**Study Guide for Midterm Exam**

**Comp 4952 2015**

Lecture notes: Introduction to HCI Part 1 and 2; Modules 1 and 2.

Labs: Lab assignments and issues discussed in lab.

Quizzes.

Readings: as specified in assignments and power-point presentations.

**Learning Outcomes / Questions**

1. What are the characteristics of a well-designed interface?
2. What is usability?
3. What methodology is employed with respect to usability?
4. Describe the methods and outcomes of low-fidelity prototype.
5. Name four rules of interface design and describe them (Shneiderman).
6. Describe four usability heuristics proposed by Jakob Nielsen and give a short description.
7. Describe the usability heuristics proposed by Jakob Nielsen that you used in your low-fidelity prototype design and justify them.
8. Indicate practical strategies for usability and describe them.
9. Consider Fitts’s law: MT = a + b \* log2 (2A/W + c). Explain it.
10. Describe how Fitts’s law can be used for interface design.
11. What are consequences and heuristics of Fitts’s law?
12. How did you apply Fitts’s law in your design?
13. Explain usability and aesthetics.
14. How did you perform the user task analysis in your low-fidelity prototype design?
15. What is user modeling?
16. Consider the Bayesian theorem: P (H|X) = (P (X|H)\* P (H)) / P(X). Explain it.
17. Consider the Bayesian theorem: P (H|X) = (P (X|H)\* P (H)) / P(X). Solve a problem with a Bayesian theorem and draw the tree graph.
18. What is the difference between a stochastic and a deterministic system?
19. To what extent statistical models can be used for user modeling?
20. Give four differences between ASP and ASP.NET
21. What were the challenges of ASP that were solved with ASP.NET?
22. What are Web Forms and Web Services?
23. Explain Postbacks.
24. What is happening to server-side control objects during postbacks?
25. How do technologies ASP and ASP.NET maintain the state of all server-side controls during postbacks?
26. In what event Page.IsPostBack is used? Why?
27. Are refresh and postback the same thing? Why or why not?
28. Describe server-side controls.
29. Explain the page life cycle.

Refer to Module 1 slide 20

Know that there are several events, but don’t memorize all of them

Know Initialization, pageload, loadviewstate, saveviewstate

Begins with http request post or get / it will be created like a package on server and then sent to browser. On the browser, there is init stage, load viewstate (description of the control tree, content of each control), load postback data, load controls and events / after user sees site and invokes another event, …

1. Explain the Page\_Init() event.
2. Explain LoadViewState() event.
3. Explain Page\_Load () event.
4. How are variable stored in the ViewState?

ViewState is like an object, and has a method like .add()

Variables are ENCODED, not ENCRYPTED.

1. What are the advantages and disadvantages of storing variables in ViewState?

Advantages:

Disadvantages:

* Viewstate can get too large
* Performance
* Security

Things to put into viewstate:

* Form elements and other things important to the interface, ie calculator – small, don’t have to store on server

1. What security issues are related to the ViewState?
2. In what format is the ViewState stored? Is the ViewState encrypted by default?
3. If no variables are stored in the ViewState is the ViewState empty? Explain.
4. What is stored in the ViewState?
5. What is the ControlState?
6. If you are a developer, is it possible to disable the ViewState? What about the ControlState? Why?
7. If you are a user, is it possible to disable the ViewState? What about the ControlState? Why?
8. What is happening when a user requests a page from a remote server?
9. Is it any client-side code executing in your assignment application? If so, how is the client-side code executed in ASP.NET?
10. What is the role of the line:

<%@ Page Language="C#" AutoEventWireup="true" CodeFile="Default.aspx.cs" Inherits="\_Default" %>

1. What is the role of a default web form?
2. What special folders are in ASP.NET and what is their role?
3. What is the difference between web server controls and HTML controls?
4. Explain the property IsPostBack. What is the role of property IsPostBack and how should be used?
5. Describe the validation controls. What control validators are available in ASP.NET and how should be used?
6. What is the role of the property Page. isValid and how should be used?
7. What is happening when the user hits the refresh button?
8. What is MVC and how is it implemented in ASP.NET MVC?
9. Explain in your own words and give an example of model, view and controller in ASP.NET MVC.
10. Explain the role of the Entity Framework. Draw a diagram to explain your answer.
11. What does EF allow developers to do?
12. What are the main (basic) functions implemented in EF?
13. Describe the three aspects of EF: conceptual model, storage model and mapping.
14. What is the cost of EF? (for more details: read <https://msdn.microsoft.com/en-us/library/cc853327(v=vs.110).aspx> )
15. What is the most expensive operation with the EF?
16. What EF design models are implemented in ASP.NET?
17. Discuss the Entity Lifecycle. Refer to the ObjectContext and EntityState.
18. What are DataAnnotations and what do they describe? Give an example.
19. What was the role of the Context class when you created a data model?
20. What was the role of the Initializer class? What did it inherited from?
21. What design model did you used in the ASP.NET MVC lab activity?
22. What are migrations?