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# JSON Agent

This notebook showcases an agent designed to interact with large JSON/dict objects. This is useful when you want to answer questions about a JSON blob that's too large to fit in the context window of an LLM. The agent is able to iteratively explore the blob to find what it needs to answer the user's question.

In the below example, we are using the OpenAPI spec for the OpenAI API, which you can find [here](#).

We will use the JSON agent to answer some questions about the API spec.

## Initialization #

---

```
import os
import yaml

from langchain.agents import create_json_agent, AgentExecutor
from langchain.agents.agent_toolkits import JsonToolkit
from langchain.chains import LLMChain
from langchain.llms.openai import OpenAI
from langchain.requests import TextRequestsWrapper
from langchain.tools.json.tool import JsonSpec
```

```
with open("openai_openapi.yml") as f:
    data = yaml.load(f, Loader=yaml.FullLoader)
```

```
json_spec = JsonSpec(dict_=data, max_value_length=4000)
json_toolkit = JsonToolkit(spec=json_spec)

json_agent_executor = create_json_agent(
    llm=OpenAI(temperature=0), toolkit=json_toolkit, verbose=True
)
```

## Example: getting the required POST parameters for a request

```
json_agent_executor.run(
    "What are the required parameters in the request body to the /completions endpoint?"
)
```

```
> Entering new AgentExecutor chain...
Action: json_spec_list_keys
Action Input: data
Observation: ['openapi', 'info', 'servers', 'tags', 'paths', 'components', 'x-oaiMeta']
Thought: I should look at the paths key to see what endpoints exist
Action: json_spec_list_keys
Action Input: data["paths"]
Observation: ['/engines', '/engines/{engine_id}', '/completions', '/edits', '/images/generations',
'/images/edits', '/images/variations', '/embeddings', '/engines/{engine_id}/search', '/files',
'/files/{file_id}', '/files/{file_id}/content', '/answers', '/classifications', '/fine-tunes', '/fine-
tunes/{fine_tune_id}', '/fine-tunes/{fine_tune_id}/cancel', '/fine-tunes/{fine_tune_id}/events', '/models',
'/models/{model}', '/moderations']
Thought: I should look at the /completions endpoint to see what parameters are required
```

```
Action: json_spec_list_keys
Action Input: data["paths"]["completions"]
Observation: ['post']
Thought: I should look at the post key to see what parameters are required
Action: json_spec_list_keys
Action Input: data["paths"]["completions"]["post"]
Observation: ['operationId', 'tags', 'summary', 'requestBody', 'responses', 'x-oaiMeta']
Thought: I should look at the requestBody key to see what parameters are required
Action: json_spec_list_keys
Action Input: data["paths"]["completions"]["post"]["requestBody"]
Observation: ['required', 'content']
Thought: I should look at the required key to see what parameters are required
Action: json_spec_get_value
Action Input: data["paths"]["completions"]["post"]["requestBody"]["required"]
Observation: True
Thought: I should look at the content key to see what parameters are required
Action: json_spec_list_keys
Action Input: data["paths"]["completions"]["post"]["requestBody"]["content"]
Observation: ['application/json']
Thought: I should look at the application/json key to see what parameters are required
Action: json_spec_list_keys
Action Input: data["paths"]["completions"]["post"]["requestBody"]["content"]["application/json"]
Observation: ['schema']
Thought: I should look at the schema key to see what parameters are required
Action: json_spec_list_keys
Action Input: data["paths"]["completions"]["post"]["requestBody"]["content"]["application/json"]
["schema"]
Observation: ['$ref']
Thought: I should look at the $ref key to see what parameters are required
Action: json_spec_get_value
Action Input: data["paths"]["completions"]["post"]["requestBody"]["content"]["application/json"]
["schema"]["$ref"]
Observation: #/components/schemas/CreateCompletionRequest
```

Thought: I should look at the CreateCompletionRequest schema to see what parameters are required

Action: json\_spec\_list\_keys

Action Input: data["components"]["schemas"]["CreateCompletionRequest"]

Observation: ['type', 'properties', 'required']

Thought: I should look at the required key to see what parameters are required

Action: json\_spec\_get\_value

Action Input: data["components"]["schemas"]["CreateCompletionRequest"]["required"]

Observation: ['model']

Thought: I now know the final answer

Final Answer: The required parameters in the request body to the /completions endpoint are 'model'.

> Finished chain.

"The required parameters in the request body to the /completions endpoint are 'model'."