In-class questions for Presentation:

*Caching and Prefetching for Web Content Distribution*
• A Web prefetching policy must be carefully designed. What is the consequence of mis-predicting a user’s accesses? We know that the Internet is busier during the early morning than it in the afternoon, how could this observation affect the design of prefetching policy?

• In the three types of information the prediction mechanism of a Web prefetching policy could use, one is called “object structural information”. What is that?

• What is the issue that is addressed by Web cache consistency algorithm? What is the distinction between weak consistency and strong consistency?

• What is the TTL-based validation to support weak consistency? Why is the validation check generated by the method in the critical path for processing a user’s request? Why is proactive polling able to remove the time for the check out of the critical path?
• There are two methods to enforce strong consistency: server-driven invalidation and client-driven validation. Describe their distinctions as well as their pros/cons?

• There is a hybrid approach called leases to enforce (strong) consistency. Could you describe the approach and how it could reduce overhead for maintaining consistency?

• What is the Web cache cooperation? One of cooperation method is to use distributed cache architecture in which caches are peers to each other. However, to implement cooperation, message broadcasting has to be used. In a large-scale system, this can be very expensive. What are possible solutions to address the issue?