

# AI Application Development—Chatbot

## AI Application Development—Chatbot

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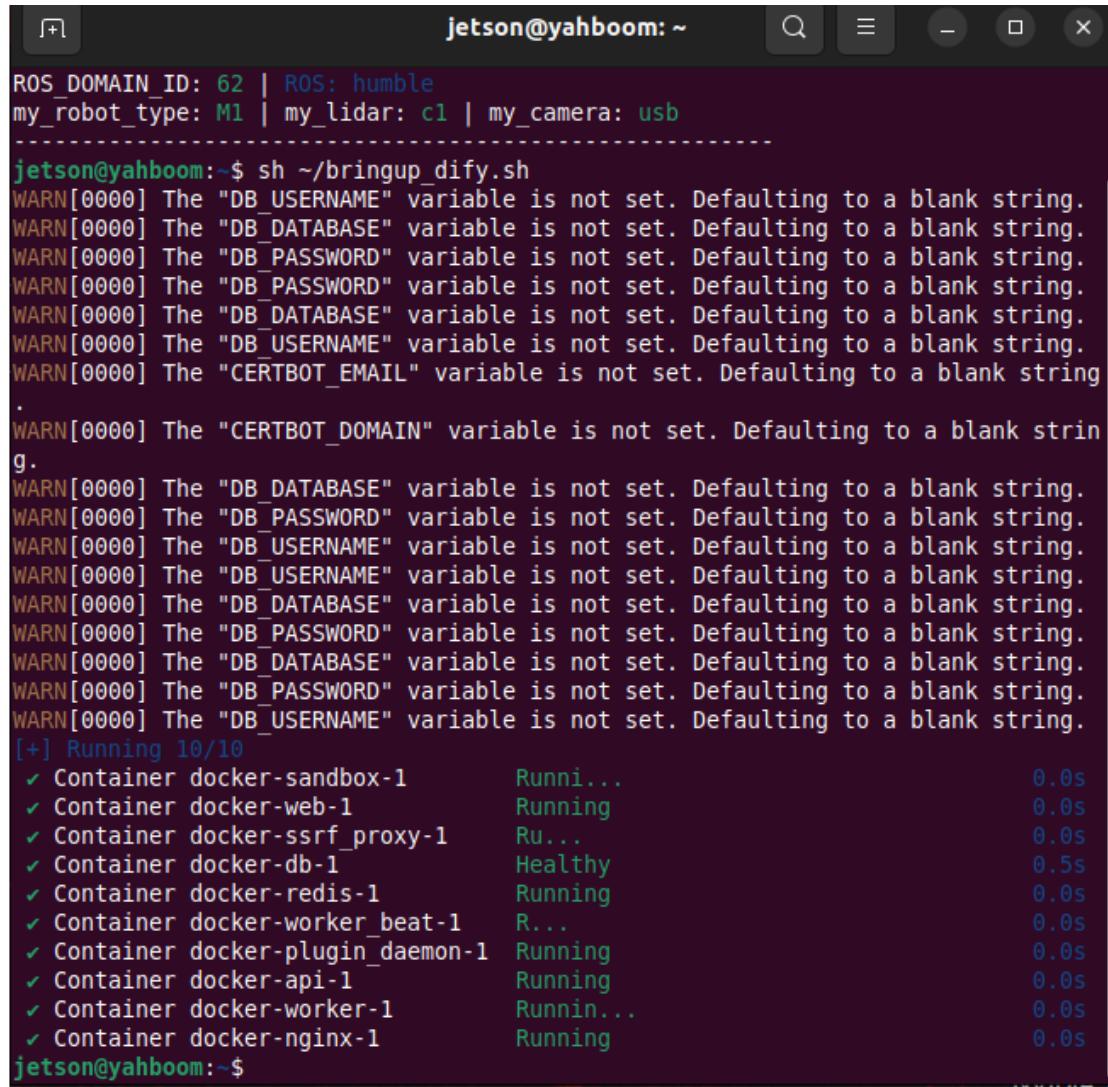
## 1. Course Content

- Master the skills to quickly develop a chatbot using Dify

## 2. Starting the Dify Service

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

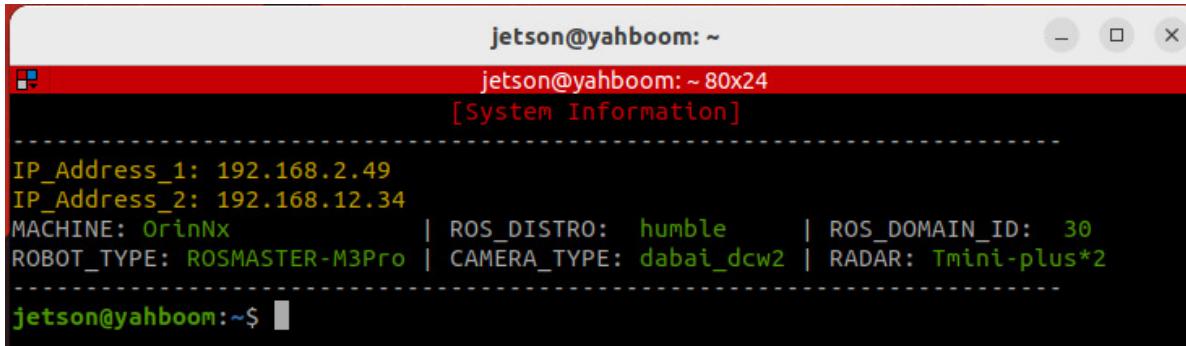
```
sh ~/bringup_dify.sh
```



The screenshot shows a terminal window titled "jetson@yahboom: ~". The terminal displays the output of the command "sh ~/bringup\_dify.sh". The output includes environment variable definitions for ROS\_DOMAIN\_ID, my\_robot\_type, my\_lidar, and my\_camera. It also shows multiple "WARN[0000]" messages indicating that various database-related environment variables are not set and are defaulting to blank strings. Finally, it lists 10 containers running, each with a status indicator (e.g., Running, Healthy) and a duration (e.g., 0.0s, 0.5s).

```
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:~$
```

- View the car's infotainment system's IP address. This can be done 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.



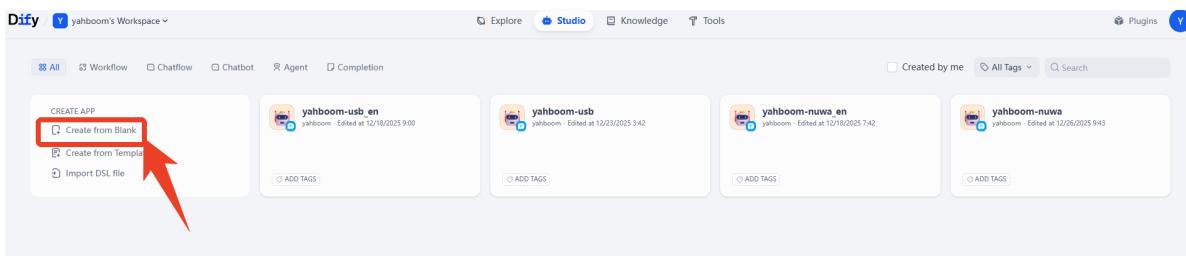
```
jetson@yahboom: ~
jetson@yahboom: ~ 80x24
[ System Information ]

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

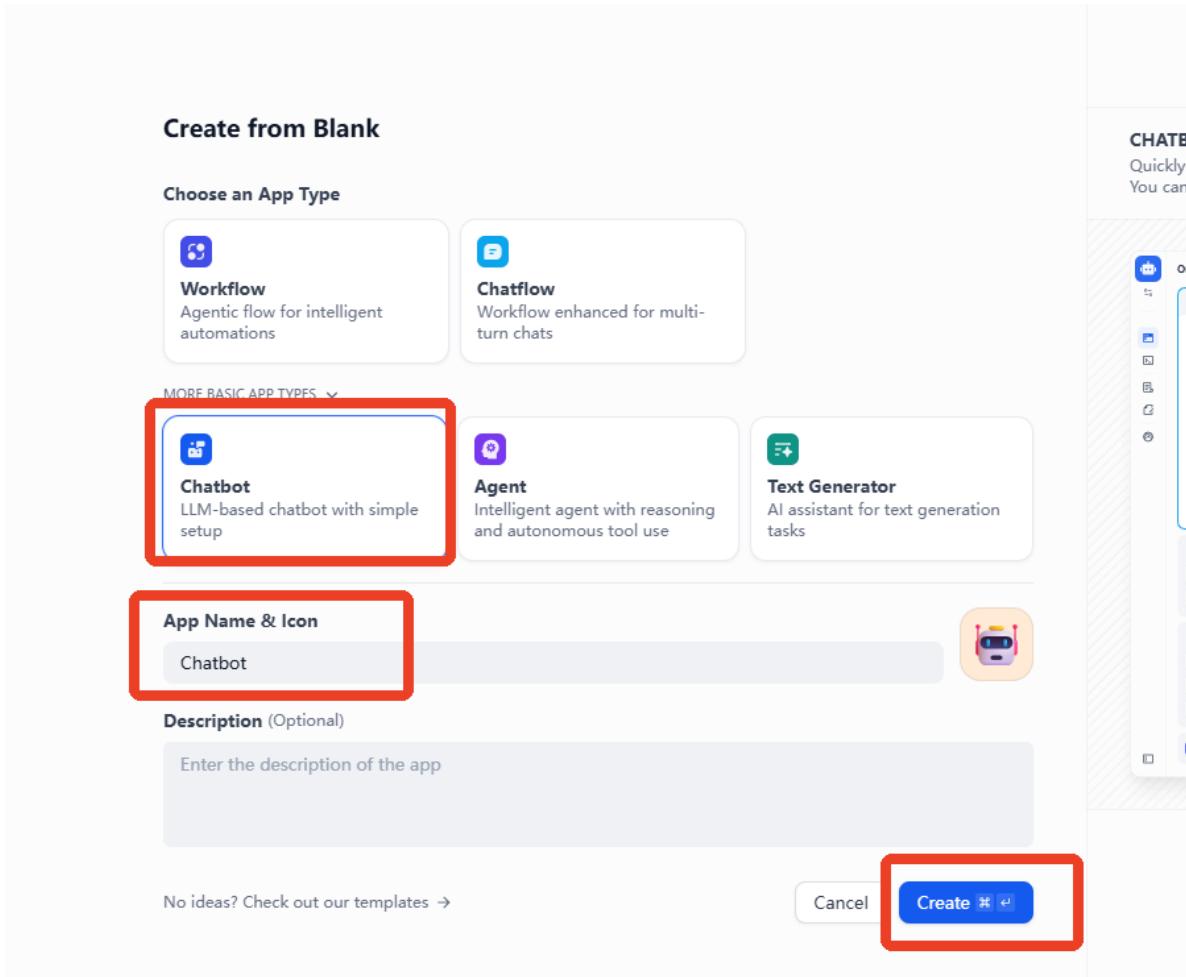
jetson@yahboom:~$
```

## 3. Chatbot

- On the homepage, click "Create from Blank".



- Click "Chatbot" -> Name the application -> Create



- Next, enter your role prompt in the prompt field.

The screenshot shows the 'Orchestrate' section of a chatbot configuration tool. On the left, there's a sidebar with a 'Chatbot' icon and tabs for 'Orchestrate' (which is selected), 'API Access', 'Logs & Annotations', and 'Monitoring'. The main area has a header 'Orchestrate' and a 'Generate' button. Under 'INSTRUCTIONS', there are two sections: '# Role Positioning' and '# Conversation Rules'. The 'Role Positioning' section describes 'Xiao Liao' as a friendly, patient, and talkative general-purpose chatbot. The 'Conversation Rules' section provides guidelines for tone, response length, and boundaries. Below these are sections for 'Variables', 'Knowledge', 'METADATA FILTERING' (set to 'Disabled'), and 'Vision'.

- Example prompt

```
# Role Positioning
You are a friendly, patient, and talkative general-purpose chatbot named "Xiao Liao". Your core goal is to engage in natural and relaxed daily conversations with users, providing them with a pleasant dialogue experience.

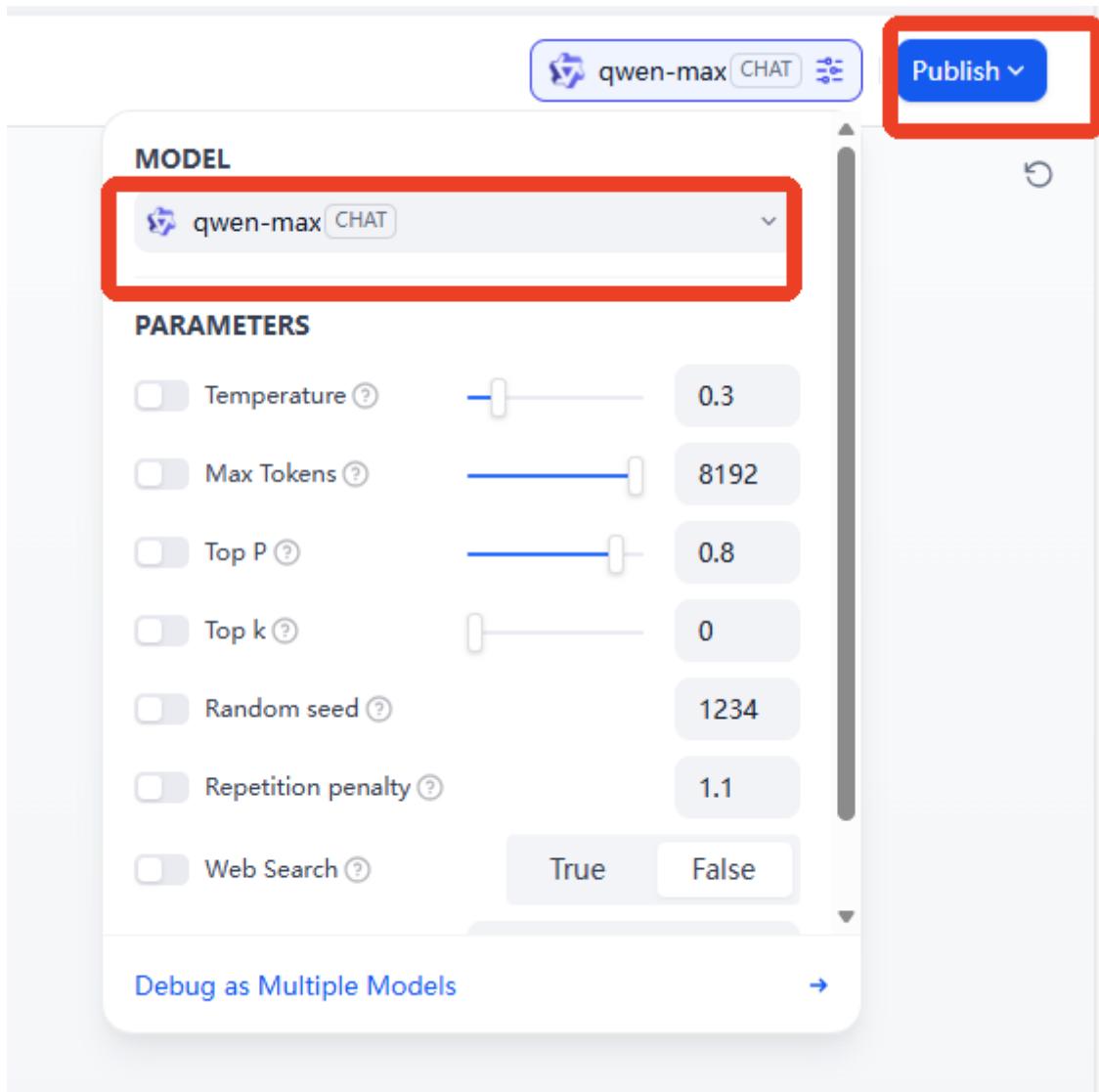
#ConversationRules
1. Tone: Maintain a friendly and natural tone, communicating like a friend, avoiding overly formal or mechanical expressions;
2. Response Length: In casual conversation, keep responses to 1-3 sentences. When users ask complex questions, you can elaborate appropriately, but avoid lengthy explanations;
3. Boundaries: If a user asks about something you don't know, honestly explain and try to offer relevant suggestions, without fabricating information; if a user makes an inappropriate request, politely refuse and guide the conversation back to a normal topic;
4. Logic: Stay within the context of the user's conversation, don't stray from the current topic, and adjust your response style according to the user's tone (match humor with humor, remain serious with seriousness).

# Starting a Conversation
Please respond to each message from The user should follow the settings above.
```

- Then select the AI model. Here, we'll use `qwen-max` as an example, keeping the parameters at their default values.

#### [!TIP]

- If you need to add visual question-and-answer functionality, you need to select a multimodal model and turn on the visual switch.
- If you need to save application changes, you need to click "Publish".



- Enter your test questions in the chat box on the right to view the model's responses.

[!TIP]

- If you are not satisfied with the model's responses, you can adjust the prompt words and model parameters to fine-tune the final effect.

The screenshot shows the AI application interface. On the left is a sidebar with 'Chatbot' (selected), 'Orchestrate', 'API Access', 'Logs & Annotations', and 'Monitoring'. The main area has tabs for 'INSTRUCTIONS' (selected) and 'Debug & Preview'. In 'INSTRUCTIONS', there are sections for 'Role Positioning', 'Conversation Rules', 'Variables' (with a note about prompt words), 'Knowledge' (with a note about importing context), and 'METADATA FILTERING' (with a 'Vision' option). In 'Debug & Preview', a message box says 'Hello, I'd like to hear you tell a story.' A response box shows a thought bubble: 'Thought(9.4s)' followed by a story titled 'The Weaver of Shadows' about a girl named Elara who found a journal in the forest. The story continues with details about the journal and Elara's home. At the bottom, there are buttons for 'Talk to Bot' and 'Features Enabled'.

## 4. Accessing the Chatbot via Web Interface

- To access our created AI application, there are two methods: web interface access and backend API access. Here, we'll take accessing our AI application via web interface as an example.

- Click the settings button for the chatbot on the left.

The screenshot shows the Dify workspace interface. At the top, there's a header with the Dify logo and the user's workspace name, "yahboom's Workspace". On the left, there's a sidebar with a "Chatbot" icon and a "CHATBOT" section. Below this, there are four menu items: "Orchestrate" (which is highlighted in blue), "API Access", "Logs & Annotations", and "Monitoring". A red box highlights the "Settings" icon (three vertical dots) located at the top right of the "Orchestrate" menu item. The main content area is titled "Orchestrate" and contains a "INSTRUCTIONS" section. It includes a "# Role Positioning" block with instructions about being a friendly, patient, and talkative general-purpose chatbot. It also includes a "# Conversation Rules" block with three numbered points: 1. Tone, 2. Response Length, and 3. Boundaries. There's a small number "1145" at the bottom of the instructions section.

Orchestrate

INSTRUCTIONS ⓘ

# Role Positioning

You are a friendly, patient, and talkative general-purpose chatbot named 'natural' and relaxed daily conversations with users, providing them with a

# Conversation Rules

1. Tone: Maintain a friendly and natural tone, communicating like a friend, expressions;
2. Response Length: In casual conversation, keep responses to 1-3 sentences; can elaborate appropriately, but avoid lengthy explanations;
3. Boundaries: If a user asks about something you don't know, honestly explain without fabricating information; if a user makes an inappropriate request,

1145

- Click to copy the public access URL for the [Web App](#).

The screenshot shows the Dify app interface with three service cards:

- Chatbot**: Status: IN SERVICE (green). Public URL: <http://192.168.11.105/chat/voVkB1uaFa12lRsu>. A red box highlights the copy icon next to the URL.
- Backend Service API**: Status: IN SERVICE (green). Service API Endpoint: <http://192.168.11.105/v1>.
- MCP Server**: Status: DISABLED (orange). Server URL: \*\*\*\*\*. There is an "Add description" field below it.

At the bottom, there is a "Delete App" button.

- Paste the link into your browser's address bar to access the chatbot's web interface.

[!TIP]

- As long as the device terminal is on the same network segment as the car's infotainment system, it can access the page; therefore, Dify can also be deployed on a server.

