Regroup program description

This program consists of 3 parts: object part, utility part and monitor part.
Object is responsible for containing the information of the bodies.(Only body class defined. Maybe better group class also Node abstract class further defined) The object class can be further used in communicating with database and also in methods for some intern service.
Utility part is responsible for providing general methods to execute a process. Here I created ioprocess to deal with the read and write the json file. And also I created reprocess methods to work on the regroup logic. I set all the methods static to make any other object available to use them. This utility part is better using generic programming (template) to realize. It is the space to improve. In aspect of maintainable and extendable further logic or methods(sort or filter or reading from txt....) can be added in this part using overload or creating new static methods.
Monitor part is responsible for invoking the methods from utility and providing interface with user.

This program has the required functions.
1. It can regroup the file by the same pair of {shape, material} (see test1 in src/testregroup.cpp)
2. It can read from json file also from hard coded string. (see test1 and test2 in src/testgroup.cpp)
3. It can also regroup the file by the way user set (fro example color, transparent) (see test3 in src/testgroup.cpp)
4. It can also regroup the file based on previous regrouped tree. For example after regrouped by {shape, material} I'd like to regroup by transparent based on the previous result. That means the end result is a tree regrouped by {shape,material,transparent}. (see test4 in src/testregroup.cpp)

The executable file is already built in build folder by cmake. The result files of json are in src/Data folder.

There are much space to optimize. For example memory management(somewhere smart pointer should be used), generic programming(template), exception management and also comment should be added.

I was quiet busy last week, so I've only programmed on Saturday and before noon on Sunday. It is a little bit short of time. I hope it is readable and extendable. Thanks a lot for reviewing this and also giving me this challenge. I'm enjoying that.