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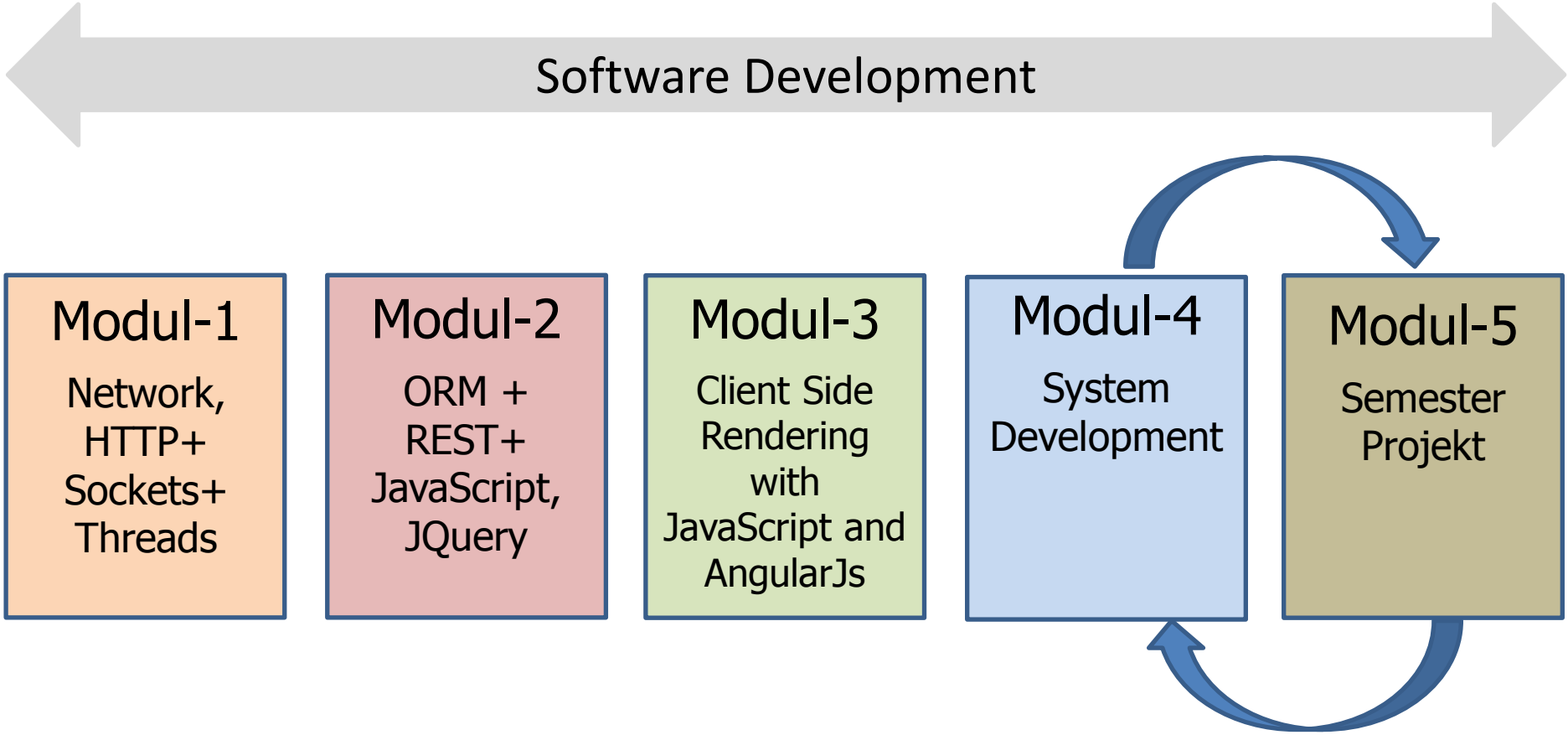
COPENHAGEN BUSINESS ACADEMY

3. Semester
Distributed System& System Developmen

Thomas, Lars, Jens, Tue

Plan

The semester is (as usually) divided into 5 blocks, three weeks each (module-2 → 4 weeks).



A Typical Period

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Week 1 + 2

Mon	"Traditional" lesson + exercises
Tue	"
Wen	"
Thu	"
Fri	**Study Point Exercise**

Bonus Study Point if you sign up for a test exam

Week -3

Friday- Summary + Test Exam

Mon	+ "Traditional" lesson + exercises
Tue	CA
Wen	CA
Thu	CA
Fri	CA

Overall comments

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- This semester is, and has always been, and always will be: **hard**
- You will be introduced to many new concepts, methodologies and techniques.
- We will do **a lot of** (but not only) **programming**.
- We will draw on everything you have learned the last year.
- It will be hard work and **lots of fun** ☺
- Several of the topics we will dive into are new, thus they are not yet in a mature state and will change

Topics

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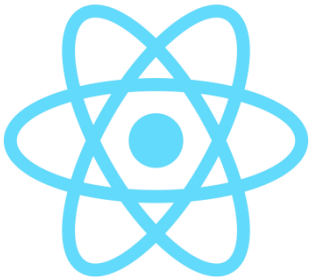

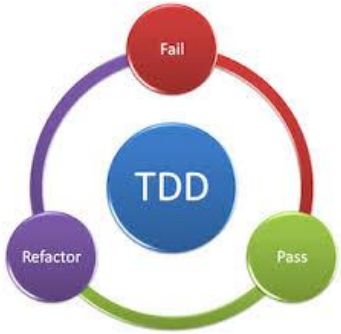

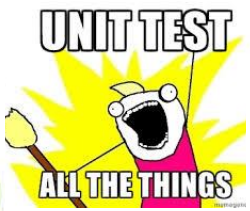

Study Points!!!

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You need (as usually) the points to be approved for the exam

Even without this rule, attending the exam without the study points would be a *waste of time*, because:

You get most of the points from **trying** and **doing** – this is were you learn, not just from attending the lessons

How to get your points

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Period 1 → 40 Points

- 11 points one for each day
- 19 points for CA-1 (program + documentation upload)
- 10 points for Friday exercise 1 +2 (5 for each) (Code hand-in or demo)

Period 2 (4 weeks) → 50 Points

- 16 points one for each day
- 19 points for CA-2. program + documentation upload) **TEAM**
- 15 points for Friday exercise 3 + 4 + 5 (5 for each) (Code hand-in or demo) **Individual**

Period 3 → 40 Points

- 11 points one for each day
- 19 points for CA-4 (program + documentation upload) **TEAM**
- 10 points for Friday exercise 8 +9 (5 for each) (Code hand-in or demo) **Individual**

Period 4 → 40 Points

- 10 points one for each day
- 20 points for SYS report
- 5 points for Friday exercise
- 5 points for class presentation

There will be Bonus StudyPoint to earn throughout the semester ☺

Period 5 (Project) → 80 Points

- 80 points for work done over three sprints (three weeks)
- 10 Points Outsourcing (upload reflection document)
- 20 Points Sprint1 (sprint planning, Sprint retrospective, Sprint Review, Technical review – code/db/test)
- 20 Points Sprint2 (sprint planning, Sprint retrospective, Sprint Review, Technical review – code/db/test)
- 20 Points Sprint3 (sprint planning, Sprint retrospective, Sprint Review, Technical review – code/db/test)

Total **240** points. You need a minimum of 80% to be approved for the exam= **192**

How to check your points

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Study Point Handler

How Solve Problems

What we so much don't like:

~~Educated Helplessness~~

What we just LOVE:

Educated Self-Reliance
Helpful Students

And of course, we are here - you can, and should, request help, when required, but always try (hard) first ☺

Exam

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This semester has **two** exams

- Programming Exam
  - 80 min preparation and 40 min oral examination
  - Two parts:
    - Programming
    - Theory
- System Development Exam
  - 30 minutes examination – no preparation
  - Grade based on:
    - SYS project
    - Oral examination

About Programming this semester

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- Every piece of code must be:
  - **Tested** – **NO credits for untested** source code.
  - **Versioned** with **Git** →we use the commit log to assign study points
  - **All CA's** must be **hosted** and include a **WEB-Site** with required information about the CA

  This is how you hand in your CA's

Module-1: Network, HTTP, Sockets and Multi-Threading

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- Introduction to the TCP/IP stack and Network Programming
- The HTTP protocol
- Thread Programming
- Server Architectures
- CA: Chat server implemented with java sockets, multithreading, and a web server for the project

Module-2 : ORM (JPA), Web services and JavaScript

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- Introduction to Object Relational Mapping
- Java persistence API (JPA)
- Restful web services
- JavaScript and Asynchronous Programming
- Manipulating the DOM
- (Jquery) and AJAX
- CA:

Module-3 JavaScript and Angular.js

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- Introduction to the Single Page Application (SPA) Architecture
- Implementing modern Single Page Applications (SPA) with ReactJS
- More JavaScript
- CA:

Module-4. Systems Development

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- Introduction to systems development as a discipline
- Different perspectives on **how** to develop systems
- Different tools and techniques to use in order to support a successful development
- Introduction to a new method eXtreme Programming
  - To support Scrum
  - To be used in the semester project in module 5
- CA: An exam report - A theoretical project with reflections on systems development

Module 5: Semester project

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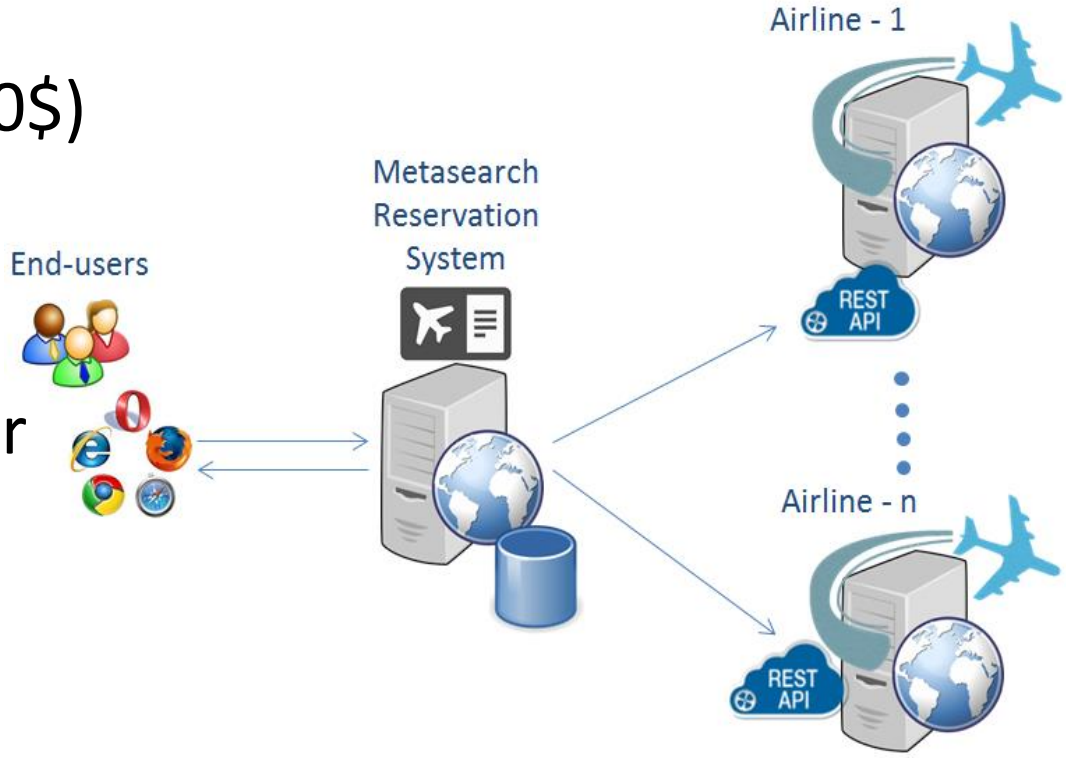
- A project that make up a distributed system using all the topics introduced in the semester.
- That uses REST as the Backend and Angular.js frontend.
- Outsourcing (120$ - 180$)

Example:

Project **from last** semester

This semester will have a

new project



Books and Additional Costs?

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We **don't** expect you to buy any books this semester. We will provide links to readings, videos, tutorials etc.

We **DO** expect you to pay for a virtual machine in the cloud.
This will cost you **$5++** a month. You can terminate the account after the semester, but we do recommend that you keep it, and your projects, as a portfolio to show your future employers

For the Semester Project you are expected to Outsource **for real** (that is specify, hire and communicate with external developers) a part of your project. This will cost you a minimum of **60$** (per team member)

Internationalalization

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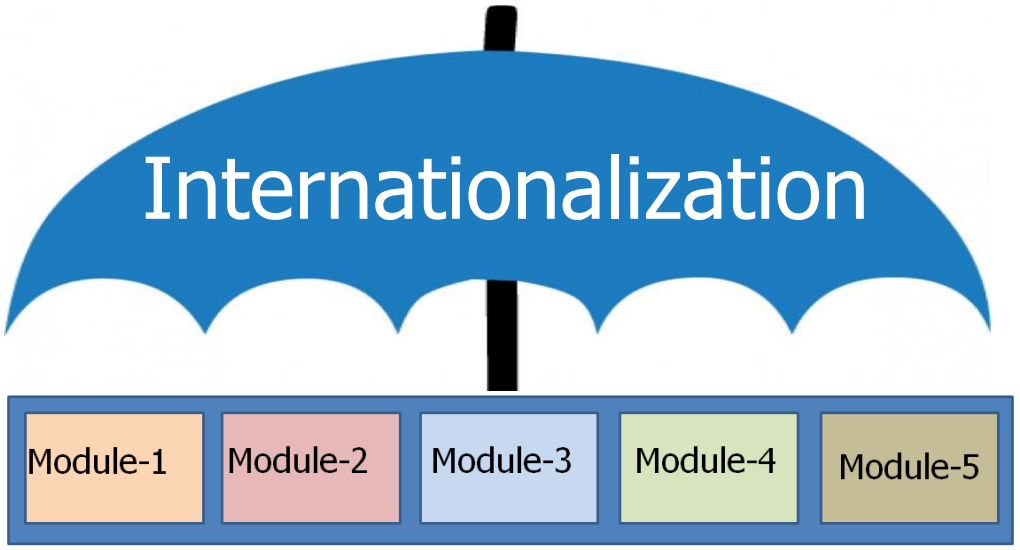
Throughout this semester we will focus on internationalization aspects relevant for software developers



- All materials will be in English, <u>including exam exercises</u>
- We will focus on problems related to outsourcing
- You will actually have to outsource (and pay for) parts of the semester project

Internationalalization

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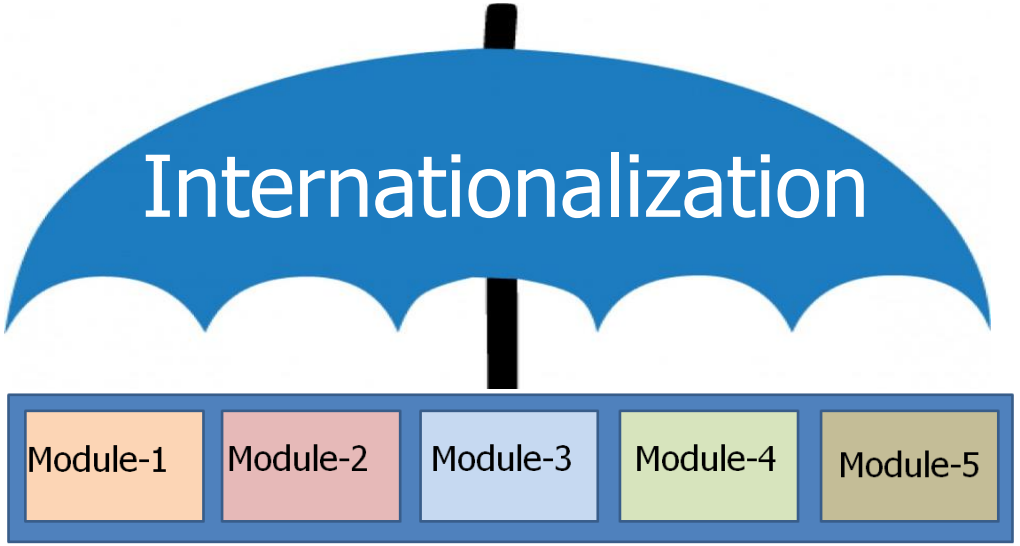

We will provide you with web-links for all reading materials, so you are not expected to buy any books this semester

But this semester will cost your team **120$ - 240$**

You have to **describe** and **order** parts of the semester project from an external company/developer.

Required Software for this Semester

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For this semester you must have:

- NetBeans (newest version + Tomcat)
- MySQL
- GIT (NOT just the version shipped with NetBeans)
- Maven
- An account on Github
- + probably more
- An account on Digital Ocean

We assumes everything above is already installed, if not read the info on github