

CSC 415/515 MIDTERM STUDY GUIDE

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1. GENERAL CONCEPTS

The midterm will cover all course material from the beginning of the term, so refer also to the week 3 quiz study guide.

Additional material on the test will center on web application development using both CGI and Java Servlet technologies, as well things that need to happen on the browser or client's side to make web applications work.

URL-encoding of data for transport as part of a query string; the two different ways that data entered in form elements can be encoded; the significance of name attributes in HTML form elements. You should understand the fact in request data submitted to the server, the same name may occur more than once, with different values. You should know how the Servlet API handles this when retrieving request parameters.

You need to know how to use the following HTML form input elements to carry data to the server: inputs of type button (submit), of type text, of type file (to facilitate file uploads).

You need to understand multipart/form-data encoding, and also how data submitted using multipart/form-data encoding looks like on the server side. You should be able to describe the format or syntax of each part.

You should understand the concepts of user sessions and the three different ways that can be used to implement user sessions: cookies, hidden inputs, and URL-encoding.

Understand the MVC (Model View Controller) design pattern for web applications.

2. SERVLET TECHNOLOGY

Definition of the concept of a servlet.

Be able to explain the relationship and differences among the following methods of the `HttpServlet` interface, and how they all work together to enable a servlet object to process requests:

```
public void service(ServletRequest req, ServletResponse resp)
protected
    void service(HttpServletRequest req, HttpServletResponse resp)
protected
    void doGet(HttpServletRequest req, HttpServletResponse resp)
protected
    void doPost(HttpServletRequest req, HttpServletResponse resp)
```

Be able to name and explain the most important methods of the `HttpServletRequest` and `HttpServletResponse` interfaces: the ones that enable a servlet to access data sent by the client and generate responses. This includes all methods used to access url-form-encoded data and also multi-part/form-data.

You should also understand how to use methods that read the entity body directly as a buffered character reader or as a byte input stream.

You should understand the concepts of servlet configuration, deployment descriptor file (`web.xml`) and their use in setting servlet initialization parameters.

You should understand the concept of a servlet context object.