Robotics Software Developer

Project Overview: You are tasked with creating a ROS2 (Robot Operating System 2) node that performs a simple mathematical operation. The node should subscribe to a ROS2 topic, receive two floating-point numbers, divide them, and then publish the result on a new topic.

Requirements:

- Create a ROS2 node in the C++ programming language that adheres to ROS2 coding conventions.
- The node should subscribe to a ROS2 topic, name it **/input_numbers**, which will carry two floating-point numbers (std_msgs/msg/Float64).
- Perform the division operation on the received numbers.
- Publish the result on a new ROS2 topic, name it **/division_result**.
- Ensure that the node handles errors gracefully.

Submission Guidelines:

- Provide a link to a version control repository (e.g., GitHub) containing your ROS2 node implementation and necessary documentation.
- Include a README file with clear instructions on how to build, run, and test your node.
- Demonstrate your understanding of C++ best practices and coding conventions.
- Demonstrate your ability to learn new concepts and frameworks you may not have used before.
- If you encounter any challenges during implementation, document them in the README file and propose potential solutions.

Evaluation Criteria:

- **Functionality:** Ensure that your ROS2 node correctly subscribes to the input topic, performs the division operation, and publishes the result.
- **Code Quality:** Follow ROS2 coding standards, use appropriate variable names, and include comments where necessary to make your code readable and maintainable.
- **Error Handling:** Implement error handling to deal with potential issues.
- **Documentation:** Provide clear and concise instructions on how to build, run, and test your ROS2 node.

Important Note:

- This homework is designed to assess your ability to learn and use new concepts, proficiency in ROS2 development, coding style, and problem-solving skills.
- You may use existing ROS2 libraries to facilitate the implementation.
- Feel free to ask questions if you need clarification on any aspect of the task.