SWA1 A21 Exam Questions

# Examination

* The exam is 20 minutes (15 minutes examination + 5 minutes deliberation). Oral, individual.
* You draw one of the questions below. The entire exam is about the question. Use the course assignment as the questions indicate.
* Only show code. There is no need to show a PowerPoint-presentation unless you want to use PowerPoint to show code.

# Question 1: The JavaScript object model

* Summarise the JavaScript object model and contrast it to object models from other languages like Java or C#
* Explain how ‘this’ works in JavaScript, and how to control it using bind
* Use your course assignment 1 to demonstrate
  + the use of prototypes and constructors in creating and using JavaScript objects
  + the use of factory functions and direct object creation in JavaScript

# Question 2: Object inheritance in JavaScript

* Use your course assignment 1 to demonstrate concatenative and prototypal inheritance in JavaScript and contrast them.
* Explain the inner workings of the techniques.
* Include use of factory functions, constructors and the class keyword.

# Question 3: Functional Programming in JavaScript

* Compare object-oriented and functional programming.
* Summarise functional programming in JavaScript.
* Explain Higher-order functions
* Use your course assignment 2 to demonstrate higher-order functions and their use in JavaScript programming. Include the relevant Array and Function methods as part of your demonstration.

# Question 4: Asynchronous programming

* Use your course assignments to demonstrate asynchronous programming in JavaScript
* Explain how the run-time model works with asynchronous programming
* Include callbacks, promises and async/await in your explanation

# Question 5: Client/server programming

* Use your course assignments 2 and 3 to demonstrate asynchronous client/server programming using both XmlHttpRequest and fetch
* Use your course assignment 4 to demonstrate web sockets. Explain the use of web socket events and states.
* Compare using callbacks, promises, and async/await

# Question 6: 1-way data flow

* Use your course assignment 3 to demonstrate 1-way data flow and the flux GUI design pattern
* Compare with other GUI design patterns

# Question 7: 2-way data binding

* Use your course assignment 3 to demonstrate 2-way data binding
* Compare with other GUI design patterns

# Question 8: Reactive Programming

* Use your course assignment 4 to demonstrate the use of observables in an application
* Relate to the observer design pattern
* Compare with promises
* Explain the use of operators to transform and combine observables