	os.environ['TAVILY_API_KEY']=os.getenv('TAVILY_API_KEY') os.environ['GROQ_API_KEY']=os.getenv('GROQ_API_KEY')
7]:	<pre>### tavily search tool from langchain_community.tools.tavily_search import TavilySearchResults tavily= TavilySearchResults()  tavily.invoke("provide me the recent AI news?")</pre>
	[{'title': 'Artificial Intelligence News - ScienceDaily',    'url': 'https://www.sciencedaily.com/news/computers_math/artificial_intelligence/',    'url': 'https://www.sciencedaily.com/news/computers_math/artificial_intelligence/',    'content': 'Artificial Intelligence News\n\nTop Headlines\n\nTatest Headlines\n\nTarlier Headlines\n\nThursday, May 8, 2025\n\nTuesday, May 7, 2025\n\nTuesday, May 5\n\nMonday, May 5, 2025\n\nTuesday, May 1, 2025\n\nFriday, April 25, 2025\n\nThursday, April 24, 2025\n\nThursday, April 23, 2025\n\nThursday, April 22, 2025\n\nThursday, March 25, 2025\n\nMonday, April 14, 2025\n\nMednesday, April 9, 2025\n\nThursday, April 8, 2025\n\nThursday, April 3, 2025\n\nThursday, March 27, 2025\n\nThursday, January 14, 2025\n\nThursday, January 9, 2025\n\nMednesday, March 28, 2025\n\nThursday, January 6, 2025\n\nThursday, January 14, 2025\n\nThursday, January 9, 2025\n\nMednesday, January 9, 2025\n\nThursday, January 9, 2024\n\nMednesday, January 14, 2025\n\nThursday, January 14, 2025\n\nMednesday, January 14, 2025\n\nThursday, February 15, 2025\n\nThursday, February 16, 2025\n\nThursday, February 17, 2025\n\nThursday, February 18, 2025\n\nMednesday, January 28, 2025\n\nMednesday, January 28, 2025\n\nMednesday, January 28, 2025\n\nMednesday, January 29, 2025\n\nMednesday, January 29, 2025\n\nMednesday, January 29, 2025\n\nMednesday, January 29, 2025\n\nMedn
	'url': 'https://www.nbcnews.com/artificial-intelligence', 'content': "Man files complaint after ChatGPT falsely claimed he murdered his children\n\nNBC News NOW\n\n02:54\n\nA.I. chatbots becoming popular but worry privacy as \n\nNightly News\n\n03:15\n\nChristie's begins AI art auction amid backlash\n\nNBC News NOW\n\n02:16\n\nVance says U.S. will be the 'gold standard' of AI technology\n\n\nAI startup DeepSeek causes buzz in China but draws global scrutiny over censorship and security\n\nNBC News NOW\n\n\nMONEA AI NEWS [] Nvidia CEO hails Trump's plan cind some export curbs on AI chips to China\n\nArtificial intelligence\n\nGoogle I/O 2025: Gemini AI, Android XR glasses, Google Beam, Project Astra, Chrome and deep so ews\n\nArtificial intelligence\n\nAI poses a bigger threat to women's work than men's, report says\n\nArtificial intelligence\n\nAI and education: We want to hear your \n\nTECH NEWS\n\nPolitics News\n\nTexas moves forward with expansive social media ban for minors, reigniting debate\n\nTrump tariffs [] Profile\n\nSections\n\nLocal \n\nFeatured\n\nMore From NBC\n\nFollow NBC News\n\nnews Alerts\n\nThere are no new alerts at this time\n\nARTIFICIAL INTELLIGENCE\n\nThe latest news and top stories or icial intelligence, including ChatGPT, AI Chatbot and Bard.\n\nAnthropic adds Claude 4 security measures to limit risk of users developing weapons\n\nChicago Sun-Times summer book guide included fake AI-generated titles\n\nAI NEWS\n\nArtificial intelligence",  'score': 0.6158511},  ('title': 'Artificial Intelligence - Latest AI News and Analysis - WSJ.com',  'url': 'https://www.wsj.com/tech/ai',  'content': 'The latest artificial intelligence news coverage focusing on the technology, tools and the companies building AI technology.',
8]:	'score': 0.6097339), {'title': 'Artificial intelligence   Massachusetts Institute of Technology',     'url': 'https://news.mit.edu/topic/artificial-intelligence2',     'content': 'Novel AI model inspired by neural dynamics from the brain\n\nNew type of "state-space model" leverages principles of harmonic oscillators.\n\nMay 2, 2025 d full story →\n\nMaking AI models more trustworthy for high-stakes settings\n\nA new method helps convey uncertainty more precisely, which could give researchers and l clinicians better information to make decisions.\n\nMay 1, 2025\n\nRead full story →\n\nHew MIT-Portugal Program enters Phase 4 [] New phase will support continue oration of ideas and solutions in fields ranging from AI to nanotech to climate — with emphasis on educational exchanges and entrepreneurship.\n\nApril 30, 2025\n\nRead story →\n\nMerging design and computer science in creative ways\n\nMAD Fellow Alexander Htet Kyaw connects humans, machines, and the physical world using AI and augmer ality.\n\nApril 28, 2025\n\nRead full story →\n\nNovel method detects microbial contamination in cell cultures [] With AI, researchers predict the location of virtu ny protein within a human cell\n\nTrained with a joint understanding of protein and cell behavior, the model could help with diagnosing disease and developing new drug, ay 15, 2025\n\nRead full story →\n\nStudy shows vision-language models can't handle queries with negation words\n\nWords like "no" and "not" can cause this popular cla AI models to fail unexpectedly in high-stakes settings, such as medical diagnosis.\n\nMay 14, 2025',     'score': 0.528753}]  ## combine all these tools in the list tools=[arxiv, wiki, tavily]
1]: [.	# Initialize the LLM Model  from langchain_groq import ChatGroq  llm=ChatGroq(model='qwen-qwq-32b')  llm.invoke("What is AI")  AIMessage(content='\n <think>\nOkay, the user is asking, "What is AI?" Let me start by breaking down the term. AI stands for Artificial Intelligence. I should explain the computer science. But maybe I should also mention the broader definition. Some people think of AI as any machine that can perform tasks requiring human—</think>
	telligence.\a\n\mimm, should I differentiate between general AI and narrow AI? Probably important to note that most AI today is narrow, like voice assistants or recommens ystems. General AI, which is more human-like, is still theoretical.\n\nI need to cover the key areas of AI. Machine learning comes to mind, especially since it\'s a st f AI. Deep learning is a part of machine learning using neural networks. I should give examples of each to make it clearer.\n\nApplications are essential too. Things I thcare, finance, transportation. Maybe mention some popular examples like self-driving cars or chatbots. Also, touch on current limitations because it\'s important to alistic expectations. AI isn't sentient yet, but there are ethical considerations like bias and privacy.\n\nIsthical implications might be another point. Issues like a vacy, algorithmic bias, job displacement. Maybe suggest that AI is a tool that requires careful use.\n\nI should structure the answer logically: start with a definition key areas, applications, limitations, ethics, and future. Keep it conversational but informative. Avoid jargon where possible, but since it\'s a "what is" question, so nical terms are necessary, like machine learning and neural networks.\n\n\mathra might be a beginner, so I should explain terms like algorithms and data-driven has simply. Maybe use analogies where helpful. Also, clarify that AI systems can learn from data but aren\'t conscious. Need to make sure not to overpromise on AI\'s c ties.\n\n\Left me check if there\'s anything else. Oh, the historical context? Maybe a brief mention of the origins in the 1950s, but maybe that\'s too detailed. The use bly wants a concise overview. Focus on the essentials first.\n\nPutting it all together: start with the definition, key areas (machine learning, etc.), applications, of state, challenges, and ethical considerations. End with a summary that ties it all together. Make sure to keep paragraphs short for readability. Use bullet points or sif possible, but since the user w
	eneral (Strong) AI:** \n Hypothetical systems with human-like intelligence capable of *any intellectual task* (e.g., creativity, abstract thinking, and problem-solving solving solving and problem-solving and proble
2]: [. 3]: [.	<pre>llm_with_tools=llm.bind_tools(tools=tools)  llm_with_tools.invoke("What is recent news on AI")  AIMessage(content='', additional_kwargs={'tool_calls': [{'id': 'call_8d74', 'function': {'arguments': '{"query":"recent news on AI"}', 'name': 'tavily_search_results_j.' 'type': 'function'}]}, response_metadata={'token_usage': {'completion_tokens': 219, 'prompt_tokens': 354, 'total_tokens': 573, 'completion_time': 0.505888843, 'prompt_ 0.030768348, 'queue_time': 0.266030812, 'total_time': 0.536657191}, 'model_name': 'qwen-qwq-32b', 'system_fingerprint': 'fp_28178d7ff6', 'finish_reason': 'tool_calls', obs': None}, id='run94327692-8781-4753-82c3-69dcc24f7e31-0', tool_calls=[{'name': 'tavily_search_results_json', 'args': {'query': 'recent news on AI'}, 'id': 'call_80781.</pre>
4]:	obs': None}, id='run94327692-8781-4753-82c3-69dcc24f7e31-0', tool_calls=[{'name': 'tavily_search_results_json', 'args': {'query': 'recent news on AI'}, 'id': 'call_86' 'type': 'tool_call'}], usage_metadata={'input_tokens': 354, 'output_tokens': 219, 'total_tokens': 573})  WORKFLOW  ## state schema from typing_extensions import TypedDict from langchain_core.messages import AnyMessage ## human message or AI message from typing import Annotated ## labeling
5]:	from langgraph.graph.message import add_messages ## reducers in langgraph  class State(TypedDict):     messages: Annotated[list[AnyMessage],add_messages]  #3 now we will be creating two nodes the Ai Assistand node and tools node and the we will creating edges to connect start with AI assistant node
3]:	# Entire chatbot with langGraph  from IPython.display import Image, display  from langgraph.graph import StateGraph, START, END  from langgraph.prebuilt import ToolNode  from langgraph.prebuilt import tools_condition  ## Node definition  dof tool galling llm(state(State));
1	<pre>def tool_calling_llm(state:State):     return {"messages":[llm_with_tools.invoke(state["messages"])]}  # Build Graph builder= StateGraph(State) builder.add_node("tool_calling_llm", tool_calling_llm) builder.add_node("tools", ToolNode(tools))</pre>
	<pre>## Edges builder.add_edge(START, "tool_calling_llm") builder.add_conditional_edges(     "tool_calling_llm",     # if latest message from assistant is a tool call -&gt; tools_condition routes to tools     # if latest message from assistant is anot a tool call -&gt; tools_condition routes to END     tools_condition, ) builder.add_edge("tools", "tool_calling_llm") builder.add_edge("tools", END) graph=builder.compile() # view display(Image(graph.get_graph().draw_mermaid_png()))</pre>
	start tool_calling_llm
	_end tools
:	messages=graph.invoke({"messages":"1706.03762"})  for m in messages['messages']:     m.pretty_print()  ===================================
	Tool Calls:  arxiv (call_7a80)
	Call ID: call_7a80         Args:         query: 1706.03762         ====================================
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6]:       1         3       3         4       3         5       3         6       3         6       3         8       3         8       3         1       3         1       3         2       3         3       3         4       3         5       3         6       3         1       3         2       4         3       4         4       4         5       4         6       1         1       4         2       4         3       4         4       4         5       4         6       1         6       1         1       4         2       4         3       4         4       4         5       4         6       1         6       1         7       4         8       1         8       1 <td< td=""><td>The state of the s</td></td<>	The state of the s
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In [1]: from langchain\_community.tools import ArxivQueryRun,WikipediaQueryRun
from langchain\_community.utilities import WikipediaAPIWrapper, ArxivAPIWrapper

In [2]: # 1. toll arxiv