Xpress-AI-Day-1

1 Setting Up

Set up Virtual Python Environment

```
python -m venv venv
source venv/bin/activate
```

Install Xcircuits with

```
pip install xircuits
```

Also install the component libraries

```
xircuits install pytorch
```

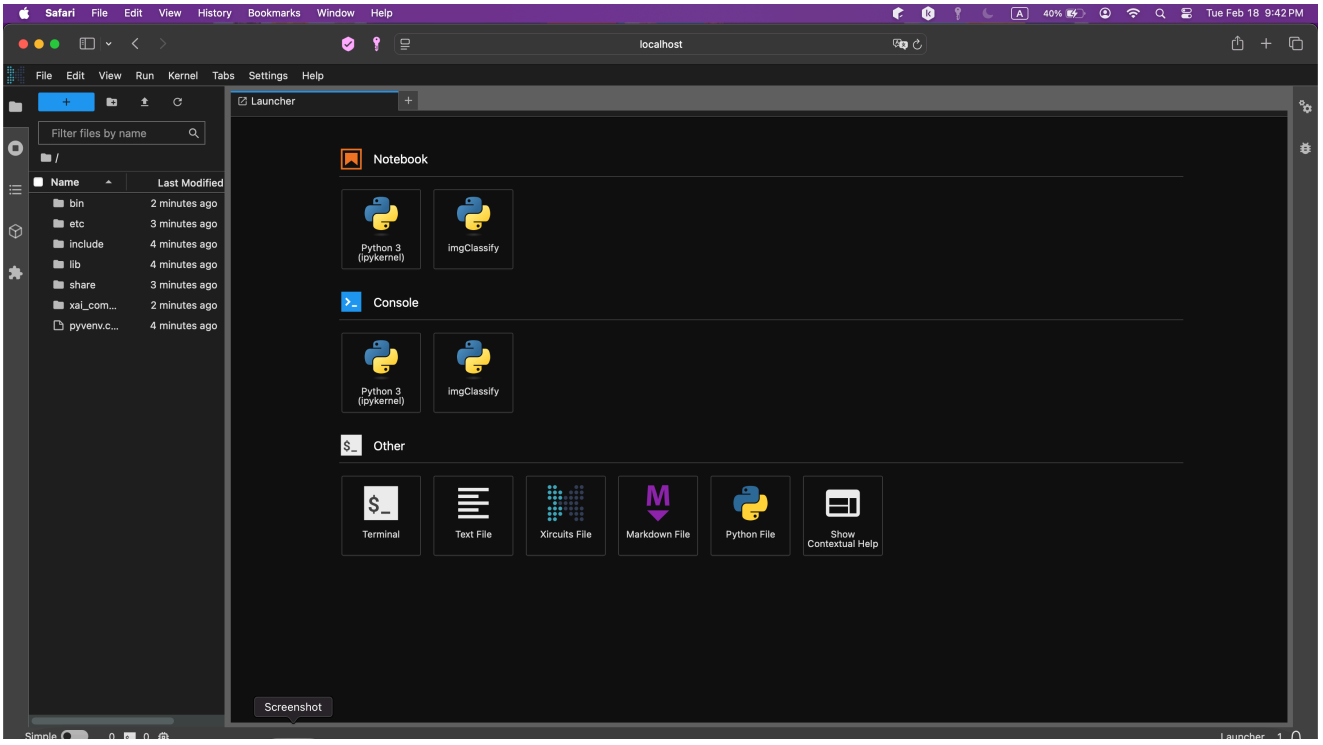
Finally, cd into your virtual environment

Screenshot 2025-02-18 at 9.41.33 PM.png

Then, start xircuits

```
xircuits
```

It'll open in your default browser, you can use it, very similar to JupyterLab
Here's how it looks like



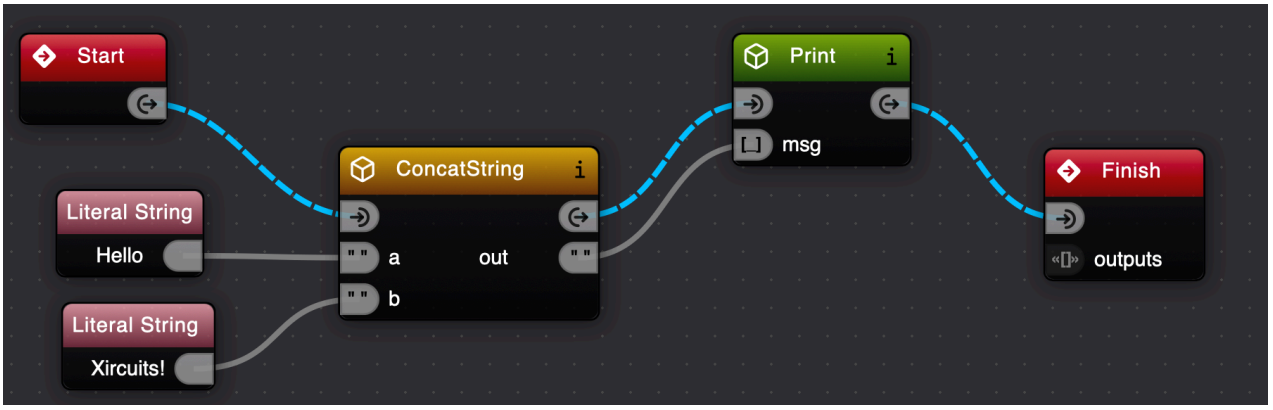
Screenshot 2025-02-18 at 9.42.40 PM.png

2 To start the venv again, just do

```
source venv/bin/activate
xircuits
```

Opens ur workspace from there!

3 Example xircuits file

1. Go to xai_components/xai_templates, check out the tutorial file.
2. I'm doing HelloTutorial.xircuits
3. 

Screenshot 2025-02-18 at 9.45.09 PM.png

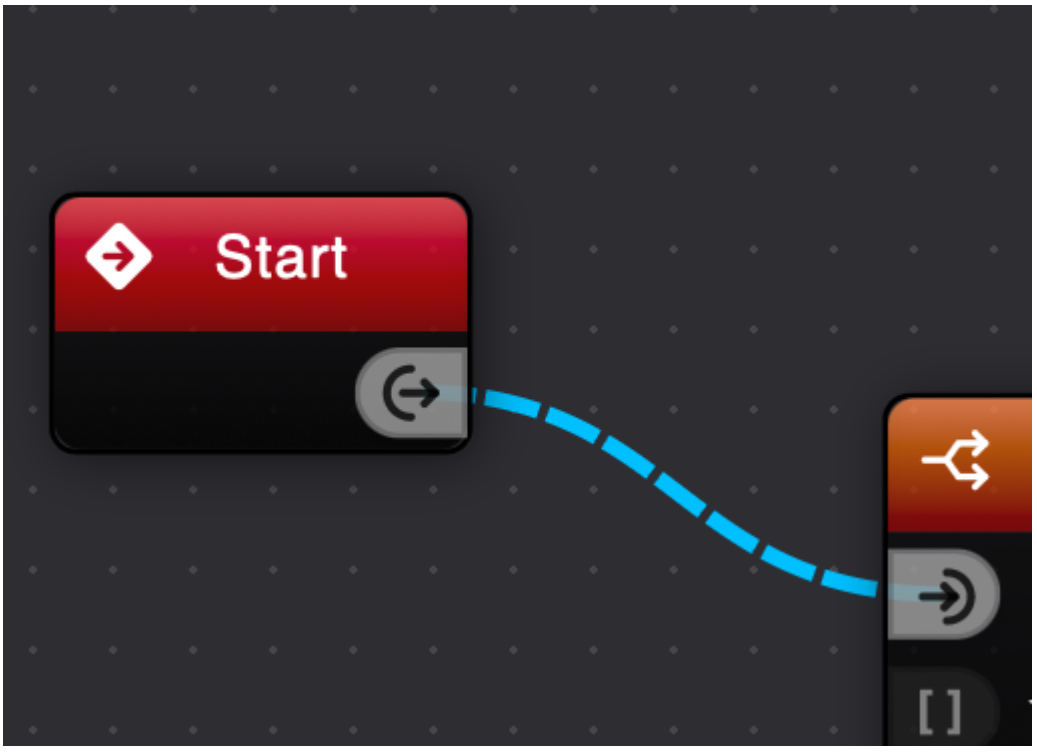
3.1 Understanding WorkFlow Logic

Every program has start and finish Nodes

1. A typical workflow progresses from the `Start` node to the `Finish` node. You can have an infinite number of nodes between Start and Finish, which are connected by a blue flowing link which indicates the sequence of execution.
2. Nodes represent components within your workflow and are connected by links. There are two common types of nodes:
   These nodes perform . They have flow ports at the top to manage the execution flow, with at least one flow inPort and outPort. The flow links connecting these ports are blue and flowing, indicating the execution sequence of the workflow.
   These nodes supply values to the component nodes, influencing their behavior. They do not have icons and are connected to the component nodes via solid gray links. You can edit the values of parameter nodes by double-clicking on them.

3.2 Workflow Sequence

These icons represent the order of execution or workflow sequence.



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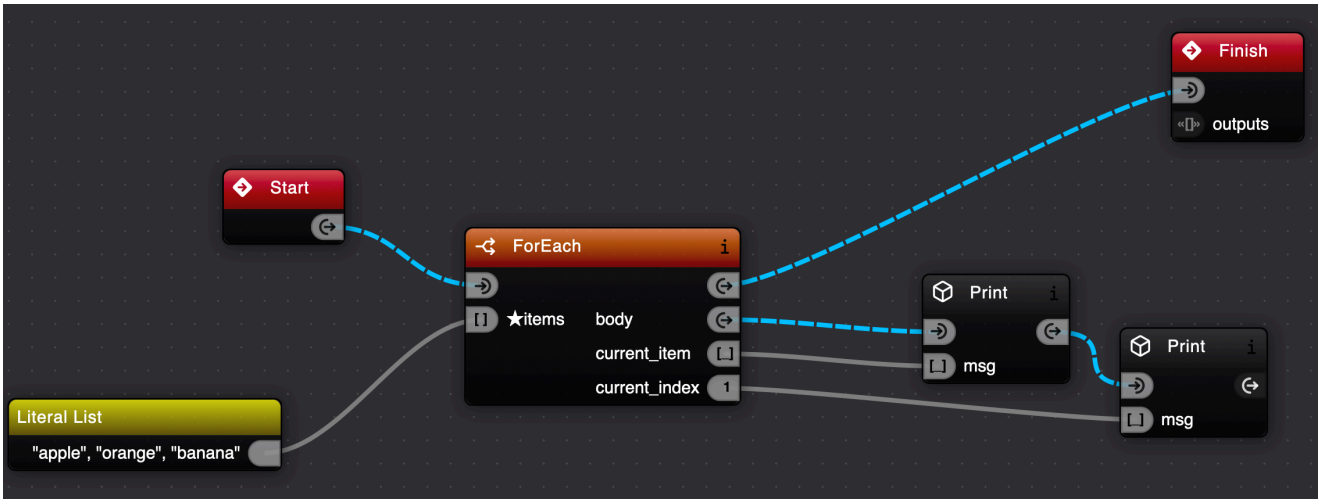
Let's create a simple program that prints a list/array of values.



Screenshot 2025-02-18 at 9.55.07 PM.png

Here's my output, it prints both listItem and the index of the listItem

Screenshot 2025-02-18 at 9.56.05 PM.png

4 Creating your very own Workflow from Scratch

4.1 Creating a New Workflow File

Let's begin by setting up a new workflow in Xircuits:

1. In the Launcher interface, click on `Others > Xircuits File` to create a new workflow file.
2. Name your file `MyFirstWorkflow.xircuits`.
3. You'll see a `Start` and `Finish` node automatically placed on the canvas. These nodes mark the beginning and end of your workflow.

4.2 You can also create your own workflow component

1. Basically, create an xircuits file, and just drag and drop it as a component to the window man.
   To create your first workflow component:
2. Save your workflow with a descriptive name (e.g., "HelloXircuits.xircuits").

3. Compile the workflow to generate a Python script. This step is crucial for Xircuits to recognize your workflow as a component.

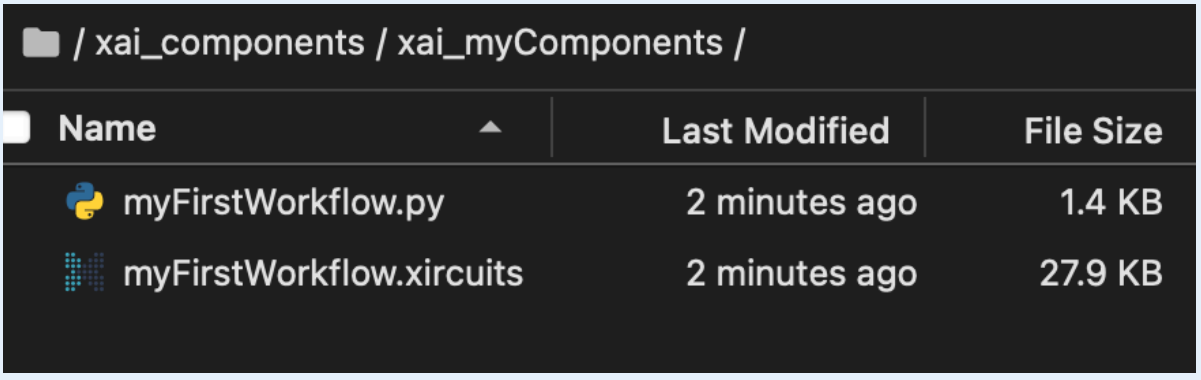
4.2.1 Using Your Workflow Component

Now, let's use this component in a new workflow:

4. Start a new workflow in Xircuits.
5. Look for your workflow component in the component library tray. It will have the same name as its filename.
6. Drag and drop your workflow component into the new workflow.
7. Connect the Start node to your component, and your component to the Finish node.
8. ! Compile and run this new workflow.

Workflow

1. Make sure your workflow is saved in xai_components folder.
2. Make sure you compile your workflow and there's a python script with the same name.
3. You can use your workflow as a component in any of your other workflows now! (Just drag and drop basically)



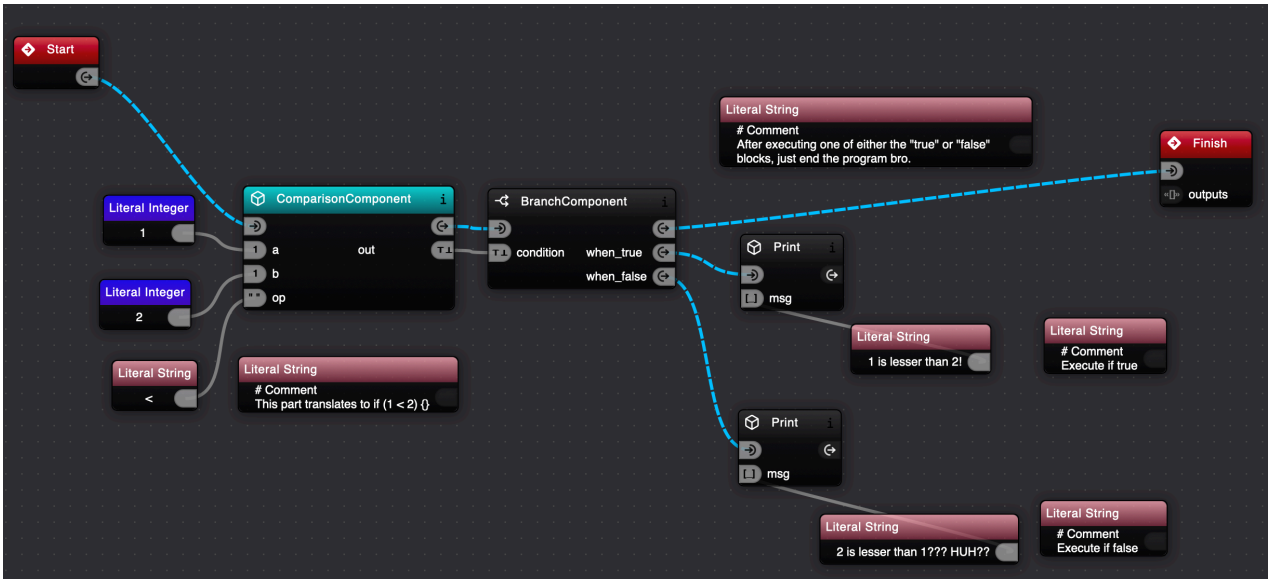
Screenshot 2025-02-18 at 10.14.58 PM.png

5 Going Through the Components and how to use them - Here are Some Examples I did

1. ! DEFINITELY GO THRU THE EXAMPLES!!!!

Experimenting with Conditionals

2. Oh MY GOD why do they have to make everything, even the simplest IF conditionals so damn complex and time-consuming bruh.
3. Basically, everything is a function with inputs and outputs I love it, I'm a huge fan, no really, I am.
   My "code", I'm kidding, it ain't code, it's a "workflow", or "programming for babies", or "coding for losers"



Screenshot 2025-02-18 at 10.58.28 PM.png

Output

Screenshot 2025-02-18 at 10.58.48 PM.png

Printing an array with forEach component/method/function

Okay nvm, this one is pretty simple.

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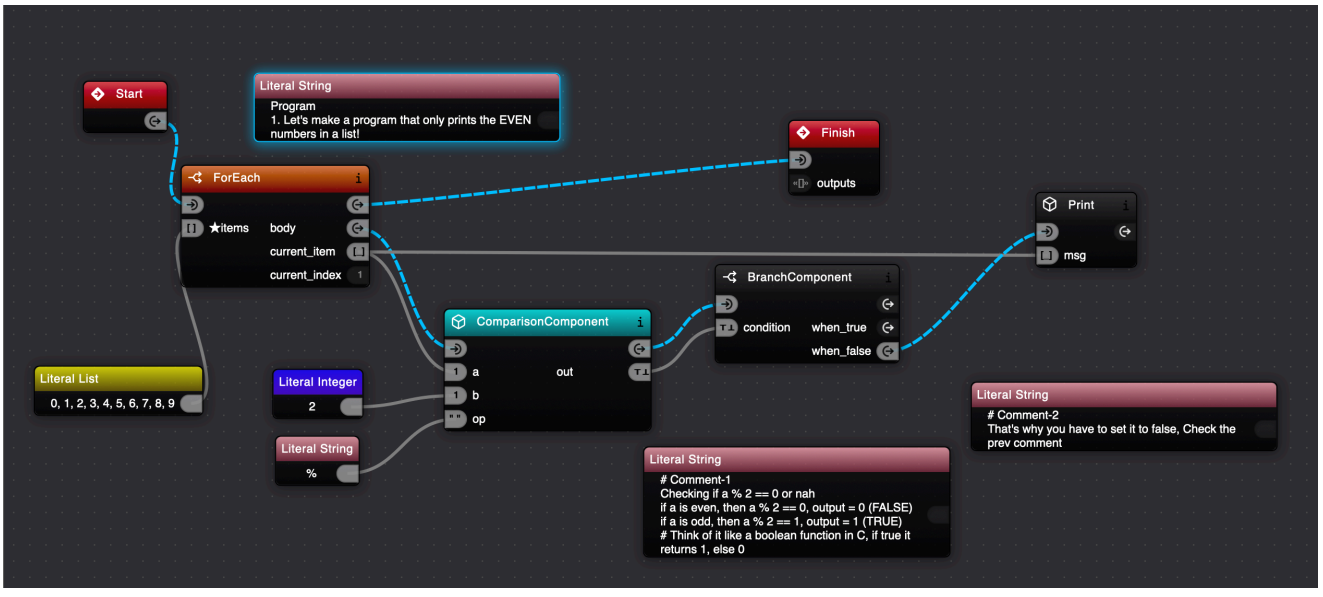
Experimenting with conditionals and forEach loops



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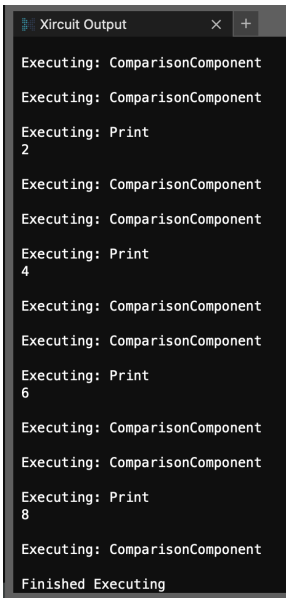
Output



Screenshot 2025-02-18 at 11.13.24 PM.png

1. ! Forget this, I'm switching to MORPH for a bit, let me try it out, I'll let you know what's up or which one's better

6 Side-Tangent-Agents vs. Chatbots

You might be wondering why we're focusing on chatbots and not agents. The key difference is that are designed to respond with text, making them ideal for conversations.

, on the other hand, are built to perform actions. We'll explore agents and their capabilities in another tutorial, expanding your toolkit for creating dynamic AI solutions.

7 Creating Chatbots

https://docs.xpress.ai/Tutorial/how-to-create-chatbots/

7.1 Get the Converse Library

2. Install and open an example file.
3. Right click or click on the 3-dots and click "Show Example", then copy that file to your working directory.
4. Used to converse with the bot, crucial to creating chatbots or agents.
5. ! MORE ON THIS LATER!!