

LLM test log

TODO

- Multi-agent
- Token number is too high for a complete package

Setup

Preparation

- Library: Thermosyspro, a modelica library for thermodynamic system; Subpackage WaterSteam is used.
- Module list generation: name and description, with a description word limit to 50, token limit. gpt-4o is used.
- automodeling with given graph description

Test 1: gpt-4o

Prompt

prompt template

```
you are a modeling expert. you need to select all necessary modules from the given list
of modules with name and description
    to build a system model to finish a specific task.
    do not forget boundary modules.
    output the necessary modules names in a list.
    output the connections in a list as upstream_module-downstream_module.
    here is the task: {task}.
    here is the module list with description: {modules_list}.
```

Task: single pipe system

```
build a simple pipe system to test the pressure loss
```

Result:

not working, no source or sink is listed.

Necessary Modules:

1. ****Connectors.mo****: Necessary for defining the connection interfaces of the water/steam system.
2. ****SourceP.mo****: For a water/steam source with fixed pressure to feed into the system.
3. ****PipePressureLoss.mo****: To simulate and calculate the pressure loss within the pipe.
4. ****Sink.mo****: To serve as the fluid outlet or endpoint of the system.

Connections:

1. ****SourceP.mo-Connectors.mo****: Connect the output of the source with fixed pressure to the input connector.
2. ****Connectors.mo-PipePressureLoss.mo****: Connect the inlet of the pipe pressure loss component to the source connector.
3. ****PipePressureLoss.mo-Connectors.mo****: Outlet of the pipe connects to another connector.
4. ****Connectors.mo-Sink.mo****: Connect the outlet connector to the sink to complete the loop.

Test2: o1-preview

Result

Better result, through simple. Still need to improve, source and sink not valid.

****Necessary Modules:****

1. Source.mo
2. SensorP.mo (used twice)
3. PipePressureLoss.mo
4. Sink.mo

****Connections:****

1. Source.mo - SensorP.mo (Upstream)
2. SensorP.mo (Upstream) - PipePressureLoss.mo
3. PipePressureLoss.mo - SensorP.mo (Downstream)
4. SensorP.mo (Downstream) - Sink.mo