

Final Exam

Name:

Immatriculation number:

Exercise 1

What is a model? What is a metamodel? What are they used for?

Exercise 2

What is the difference between a method, a selector and a message in Smalltalk?

Exercise 3

What is the difference between a class and a metaclass in Smalltalk? What is the metaclass of an anonymous class in Smalltalk?

Exercise 4

How would you intercept every message sent to the method `OrderedCollection>>size` in Smalltalk so it would print the result to the Transcript? For example, the following code should print "3" to the Transcript.

```
aCollection := OrderedCollection new.  
aCollection add:1; add:2; add:3.  
aCollection size.
```

Exercise 5

What are the God Classes and how does the God Class detection strategy work?

Exercise 6

What is the difference between the architecture and the design of a software system?

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Exercise 7

What are the applications of a software visualisation?

Exercise 8

You are presented with a large legacy system. That system has a client-side application and a server-side application that are connected via a RESTfull architecture (using http queries and JSON files). Obviously, there are implicit dependencies between the components on the client-side and the server-side. How would you recover those dependencies?

Exercise 9

What are the advantages of static analysis over dynamic analysis and vice versa?

Exercise 10

A large Swiss bank has 5,000 applications, 2,000 services and 50,000 databases. Do you consider that code base as an ecosystem? What are the challenges of maintaining such a large code base?