

Chatbot project

```
In [1]: # load environment variables from the ".env" file.
```

```
import os
from dotenv import load_dotenv
load_dotenv()
```

```
Out[1]: True
```

```
In [3]: # import "GROQ API key"
```

```
os.environ["GROQ_API_KEY"] = os.getenv("GROQ_API_KEY")
```

```
In [5]: # Import the ChatGroq
```

```
from langchain_groq import ChatGroq
```

```
In [6]: # Initialize the ChatGroq LLM using "llama3-8b-8192"
```

```
model_chatgroq = ChatGroq(model="llama3-8b-8192")
```

```
In [7]: # import HumanMessage
```

```
from langchain_core.messages import HumanMessage
```

```
In [8]: # send the message to the model="Gemma2-9b-It", and get its output.
```

```
model_chatgroq.invoke([HumanMessage(content="Please tell me about the capital city of USA.")])
```

```
Out[8]: AIMessage(content="The capital city of the United States of America is Washington, D.C. (short for District of Columbia). It is located on the East Coast, bordering the states of Maryland and Virginia.\n\nHere are some interesting facts about Washington, D.C.: \n\n1. **History**: Washington, D.C. was founded in 1790 to serve as the capital of the United States. It was named after the first president, George Washington.\n2. **Geography**: The city is situated on the Potomac River and has a total area of 68.3 square miles (176.9 km²).\n3. **Government**: Washington, D.C. is a federal district, not a state, and is not part of any state. It has a unique government structure, with a mayor and a city council, but it is not a state and does not have voting representation in Congress.\n4. **Landmarks**: The city is home to many iconic landmarks, including the White House (the official residence and workplace of the President), the United States Capitol Building, the Lincoln Memorial, the Washington Monument, and the Smithsonian Institution's museums and galleries.\n5. **Cultural attractions**: Washington, D.C. is a vibrant city with a rich cultural scene. It is home to many museums, galleries, and performance venues, including the National Gallery of Art, the Kennedy Center, and the Ford's Theatre.\n6. **Demographics**: As of 2020, the population of Washington, D.C. is approximately 702,000 people, making it the 20th most populous city in the United States.\n7. **Economy**: The city has a diverse economy, with major industries in education, healthcare, technology, and tourism.\n\nOverall, Washington, D.C. is a unique and fascinating city that is steeped in history and culture. It is a must-visit destination for anyone interested in American politics, history, or culture."), additional_kwargs={}, response_metadata={'completion_tokens': 394, 'prompt_tokens': 20, 'total_tokens': 414, 'completion_time': 0.405874384, 'prompt_time': 0.003281291, 'queue_time': 0.0016698259999999997, 'total_time': 0.409155675}, 'model_name': 'llama3-8b-8192', 'system_fingerprint': 'fp_5b339000ab', 'finish_reason': 'stop', 'logprobs': None}, id='run--981f5bc2-4ffd-4290-9767-9625b4957b7a-0', usage_metadata={'input_tokens': 20, 'output_tokens': 394, 'total_tokens': 414})
```

```
In [9]: # send the message to the model="Gemma2-9b-It", and get its response
```

```
model_chatgroq.invoke([HumanMessage(content="Do you know the best player of soccer in the world?")])
```

```
Out[9]: AIMessage(content="A question that can spark a lot of debate!\n\nWhile opinions on the best soccer player in the world can vary depending on personal taste, team loyalty, and individual performances, there are a few players who are often considered among the greatest of all time.\n\nAccording to various rankings, awards, and expert opinions, some of the top contenders for the title of best soccer player in the world are:\n\n1. Lionel Messi: Regarded by many as the greatest soccer player of all time, Messi has won numerous accolades, including six Ballon d'Or awards, ten La Liga titles, and four UEFA Champions League titles.\n2. Cristiano Ronaldo: A five-time Ballon d'Or winner, Ronaldo has consistently been one of the top players in the world, winning numerous titles with Manchester United, Real Madrid, and Juventus.\n3. Kylian Mbappé: The young French forward has quickly become one of the most dominant players in the world, winning the FIFA World Cup and multiple Ligue 1 titles with Paris Saint-Germain.\n4. Robert Lewandowski: The Polish striker is known for his incredible goal-scoring record, having won numerous awards, including the UEFA Champions League top scorer award and the Bundesliga top scorer award multiple times.\n5. Kevin De Bruyne: The Belgian midfielder is widely regarded as one of the best players in the world, having won numerous awards, including the UEFA Midfielder of the Year award and the Premier League Player of the Season award.\n\nOf course, there are many other great players who could be considered among the best in the world, depending on individual perspectives and criteria. Who do you think is the best soccer player in the world?", additional_kwargs={}, response_metadata={'completion_tokens': 340, 'prompt_tokens': 22, 'total_tokens': 362, 'completion_time': 0.349770144, 'prompt_time': 0.00335742, 'queue_time': 0.0015008880000000006, 'total_time': 0.353127564}, 'model_name': 'llama3-8b-8192', 'system_fingerprint': 'fp_5b339000ab', 'finish_reason': 'stop', 'logprobs': None}, id='run--31b61e5b-563b-44db-8d28-0f8022e986a4-0', usage_metadata={'input_tokens': 22, 'output_tokens': 340, 'total_tokens': 362})
```

```
In [10]: from langchain_core.messages import AIMessage
```

```
ai_message = AIMessage(content="Hi! I am your Artificial Intelligence agent. If you need help, please let me know")
```

```
In [47]: model_chatgroq.invoke(
```

```
{
    HumanMessage(content="Hi, My name is Gobind Basnet and I am a Physics Ph.D graduate"),
    AIMessage(content="Hi. What kind of research project did you do in your Ph.D. program? \n If you tell me, I can help you more about Ph.D. research."),
    HumanMessage(content="Hi Do you know which degree I have?")
})
```

```
Out[47]: AIMessage(content="You've mentioned earlier that you're a Physics Ph.D. graduate, so I'm assuming you have a Doctor of Philosophy (Ph.D.) degree in Physics. Is that correct?", additional_kwargs={}, response_metadata={'completion_tokens': 37, 'prompt_tokens': 81, 'total_tokens': 118, 'completion_time': 0.03830571, 'prompt_time': 0.010103257, 'queue_time': 0.0016968840000000001, 'total_time': 0.048408967}, 'model_name': 'llama3-8b-8192', 'system_fingerprint': 'fp_0fb809dba3', 'finish_reason': 'stop', 'logprobs': None}, id='run--43ad2ee6-93ef-48b5-ba3c-45e98bd1781b-0', usage_metadata={'input_tokens': 81, 'output_tokens': 37, 'total_tokens': 118})
```

```
In [ ]: # Previous Messages
```

```
In [82]: from langchain_core.chat_history import BaseChatMessageHistory
from langchain_community.chat_message_histories import ChatMessageHistory
from langchain_core.runnables.history import RunnableWithMessageHistory
```

```
In [84]: chat_store = {}
```

```
# Consider a function used for a chat session with chat history
def session_records(session_id: str) -> BaseChatMessageHistory:
    if session_id not in chat_store:
        chat_store[session_id] = ChatMessageHistory()
    return chat_store[session_id]
```

```
In [86]: # Combine the model, and session_records function to enable session chat history with using RunnableWithMessageHistory.
```

```
session_records_chat = RunnableWithMessageHistory(model_chatgroq, session_records)
```

```
In [88]: # Use the "configurable" key and a "session_id" to define configuration dictionary
```

```
config_one = {
    "configurable": {
        "session_id": "chat_record_one"
    }
}
```

```
In [90]: # send the user's message to the model using the session configuration to hold chat history.
```

```
output = session_records_chat.invoke(
    [HumanMessage(content="Hello, My name is Gobind Basnet and I successfully completed my Ph.D. (Physics) in May, 2025. I am from Nepal.")],
    config=config_one
)
```

```
In [92]: output.content
```

```
Out[92]: "Congratulations Dr. Gobind Basnet! 🎉 It's a pleasure to meet you. Completing a Ph.D. in Physics is a significant achievement, and I'm thrilled to hear that you have successfully defended your thesis in May 2025. That's a remarkable feat, especially considering you are from Nepal. Can you tell me a bit more about your research and what inspired you to pursue a career in Physics?"
```

```
In [94]: # Repeat the past user question to test whether the chat understands previous messages.
```

```
Output_test = session_records_chat.invoke(
    [HumanMessage(content="Please tell me from where I am")],
    config=config_one
)
print(Output_test .content)
```

I can see that you are from Nepal!

```
In [100]: # Define a configuration dictionary (config_two) with "configurable" key. and a new session_id.
```

```
config_two = {
    "configurable": {
        "session_id": "chat_record_two"
    }
}
```

```
In [102]: output_two = session_records_chat.invoke(
    [HumanMessage(content="Please tell me from where I am")],
    config=config_two
)
```

output_two.content

```
Out[102]: 'I apologize, but I\'m a large language model, I don\'t have the capability to determine your exact location. I don\'t have access to your device\'s GPS or location data. I can only communicate with you through text and don\'t have any information about your physical location.\n\nIf you want to share your location with me, I can try to help you determine where you are. Alternatively, you can try using online tools or services that use your device\'s location data to determine your location.\n\nIf you\'re using a device with a physical location, you can also try using online services like Google Maps or Google Search to determine your location. Just type "what\'s my location" or "where am I" in the search bar, and Google will try to determine your location based on your device\'s IP address and other data.\n\nI hope this helps! Let me know if you have any other questions.'
```

```
In [ ]:
```