

# Computer-based midterm test

Create a C++ object-oriented solution for the problem given below. The solution must fulfill all of the following requirements:

- all the loops have to be based on the learnt algorithmic patterns,
- use a class to read the file,
- the input file can be opened once and you cannot store the data of multiple lines in the variables,
- the program has to be user-friendly,
- the program has to give correct results for any inputs, including the empty and the non-existing files.

**Accepted level** (for grade 3): Horus Lupercal is leading the fallen legions to planet Terra to end the reign of the Emperor of Mankind. As the traitor host is closing in, the planets around the Solar System still loyal to the Imperium are enveloped by darkness. The last hope of Mankind are the loyal legions gathering around Terra. Roboute Guilliman, primarch of the Ultramarines, is logging each starship that arrives into a sequential input file. One line of the file contains the name of the legion the starship belongs to, the name of the starship, and the planets or moons the starship visited before arriving at Terra (there can be any number of these in a line of the file).

The agents of the traitor Alpha Legion are already on a starship! **We know that the starship visited at least four planets or moons before it arrived at Terra. Print out the names of all such starships** so they can be searched.

Sample file:

```
ImperialFists Phalanx Pluto Kerberos Hydra Saturn
ImperialFists MonarchOfFire Pluto Kerberos Hydra Saturn
ImperialFists FortressOfEternity Styx Hydra Saturn
WhiteScars Swordstorm Chogoris Ullanor Chondax Prospero
WhiteScars LanceOfHeaven Chogoris Chondax Prospero
DarkAngels InvincibleReason Caliban Macragge Neptune
Ultramarines MacraggesHonour Macragge Jupiter
```

**Excellent level** (for grade 5): Horus Lupercal is leading the fallen legions to planet Terra to end the reign of the Emperor of Mankind. As the traitor host is closing in, the planets around the Solar System still loyal to the Imperium are enveloped by darkness. The last hope of Mankind are the loyal legions gathering around Terra. Roboute Guilliman, primarch of the Ultramarines, is logging each starship that arrives into a sequential input file. One line of the file contains the name of the legion the starship belongs to, the name of the starship, and the planets or moons the starship visited before arriving at Terra (there can be any number of these in a line of the file). The file is sorted by the name of the legion.

**Print out the legions who visited both Caliban and Macragge.**

Sample file:

```
ImperialFists Phalanx Pluto Kerberos Hydra Saturn
ImperialFists MonarchOfFire Pluto Kerberos Hydra Saturn
ImperialFists FortressOfEternity Styx Hydra Saturn
DarkAngels InvincibleReason Caliban Macragge Neptune
Ultramarines MacraggesHonour Macragge Jupiter
WhiteScars Swordstorm Chogoris Ullanor Chondax Prospero
WhiteScars LanceOfHeaven Chogoris Chondax Prospero
```

You do not have to create the solution for the Accepted level if you want to get grade 5, though, it is worth it to start with that one.