SEMESTER 2 FINAL ASSESSMENT 2020/21

Web and Cloud Applications Development

This paper contains FOUR questions

Answer ALL questions

5 page paper

Question 1

(a)   Assume, as a developer in a company, you are tasked with deciding with what framework should be adopted to develop a new modern web application for your company. Explain what criteria you might consider in choosing a web development framework for the company web application. Name at least five criteria and explain each of them in no more than a few sentences.

[10 marks]

(b)   Compare and contrast Single-Page Applications (SPA) with Multi-Page Applications (MPA), provide at least three advantages and three disadvantages for each approach.

[12 marks]

(c)   Explain why MVVM (Model-View-ViewModel) pattern is usually the architecture, which is adopted for SPA applications.

[3 marks]

Question 2

(a)   HTML and CSS are the two fundamental languages for building any website. What is the difference between these languages? Explain your answer briefly.

[6 marks]

(b)   What are semantic mark-ups in HTML? Provide a few examples of semantic mark-ups. Why is it essential to use them effectively? Provide at least three reasons.

[10 marks]

(c)   There are three ways you can use to implement CSS: internal, external, and inline styles. Briefly explain the pro and cons of each approach.

[9 marks]

Question 3

(a)   What are the drawbacks of React Class Components? At least
        state three issues.

[9 marks]

(b)   How does destructuring in React work, and when do we use it?
        You should, at least, state two cases and provide a short sample
        code for each case.

[9 marks]

(c)   What is the React Context API? How can we create and manage a
        global application state using React Hooks?

[7 marks]

Question 4

(a) What is the Serverless Application Model? What is the main motivation for using this architecture? What are the benefits and drawbacks of this architecture? List at least two benefits and two drawbacks.

[10 marks]

(b) Explain how the request handling in Node.js is different from traditional "Multi-Threaded Request-Response" architecture used in other frameworks. Draw a simple diagram to represent the request handling and non-blocking IO aspects.

[9 marks]

(c) Explain the role of two core parts of Express, namely middleware and routing.

[6 marks]

END OF PAPER