## NATURAL LANGUAGE PROCESSING

Al based QA System

Chat bot Implementation: Low Code Model

Qualitative Analysis: QA AI Models

### Scope

### **Chat bot Implementation**

#### Low Code Model with Microsoft Azure

- 1. Azure Cloud
- 2. Azure Bot Service
- 3. Azure Language Studio
- 4. Azure Search Service
- 5. Azure Speech Service
- 6. Azure Translator Service

### **Qualitative Analysis**

#### QA AI Models

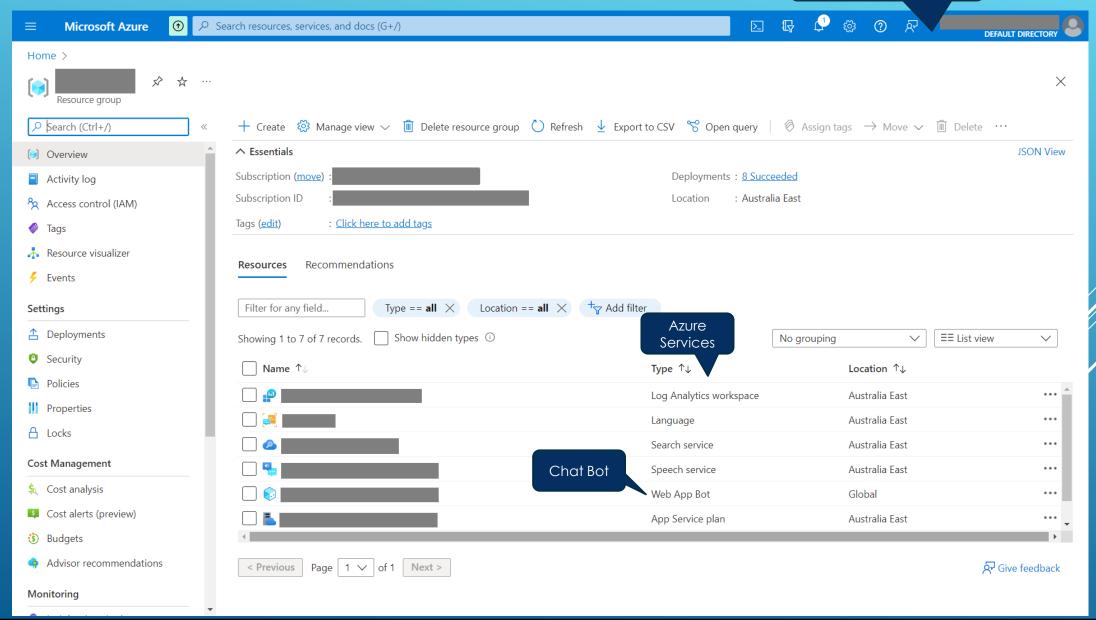
- 1. BERT
- 2. RoBERTa
- 3. ELECTRA
- 4. DistilBERT

### Repository

https://github.com/BenoyRNair/NLP\_AI\_QA

## Chat bot Implementation

Low code model with Microsoft Azure

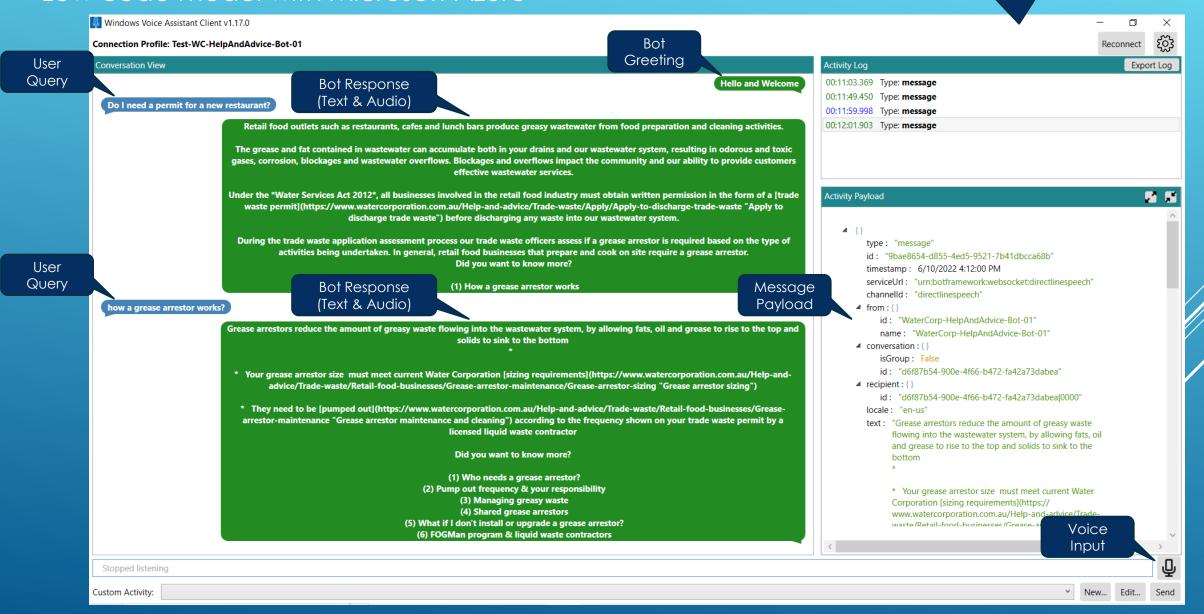


Azure Portal

## Chat bot Implementation

Low code model with Microsoft Azure

Chat bot Simulation: Windows Voice Assistant



# Qualitative Analysis

QA Al Models: BERT, RoBERTa, ELECTRA & DistilBERT

Repository: https://github.com/BenoyRNair/NLP\_AL\_QA

Scoring: <a href="https://github.com/BenoyRNair/NLP\_Al\_QA/blob/main/Assessment/GoT\_QnA\_Scoring.xlsx">https://github.com/BenoyRNair/NLP\_Al\_QA/blob/main/Assessment/GoT\_QnA\_Scoring.xlsx</a>

No.	Question	Correct Answer	BERT		RoBERTa		ELECTRA		DistilBERT	
			Response	Confidence	Response	Confidence	Response	Confidence	Response	Confidence
	1Who is the father of Arya Stark?	Eddard Stark	Robert Baratheon	99.5%	Eddard	99.2%	Eddard	100.0%	Maisie Williams	99.9%
	Which chemical was used during the Battle of the Blackwater to destroy Stannis Baratheon's fleet?	Wildfire	wildfire	99.8%	wildfire	95.0%	wildfire	100.0%	wildfire	100.0%
	3 In which Westeros constituency can we find The Dreadfort?	The North	Vaes Dothrak	68.9%	Joy	19.4%	King's Landing	100.0%	Meereen	99.5%
	4Who is Myrcella betrothed to in season 2?	Trystane Martell	Trystane Martell	98.5%	Trystane Martell	80.1%	Trystane Martell	100.0%	Trystane Martell	99.2%
	5 Who is Jon's direwolf?	Ghost	Ghost	99.9%	Ghost	98.2%	Ghost	100.0%	Ghost	99.5%
	6 Which name is given to the bastards of The Reach?	Flowers	Rivers	24.2%	Flowers	79.5%	Flowers	100.0%	Flowers	98.7%
	7Which is the main color of House Tarly's sigil?	Green	Heartsbane	82.5%	fish	73.8%	fish	100.0%	Heartsbane	99.8%
	8The Water Gardens belong to which constituency of Westeros?	Dorne	high lords	64.7%	Dorne	95.1%	Dorne	100.0%	Croatia	98.2%
	9 What nasty creature felled a drunken King Robert?	Boar	boar	39.6%	boar	62.0%	boar attack	89.7%	boar	94.2%
1	0 What is the name of Arya Stark's sword?	Needle	Needle	99.9%	Needle	97.8%	Needle	100.0%	Ice	99.8%
1	1What is the motto of House Tyrell?	<b>Growing Strong</b>	A peaceful land, a quiet people	81.3%	bannerman	90.4%	Ours is the Fury	99.6%	foremost	91.3%
1	2 What is the nickname given to Brynden Tully?	Blackfish	Blackfish	97.5%	Blackfish	98.2%	Blackfish	100.0%	Clive Russell	99.9%
1	3 Where can we find the Moon Door?	The Eyrie	a trap door	61.8%	mountains below	52.2%	the high hall	100.0%	Belfast	88.3%
1	4Where was Catelyn Stark when she died?	The Twins	in Winterfell's crypt	57.7%	Battle of Winterfell	57.4%	in a bed of blood	49.7%	Riverrun	99.4%
1	5 Who was Shagga's father?	Dolf	Ned Stark	92.9%	Randyll Tarly	97.2%	Balon Greyjoy	100.0%	Ned Stark	99.8%
	6Which name is given to the inhabitants of The Neck?	Crannogmen	Seaworth	49.6%	Snow	54.9%	crannogmen	96.5%	Laura Elphinstone	99.4%
1	7 Who did Jon execute after his first general meeting as Lord Commander with the men of the Night's Watch?	Janos Slynt	Janos Slynt	99.4%	Janos Slynt	93.4%	Slynt	100.0%	Jeor Mormont	99.8%
1	8 Which house has a sigil of a silver trout?	House Tully	House Stark	17.0%	House Tully	31.7%	House Tully	1.5%	King's Landing	98.8%
1	What is the name of the ancestral Valyrian steel sword belonging to House Tarly?	Heartsbane	Heartsbane	99.9%	Heartsbane	99.3%	Heartsbane	100.0%	Heartsbane	100.0%
2	0 Who was Hand of the King before Eddard Stark?	Jon Arryn	Jon Arryn	97.1%	Lord Eddard "Ned" Stark	81.0%	Jon Arryn	100.0%	Robert Baratheon	99.6%
		Correc	t 9		12		14		6	
Assessment Outcome Ranking: (I) ELECTRA (II) ROBERTA (III) BERT (IV) DistilBERT		Incorrec	t 11		8		6		14	
		Rank	c III		l II		I		IV	
			Weighted Score -1.7664		14.1084		24.3822		-22.8198	