C++ cvičení

22.10.2018

faltin@ksi.mff.cuni.cz

Dynamický polymorfismus (1/2)

```cpp
struct printer_interface { // Abstract class == all methods are pure virtual
    virtual void print_line(const std::string &line) = 0;
};

struct ugly_printer final : public printer_interface {
    void print_line(const std::string &line) override { std::cout << line << std::endl; }
};

struct pretty_printer : public printer_interface {
vir    void print_line(const std::string &line) final {
        static size_t line_count = 0;
        std::cout << ++line_count << ": " << line << std::endl;
    }
};

struct text_processor {
    explicit text_processor(printer_interface &printer) : printer_(printer) {}

    void process_text(const std::string &text) const {
        auto start_it = std::cbegin(text);
        while(start_it != std::cend(text)) {
            auto delim_it = std::find(start_it, std::cend(text), ' ');
            printer_.print_line(std::string(start_it, delim_it));
            start_it = delim_it + 1;
        }
    }

    printer_interface &printer_;
};

int main() {
    ugly_printer printer;    //pretty_printer printer;
    text_processor tp(printer);
    tp.process_text("Ahoj jak se mas?");
}
```
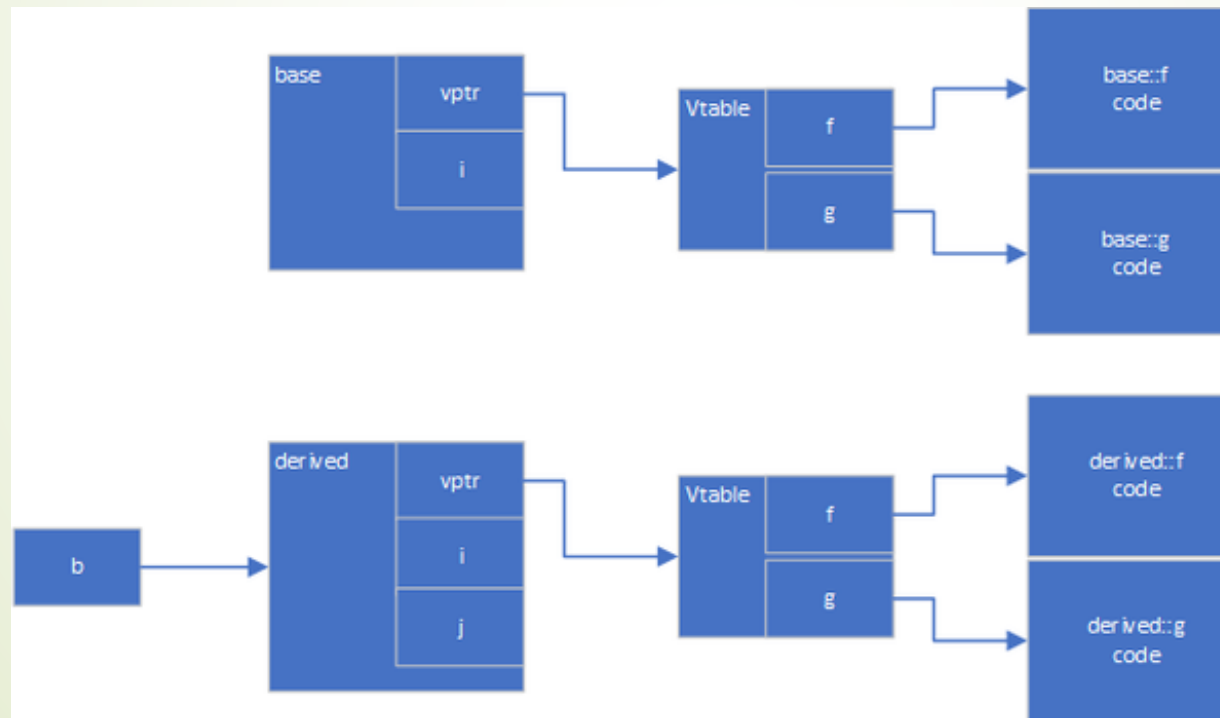
Dynamický polymorfismus (2/2)

- Virtual table (https://en.wikipedia.org/wiki/Virtual_method_table)
- https://gcc.godbolt.org/z/At5sVW

https://www.quora.com/What-are-the-details-for-a-C-virtual-class-to-look-up-its-virtual-table-for-the-function-entrances

Statický polymorfismus (CRTP, ...)

Source: https://www.startawildfire.com/2012/01/monday-morning-marketing-tip-dark-side.html

Úkoly

1. Piškvorky pro 2 hráče (z minula)
   - Zadat velikost hracího pole, kontrola souřadnic, kotrola výhry
   - Konzolová aplikace
   - std::vector<T>
   - **Poslat do 28.10. 23:59**
2. Printer
   - Interface – ugly + pretty print