Semester HS2020

C++ Zusammenfassung

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Inhaltsverzeichnis

1 Introduction to C++

In C++ gibt es keinen Garbage Collector, wie man es aus anderen Sprachen, wie Java oder C# kennt. Warnung: Wenn Code "falsch"geschrieben wurde, kann Undefined Behavior auftreten.

1.1 C++ Compilation Process

*.cpp Files

- Also called Implementation File
- For function implementations (can be in .h as well)
- Source of compilation

*.h File

- Also called Header File
- Declarations and definitions to be used in other implementation files

3 Phases of compilation

- Preprocessor Textual replacement of preprocessor directives (include)
- Compiler Translation of C++ code into machine code (source file to object file)
- Linker Combination of object files and libraries into libraries and executables

1.2 Declarations and Definitions

All things with a name that you use in a C++ program must be declared before you can do so.

One Definition Rule

While a program element can be declared several times without problem there can be only one definition of it. This is called the **One Definition Rule** (ODR)!

Include Guard

Include guards ensure that a header file is only included once. Multiple inclusions could violate the One Definition Rule when the header contains definitions.

```
1  #ifndef SAYHELLO_H_
2  #define SAYHELLO_H_
3
4  #include <iosfwd>
5  struct Greeter { /* Some Code */ };
6
7  #endif /* SAYHELLO_H_ */
```

2 Woche02

3 Woche03

4 Woche04

5 Woche05

6 Woche06

7 Woche07

8 Woche08

9 Woche09

10 Woche10

11 Woche11

12 Woche12

13 Woche13