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| Summer Semester 2016 Part Prof. Wanner | | No. of pages: 8 |
| | | Page no.: 1 |
| Examination: Software Engineering 2 | | Time: 120 min |
| Aids: One double sided sheet A4 | | Semester: ST |
| Name: | First name: | Matricul.-No.: |

Note: The area left blank on the sheets usually is sufficient for the answer of the questions in terms of catchwords and/or for the solutions. Therefore write your name, semester and your matriculation number on each sheet and use these sheets for the delivery of your answers and solutions.

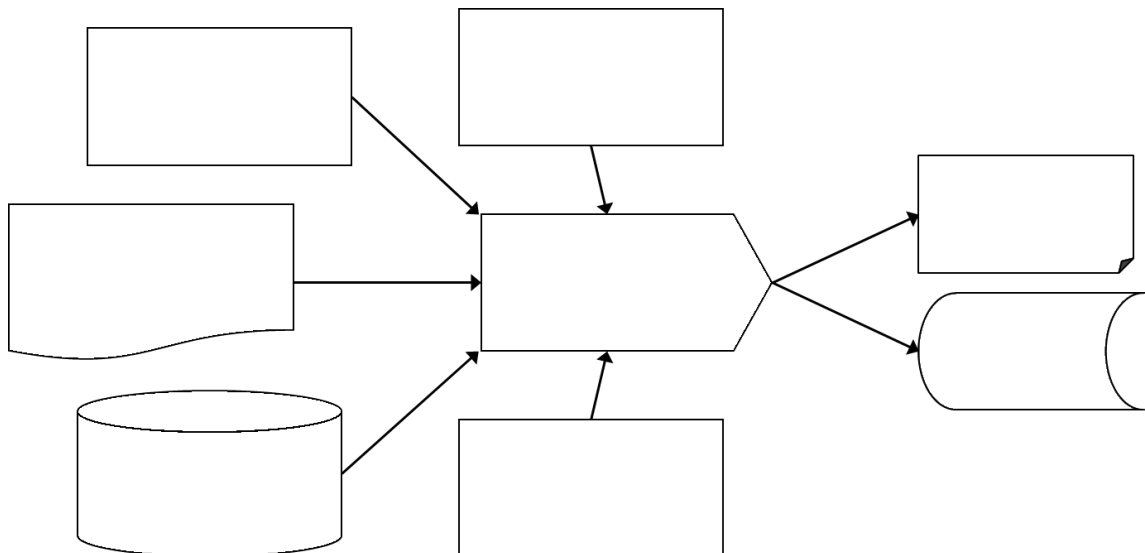
The stated points for each exercise are tentative and are subject to change.

Exercise 1 (9 Points)

a) Explain the concept of **transitive dependency** in **Maven**.



b) Fill in the elements of the following figure (**elements and process of Maven**).



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- c) What is the main **difference** of the build system **Gradle compared to Maven**?
What is the advantage of that difference in Gradle?

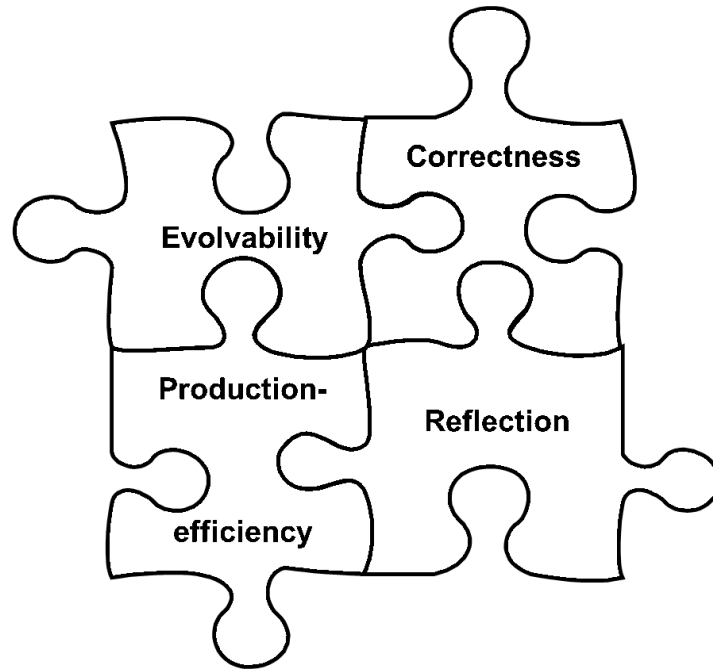
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Exercise 2 (12 Points)

a) Explain **Conways Law**. Also explain how to deal with Conways law?

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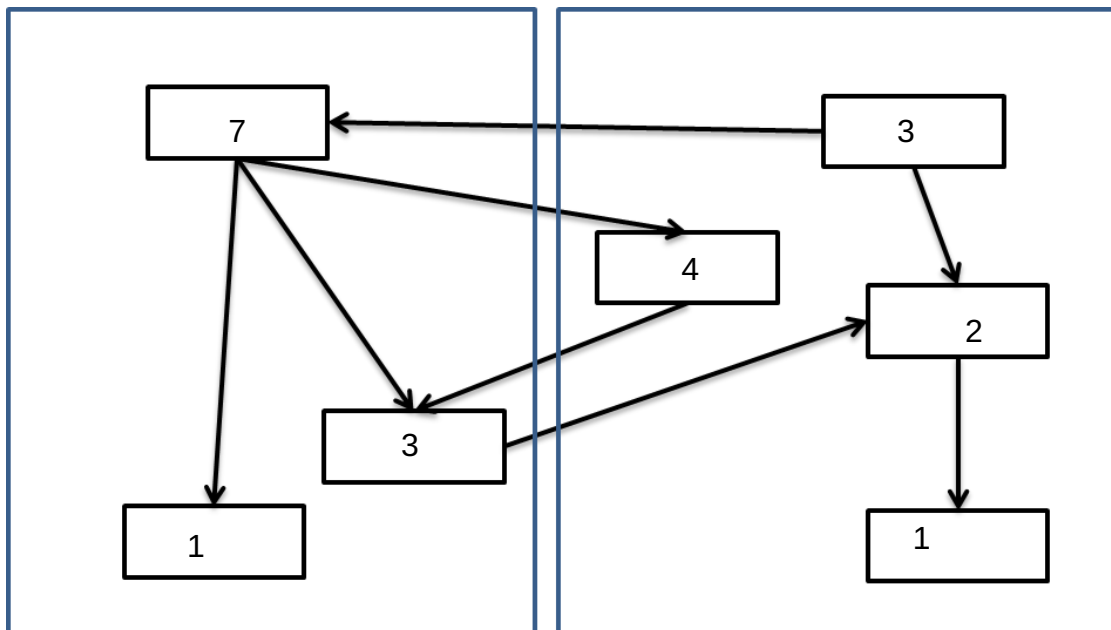
- b) A **value-system** guides developers in their daily work. Explain the values of the following value system and give examples how to achieve them.



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Exercise 3 (13 Points)

- a) Given is the following **dependency graph** of a system with two subsystems. Calculate the **CD (Component Dependency)** of all components and also calculate the **CCD** and the **ACD**.



- b) Optimize the system by **decoupling the two subsystems** and **eliminating the cycles**.

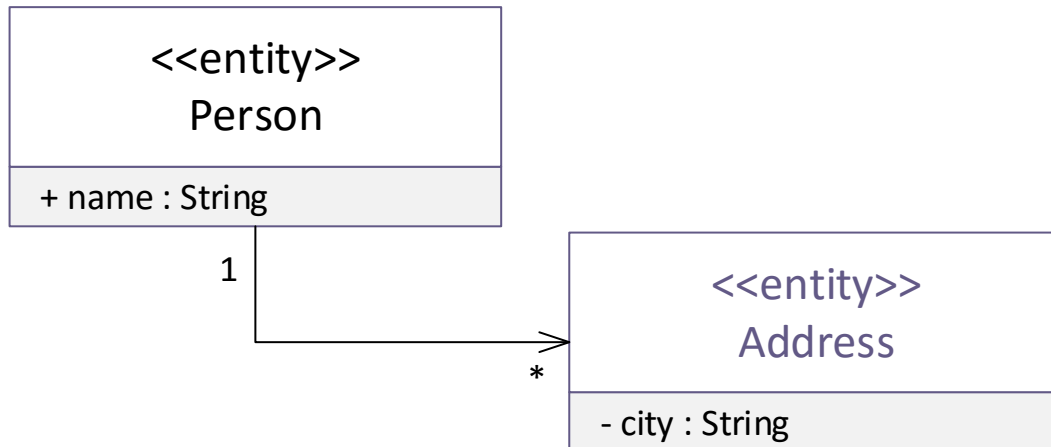
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- c) Calculate the CD, the CCD and ACD of your solution for b) (treat interfaces like classes).

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Exercise 4 (16 Points)

- a) Draw the **metamodel** for the following UML-model. Only include the necessary parts!



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b) What do you see here? What is it used for?

```
<?xml version = '1.0' encoding = 'UTF-8' ?>
<XMI xmi.version = '1.2' xmlns:UML = 'org.omg.xmi.namespace.UML'
xmlns:UML2 = 'org.omg.xmi.namespace.UML2'
timestamp = 'Wed Aug 09 15:06:41 CEST 2006'>
<XMI.header...>/XMI.header>
<XMI.content>
  <UML:Model name = 'Modell 1' isAbstract = 'false'>
    <UML:Class name = 'C1' visibility = 'public'
      isAbstract = 'false'>
      <UML:Classifier.feature>
        <UML:Attribute name = 'a1' visibility = 'private'
          ownerScope = 'instance' changeability = 'changeable'>
          <UML2:TypedElement.type>...</UML2:TypedElement.type>
        </UML:Attribute>
      </UML:Classifier.feature>
    </UML:Class>
  </UML:Model>
  ...
```



c) What is a **UML profile**? Give an example for a UML profile. Why is it usually used in model driven software development?