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Trusted

Python 3 (ipykernel) O



```
In [1]: import os

from dotenv import load_dotenv, find_dotenv
_ = load_dotenv(find_dotenv()) # read local .env file

import warnings
warnings.filterwarnings("ignore")

In [2]: # account for deprecation of LLM model
import datetime
# Get the current date
current_date = datetime.datetime.now().date()

# Define the date after which the model should be set to "gpt-3.5-turbo"
target_date = datetime.date(2024, 6, 12)

# Set the model variable based on the current date
if current_date > target_date:
    llm_model = "gpt-3.5-turbo"
else:
    llm_model = "gpt-3.5-turbo-0301"

In [3]: from langchain.agents.agent_toolkits import create_python_agent
from langchain.agents import load_tools, initialize_agent
from langchain.agents import AgentType
from langchain.tools.python.tool import PythonREPLTool
from langchain.python import PythonREPL
from langchain.chat_models import ChatOpenAI

In [4]: llm = ChatOpenAI(temperature=0, model=llm_model)

In [5]: tools = load_tools(["llm-math", "wikipedia"], llm=llm)

In [6]: agent= initialize_agent(
    tools,
    llm,
    agent=AgentType.CHAT_ZERO_SHOT_REACT_DESCRIPTION,
    handle_parsing_errors=True,
    verbose = True)

In [7]: agent("What is the 25% of 300?")
```

```
> Entering new AgentExecutor chain...
Thought: We can use the calculator tool to find 25% of 300.
Action:
```
{
  "action": "Calculator",
  "action_input": "25% of 300"
}
```
Observation: Answer: 75.0
Thought:Final Answer: 75.0
```

> Finished chain.

```
{'input': 'What is the 25% of 300?', 'output': '75.0'}
```

```
In [18]: agent("what is 75% offer on 1800Rupees means?")
```

```
> Entering new AgentExecutor chain...
Thought: To calculate 75% of 1800 Rupees, we can use a calculator.
Action:
```
{
  "action": "Calculator",
  "action_input": "1800 * 0.75"
}
```
Observation: Answer: 1350.0
Thought:Final Answer: 75% off on 1800 Rupees means a discount of 1350 Rupees.

> Finished chain.
```

```
{'input': 'what is 75% offer on 1800Rupees means?',
 'output': '75% off on 1800 Rupees means a discount of 1350 Rupees.'}
```

```
In [19]: question = "Tom M. Mitchell is an American computer scientist \
and the Founders University Professor at Carnegie Mellon University (CMU) \
what book did he write?"
result = agent(question)
```

```
> Entering new AgentExecutor chain...
Thought: I can use Wikipedia to find out which book Tom M. Mitchell wrote.
Action:
```
{
    "action": "Wikipedia",
    "action_input": "Tom M. Mitchell"
}
```
Observation: Page: Tom M. Mitchell
```

Summary: Tom Michael Mitchell (born August 9, 1951) is an American computer scientist and the Founders University Professor at Carnegie Mellon University (CMU). He is a founder and former chair of the Machine Learning Department at CMU. Mitchell is known for his contributions to the advancement of machine learning, artificial intelligence, and cognitive neuroscience and is the author of the textbook Machine Learning. He is a member of the United States National Academy of Engineering since 2010. He is also a Fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science and a Fellow and past president of the Association for the Advancement of Artificial Intelligence. In October 2018, Mitchell was appointed as the Interim Dean of the School of Computer Science at Carnegie Mellon.

Page: Ensemble learning  
Summary: In statistics and machine learning, ensemble methods use multiple learning algorithms to obtain better predictive performance than could be obtained from any of the constituent learning algorithms alone. Unlike a statistical ensemble in statistical mechanics, which is usually infinite, a machine learning ensemble consists of only a concrete finite set of alternative models, but typically allows for much more flexible structure to exist among those alternatives.

Thought: I have found that Tom M. Mitchell wrote the textbook "Machine Learning."

Final Answer: Tom M. Mitchell wrote the book "Machine Learning."

> Finished chain.

```
In [29]: question = "Dr APJ Abdul Kalam was an Indian Scientist & former president of India \
& what are his achievements in life & personal life?"
result = agent(question)
```

> Entering new AgentExecutor chain...

Thought: I should use Wikipedia to gather information about Dr. APJ Abdul Kalam's achievements and personal life.

Action:

```

```
{
    "action": "Wikipedia",
    "action_input": "Dr. APJ Abdul Kalam"
}
```
Observation: Page: A. P. J. Abdul Kalam
```

Summary: Avul Pakir Jainulabdeen Abdul Kalam ( ; 15 October 1931 – 27 July 2015) was an Indian aerospace scientist and statesman who served as the president of India from 2002 to 2007. Born and raised in a Muslim family in Rameswaram, Tamil Nadu, he studied physics and aerospace engineering. He spent the next four decades as a scientist and science administrator, mainly at the Defence Research and Development Organisation (DRDO) and Indian Space Research Organisation (ISRO) and was intimately involved in India's civilian space programme and military missile development efforts. He was known as the "Missile Man of India" for his work on the development of ballistic missile and launch vehicle technology. He also played a pivotal organisational, technical, and political role in India's Pokhran-II nuclear tests in 1998, the second test since the first nuclear test by India in 1974. Kalam was elected as the president of India in 2002 with the support of both the ruling Bharatiya Janata Party and the then-opposition Indian National Congress. He was widely referred to as the "People's President". He engaged in teaching, writing and public service after his presidency. He was a recipient of several awards, including the Bharat Ratna, India's highest civilian honour. While delivering a lecture at IIM Shillong, Kalam collapsed and died from an apparent cardiac arrest on 27 July 2015, aged 83. Thousands attended the funeral ceremony held in his hometown of Rameswaram, where he was buried with full state honours. A memorial was inaugurated near his home town in 2017.

Page: Dr. A. P. J. Abdul Kalam Memorial

Summary: Dr. A.P.J. Abdul Kalam National Memorial is a memorial dedicated to the former president of the Republic of India A. P. J. Abdul Kalam located in Peikarumbu, Rameswaram, Tamil Nadu, India. The memorial was designed and constructed by the Defence Research and Development Organisation (DRDO) as a tribute to Kalam and to display the cultural heritage and ethnic diversity of India. It was officially inaugurated by the prime minister of the Republic of India Narendra Modi on 2 July 2017. A symbol of national integration, the memorial is an amalgamation of Mughal and Indian architecture.

Page: Dr. A. P. J. Abdul Kalam Road

Summary: Dr APJ Abdul Kalam Road (previously known as Aurangzeb Road) is a road in New Delhi, India. It lies at the north-east end, stretching from the 'Taj Mansingh Hotel' at the roundabout of Mansingh Road, Shahjahan Road, Humayun Road, Prithviraj Road and a road to Khan Market in the north-east. At the south-west end it stretches up to the crossing at Mustafa Kemal Atatürk Marg and Safdarjung Road junction.

It is home to several Indian billionaires such as ArcelorMittal's L N Mittal, K P Singh of DLF and Max Healthcare's Anil Singh.

Thought: I have gathered information about Dr. APJ Abdul Kalam's achievements and personal life from Wikipedia. Now, I can summarize his accomplishments and personal details.

Final Answer: Dr. APJ Abdul Kalam was an Indian aerospace scientist and statesman known as the "Missile Man of India" for his work on ballistic missile and launch vehicle technology. He served as the president of India from 2002 to 2007 and was widely referred to as the "People's President." Kalam was involved in India's civilian space program, military missile development efforts, and played a key role in India's Pokhran-II nuclear tests in 1998. He received several awards, including the Bharat Ratna, India's highest civilian honor. Dr. APJ Abdul Kalam passed away on July 27, 2015, at the age of 83.

> Finished chain.

```
In [31]: # Python Agent
agent = create_python_agent(
    llm,
    tools=PythonREPLTool()
```



```
> Entering new AgentExecutor chain...
Thought: I can use the `time` tool to find out today's date.
Action:
```
{
  "action": "time",
  "action_input": ""
}
```

Observation: 2025-02-24
Thought:
Observation: Invalid or incomplete response
Thought:I will correct the previous action to get today's date correctly.
Action:
```
{
  "action": "time",
  "action_input": ""
}
```

Final Answer: 2025-02-24

> Finished chain.
```

In [ ]: