Semesterprojekt
Implementierung eines Brettspiels
(inklusive computergesteuerter Spieler)

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Introduction to Coding Conventions

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Good or Bad Coding Style?

```java
int i = 0;
while (i < 10)
    System.out.println(i);
    i++;
```

- What is the expected output?
int i = 0;
for (i = 0; i < 10; i++);
    System.out.println(i);

• What is the expected output?
Bad Coding Style?

HashMap<String, Movie> actorsMap = new HashMap<>();
String actor = ""
if (actorsMap.containsKey(actor)) {
    actorsMap.get(actor).movieCount++;
} else {
    actorsMap.put(actor, new Actor(actor));
}

• What is the functionality of this code?
Motivation

- Goal: Self-documenting code that is easy to read.

- A coding convention defines the style of your source code.

- A team should use the same standard practices for:
  - **naming** classes, variables or functions.
  - **commenting** and **formatting** (indentation and brackets).

- Different conventions reasonable for every language (JAVA; C#; C++) and team.
Indentation and Bracket Placement Examples

```java
if (actorsMap.containsKey(actor))
{
    actorsMap.get(actor).movieCount++;  
}
else
{
    actorsMap.put(actor, new Actor(actor));
}
```

• ANSI C Style
Indentation and Bracket Placement Examples

if (actorsMap.containsKey(actor)) {
    actorsMap.get(actor).movieCount++;  
} else {
    actorsMap.put(actor, new Actor(actor));
}

• Kernighan and Ritchie Style
Benefits

- No need to **reformat** code and **rename** variables and methods whenever working on code written by **others**.

- Source code is much **easier to understand** when reasonably formatted:

```java
if(condition)
   // statement;
otherStatement;

if (condition)
   statement;
otherStatement;

if (condition) {
   statement;
   otherStatement;
}
```
Identifiers

- Upper Case with Underscores:
  THIS_IS_AN_EXAMPLE
- Lower Camel Case:
  thisIsAnExample
- Upper Camel Case:
  ThisIsAnExample
- Lower Case with Underscores:
  this_is_an_example
Typical Conventions

- **Classes use Upper Camel Case**
  - eg: MovieFactory

- **Functions use lower Camel Case**
  - eg: readMovie

- **Variables use lower Camel Case**
  - ex: movies
**Indentation, Spaces and Tabs**

- Don’t mix tabs and spaces! Best is to set your editor to replace tabs by 2-4 spaces when you enter a tab.

- Do (spaces or tabs):
  ```
  if (condition) {
    block;
  } else {
    block;
  }
  ```

- Don’t (space + tabs):
  ```
  if (condition) {
    block;
  }
  ```
  ```
  else {
    block;
  }
  ```
Conclusion

• Agree on a coding guideline within your team stick to it!

• Good starting points:
  – JAVA:
    • https://google.github.io/styleguide/javaguide.html
    • https://github.com/twitter/commons/blob/master/src/java/com/twitter/common/styleguide.md
  – C#
    • http://www.dofactory.com/reference/csharp-coding-standards