# Software Developer Position

## C++ && (Qt || ImGui) Interview Task

Nova Sky Stories

25w03

# Description

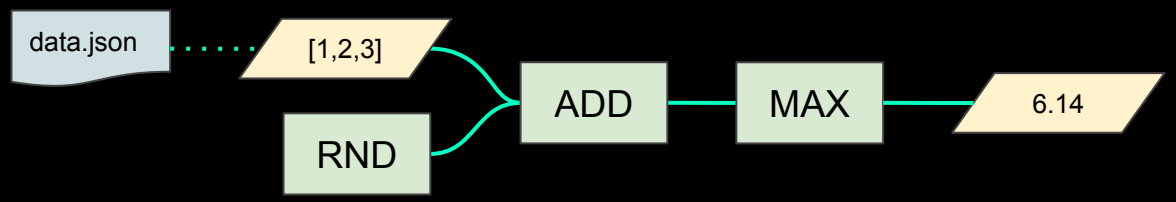
We will design and implement a tiny **node**-based **data processing** pipeline. Let's only consider the static pipeline below, which has **two inputs**, with one **binary** and one **unary operator**. The operators are applied on the inputs in order to compute the final **result**. 🧮

The implementation must be done with **c++17** or later. Use **QMake** or **CMake** as build system. Use **Qt/QML** or **Dear ImGui** for interface design and user interaction. 🛠️

The submission must be handed in so that it can be reproduced **locally**. 📦

The task is split into two parts, where **Part B** is optional and focuses on user interface. It is up to you to go as far as you want, or focus on some aspect of it. And we hope you have fun along the way. 🥳

# Example



# Part A

**Inputs**

- **User Data A**: [int] - fix values
- **Generator B**: [int] - random values

**Binary Node**

- **Inputs**: **A**: [int], **B**: [int]
- **Output**: [add( a**,** b )] for a, b \in **A**, **B**

**Unary Node**

- **Input**: **C**: [int]
- **Output**: max( **C** )

The **Generator B** outputs the necessary number of random values, a deterministic sequence based on *std::uniform_int_distribution* and *std::mt19937* with a seed value of *0x5702135*.

The final **Build** takes the specified user data json-file (list of list of ints) and runs the processing pipeline for each entry, writing the result to *std::cout*, one line per entry, e.g.

**$ pipeline.exe dataA.json > resultA.txt**

# Part B

- Build a simple user interface visualizing the nodes and their connections
- Show inputs and outputs

You can also

- Add ability to load data.json from UI
- Add UI to manually set inputs and trigger processing
- Add UI for node settings, e.g. Generator seed