Tutorial Problem Set #2

Due: Wednesday, September 25, 2024, 11:59 PM

Policy

- Piazza questions on tutorial problems will be ignored or deleted. Questions will only be answered in your assigned tutorial section.
- Sample executables can be found in your 1239 git repository directory (run `git pull`).
- Completing the problem set will reduce the weight of the final exam by 0.5%. To complete a problem set, you must pass at least 50% of the secret tests.
- You may assume all input is valid. Tutorial problems **NEVER** require checking for invalid inputs.
- Use import statements and g++20h and g++20 when compiling your program.
- Your may only import the following libraries: `iostream, string`, and `sstream`.

Question 1

In the ancient social media platform *MySpace*, users could list and rank their top 8 friends. In this question, you will write methods for a `struct FriendList` that maintains such a list.

The `FriendList` will have the following fields:

```
struct FriendList {
    string friends[8];
    int size = 0;
};
```

You will implement:

1. `operator<<` that prints the size and contents of the friend list to an `ostream`.
2. `operator>>` that reads a single word (the name of a friend) from an `istream` and adds this friend to the end of the list.
3. `operator-` that given a friend list and an index `i`, returns a new friend list with the friend at index `i` removed and subsequent friends shifted down.

Starter files are provided in the tutorial repository. You are given a sample executable, starter code, and sample input/output files. You are given a "test harness" by which you can test the methods you implement. The test harness supports the following commands:

- `q`: Quits the program
- `a Ross`: Adds the string "Ross" to the end of the friend list. Ross can be replaced with any word.
- `p`: Prints the friend list
- `r 3`: Removes the friend at index 3, shifts other friends down. 3 can be replaced with any valid index into the `friends` array.

Submission

Submit your solution in a file called `main.cc` to Marmoset.