

Assignment B01

- a) Name three advantages of the *Software as a Service* model as presented in the lecture. (3 points)
 - b) Name the five key issues of customer-centered web design as presented in the lecture. (5 points)
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Assignment B02

- a) Briefly describe user-centered design. What is the difference to customer-centered design? (2 points)
- b) What is the primary principle of customer-centered design? How did you apply this principle in your web application project? (2 points)
- c) Briefly describe the term *Design Pattern* in general. What does a Web design pattern as presented in the lecture reflect from a customer's point of view? (2 points)
- d) How much do patterns change over time in your opinion? Justify your answer by one concrete example. (2 points)

Assignment B03

- a) Name the four competing elements of every Web design. (2 points)
 - b) Briefly describe the meaning of the Web design principle “Understand your customer’s tasks”, and give one example. (2 points).
 - c) In the context of task training, briefly describe the two principles “ease of learning” and “ease of use”. (2 points)
 - d) Which elements should be the driving factor in a Web site’s design, and which one should not? (2 points)
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Assignment B04

- a) Name and briefly describe the three steps of an iterative design process as presented in the lecture. (6 points)
- b) Briefly describe two reasons for using an iterative design process as presented in the lecture. (2 points)

Assignment B05

- a) What means “stateless” in the context of REST? (1 point)
 - b) Briefly describe the benefits of a stateless client-server architecture regarding visibility, reliability, and scalability as presented in the lecture. (3 points)
 - c) Briefly describe a disadvantage of stateless client-server architectures as presented in the lecture. (1 point)
 - d) Briefly describe two benefits and one disadvantage of caching in the context of REST. (3 points)
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Assignment B06

- a) Name and briefly describe the main problem domains as defined by the REST triangle. (3 points)
- b) When requesting www.wikipedia.org via your web browser, which are the values of the three parts of the REST triangle? (1 point)
- c) Briefly describe the REST methods GET, PUT, POST, and DELETE. (4 points)

Assignment B07

- a) Briefly describe CSS. What is the main reason for avoiding CSS inline styles? (2 points)
- b) How are CSS declarations, declaration blocks, properties, selectors, style sheets, rules, and values related to each other? (3 points)
- c) Consider the following HTML heading element:

`<h2 id='h2id' class='h2class'>SEBA Master</h2>`

Give an example for a type selector, a class selector, and an ID selector by defining a CSS rule coloring this heading's text blue by using each of these selector kinds. (3 points)

Assignment B08

- a) Briefly describe the Document Object Model (DOM) as presented in the lecture. (1 point)
- b) Name two drawbacks of AJAX-enabled websites. (2 points)
- c) What are Single-Page Applications (SPA)? What is their difference to traditional websites from a usability perspective? (2 points)
- d) Briefly describe three different architecture styles of Single-Page Applications? (3 points)

Assignment B09

- a) Briefly describe the three basic kinds of information which should be included in a REST API documentation. (3 points)
 - b) Briefly describe *Basic Authentication* and *JSON Web Tokens (JWT)*. What is the main advantage of JWT compared to Basic Authentication? (3 points)
 - c) Which authentication method have you implemented for your web application? Briefly justify your answer. (2 points)
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Assignment B10

- a) Name three features of object-orientation as presented in the lecture. Moreover, for each of these features, name two common programming languages supporting this feature. (3 points)
- b) Briefly describe the difference between static and dynamic typing. Moreover, name two statically typed programming languages as well as two dynamically typed languages. (3 points)
- c) Briefly describe duck typing. (1 point)
- d) What is a higher order function? (1 point)

Assignment B11

- a) Briefly describe two benefits of object-relational mapping. (2 points)
 - b) Briefly describe the three alternatives for mapping inheritance to a relational database as presented in the lecture. (3 points)
 - c) Define a JPA model class *User*. A user has an email address (the user's ID, has to be a valid email address), a last name (mandatory), and a first name (optional). Use annotations if necessary (you can assume that there is an *Email* annotation). (3 points)
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Assignment B12

- a) Name four typical characteristics of modern web-scale databases. (2 points)
- b) Briefly describe the main characteristic of graph databases. What are example applications of graph databases? Name two and justify your answer. (3 points)
- c) Briefly describe the concept of document-oriented databases. Furthermore, briefly describe two advantages of document-oriented databases compared to relational databases (3 point)

Assignment B13

- a) Briefly describe the three components of the MVC architecture pattern as presented in the lecture. (3 points)
 - b) Briefly explain callback functions in the context of Node.js. Name an example application for a callback function, and justify your answer. (2 points)
 - c) What are typical issues and challenges for web developers which are addressable by today's web development tools? Briefly describe three of them. (3 points)
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