

Task 4.1 Preparation

- Download the `catch.hpp` header (Latest Master Build from <http://builds.catch-lib.net/>) and put it in the `extern/include` directory of your project. Alternatively just install catch via your package manager.

More information and tutorials can be found on the catch github page: <https://github.com/philsquared/Catch>

Task 4.2 Tanks

- Change the `brave_tanks.cpp` to `safe_tanks.cpp` (at least concerning memory management) by substituting the raw pointers with smart-pointers. Use `std::shared_ptr` and `std::weak_ptr` for this task. Hint: 5 lines can be removed, 8 lines need to be changed and 1 line added.

Task 4.3 PennaLV

- Upgrade your raw pointers (i.e. `animal*` in `std::list`) in the PennaLV simulation to smart pointers of your choosing.

Task 4.4 Testing

- Write a few sensible unit- and/or functional-tests for pennaLV using *catch*. This will help you ensure consistency of the functional behavior when you change the code in the future.

Task 4.5 Bug Hunt Challenge (optional)

Pull/download the code from the lecture repo (https://gitlab.phys.ethz.ch/progtech2_hs15/lecture).

The documentation (in-code) states the desired behavior. Note that the implementation does not do exactly the same as the documentation states. Your challenge (as potential code-reviewer) is to write unit-tests / functional-tests that uncover as many bugs/errors in the implementation as possible. Supply a `CMakeLists.txt` with your solution so we can build your tests.

- First priority: catch as many bugs/errors as you can
- Second priority: write an elegant test-collection

Catching the same error twice does not count ;-) The submission deadline for this challenge is Wednesday 14.10.15 at 05:00 in the morning. Notify us via the mailing list (pt2_hs15_ta@lists.phys.ethz.ch) with a link to your uploaded solution on your PT2 repository on GitLab.

Additional Notes: