

NATURAL LANGUAGE PROCESSING

AI 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 Monitor

Qualitative Analysis

QA AI Models

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

Repository

https://github.com/BenoyRNair/NLP_AI_QA

Several white lines of varying lengths and angles are drawn in the bottom right corner of the slide, creating a modern, abstract graphic element.

Chat bot Implementation

Low code model with Microsoft Azure

Azure Portal

The screenshot displays the Microsoft Azure Portal interface. At the top, the navigation bar includes the Microsoft Azure logo, a search bar, and user profile information. The left sidebar contains a navigation menu with categories like Overview, Activity log, Access control (IAM), Tags, Resource visualizer, Events, Settings, Cost Management, and Monitoring. The main content area shows the 'Essentials' section for a specific resource group, including subscription details and a table of resources. A callout bubble labeled 'Azure Services' points to the resource table. Another callout bubble labeled 'Chat Bot' points to the 'Web App Bot' entry in the table.

Home > [Resource group]

Search (Ctrl+/)

+ Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Move Delete

JSON View

Subscription (move): [redacted] Deployments: 8 Succeeded

Subscription ID: [redacted] Location: Australia East

Tags (edit): [Click here to add tags](#)

Resources Recommendations

Filter for any field... Type == all Location == all Add filter

Showing 1 to 7 of 7 records. ☐ Show hidden types

| Name ↑↓ | Type ↑↓ | Location ↑↓ |
|------------|-------------------------|----------------|
| [redacted] | Log Analytics workspace | Australia East |
| [redacted] | Language | Australia East |
| [redacted] | Search service | Australia East |
| [redacted] | Speech service | Australia East |
| [redacted] | Web App Bot | Global |
| [redacted] | App Service plan | Australia East |

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Give feedback

Chat bot Simulation: Windows Voice Assistant

Voice Input

Qualitative Analysis

QA AI Models: BERT, RoBERTa, ELECTRA & DistilBERT

Repository : https://github.com/BenoyRNair/NLP_AI_QA

Scoring: https://github.com/BenoyRNair/NLP_AI_QA/blob/main/Assessment/GoT_QnA_Scoring.xlsx

| No. | Question | Correct Answer | BERT | | RoBERTa | | ELECTRA | | DistilBERT | |
|--|--|------------------|---------------------------------|------------|-------------------------|------------|-------------------|------------|-------------------|------------|
| | | | Response | Confidence | Response | Confidence | Response | Confidence | Response | Confidence |
| 1 | Who is the father of Arya Stark? | Eddard Stark | Robert Baratheon | 99.5% | Eddard | 99.2% | Eddard | 100.0% | Maisie Williams | 99.9% |
| 2 | 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% |
| 4 | Who 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% |
| 7 | Which is the main color of House Tarly's sigil? | Green | Heartsbane | 82.5% | fish | 73.8% | fish | 100.0% | Heartsbane | 99.8% |
| 8 | The 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% |
| 10 | What is the name of Arya Stark's sword? | Needle | Needle | 99.9% | Needle | 97.8% | Needle | 100.0% | Ice | 99.8% |
| 11 | What is the motto of House Tyrell? | Growing Strong | A peaceful land, a quiet people | 81.3% | bannerman | 90.4% | Ours is the Fury | 99.6% | foremost | 91.3% |
| 12 | What is the nickname given to Brynden Tully? | Blackfish | Blackfish | 97.5% | Blackfish | 98.2% | Blackfish | 100.0% | Clive Russell | 99.9% |
| 13 | 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% |
| 14 | Where 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% |
| 15 | Who was Shagga's father? | Dolf | Ned Stark | 92.9% | Randyll Tarly | 97.2% | Balon Greyjoy | 100.0% | Ned Stark | 99.8% |
| 16 | Which name is given to the inhabitants of The Neck? | Crannogmen | Seaworth | 49.6% | Snow | 54.9% | crannogmen | 96.5% | Laura Elphinstone | 99.4% |
| 17 | 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% |
| 18 | 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% |
| 19 | 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% |
| 20 | 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% |
| Assessment Outcome Ranking: (I) ELECTRA (II) RoBERTa (III) BERT (IV) DistilBERT | | Correct | 9 | | 12 | | 14 | | 6 | |
| | | Incorrect | 11 | | 8 | | 6 | | 14 | |
| | | Rank | III | | II | | I | | IV | |
| | | Weighted Score | -1.7664 | | 14.1084 | | 24.3822 | | -22.8198 | |