

AI Agent Workflow

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1. Course Content

- Build intelligent agent workflows using multiple large AI models to implement complex logical functions.
- Please note that DOFBOT-PRO uses Dify, which is a chatbot platform. This tutorial is provided for users who are interested in learning about and developing with this platform.

2. Start the Dify Service

- Connect to the car's infotainment system via VNC or SSH. Enter the following command in the terminal:

```
sh ~/bringup_dify.sh
```

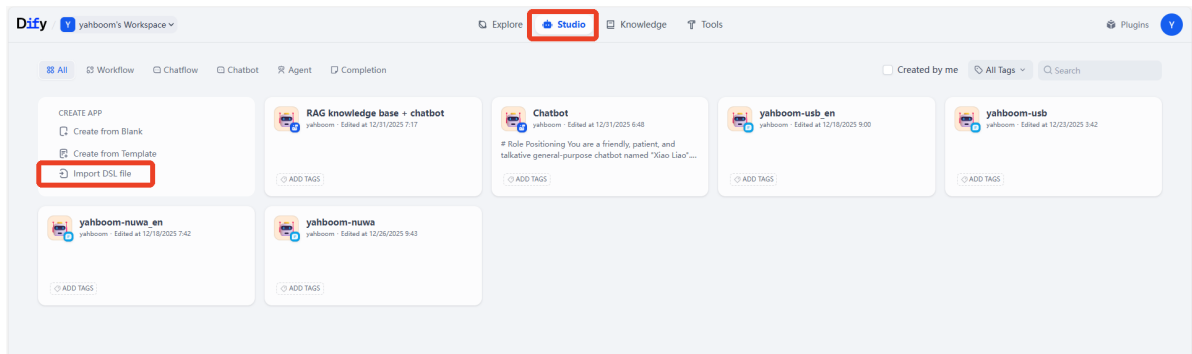
```
jetson@yahboom: ~  
ROS_DOMAIN_ID: 62 | ROS: humble  
my_robot_type: M1 | my_lidar: c1 | my_camera: usb  
-----  
jetson@yahboom:~$ sh ~/bringup_dify.sh  
WARN[0000] The "DB_USERNAME" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_DATABASE" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_PASSWORD" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_PASSWORD" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_DATABASE" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_USERNAME" variable is not set. Defaulting to a blank string.  
WARN[0000] The "CERTBOT_EMAIL" variable is not set. Defaulting to a blank string  
.  
WARN[0000] The "CERTBOT_DOMAIN" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_DATABASE" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_PASSWORD" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_USERNAME" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_USERNAME" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_DATABASE" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_PASSWORD" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_DATABASE" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_PASSWORD" variable is not set. Defaulting to a blank string.  
WARN[0000] The "DB_USERNAME" variable is not set. Defaulting to a blank string.  
[+] Running 10/10  
✓ Container docker-sandbox-1      Runni...      0.0s  
✓ Container docker-web-1          Running       0.0s  
✓ Container docker-ssrf_proxy-1   Ru...        0.0s  
✓ Container docker-db-1           Healthy       0.5s  
✓ Container docker-redis-1        Running       0.0s  
✓ Container docker-worker_beat-1  R...         0.0s  
✓ Container docker-plugin_daemon-1 Running       0.0s  
✓ Container docker-api-1          Running       0.0s  
✓ Container docker-worker-1       Runnin...    0.0s  
✓ Container docker-nginx-1        Running       0.0s  
jetson@yahboom:~$
```

- Check the car's IP address. You can do this through the OLED screen, using `ifconfig`, or directly in the terminal. Enter the car's IP address directly into your browser's address bar to access the Dify management page.

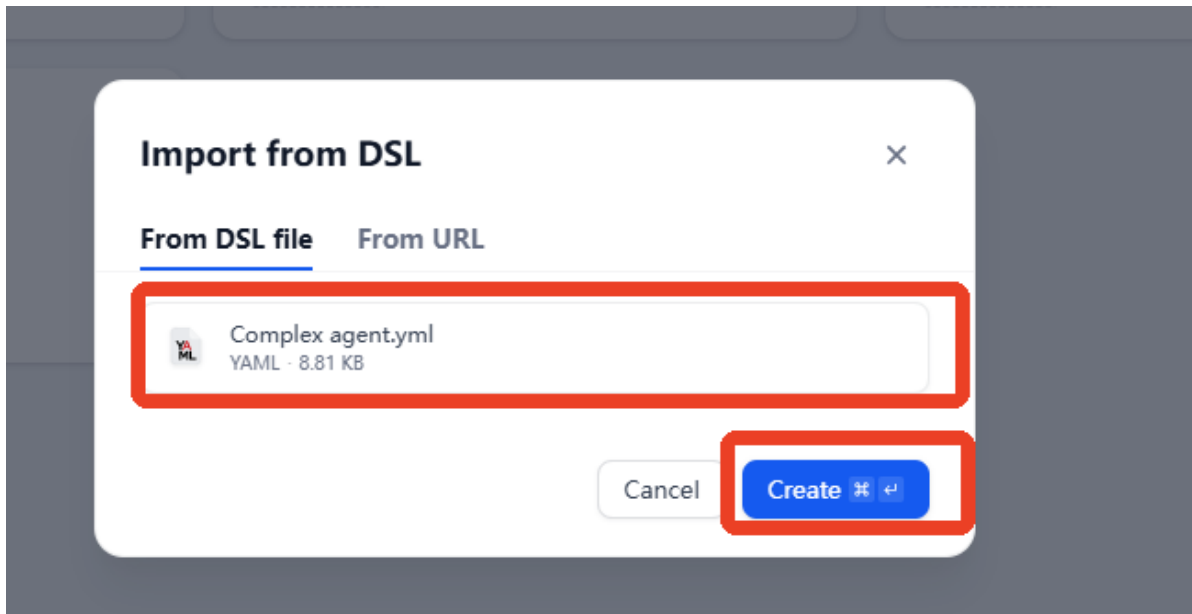
```
jetson@yahboom: ~  
jetson@yahboom: ~ 80x24  
[System Information]  
-----  
IP_Address_1: 192.168.2.49  
IP_Address_2: 192.168.12.34  
MACHINE: OrinNx | ROS_DISTRO: humble | ROS_DOMAIN_ID: 30  
ROBOT_TYPE: ROSMASTER-M3Pro | CAMERA_TYPE: dabai_dcw2 | RADAR: Tmini-plus*2  
-----  
jetson@yahboom:~$
```

3. Case Study: Categorized Question-Answering Chatbot

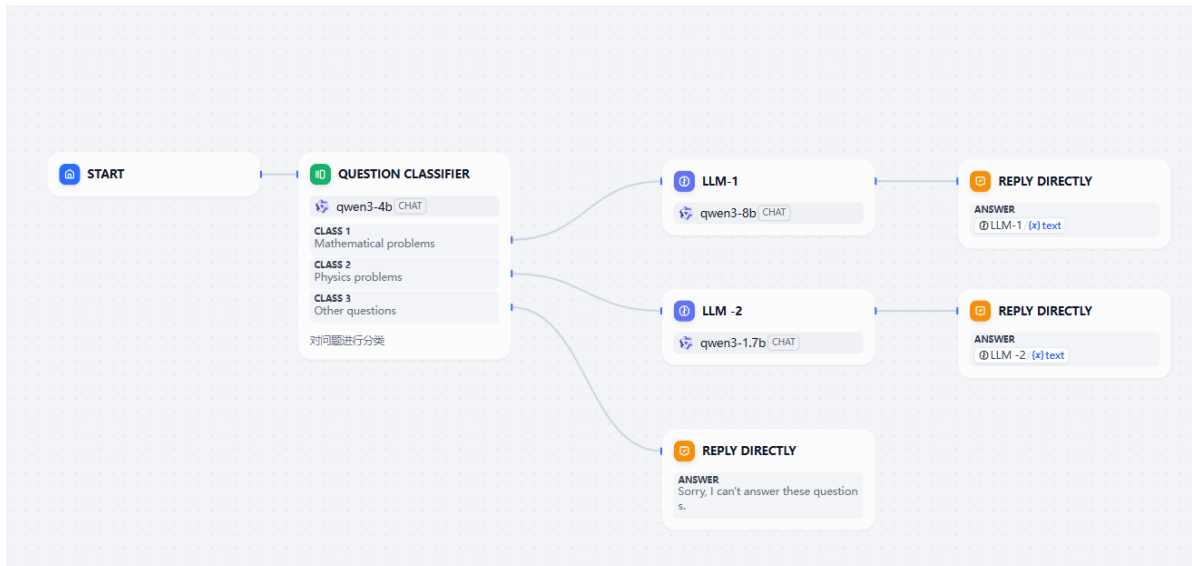
- In the example AI application folder of this lesson, there are reference examples that can be directly imported and used.
- In the Dify homepage studio, click "Import DSL File".



- Select the example AI application `Complex agent.yml` in the course folder for this section, and then click "Create".



- You can see the workflow content as shown below.



- In the workflow, `Question Classifier` is a module driven by a large AI model. Its function is to categorize user questions into math questions, physics questions, and other questions. If the user's input matches a math or physics-related question, it will invoke the corresponding branch of the large AI model to answer it. The categories in `Question Classifier` are as follows:

Question Classifier

对问题进行分类

SETTINGS LAST RUN

MODEL *

qwen3-4b CHAT

INPUT VARIABLES *

start / (x) sys.query String

VISION ?

CLASS *

CLASS 1

21

(x)

Mathematical problems

CLASS 2

16

(x)

Physics problems

CLASS 3

15

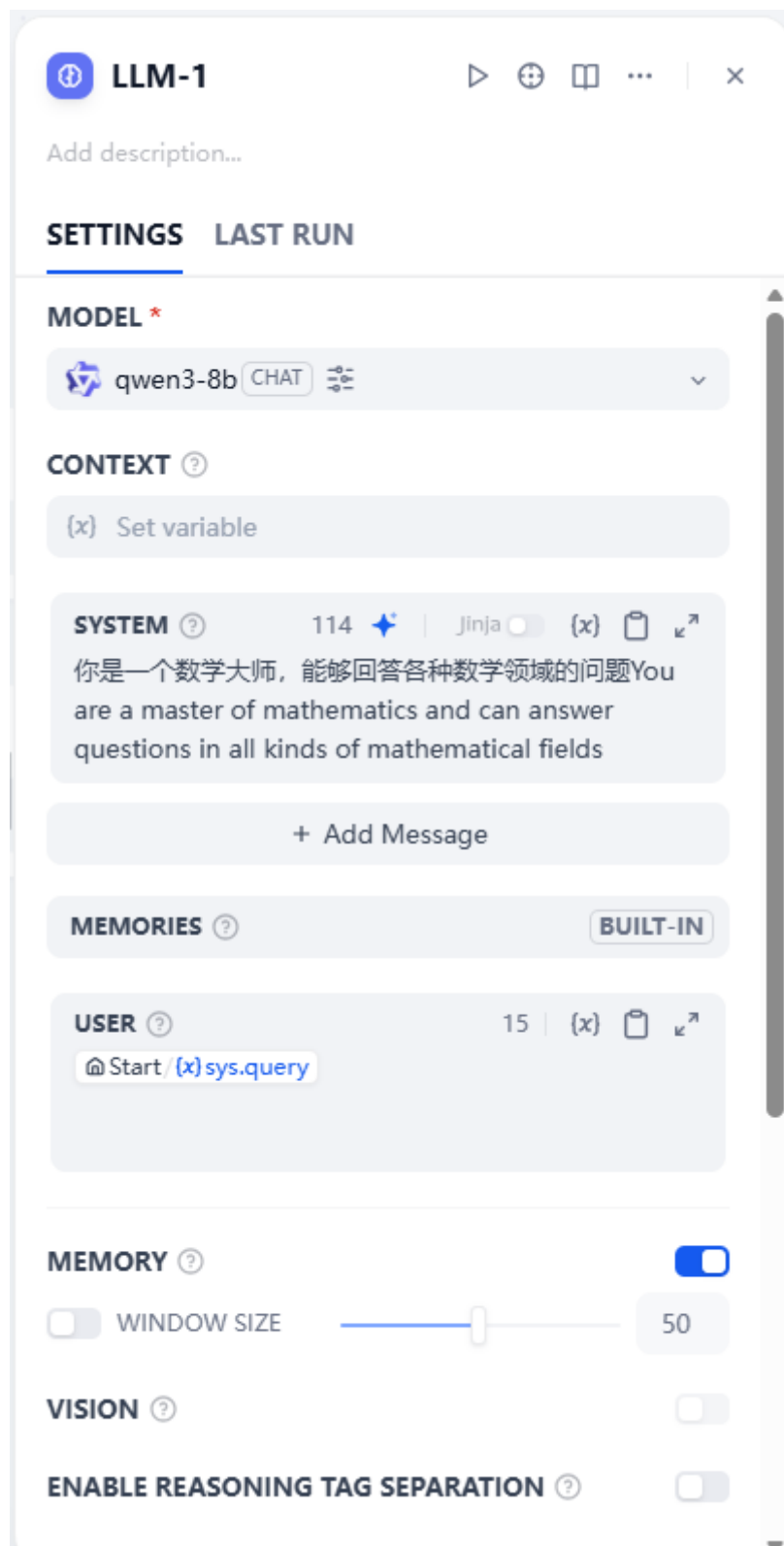
(x)

Other questions

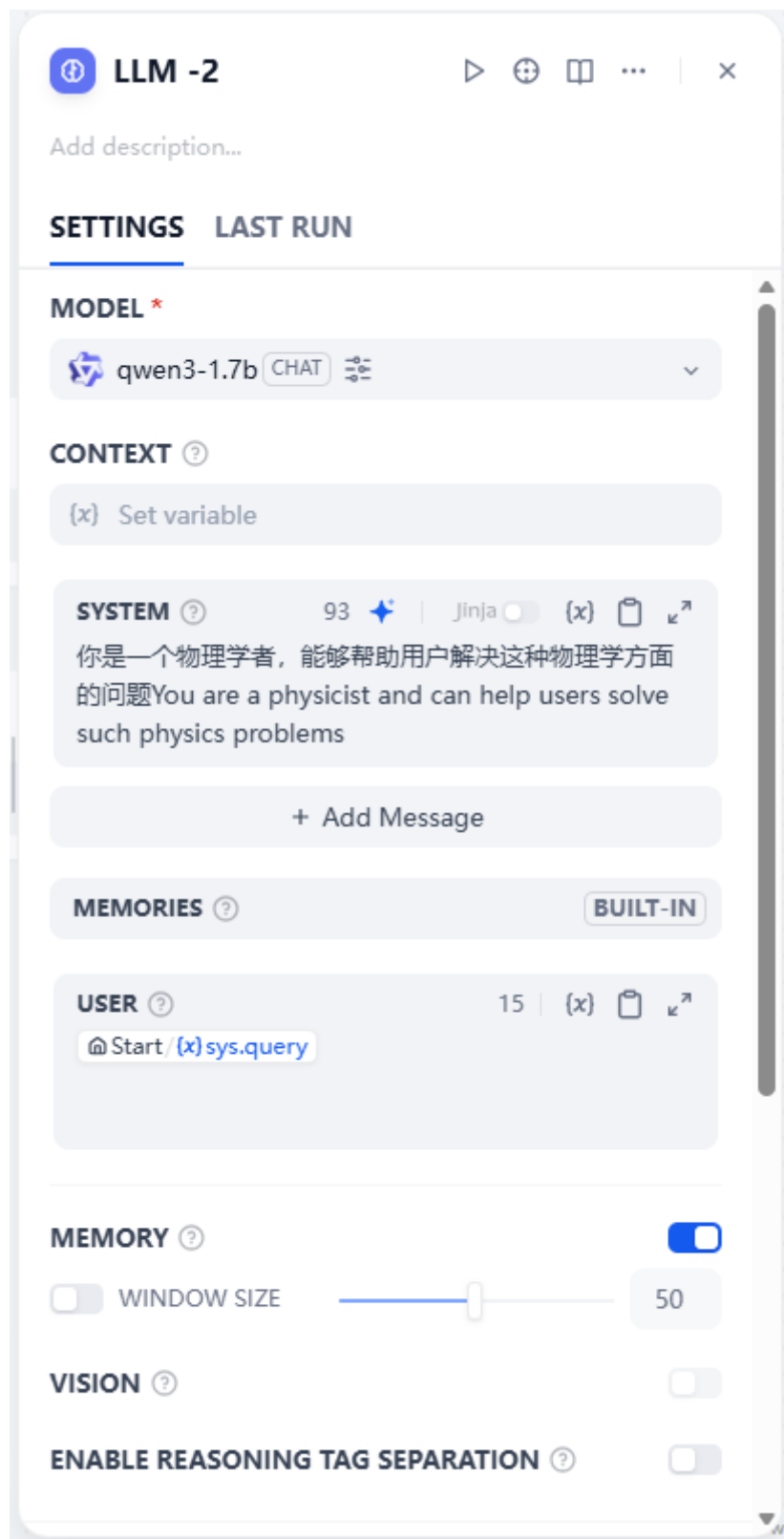
+ Add Class

ADVANCED SETTING ▶

- The LLM-1 branch is used to answer math-related questions. The prompt and settings are shown below.

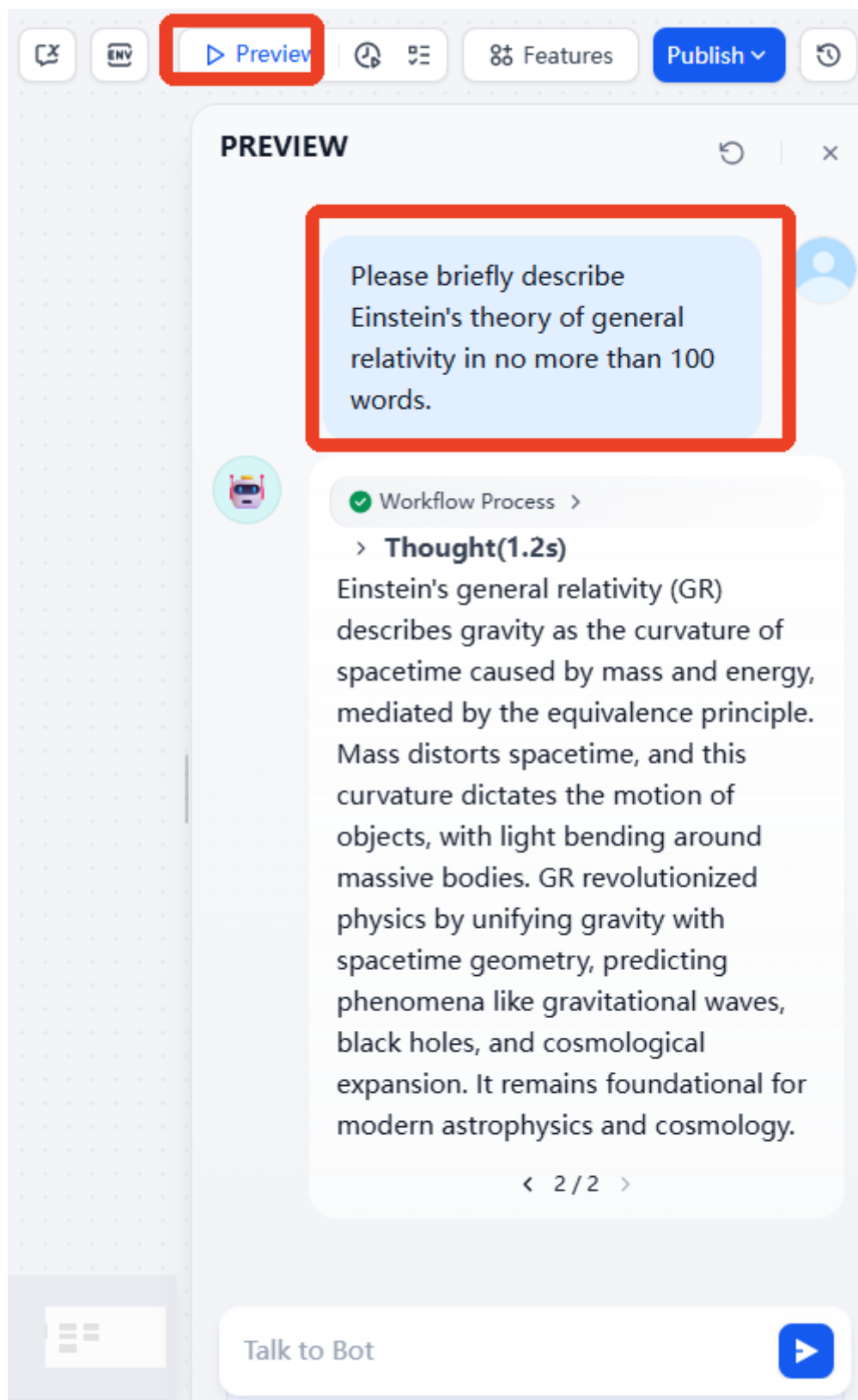


- The LLM-2 branch is used to answer physics-related questions. The prompt and settings are shown below.

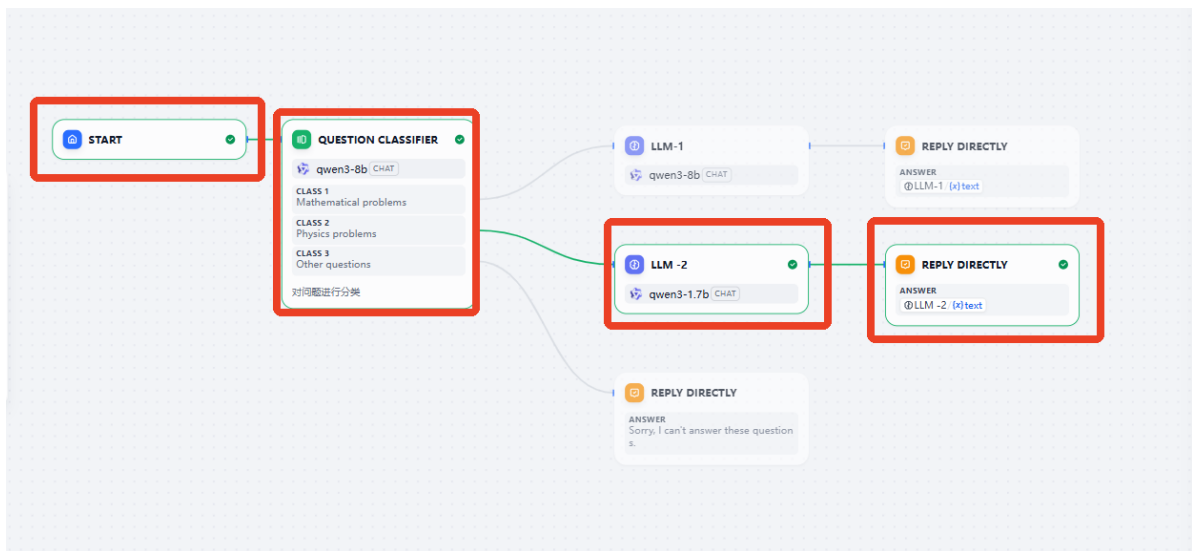


4. Visualizing and Debugging Workflows

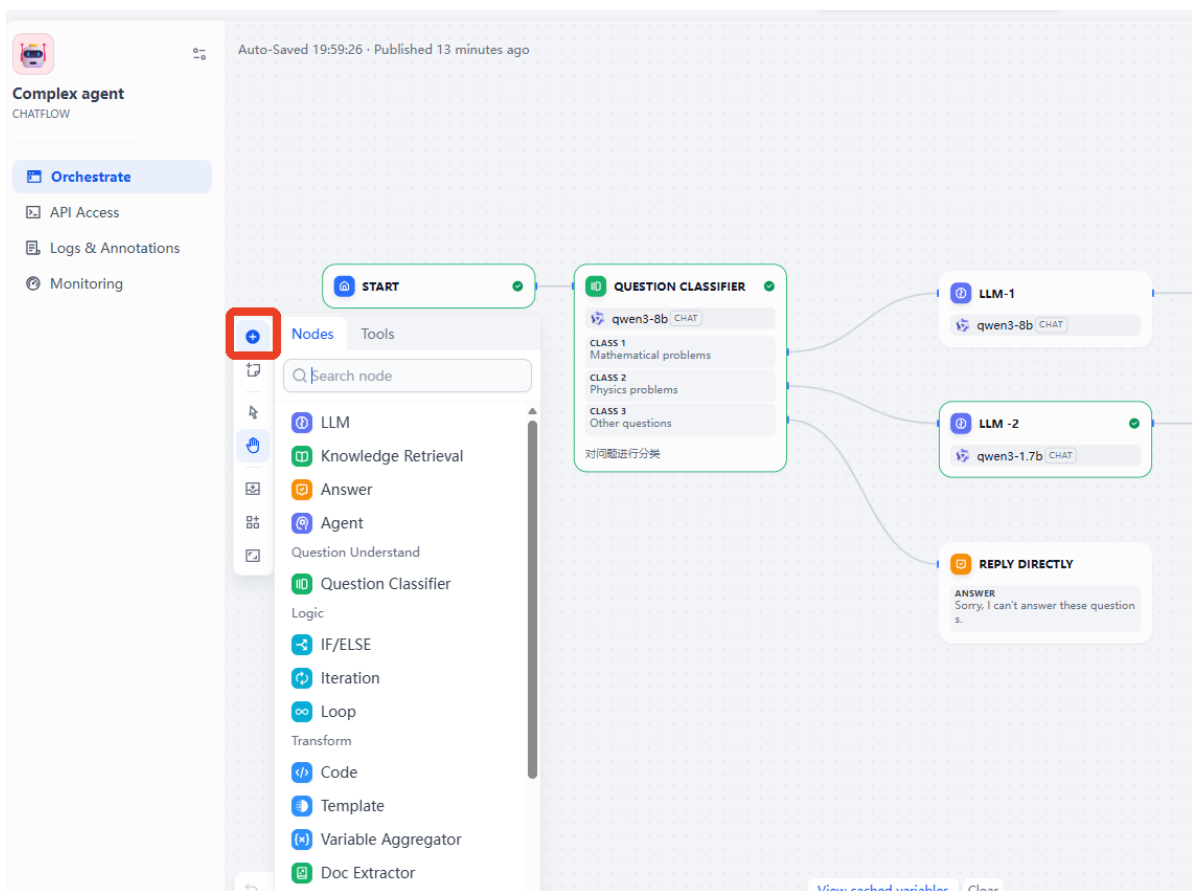
- To debug and test the workflow, click the preview in the upper right corner, and then enter the problem in the pop-up dialog box for testing.



- Simultaneously, the workflow will display the branches through which data flows in real time, thus facilitating workflow debugging.



- To expand your workflow, click the "+" sign on the left, which provides access to several pre-defined tools and modules for Dify.



5. Accessing AI Agent Applications

- After orchestrating your AI application, click "Publish Application" to save the configuration. Then, click "Copy URL" or "API Access Credentials" to access the created AI application via the web interface or backend service API.

Complex agent

CHATFLOW

Edit Info

Duplicate

Export DSL

Import DSL

Complex agent

IN SERVICE

Public URL

http://192.168.11.105/chat/dmefyFG98hCuU...

Launch

Embedded

Customize

Settings

Backend Service API

IN SERVICE

Service API Endpoint

http://192.168.11.105/v1

API Key

API Reference

MCP Server

DISABLED

Server URL

Add description

Delete App

few seconds ago

QUESTION CLASSIFIER

qwen3-8b Chat

CLASS 1
Mathematical problems

CLASS 2
Physics problems

CLASS 3
Other questions

对问题进行分类

LLM-1

qwen3-8b Chat

REPLY DIRECTLY

ANSWER
@LLM-1 [text]

LLM-2

qwen3-1.7b Chat

REPLY DIRECTLY

ANSWER
@LLM-2 [text]

REPLY DIRECTLY

ANSWER
Sorry, I can't answer these question s.

85%

85%