

How to Use Jade

General Instructions for Labs

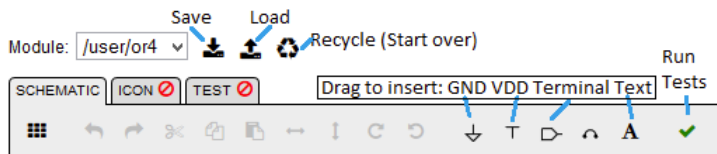
Welcome! This is the first of the lab assignments for the course.

We will be building and testing circuits in the labs, using a web tool developed by Prof. Chris Terman at MIT. Generally, you will build a circuit, and to make sure it works correctly, we provide a test function that you can check against.

We'll be saving our work so we can reuse it later. When the instructions "Save this as a library component" appear for the lab, please remember to save your circuit after passing the test. You can do this by clicking the Save icon (a black down arrow going into a rectangle, next to the Module dropdown box.

Loading a previously saved circuit is done by clicking the Load icon (black up arrow going up from a rectangle), next to the Save icon. If a saved circuit does not show up, make sure you have saved it before. You may also need to re-open the module in another browser tab. *Jade does not indicate a successful save.* I just click it a couple times to make sure.

This image shows where the Save and Load icons are:



A Tutorial is Available Here (not graded): How to Use Jade

A Sandbox (area for free play and exploration, not graded): Jade Sandbox

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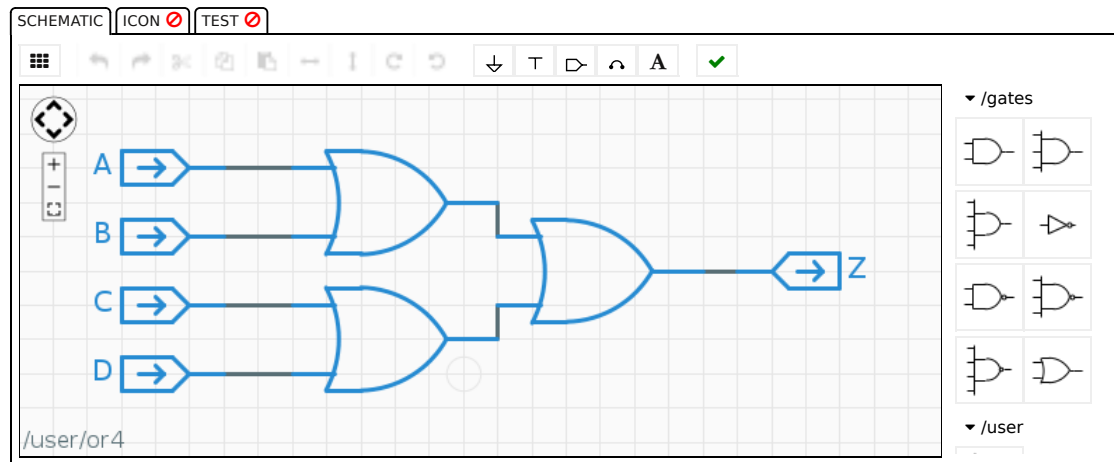
Design a 4-input OR gate using three 2-input OR gates and test it using the provided test file.

After passing the tests and checking, save this as a library component. It will be saved as "/user/or4". You will need it for the next lab!

A common mistake is to drag the "/user/or4" part from the bottom right into the schematic. This won't work! Since we are building the or4 itself, we can't use it yet!

4-INPUT OR (1/1 point)

Module: /user/or4

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Design a 16-input OR gate using five of your 4-input OR gates.



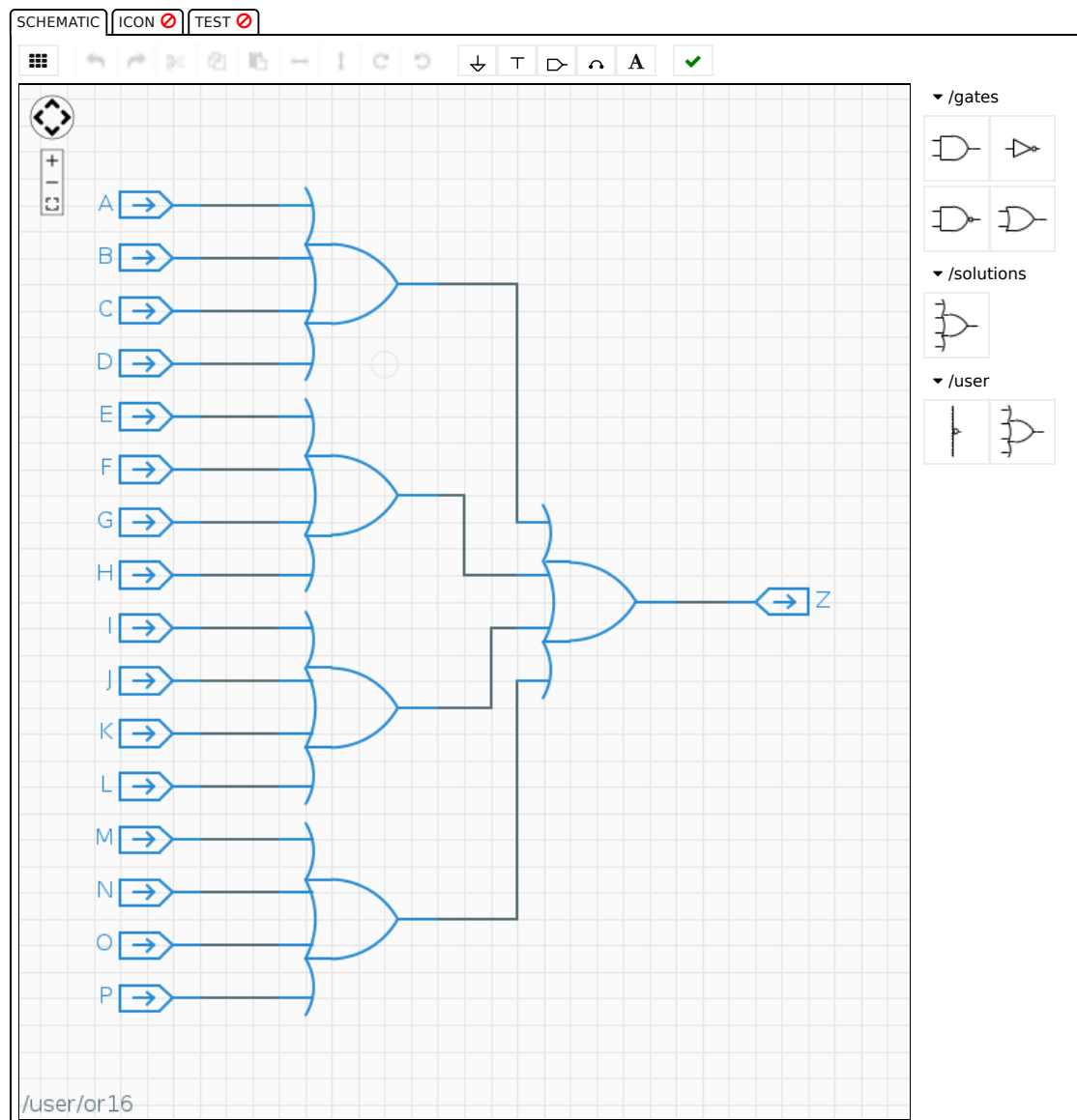

To get your previously designed OR gate, click load, and check "/user/or4" and then click OK.

Test it using the provided test.

After testing and checking, save this as a library component. It will be saved as "/user/or16". You will need this in the next lab!

A common mistake is to drag the "/user/or16" part from the bottom right into the schematic. This won't work! Since we are building the or16 itself, we can't use it yet!

16-INPUT OR (1/1 point)

Module:   

Click component to select, click and drag on background for area select, shift-click and drag on background to pan

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Then design a 16-input NOR gate by inverting the output and test it using the provided test.

You will need to load your "/user/or16" AND "/user/or4" by clicking on the Load button.

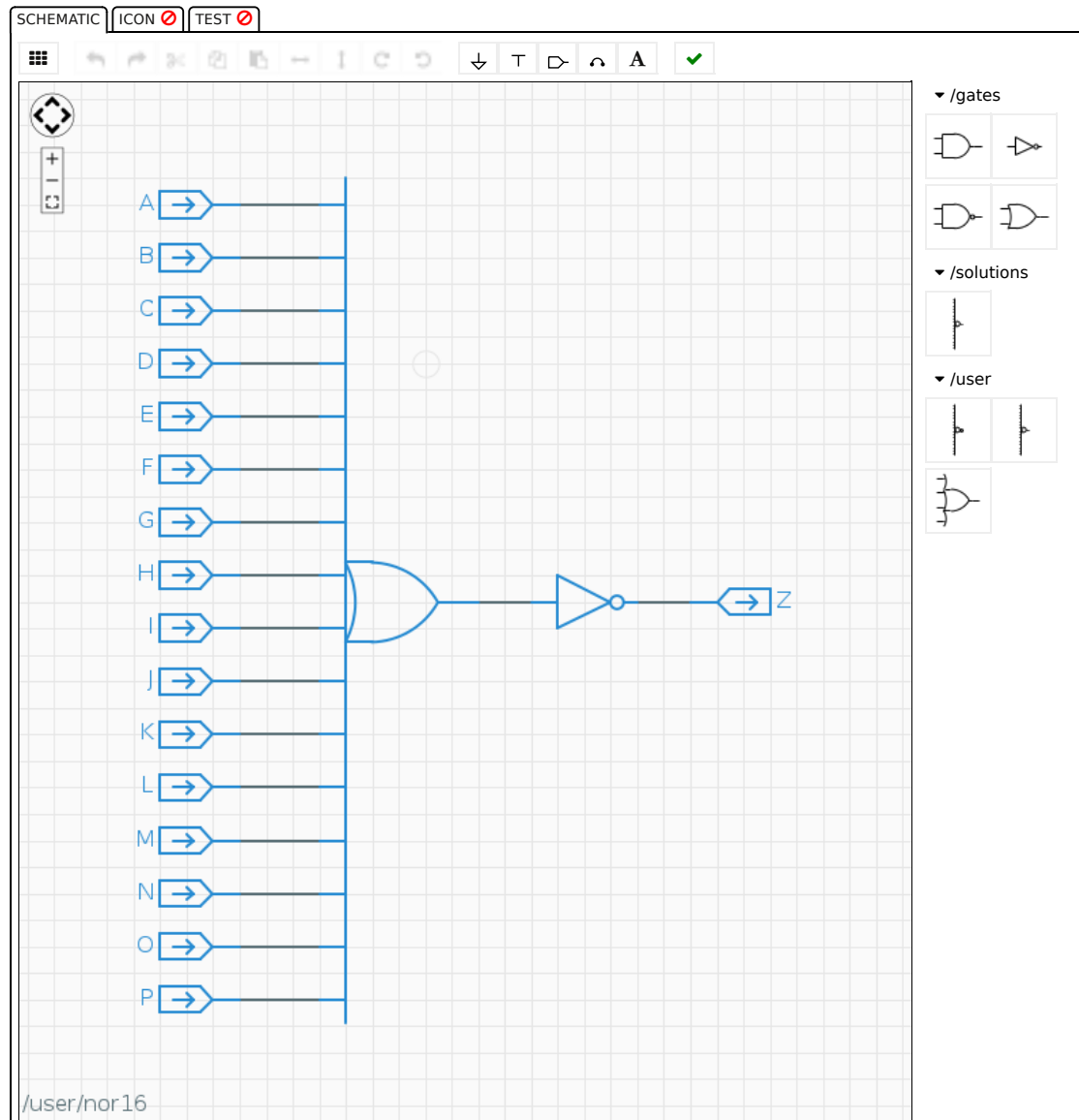
After testing and checking, save this as a library component. It will be saved as "/user/nor16".

A common mistake is to drag the "/user/nor16" part from the bottom right into the schematic. This won't work! Since we are building the nor16 itself, we can't use it yet! Be careful, the nor16 and or16 icons look very similar at the small scale of the parts bin. Make sure you are using or16 in the schematic.

Help

16-INPUT NOR (1/1 point)

Module: /user/nor16



Click component to select, click and drag on background for area select, shift-click and drag on background to pan

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Transistors and Gates Labs | Transistors and Gates Labs |... <https://courses.edx.org/courses/CornellX/ENGR11210x/1...>
Prove DeMorgan's Theorem by designing and testing a 2-input OR gate, and then using DeMorgan's Theorem to design an equivalent 2-input OR gate with a 2-input AND gate with NOT gates before each input and a NOT gate after the output.

Use the provided test file to verify that the output is the same for both designs.

Help

You do **NOT** need to save this module.

DEMORGAN'S THEOREM (1 point possible)

Module: ▼ ⬇ ⬆

SCHEMATIC ICON TEST

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