
AI-Powered Chatbot Search Optimization :

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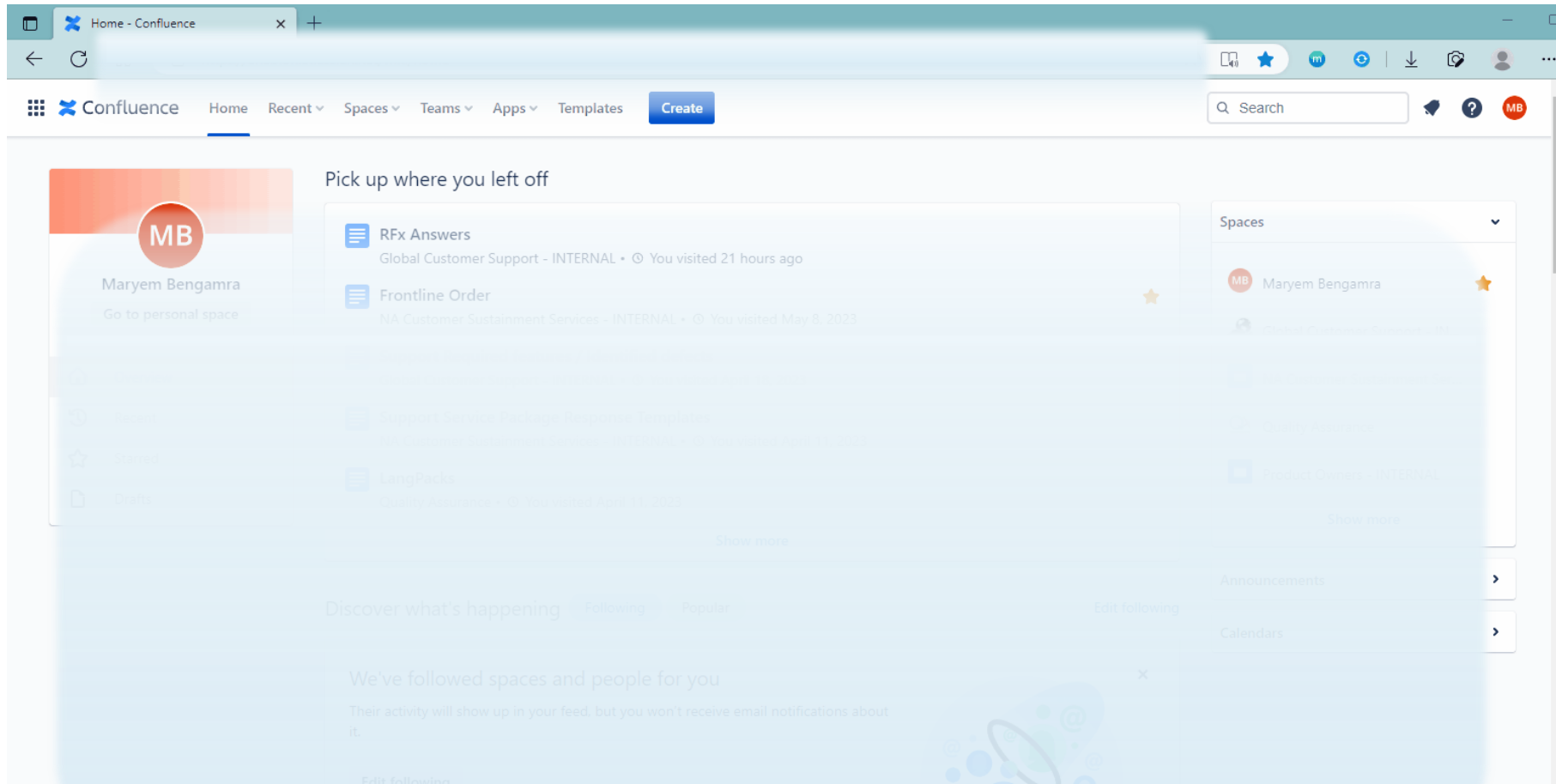
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Confluence

Finding relevant information within Confluence can be Time consuming, especially as the amount of content grows over time.



- Current search functionality on Confluence is not intuitive or efficient.
- Users struggle to find the information they need quickly.
- A lack of effective guidance or suggestions leads to longer search times and frustration.

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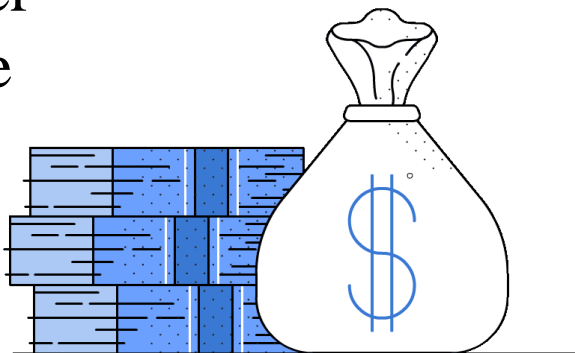


How a Chatbot Can Improve Search Functionality

- **NLP:** Chatbots can understand and interpret user queries in a human-like way.
- **Personalization:** Chatbots can use user data to provide personalized search results.
- **Faster Response Time:** Chatbots can retrieve search results in real-time and display them in a user-friendly format.

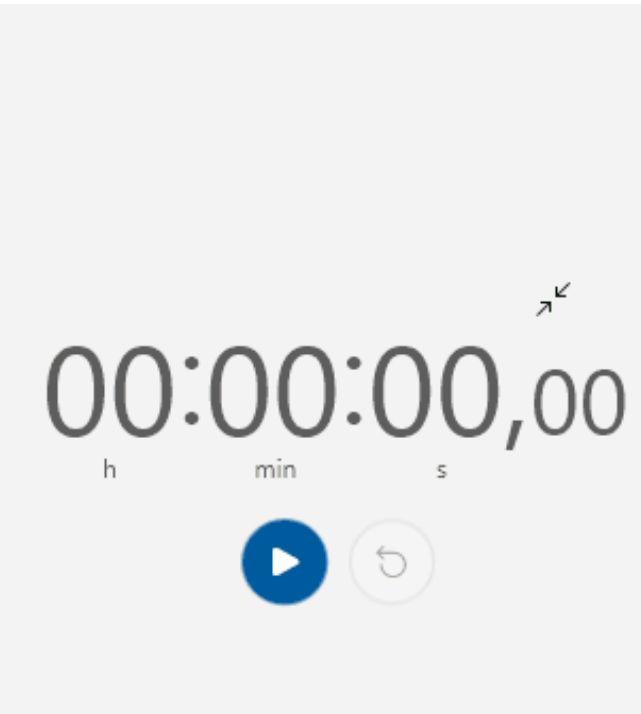
Time difference

From another perspective



- If 45 people lose 25.52 seconds 14 times a day
- **Total time lost per day = $25.52 * 14 * 45 = 16,850.4$ seconds**
- **Total time lost per day = $16,850.4 / 3600 = 4.68$ hours**
- The potential value of **time saved** for this group if the hourly cost is \$50
- **Value of time saved per day = $(4.68 / 8) * 45 * \$50 = \$1,646.25$**

```
argument.  
2023-05-10 13:16:11 INFO root - Starting Rasa server on http://0.0.0.0:5005  
2023-05-10 13:16:12 INFO rasa.core.processor - Loading model models/20230510-031058-narrow-staff.tar.  
gz...  
2023-05-10 13:16:28 WARNING rasa.shared.utils.common - The Unexpected Intent Policy is currently experim  
ental and might change or be removed in the future. Please share your feedback on it in the forum (https  
://forum.rasa.com) to help us make this feature ready for production.  
2023-05-10 13:16:35 INFO root - Rasa server is up and running.  
Bot loaded. Type a message and press enter (use '/stop' to exit):  
Your input ->
```



Targeted Audience

- Customers
- Partners

Can easily search for and obtain answers to unclear information, quickly and efficiently.

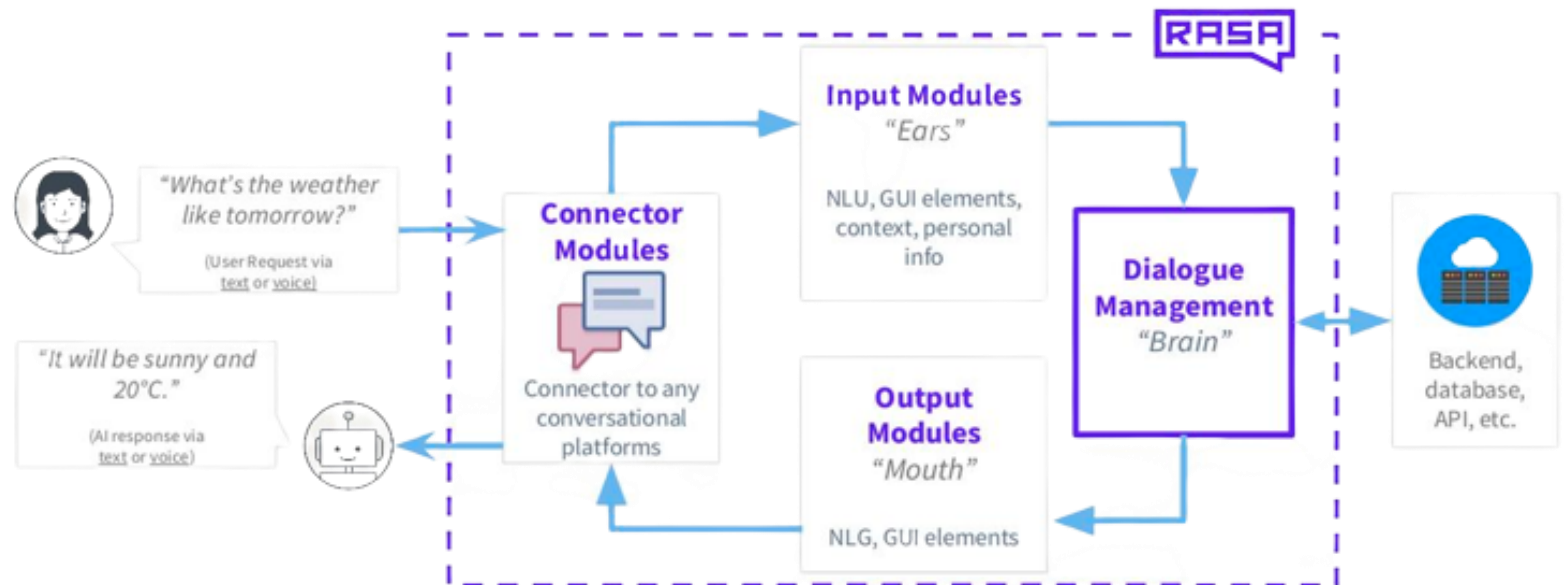


- Support team
- QA
- IT
- R&D

Quickly verify information and access relevant knowledge to improve their expertise and stay up-to-date on the latest changes.

Technologies

- **WSL** : Windows subsystem for linux
- **RASA** : An open-source framework for building conversational AI applications that use natural language processing (NLP) and natural language understanding (NLU) to understand and respond to user input.
- **NLP and NLU**: Improving the ability of chatbots to understand and interpret natural language is a key area of focus for chatbot development. This involves developing more advanced NLP and NLU algorithms that can accurately identify user **intents, entities, and context**.



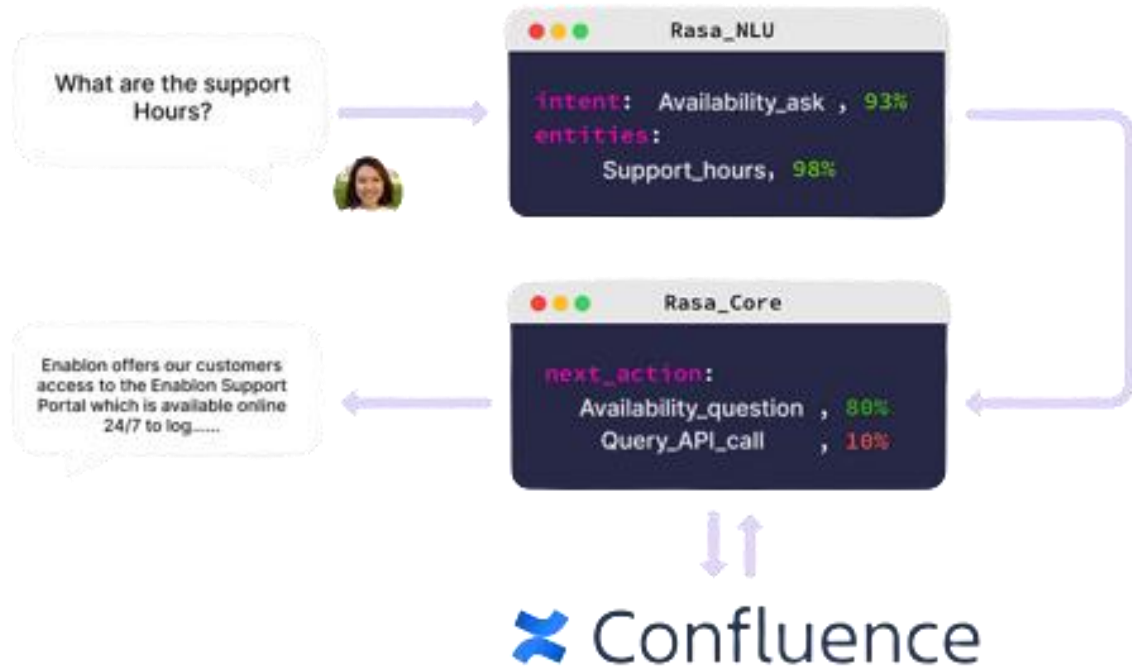
Machine learning

- Rasa train

```
(venv) root@DESKTOP-QU95G6G:/# rasa train
/venv/lib/python3.10/site-packages/rasa/core/tracker_store.py:1048: MovedIn20Warning: Deprecated API features detected! This
not compatible with SQLAlchemy 2.0. To prevent incompatible upgrades prior to updating applications, ensure requirements
p "sqlalchemy<2.0". Set environment variable SQLAlchemy_WARN_20=1 to show all deprecation warnings. Set environment varia
ENCE_UBER_WARNING=1 to silence this message. (Background on SQLAlchemy 2.0 at: https://sqlalche.me/e/b8d9)
Base: DeclarativeMeta = declarative_base()
/venv/lib/python3.10/site-packages/tensorflow/python/framework/dtypes.py:246: DeprecationWarning: `np.bool8` is a deprecate
bol_`. (Deprecated NumPy 1.24)
np.bool8: (False, True),
The configuration for pipeline and policies was chosen automatically. It was written into the config file at 'config.yml'.
2023-05-10 17:07:24 INFO rasa.engine.training.hooks - Starting to train component 'RegexFeaturizer'.
2023-05-10 17:07:24 INFO rasa.engine.training.hooks - Finished training component 'RegexFeaturizer'.
2023-05-10 17:07:24 INFO rasa.engine.training.hooks - Starting to train component 'LexicalSyntacticFeaturizer'.
2023-05-10 17:07:24 INFO rasa.engine.training.hooks - Finished training component 'LexicalSyntacticFeaturizer'.
2023-05-10 17:07:25 INFO rasa.engine.training.hooks - Starting to train component 'CountVectorsFeaturizer'.
2023-05-10 17:07:25 INFO rasa.nlu.featurizers.sparse_featurizer.count_vectors_featurizer - 212 vocabulary items were
tribute.
2023-05-10 17:07:25 INFO rasa.engine.training.hooks - Finished training component 'CountVectorsFeaturizer'.
2023-05-10 17:07:25 INFO rasa.engine.training.hooks - Starting to train component 'CountVectorsFeaturizer'.
2023-05-10 17:07:25 INFO rasa.nlu.featurizers.sparse_featurizer.count_vectors_featurizer - 1759 vocabulary items were
tribute.
2023-05-10 17:07:25 INFO rasa.engine.training.hooks - Finished training component 'CountVectorsFeaturizer'.
2023-05-10 17:07:25 INFO rasa.engine.training.hooks - Starting to train component 'DIETClassifier'.
Epochs: 100% | ██████████ 100/100 [00:33<00:00, 3.00it/s, t_loss=1.48, i_acc=1]
2023-05-10 17:07:58 INFO rasa.engine.training.hooks - Finished training component 'DIETClassifier'.
2023-05-10 17:07:59 INFO rasa.engine.training.hooks - Starting to train component 'EntitySynonymMapper'.
2023-05-10 17:07:59 INFO rasa.engine.training.hooks - Finished training component 'EntitySynonymMapper'.
2023-05-10 17:07:59 INFO rasa.engine.training.hooks - Starting to train component 'ResponseSelector'.
2023-05-10 17:07:59 INFO rasa.nlu.selectors.response_selector - Retrieval intent parameter was left to its default va
selector will be trained on training examples combining all retrieval intents.
2023-05-10 17:07:59 INFO rasa.engine.training.hooks - Finished training component 'ResponseSelector'.
```

- **DIETClassifier:**
- is a neural network-based model that combines intent classification and entity recognition into a single unified model, allowing for faster and more accurate responses.
- **RegexFeaturizer:**
- useful for identifying and extracting specific patterns or expressions in the user's message

How does rasa work?



How the api could be integrated

```
import requests

class ActionGetWeather(Action):
    def name(self) -> Text:
        return "action_get_weather"

    def run(self, dispatcher: CollectingDispatcher,
            tracker: Tracker,
            domain: Dict[Text, Any]) -> List[Dict[Text, Any]]:
        headers = {
            "Accept": "application/json"
        }

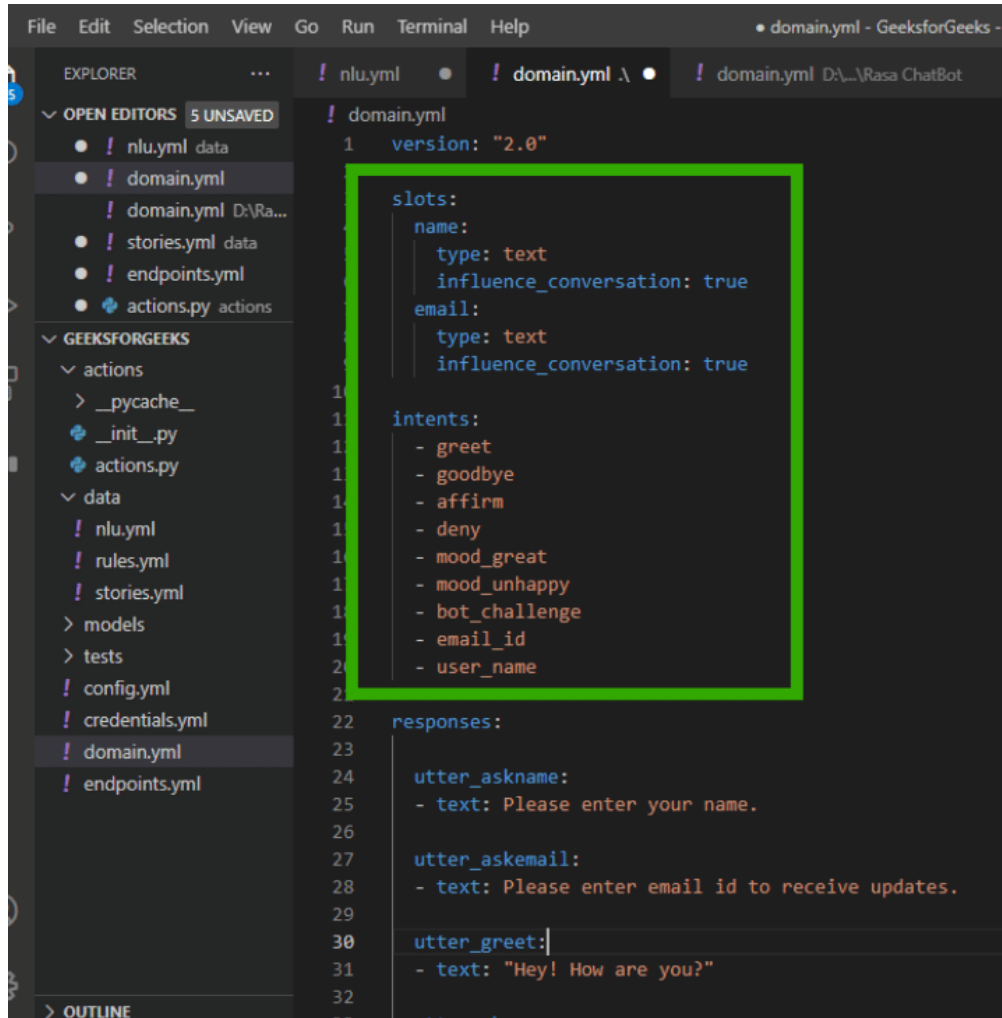
        response = requests.get("https://api.example.com/weather", headers=headers)

        weather_data = response.json()

        # Process the weather data and send a response to the user using the dispatcher
        # ...

        return []
```


How does rasa work?



```
File Edit Selection View Go Run Terminal Help • domain.yml - GeeksforGeeks -
EXPLORER
OPEN EDITORS 5 UNSAVED
! nlu.yml data
! domain.yml
! domain.yml D:\Ra...
! stories.yml data
! endpoints.yml
! actions.py actions
GEEKSFORGEEKS
actions
  > __pycache__
  ! _init_.py
  ! actions.py
data
  ! nlu.yml
  ! rules.yml
  ! stories.yml
models
tests
! config.yml
! credentials.yml
! domain.yml
! endpoints.yml
OUTLINE

! domain.yml
1 version: "2.0"
2
3 slots:
4   name:
5     type: text
6     influence_conversation: true
7   email:
8     type: text
9     influence_conversation: true
10
11 intents:
12   - greet
13   - goodbye
14   - affirm
15   - deny
16   - mood_great
17   - mood_unhappy
18   - bot_challenge
19   - email_id
20   - user_name
21
22 responses:
23
24   utter_askname:
25     - text: Please enter your name.
26
27   utter_askemail:
28     - text: Please enter email id to receive updates.
29
30   utter_greet:|
31     - text: "Hey! How are you?"
32
33   utter_cheer_up:
```

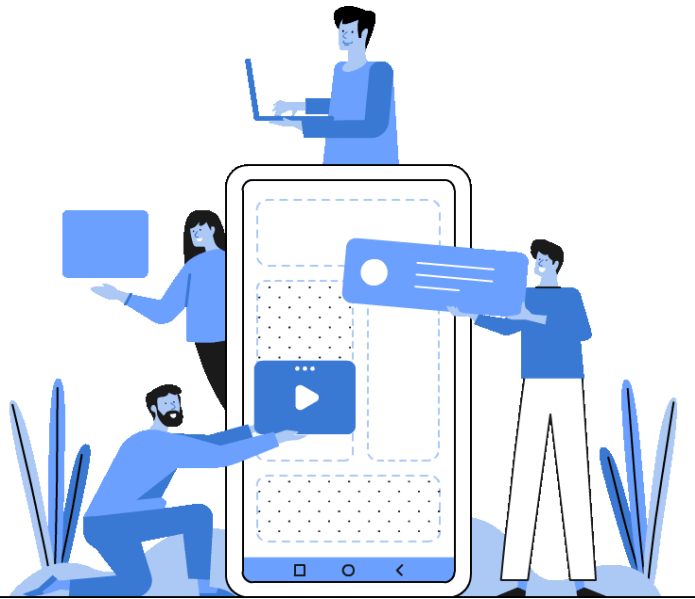
How are intents and entities in rasa are classified

```
please make sure the missing libraries mentioned above are installed. For more information, please refer to the TensorFlow installation guide at https://www.tensorflow.org/install/gpu for how to download and install the GPU version.
Skipping registering GPU devices...
2020-06-02 08:10:04.113479: I tensorflow/core/platform/cpu_feature_guard.cc:45] The TensorFlow binary was not compiled to use: AVX2
2020-06-02 08:10:04.122128: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1255] Found GPU devices with configuration:
GPU 0: NVIDIA GeForce GTX 1080 Ti
GPU 1: NVIDIA GeForce GTX 1080 Ti
with strength 1 edge matrix:
2020-06-02 08:10:04.126093: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1287] Device mesh not set. Using GPU mesh: [0, 1]
NLU model loaded. Type a message and press enter to parse it.
Next message:
hi
{
  "intent": {
    "name": "greet",
    "confidence": 0.9972422122955322
  },
  "entities": [],
  "intent_ranking": [
    {
      "name": "greet",
      "confidence": 0.9972422122955322
    },
    {
      "name": "goodbye",
      "confidence": 0.0027577877044678
    }
  ]
}
```

**DEMO
TIME**



Integration & Vision



PRIORITY: Creation of friendly user interface

Steps:

- Create a new Confluence page where we want to embed your Rasa chatbot.
- Install the "HTML Include Macro" add-on in your Confluence instance. This add-on allows you to embed external content into your Confluence pages.
- In your Rasa chatbot application, generate the HTML code for embedding the chatbot widget. This code should be provided by Rasa, and may include a script tag, a div element for the chatbot widget, and some JavaScript code for initializing the chatbot.
- Copy the generated HTML code.
- In your Confluence page, insert the HTML Include Macro by typing "/html" in the editor and selecting "HTML Include Macro" from the list of macros.
- Paste the HTML code for embedding the chatbot widget into the "HTML" field of the macro.
- Customize the height and width of the chatbot widget by specifying the "Height" and "Width" fields of the macro.
- Save the Confluence page, and your Rasa chatbot should now be embedded in the page.

Code for embedding a Rasa chatbot

```
<script src="https://cdn.jsdelivr.net/npm/@rasa/chatbot-widgets/lib/index.js"></script>

<div id="chatbot-widget-container"></div>

<script>
  window.RasaChat.init({
    initPayload: '/get_started',
    socketUrl: 'https://localhost:5005',
    title: 'Rasa Chatbot',
    subtitle: 'Powered by Rasa',
    inputTextFieldHint: 'Type a message...',
    openOnLoad: true,
    displayUnreadCount: true,
    customData: { language: 'en' },
    socketPath: '/socket.io/',
    embedded: true,
    showFullScreenButton: true,
    fullScreenMode: false,
    hideWhenNotConnected: false,
    params: { storage: 'local' }
  });
</script>
```

Web scrapping

- Without web scraping, the chatbot would need to rely on users to manually search through Confluence pages.
- With web scraping, the chatbot can quickly and easily search through Confluence pages and retrieve the most relevant information.
- Web scraping saves users time and improves productivity.
- Confluence pages can contain a large amount of information, and it can be difficult for users to find the specific information they need.
- Web scraping makes it easier for the chatbot to search through all the pages and return the most relevant results.

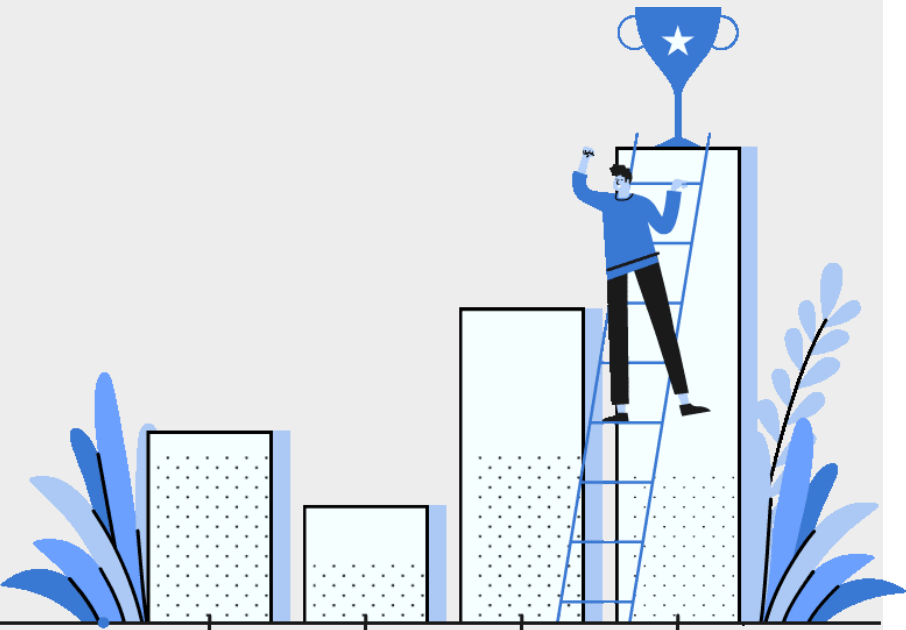
```
1 import requests
2 from bs4 import BeautifulSoup
3 from getpass import getpass
4
5 # Get user credentials
6 username = input("Enter your username: ")
7 password = getpass("Enter your password: ")
8
9 # Send a POST request to the login endpoint
10 login_url = "https://example.com/login" # Replace with the login endpoint URL
11 payload = {
12     "username": username,
13     "password": password
14 }
15 response = requests.post(login_url, data=payload)
16
17 # Check if login was successful
18 if response.status_code == 200:
19     # Create a BeautifulSoup object from the HTML content
20     soup = BeautifulSoup(response.content, "html.parser")
21
22     # Find the table containing the questions and answers
23     table = soup.find("table")
```

Vision



- Optimizing / training of the chatbot by support team and QA
- Reduce ticket numbers for the support Team ,

Vision



- Creation of user-friendly interface
- Administrator interface for the Chatbot



Thank you for your attention

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**JTTL 14th November
2024**

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test logiciel

