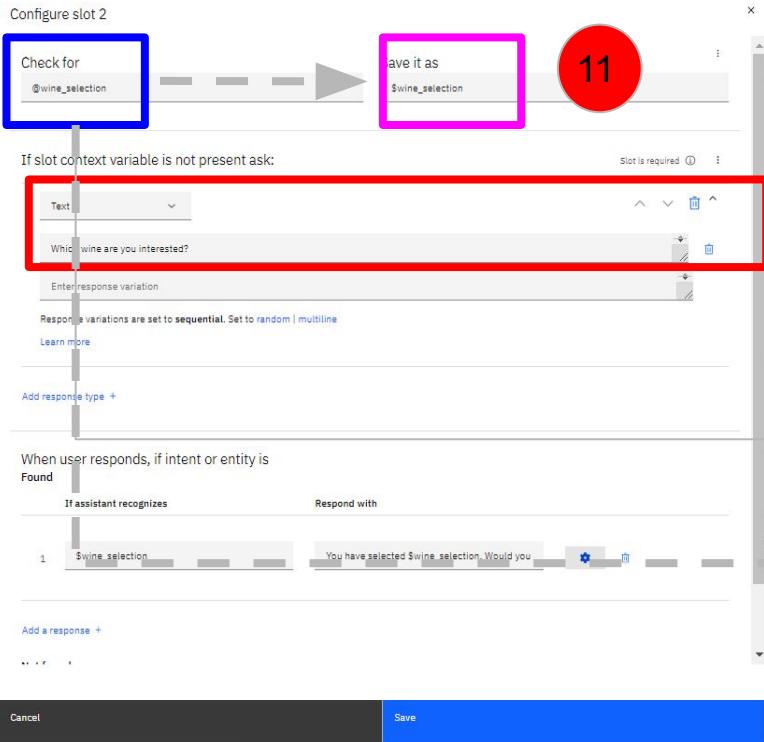
When user responds, if intent or entity is Found

If assistant recognizes Respond with

1 \$wine_selection You have selected \$wine_selection. Would you

Add a response +

Cancel Save



← | **@wine_selection** Last updated: a few seconds ago Try it

Fuzzy matching On

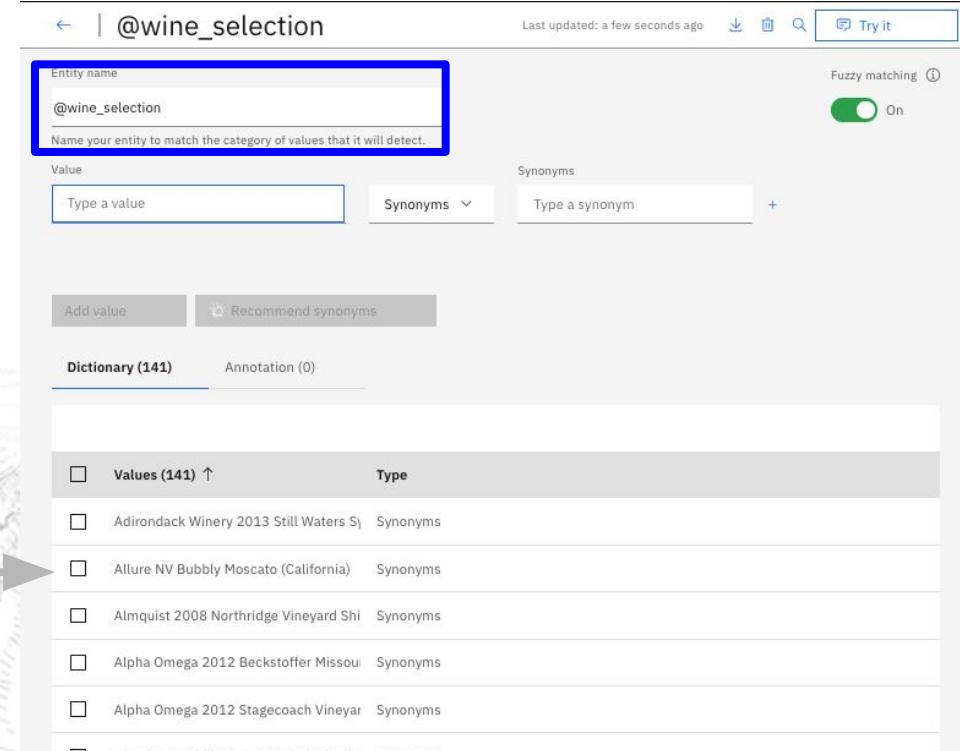
Entity name **@wine_selection**
Name your entity to match the category of values that it will detect.

Value Type a value Synonyms Type a synonym +

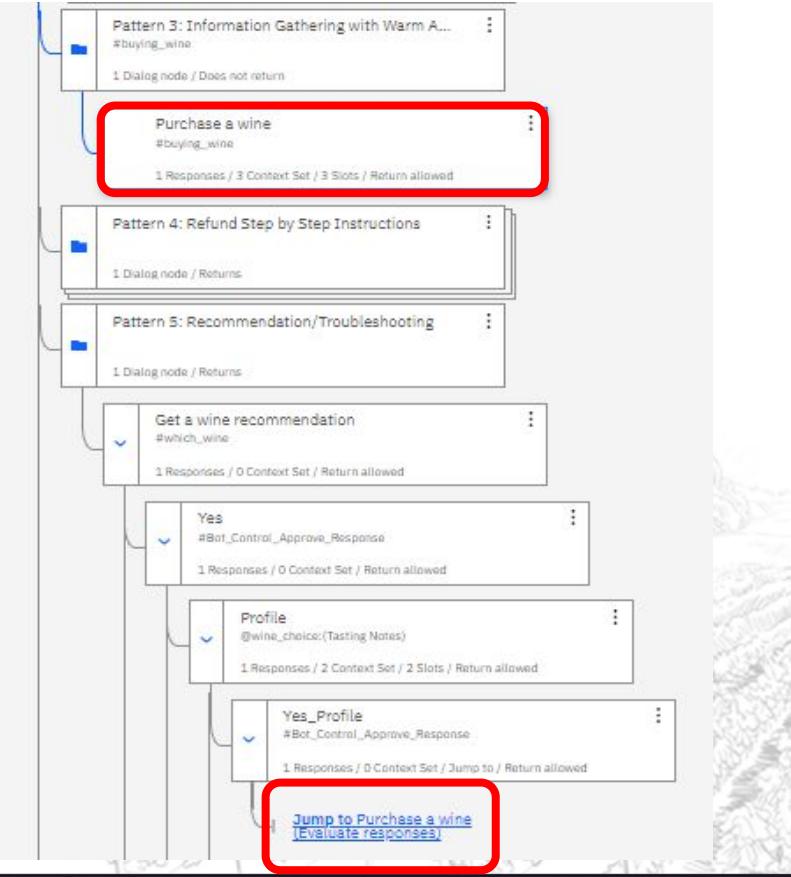
Add value Recommend synonyms

Dictionary (141) Annotation (0)

Values (141) ↑	Type
Adirondack Winery 2013 Still Waters S	Synonyms
Allure NV Bubbly Moscato (California)	Synonyms
Almquist 2008 Northridge Vineyard Shi	Synonyms
Alpha Omega 2012 Beckstoffer Missou	Synonyms
Alpha Omega 2012 Stagecoach Vineyar	Synonyms



3. Understanding / Reasoning



Preview

Test your assistant, see what your customers will experience.

Try it right here Restart conversation

Assistant preview

You have selected Michel-Schlumberger 2012 Le Sage Merlot (Dry Creek Valley). Would you like make a purchase?

yes

How many of those do you want?

10

Yay Michel-Schlumberger 2012 Le Sage Merlot (Dry Creek Valley)! Great choice! Let me get you an agent who will place an order for 10 of those.

Connect to agent

The connect to agent response type was received. In production, you would write code to handle this connection.

This message will be sent to the agent:

User placed an order for wine — Wine: Michel-Schlumberger 2012 Le Sage Merlot (Dry Creek Valley), Quantity: 10

Type something... ➤

13

- User inputs Yes to chatbot to proceed with confirmed purchase.
- Followed by the quantity required.
- Confirmation of wine choice and Quantity will be forwarded to the customer service agent.

3. Understanding / Reasoning

Detect Purchase Wine Selection > Ask for Quantity Required

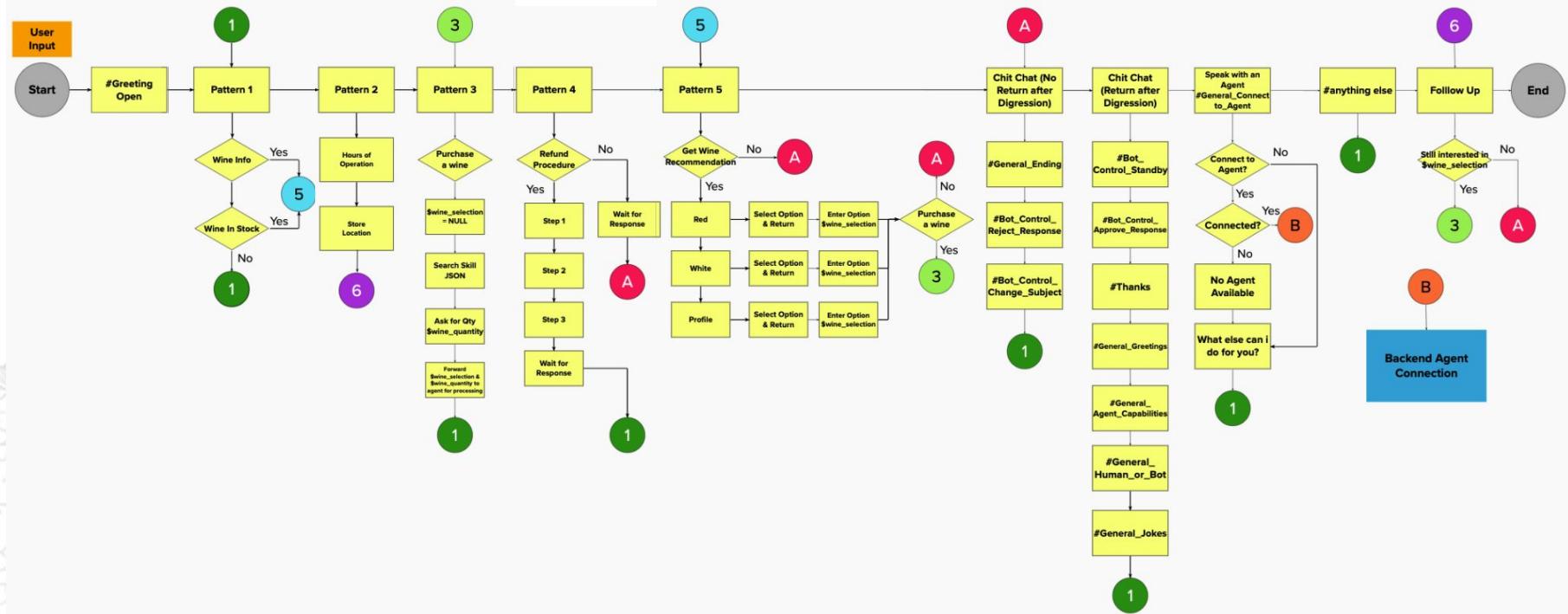
The image shows three separate dialog configuration windows for a bot skill, each with a red box highlighting specific fields:

- Configure slot 1:** Shows "Check for" set to "@wine_selection" and "Save it as" set to "\$wine_selection".
- Configure slot 2:** Shows "Enable this slot if:" set to "\$wine_selection == null".
- Configure slot 3:** Shows "Check for" set to "@sys-number" and "Save it as" set to "\$wine_quantity".

Each window has a "Save" button at the bottom.

3. Understanding / Reasoning

The system's application of logic to decide on the best course(s) of action.
How will a machine apply logic to what it knows?



3. Understanding / Reasoning



Lidl UK > Typically replies instantly

Do you have any Australian Chardonnays under 5 pounds?

Country/Region: Australia
Type: Chardonnays
Colour: none
Price: £5 and below

Here are some suggestions:

Cimarosa Chardonnay Colombard £3.99 www.lidl.co.uk

Cimarosa Chilean Chardonnay Reserva Privada £5.49 www.lidl.co.uk

Cimar Semil £4.39 www.lidl.co.uk

Wine Bot - Main Menu

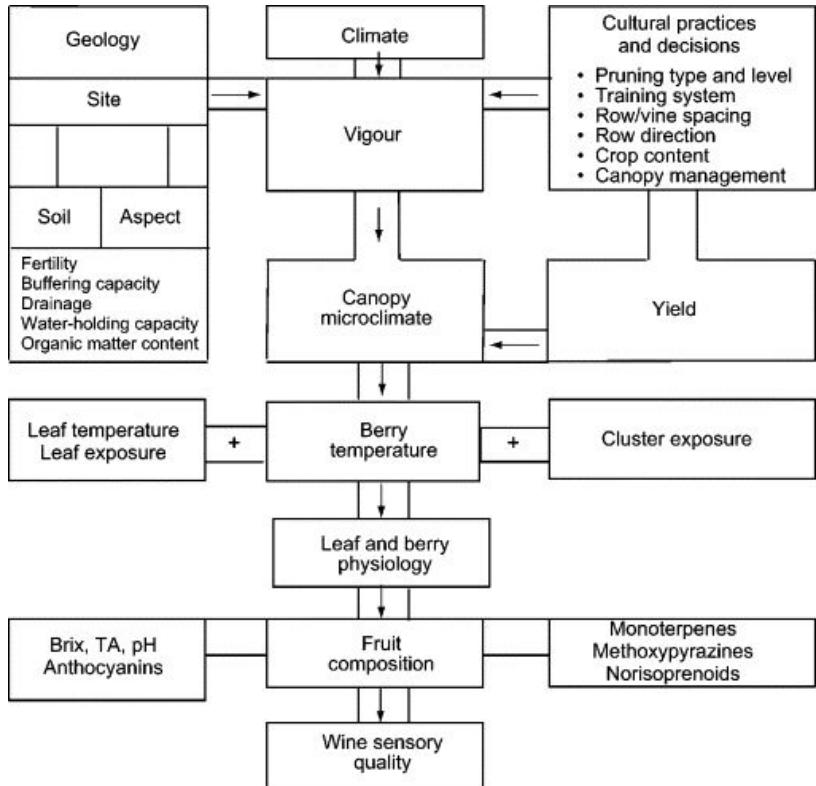
Food pairing
Find a wine
Take the quiz!

Need a recommendation for chicken tikka masala

Creamier Tikka Masala can be paired with a Chardonnay or Semillon. These wines are the perfect match for Chicken Tikka Masala:

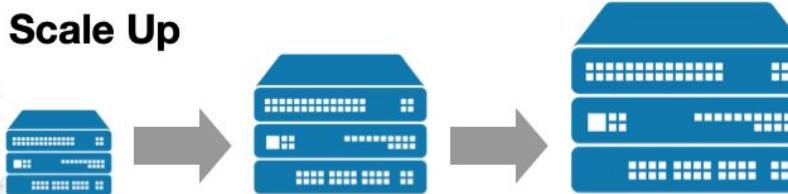
- The current chatbot is also able to compile simple orders (name of wine and quantity ordered) and send it to the human agent for further processing (financial info, shipping).
- Future developments could also do wine pairing recommendations with various food ranging from Asian to Western dishes.

4. Knowledge



- With the existing dataset we are working, the chatbot is able to search efficiently through the 140 datasets. Drilling down into various segmentations like Color and Taste Profile.
- With a larger dataset, we could then scale up the search skill of the chatbot and provide a wider range of selection for the customer. We could also further improve on wine recommendation based on various figures like climate, yield, acidity, sourness and etc

Scale Up



Scale Out



4. Knowledge - Scale Up



- A wine recommendation could be made based on the a taste preference without going into menu by having the chatbot to recognize certain taste preference by the customer. The current list of wine names has been added to the @wine_selection & @wine_recommendation so that fuzzy entries can be identified to correctly identify the key-in wine.
- We could have future developments where computer vision can be built in to do recognition on wine labels to return wine critic reviews, wine points and various information like the wine compositions breakdown where more experience wine connoisseurs look out for.

4. Knowledge - Identifying

Automation

All future payments, administrative and shipping processes can be automated by chatbot where it can be linked backend to all respective warehouse, logistics and last mile delivery updates and integration.



Recommendations

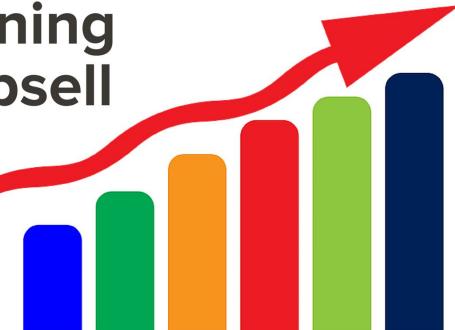
New information and variables could be introduced to the chatbot and system to better provide recommendations and predictions on customer requirements and preference.



Predictions

With continuous data input and capture from users, further learning on individual buying patterns, chatbot will be able to provide customized deals or promotions to improve sales.

Learning to upsell



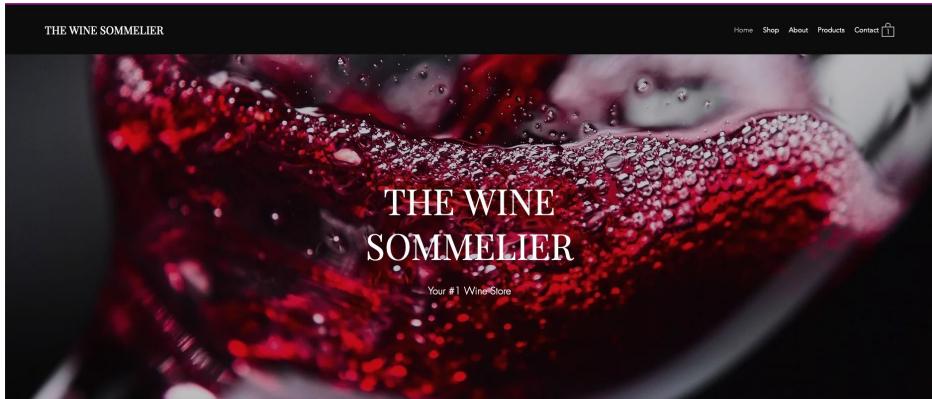
4. Knowledge - Future Developments

Does bot apply best practice ?

- Tip #1: Introduce Your Chatbot to First-Time Users
- Tip #2: Add Variations to Your Responses
- Tip #3: Make a Main Menu That's Accessible Anywhere
- Tip #4: Have Context Awareness
- Tip #5: Be Able to Fix Incorrect Inputs
- Tip #6: Handle the "I Do Not Understand" Case
- Tip #7: Be Careful About Creating a Personality



5. Expression



A screenshot of a chatbot interface titled "Alex". The interface includes a map of Singapore with a red pin indicating the location at 10 Bayfront Avenue. Below the map is a list of interactive options: "Get started", "Wine Recommendation" (with a right arrow), "Tell me a joke" (with a right arrow), and "See how I can help" (with a right arrow). The bottom of the screen shows a footer with contact information: "88888888", "Marina Bay Sands, 10 Bayfront Avenue Singapore 018956", and social media links for Facebook, Twitter, and LinkedIn. A small note at the bottom says "©2021 by The Wine Sommelier. Proudly created with Wix.com".

The Chatbot has been integrated into the following locations

Website : <https://aqimpossible.wixsite.com/thewinesommelier>

Instant messaging on mobile / desktop : WhatsApp Via Twilio



5. Expression

User Feedback

- “Generally quite fast to respond.”
- “Hope future version of the bot can compile multiple order.”
- “Having three choices is good for smaller screens like smartphones - maybe make it more colourful for future versions”
- “Returning results need to be selectable instead of entering in the name of the selected wine into the chatbot.”
- “It will be better if the entire process of recommendation to purchase and logistics can be done without exiting the chatbot”



6. User Feedback

Build a query using one or more of these components. [Learn more.](#)

[Use a sample query](#)

Search for documents

[Use natural language](#) [Use the Discovery Query Language](#)

merlot

+ Include analy

+ Filter which d

> More options

Problem:

- Watson Discovery returned incorrect and inconsistent results when queried .
- Possibly due to wine variety scoring higher compared to wine review

Learning:

- Watson Discovery search skill is better for real-time query and text analytics, able to query and return specific fields such as wine name

[Run query](#)

[Close](#)

Summary JSON

Query URL: <https://api.au-syd.discovery.watson.cloud.ibm.com/instances/5bc1601d->

Passages

"Merlot"
"Merlot"
"Merlot"
"Merlot"
"Merlot"

Results

Showing 10 of 17 matching documents

WINE LIST AQ with URL.json

Name	Michel-Schlumberger 2012 Le Sage Merlot (Dry Creek Valley)
Review	Blended with 12% Cabernet Sauvignon, this Merlot is floral in aroma but lacking in fruit on the palate. A bitter herbal character develops toward the finish.
Url	https://aqimpossible.wixsite.com/thewinesommelier-/product-page/michel-schlumberger-2012-le-sage-merlot-dry-creek-valley
Variety	Merlot

Sommbot Skill 1 Version: Development

Intents Entities Dialog Options Analytics Versions Content Catalog

Add node Add child node Add folder

#Ask_about_Product_DO_NOT_DELETEshow

Node name will be shown to customers for disambiguation so use something descriptive.

\$webhook_result_1

Customize Settings

Webhook URL Your webhook URL is configured. Options

Assistant responds

If assistant recognizes Respond with

1 \$webhook_result_1 \$webhook_result_1

2 \$webhook_result_1 <?context.webhook_result_1-f

Problem:

- Webhook was not able to return wine name correctly and consistently
- Unable to correct error despite online research

Learning:

- Problem resolved after choosing to use Watson DiscoverySearch Skill

Wait for reply

Try it out

Welcome welcome

1 Responses / 0 Context Set / Does not return

#Ask_about_Product_DO_NOT_DELETEshow #Product_Information

3 Responses / 0 Context Set / Does not return

#live_agent #General_Connect_to_Agent

1 Responses / 0 Context Set / Does not return

#General_Greetings

1 Responses / 0 Context Set / Does not return

#General_About_Company

6 Dialog nodes / Does not return

@ecommerce_sales

4 Dialog nodes / Does not return

#General_Jokes

1 Responses / 0 Context Set / Does not return

#General_Ending

1 Responses / 0 Context Set / Does not return

Anything else

show me your merlot

#Product_Information

@wine red:Merlot

@Wine Variety:Merlot

@menu:red wine list

Merlot

show me your merlot

#Product_Information

@wine red:Merlot

@Wine Variety:Merlot

@menu:red wine list

[{"matching_results":32,"passages":[{"document_id":"19a9a216203b8891d5659e11477a1ac4_48","end_offset":6,"field":"VARIETY","message_score":3.7736575013093203,"message_text":"Merlot","start_offset":0},{"document_id":"19a9a216203b8891d5659e11477a1ac4_14","end_offset":6,"field":"VARIETY","message_score":3.7736575013093203,"message_text":"Merlot","start_offset":0},{"document_id":"19a9a216203b8891d5659e11477a1ac4_95","end_offset":6,"field":"VARIETY","message_score":3.7736575013093203,"message_text":"Merlot","start_offset":0}]}]

Use the up key for most recent

Enter something to test your assistant

7. Learning

Wine XLS / Configure data

Identify fields **Manage fields** **Enrich fields**

WINE LIST AQ with URL.xlsx 1/1 ▾

1 / 15

Apply changes to collection ↗

Field labels
Identify document elements using the labels below.

+ Create new Upgrade

- answer
- author
- footer
- header
- question
- subtitle
- table_of_contents
- text
- title

image Upgrade

table

Problem:

- Watson had difficulty understanding the CSV file due to large amount of free text (unstructured data) in the review section
- Repeatedly returned error

Learning:

- Encoded the data into a more structured format, and converted it into JSON format so that Watson Discovery could read it properly and extract the relevant data fields

Viewing: Live predictions of latest ML-model

submit page

Learn more about how to use.

7. Learning

Did u manage to solve your KPI and enhance your experience?

AI Engagement & Personalisation	AI Insights and knowledge	Agility and operational efficiency
<p>We have customised the chatbot with the ability to engage with customers on the following queries:</p> <ul style="list-style-type: none">- Store Location / Hours- Wine Recommendation NLP- Wine Taste Preference NLP- Order Taking- Refund Procedures <p>We had also personalized the Sommbot with :</p> <ul style="list-style-type: none">- Jokes- General knowledge of wine- Follow up on the existing recommendation to user.	<ul style="list-style-type: none">- A Wine can have many different kinds of taste profiles within 1 bottle e.g. sweet and cherry- Wine with same taste profile and variety can vary in price point due to the winery location- Wines with better reputation can command a higher price and point rating from sommelier- Wine sommelier with a good reputation would help to command a better price for the wine.- The AI is not able to produce knowledge which is not taught or shown to before.	<ul style="list-style-type: none">- Compared to human, the ability to recall and recommend accurate and consistently the wine based on tasting notes will only be limited to what they can recall. But the limit will be what the operators give it.- Recall speed will be faster than a human where AI system will calculate the best recommendation based on a scoring system and return the best answer based on requirements.- The bot is able to retrieve data upon request. Currently with a small dataset of 140, it could be scaled up to the full dataset of 140,000 without any issues subject to infrastructure.

8. Outcome

What does the AI Chatbot Address?	What does the AI Chatbot Do?	Further continuous training and development	Conversational data extraction can further enhance understanding of wine market and user microsegmentation	Unlimited and untapped AI integration potential
<ul style="list-style-type: none"> It addresses the need for a 24 / 7 available Wine Sommelier where the end customer is able to browse, get recommendations without human intervention. Removes possibility of bias/difference between human sommelier due to personal preferences, tasting experiences, physiology 	<ul style="list-style-type: none"> Recommend wine based on user pref (colour / taste) Compile simple order (name of wine, quantity of wine) Free up human agent for important /higher level work 	<ul style="list-style-type: none"> Wine range availability can be extended to connect with other winery hubs or suppliers within the region to tap on their inventory for rare or low quantity production wine. This will expand the sales reach of the winery and at the same time allow customers to have wider range of selection. The continuous training will also allow the chatbot to pinpoint a wine closest to customer preference based on more variables. 	<ul style="list-style-type: none"> Better understanding of overall consumption by customers Better able to predict trends and order from vineyards accordingly Promote popular variety/profile choices of to top level Product upsell recommendation - “customers who bought this wine also bought these items” 	<ul style="list-style-type: none"> Recognise regular customers and remember their most recent / frequent orders Language translation to serve customers in other languages Visual search / OCR based on wine label speech to text conversion search Sentiment analysis of user tone and direct to live agent if customer appears to be frustrated/angry/lost

9. Summary

Team Member	What did you learn?	How do you think it will help the end user?	What would you do if you had to do this project again?	What was your biggest personal challenge?
Alvin Quek	Intent, Entity and Context. The link between them that allows how the chat bot understand, reason and return a result which is most optimal.	The chatbot enables the user to access a large range of wine and narrow down to a recommended range for their selection back on type or tasting notes	I would explore to do this project with Slack bot and do queries via coding.	Node.js and Python.
Charlotte Queck	Create chatbot for retail store.	It provide another alternative to connect user with the retailer and enhancing user experience	To build on other queries such as food pairing, pricing, etc. To explore other platform/s to create chatbot	Understanding Python coding
Eugene Ong	- How Intent, Entity, Dialog and variables work together in a chatbot. Also how to structure dialog queries	- People who prize convenience and connectivity will be able to review, select and pay for a wine in not more than 5 min	- Explore more platforms and construct/train the bot via coding	- Python coding - Troubleshooting the chatbot when it didn't work e.g. webhooks and python coding did not work properly
Seamus Wan	Do up chatbot	Reduce human to human interaction.	Get payment & stock into the chatbot.	Training the bot.

10. Reflections

End

Live Demonstration

Demo video available at: <https://youtu.be/vC6pHlbNKsk>