

# Object Oriented programming and software engineering – Lab 13

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## 1. Namespaces

In C++, a namespace is a container that allows you to group identifiers (like classes, functions, variables) under a name to avoid naming conflicts, especially in larger projects. For example, two different libraries might have a function named `print()`, and namespaces let you distinguish between them (`library1::print()`, `library2::print()`). You define a namespace using the `namespace` keyword. Namespaces can also be nested, and you can use the *using* directive to avoid repeatedly qualifying names.

Example:

```
namespace FirstSpace
{
    void showMessage()
    {
        std::cout << "Hello from FirstSpace!" << std::endl;
    }
}

namespace SecondSpace
{
    void showMessage()
    {
        std::cout << "Hello from SecondSpace!" << std::endl;
    }
}
```

Then in `main()`:

```
// Call the function from FirstSpace
FirstSpace::showMessage();

// Call the function from SecondSpace
SecondSpace::showMessage();

// Bring FirstSpace into scope
using namespace FirstSpace;
showMessage(); // Now it calls FirstSpace::showMessage() directly
```

## 2. Tasks (3 pts each)

- Create a new class split into .h and .cpp files, wrapped around a namespace, then use it in main(), example of use:

```
ExampleSpace::Example* example = new ExampleSpace::Example();  
example->doSth(); //should print e. g. "printing message from class wrapped around namespace"
```

- Wrap your entire base and derived class hierarchy inside a namespace called according to topic of your code (e. g. namespace called GameEngine)
- Create two namespaces with base and derived classes of the same names, but they should behave differently, according to the example of use:

```
ArenaMode::Character* warriorArenaMode = new ArenaMode::Warrior();  
warriorArenaMode->attack(); //should print e. g. "Attacking in ArenaMode"  
  
AdventureMode::Character* warriorAdventureMode = new AdventureMode::Warrior();  
warriorAdventureMode->attack(); //should print e. g. "Attacking in AdventureMode"
```