

# Custom Agent

This notebook goes through how to create your own custom agent.

An agent consists of three parts:

- Tools: The tools the agent has available to use.
- The agent class itself: this decides which action to take.

In this notebook we walk through how to create a custom agent.

```
from langchain.agents import Tool, AgentExecutor, BaseSingleActionAgent
from langchain import OpenAI, SerpAPIWrapper
```

```
search = SerpAPIWrapper()
tools = [
    Tool(
        name = "Search",
        func=search.run,
        description="useful for when you need to answer questions about current
events",
        return_direct=True
    )
]
```

```
from typing import List, Tuple, Any, Union
from langchain.schema import AgentAction, AgentFinish

class FakeAgent(BaseSingleActionAgent):
    """Fake Custom Agent."""

    @property
    def input_keys(self):
        return ["input"]

    def plan(
        self, intermediate_steps: List[Tuple[AgentAction, str]], **kwargs: Any
    ) -> Union[AgentAction, AgentFinish]:
        """Given input, decided what to do.
```

[Skip to main content](#)

```

        along with observations
        **kwargs: User inputs.

    Returns:
        Action specifying what tool to use.
    """
    return AgentAction(tool="Search", tool_input="foo", log="")

async def aplan(
    self, intermediate_steps: List[Tuple[AgentAction, str]], **kwargs: Any
) -> Union[AgentAction, AgentFinish]:
    """Given input, decided what to do.

    Args:
        intermediate_steps: Steps the LLM has taken to date,
            along with observations
        **kwargs: User inputs.

    Returns:
        Action specifying what tool to use.
    """
    return AgentAction(tool="Search", tool_input="foo", log="")

```

```
agent = FakeAgent()
```

```
agent_executor = AgentExecutor.from_agent_and_tools(agent=agent, tools=tools,
verbose=True)
```

```
agent_executor.run("How many people live in canada as of 2023?")
```

> Entering new AgentExecutor chain...

Foo Fighters is an American rock band formed in Seattle in 1994. Foo Fighters was initially formed as a one-man project by former Nirvana drummer Dave Grohl. Following the success of the 1995 eponymous debut album, Grohl recruited a band consisting of Nate Mendel, William Goldsmith, and Pat Smear.

> Finished chain.

'Foo Fighters is an American rock band formed in Seattle in 1994. Foo Fighters was initially formed as a one-man project by former Nirvana drummer Dave Grohl. Following the success of the 1995 eponymous debut album, Grohl recruited a band consisting of Nate Mendel, William Goldsmith, and Pat Smear.'