

Week 7 – Templates and Generic Programming – Lab *

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Reproduce the examples from the Templates and Generic Programming lecture notes and use these concepts in order to write different versions and extensions of previous exercises, for instance:

- Write a template function `myswap` and a `main` to test it on several types.
Create also a type that is not suitable for this function template and observe what happens when you try to use it nevertheless.
- Reproduce the `Point` example and other similar ones using iterators in the loops (for e.g `Warrior/Ninja/Samurai/Game`).
Try also defining and using a function looping on a vector passed by const reference using iterators.
Try replacing vectors with STL `list` containers.
- - Write a function which takes in input a vector of integers and returns the index of the smallest element. Write a main to test the function.
 - Using templates, edit the previous function so that it can work also on, for instance, a vector of points (considering the type `point` defined in previous exercises and including the needed operators). Write a main to test the function.
 - Find in the documentation of the header `<algorithm>` a function

*Lab content (second exercise) originally written by Max Cattafi.

that performs a similar task and write a version of your program using this function instead of the one you defined.

Try also sorting the vectors of points using `sort` from the header `<algorithm>`.

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