

# FAQ chatbot creation by using RASA

## RASA introduction

- Rasa is an open-source framework for building conversational AI, including chatbots and voice assistants. It enables developers to create complex, intelligent, and context-aware chatbots that can interact with users in a natural language. Rasa provides tools for intent recognition, entity extraction, dialogue management, and connecting to external APIs, making it a comprehensive solution for developing conversational agents.
- Rasa is a framework build over and above on tensorflow.
- Rasa has two components NLU and core.

### Chatbot types:-

-There are two ways to create a chatbot. The first method is to use a framework, which simplifies the process and provides various built-in functionalities. The second method is to code the chatbot from scratch. In fact, within just 15-20 lines of code, you can create a basic chatbot if you have the right knowledge and tools.

### Steps to build FAQ Chatbot :-

Step 1 :- Install ‘anaconda’ from google ,after installing search on your search bar for ‘Anaconda prompt ’ it will be also automatically installed during installing anaconda

Step 2 :- After opening ‘Anaconda prompt’ do all this steps which i have written.

1. create a folder → Mkdir chatbot
2. Go to the folder → cd chatbot
3. Creating an environment → conda create -n chatbot python==3.8.10
4. Activate the environment → conda activate chatbot
5. Clear cache → python -m pip cache purge

(why you must clear cache → imagine that you already have two environments: one with TensorFlow 2.10 and the other with TensorFlow 2.11. Rasa will then install a version of TensorFlow according to its own requirements. The old version of TensorFlow leaves behind cache files, which can cause conflicts and prevent the installation from succeeding. Therefore, it is essential to clear the cache to avoid these issues.)

6. Upgrade pip → python -m pip install -u pip
7. Installing rasa → pip install rasa==3.0.2
8. Pip install websockets==10.0

9. Pip install protobuf==3.20
10. Start with a new project → rasa init
11. It will ask a question “? Please enter a path where the project will be created [default: current directory]” → so here you just type “.” And press enter ,that you want to create the project on this current directory
12. Train the model → rasa train  
Train with fixed name → rasa train –fixed-model-name model.tar.gz
13. Use the chatbot → rasa shell
14. Evaluate the model predictions → rasa shell nlu (If you want to see how it works, how it give the answer then only code this step , otherwise after “rasa shell” it shows the chatbot )

For FAQ chatbot changes needs to be done only in 3 files

1. NLU
2. Domain
3. Stories

With config.yml file you can make changes in the NLP pipeline

Showen how to do it on cmd :-

```
(base) C:\Users\prath\OneDrive\Desktop>mkdir chatbot
(base) C:\Users\prath\OneDrive\Desktop>cd chatbot
```

```
(base) C:\Users\prath\OneDrive\Desktop\chatbot>conda create -n chatbot python==3.8.10
Retrieving notices: 100% |██████████| Done
WARNING: A conda environment already exists at 'C:\Users\prath\anaconda3\envs\chatbot'.
Remove existing environment (y/[n])? y
Collecting package metadata (current_repodata.json): done
Solving environment: unsuccessful attempt using repodata from current_repodata.json, retrying with next repodata source.
Collecting package metadata (repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
      current version: 23.7.4
      latest version: 24.5.0

Please update conda by running
    $ conda update -n base -c defaults conda
Or to minimize the number of packages updated during conda update use
    conda install conda=24.5.0

## Package Plan ##
environment location: C:\Users\prath\anaconda3\envs\chatbot
added / updated specs:
- python==3.8.10

The following packages will be downloaded:
  package          |            build

```

```

The following packages will be downloaded:
-----
package          |      build
-----|-----
pip-24.0          | py38haa95532_0      2.8 MB
setuptools-69.5.1 | py38haa95532_0      1003 KB
sqlite-3.45.3     | h2bbff1b_0          973 KB
vc-14.2           | h2eaa2aa_1          10 KB
vs2015_runtime-14.29.30133 | h43f2093_3      1.1 MB
wheel-0.43.0       | py38haa95532_0      137 KB
-----
Total:          6.0 MB

The following NEW packages will be INSTALLED:
ca-certificates    pkgs/main/win-64::ca-certificates-2024.3.11-haa95532_0
openssl            pkgs/main/win-64::openssl-1.1.1w-h2bbff1b_0
pip                pkgs/main/win-64::pip-24.0-py38haa95532_0
python              pkgs/main/win-64::python-3.8.10-hdbf39b2_7
setuptools          pkgs/main/win-64::setuptools-69.5.1-py38haa95532_0
sqlite              pkgs/main/win-64::sqlite-3.45.3-h2bbff1b_0
vc                 pkgs/main/win-64::vc-14.2-h2eaa2aa_1
vs2015_runtime      pkgs/main/win-64::vs2015_runtime-14.29.30133-h43f2093_3
wheel              pkgs/main/win-64::wheel-0.43.0-py38haa95532_0

Proceed ([y]/n)? y

Downloading and Extracting Packages

Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate chatbot
#

```

```

Proceed ([y]/n)? y

Downloading and Extracting Packages

Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate chatbot
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) C:\Users\prath\OneDrive\Desktop\chatbot> $ conda activate chatbot
'$' is not recognized as an internal or external command,
operable program or batch file.

(base) C:\Users\prath\OneDrive\Desktop\chatbot>conda activate chatbot

(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot>
```

```
(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot>python -m pip cache purge
Files removed: 1007

(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot>python -m pip install -u pip
Usage:
  C:\Users\prath\anaconda3\envs\chatbot\python.exe -m pip install [options] <requirement specifier> [package-index-options] ...
  C:\Users\prath\anaconda3\envs\chatbot\python.exe -m pip install [options] -r <requirements file> [package-index-options] ...
  C:\Users\prath\anaconda3\envs\chatbot\python.exe -m pip install [options] [-e] <vcs project url> ...
  C:\Users\prath\anaconda3\envs\chatbot\python.exe -m pip install [options] [-e] <local project path> ...
  C:\Users\prath\anaconda3\envs\chatbot\python.exe -m pip install [options] <archive url/path> ...

no such option: -u

(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot>pip install rasa==3.0.2
Collecting rasa==3.0.2
  Downloading rasa-3.0.2-py3-none-any.whl.metadata (23 kB)
Collecting CacheControl<0.13.0,>=0.12.9 (from rasa==3.0.2)
  Downloading CacheControl-0.12.14-py2.py3-none-any.whl.metadata (2.2 kB)
Collecting PyJWT<3.0.0,>=2.0.0 (from PyJWT[crypto]<3.0.0,>=2.0.0->rasa==3.0.2)
  Downloading PyJWT-2.8.0-py3-none-any.whl.metadata (4.2 kB)
Collecting SQLAlchemy<1.5.0,>=1.4.0 (from rasa==3.0.2)
  Downloading SQLAlchemy-1.4.52-cp38-cp38-win_amd64.whl.metadata (10 kB)
Collecting absl-py<0.14,>=0.9 (from rasa==3.0.2)
  Downloading absl_py-0.13.0-py3-none-any.whl.metadata (2.4 kB)
Collecting aio-pika<7.0.0,>=6.7.1 (from rasa==3.0.2)
  Downloading aio_pika-6.8.2-py3-none-any.whl.metadata (9.0 kB)
Collecting aiohttp<3.7.4,post0,<3.8,>=3.6 (from rasa==3.0.2)
  Downloading aiohttp-3.7.4-cp38-cp38-win_amd64.whl.metadata (38 kB)
Collecting apscheduler<3.8,>=3.6 (from rasa==3.0.2)
  Downloading APScheduler-3.7.0-py2.py3-none-any.whl.metadata (5.7 kB)
Collecting async_generator<1.11,>=1.10 (from rasa==3.0.2)
  Downloading async_generator-1.10-py3-none-any.whl.metadata (4.9 kB)
Collecting attrs<21.3,>=19.3 (from rasa==3.0.2)
  Downloading attrs-21.2.0-py2.py3-none-any.whl.metadata (9.1 kB)
```

```
(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot>Pip install websockets==10.0
Collecting websockets==10.0
  Downloading websockets-10.0-cp38-cp38-win_amd64.whl.metadata (6.4 kB)
  Downloading websockets-10.0-cp38-cp38-win_amd64.whl (96 kB)
  96.0/96.0 kB 5.4 MB/s eta 0:00:00
Installing collected packages: websockets
  Attempting uninstall: websockets
    Found existing installation: websockets 12.0
    Uninstalling websockets-12.0:
      Successfully uninstalled websockets-12.0
Successfully installed websockets-10.0

(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot> Pip install protobuf==3.20
Collecting protobuf==3.20
  Downloading protobuf-3.20.0-cp38-cp38-win_amd64.whl.metadata (699 bytes)
  Downloading protobuf-3.20.0-cp38-cp38-win_amd64.whl (904 kB)
  904.4/904.4 kB 4.8 MB/s eta 0:00:00
Installing collected packages: protobuf
  Attempting uninstall: protobuf
    Found existing installation: protobuf 5.26.1
    Uninstalling protobuf-5.26.1:
      Successfully uninstalled protobuf-5.26.1
Successfully installed protobuf-3.20.0
```

```
(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot> rasa init
Welcome to Rasa! 🎉

To get started quickly, an initial project will be created.
If you need some help, check out the documentation at https://rasa.com/docs/rasa.
Now let's start! 🚀

? Please enter a path where the project will be created [default: current directory] .
2024-05-23 17:13:20 INFO    root - creating actions
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\actions\actions.py -> .\actions
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\actions\_init__.py -> .\actions
2024-05-23 17:13:20 INFO    root - creating actions__pycache__
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\actions\__pycache__\actionython-38.pyc -> .\actions\__pycache__
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\actions\__pycache__\__init__.pyc -> .\actions\__pycache__
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\config.yml -> .
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\credentials.yml -> .
2024-05-23 17:13:20 INFO    root - creating data
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\data\nlu.yml -> .\data
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\data\rules.yml -> .\data
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\data\stories.yml -> .\data
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\domain.yml -> .
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\endpoints.yml -> .
2024-05-23 17:13:20 INFO    root - creating tests
2024-05-23 17:13:20 INFO    root - copying C:\Users\prath\anaconda3\envs\chatbot\lib\site-packages\rasa\cli\initial_project\tests\test_stories.yml -> tests
Created project directory at 'C:\Users\prath\OneDrive\Desktop\chatbot'.
Finished creating project structure.
? Do you want to train an initial model? 💡 No
No problem 💪. You can also train a model later by going to the project directory and running 'rasa train'.

(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot>
```

```
(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot> rasa train
The configuration for policies and pipeline was chosen automatically. It was written into the config file at 'config.yml'.
2024-05-23 17:17:22 INFO    rasa.engine.training.hooks - Starting to train component 'RegexFeaturizer'.
2024-05-23 17:17:22 INFO    rasa.engine.training.hooks - Finished training component 'RegexFeaturizer'.
2024-05-23 17:17:23 INFO    rasa.engine.training.hooks - Starting to train component 'LexicalSyntacticFeaturizer'.
2024-05-23 17:17:23 INFO    rasa.engine.training.hooks - Finished training component 'LexicalSyntacticFeaturizer'.
2024-05-23 17:17:23 INFO    rasa.engine.training.hooks - Starting to train component 'CountVectorsFeaturizer'.
2024-05-23 17:17:23 INFO    rasa.nlu.featurizers.sparse_featurizer - 80 vocabulary items were created for text attribute.
2024-05-23 17:17:23 INFO    rasa.engine.training.hooks - Finished training component 'CountVectorsFeaturizer'.
2024-05-23 17:17:23 INFO    rasa.engine.training.hooks - Starting to train component 'CountVectorsFeaturizer'.
2024-05-23 17:17:23 INFO    rasa.nlu.featurizers.sparse_featurizer.count_vectors_featurizer - 697 vocabulary items were created for text attribute.
2024-05-23 17:17:23 INFO    rasa.engine.training.hooks - Finished training component 'CountVectorsFeaturizer'.
2024-05-23 17:17:23 INFO    rasa.engine.training.hooks - Starting to train component 'DIECTClassifier'.
Epochs: 100% [██████████] 100/100 [00:21<00:00, 4.71it/s, t_loss=1.2, i_acc=1]
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Finished training component 'DIECTClassifier'.
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Starting to train component 'EntitySynonymMapper'.
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Finished training component 'EntitySynonymMapper'.
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Starting to train component 'ResponseSelector'.
2024-05-23 17:17:45 INFO    rasa.nlu.selectors.response_selector - Retrieval intent parameter was left to its default value. This response selector will be trained on training examples combining all retrieval intents.
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Finished training component 'ResponseSelector'.
Processed story blocks: 100% [██████████] 3/3 [00:00<00:00, 1476.87it/s, # trackers=1]
Processed story blocks: 100% [██████████] 3/3 [00:00<00:00, 993.83it/s, # trackers=3]
Processed story blocks: 100% [██████████] 3/3 [00:00<00:00, 334.06it/s, # trackers=12]
Processed story blocks: 100% [██████████] 3/3 [00:00<00:00, 88.15it/s, # trackers=39]
Processed story blocks: 100% [██████████] 2/2 [00:00<00:00, 1946.76it/s, # trackers=1]
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Starting to train component 'MemoizationPolicy'.
Processed trackers: 100% [██████████] 3/3 [00:00<00:00, 746.23it/s, # action=12]
Processed actions: 12it [00:00, 12081.53it/s, # examples=12]
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Finished training component 'MemoizationPolicy'.
2024-05-23 17:17:45 INFO    rasa.engine.training.hooks - Starting to train component 'RulePolicy'.
Processed trackers: 100% [██████████] 2/2 [00:00<00:00, 1946.76it/s, # action=5]
```

```
(chatbot) C:\Users\prath\OneDrive\Desktop\chatbot> rasa shell
2024-05-23 17:18:54 INFO    root - Connecting to channel 'cmdline' which was specified by the '--connector' argument. Any other channels will be ignored.
To connect to all given channels, omit the '--connector' argument.
2024-05-23 17:18:54 INFO    root - Starting Rasa server on http://0.0.0.0:5005
2024-05-23 17:18:56 INFO    rasa.core.processor - Loading model models\20240523-171721-vibrato-trumpet.tar.gz...
2024-05-23 17:19:07 WARNING  rasa.shared.utils.common - The UnexpedTED Intent Policy is currently experimental 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.
2024-05-23 17:19:13 INFO    root - Rasa server is up and running.
2024-05-23 17:19:13 INFO    root - Rasa server is up and running.
Bot loaded. Type a message and press enter (use 'stop' to exit):
Your input -> goodbye
Bye
Your input -> |
```