Chp18 – Lab Experience. Remove Selected Objects from a std::list

In this lab experience you will gain practical experience in C++ class implementation, object manipulation, and efficient algorithm design by removing elements present in one STL list from another.

Tasks:

1. **Create a Person class:**
    - This class should have private member variables to store the person's name (as a string) and age (as an int).
    - Provide accessors (getName, and getAge)
    - Implement a lazy constructor that takes the name and age as arguments and initializes the member variables (use defaults “NoName” and 0).
    - **Overload the less than operator (operator<)** for the Person class. This operator should compare two Person objects based primarily on their names (alphabetical order) and secondarily on their age (ascending order) if the names are the same. This is essential for working with sorted lists.
    - **Overload the operator<<.**
    - **Overload the operator==.**

2. **Implement a function to eliminate duplicates:**
    - Write a function that takes two unsorted **std::list** objects, both containing Person objects, as input (let's call them list1 and list2).
    - The function must sort both lists according to the Person’s class natural order (you may use the STL **.sort()** method).
    - The function should modify list1 by removing all Person objects that are also present in list2.
    - The function should not return any value; it should directly modify the list1 passed to it.

3. **Demonstrate the functionality:**
    - Print the contents of both lists before calling the duplicate elimination function.
    - Call the duplicate elimination function, passing the two created lists.
    - Print the contents of list1 after the duplicate elimination to verify the results.

Use the following sample lists

```
std::list<Person> list1 = {
    {"Bart", 10},
    {"Homer", 39},
    {"Lisa", 8},
    {"Marge", 36},
    {"Milhouse", 10},
    {"Ned", 40}
};
```

```
std::list<Person> list2 = {
    {"Bart", 10},
    {"Homer", 39},
    {"Krusty", 45},
    {"Moe", 48}
};
```

Result

```
List 1 after elimination:
   Lisa, 8
   Marge, 36
   Milhouse, 10
   Ned, 40
```