CS 470 - Operating Systems
Spring 2010 - Guidelines for Operating Systems Case Study
Out: March 1, 2010
Outline with References Due: March 24, 2010
Draft Due: 1 week before presentation
Paper Due: 1 day before presentation

The main goal of this assignment is to report on the design of various operating systems with an emphasis on what choices were made and why they were made. The operating systems may be of a historical, current, or research interest.

Logistics
All case studies will discuss embedded operating systems for small devices. Operating systems will be distributed by random draw. Students may swap subjects afterwards if they wish, or they may propose other operating systems in the same category, which may or may not be accepted by the instructor. Proposed operating systems must have had at least one stable release.

Each student is responsible for:

● an approximately 10-page written report, due one day before the presentation for distribution to the rest of the class
● a 15-20 minute class presentation

In addition, the following due dates are in effect

● An outline of the written report with at least 3 references is due no later than March 24.
● A draft of the written report is due no later than one week before the presentation. Order of presentation will be assigned by the instructor. Presentations will be no earlier than April 12.

Each student will meet with the instructor at the time of submission of the draft to discuss the presentation. Students are encouraged to meet with the instructor more often.

Grading will be as follows: 50% of the case study grade will be on the written report. Factors include completeness of information, clarity of prose, relevance of examples. Submitting the outline and draft in a timely manner will also be considered. 50% of the case study grade will be on the presentation. Factors include clarity of presentation, fielding questions, and facilitating discussion.

Report Content
Your report should follow standard formatting for technical reports. Report sections should be titled and numbered with subsections being subnumbered. The report pages should be numbered starting with the cover page (but the cover page should not have a number printed on it). The report should include the following:

1. An overview of the operating system including a short history and a statement of the main
objectives of the operating system. A diagram of the system structure also would be helpful.

2. Most of the report should consist of descriptions of the various design decisions made for the operating system including, but not limited to:
   ● Processor scheduling
   ● Memory management
   ● File management
   ● I/O scheduling
   ● Etc.

3. The report also should include a discussion of any unique characteristics of the operating system. You should point out the rationale behind the choices, any unexpected interactions between design choices, and places where you might choose differently and why.

4. Finally, your report should conclude with a discussion of why you would or would not use this operating system. That is, give a "personal reaction" to the features and capabilities of the operating system.

5. **A list of references used in the preparation of the report should be included. This list should be numbered and in alphabetical order by first author/organization.** Citations in the report should be indicated using "[#]", where # is the number of the work cited in the reference list. Please note that Wikipedia is not acceptable as a reference. However, it is a good starting place for finding original references.

**Presentation**
Each student will make one 15-20-minute presentation on their operating system, including time for questions. The presentation should be an **overview** of the case study pointing out the highlights. Please do not read your entire case study to the class. Throughout the presentation, the presenters should be prepared to answer questions.

Presentation software may be used, but is not required. Overhead slides may be used. Instructor can have slides made from handouts.

**Operating Systems**
Here is the list of possible operating systems for study for this term.

1. Android OS
2. Blackberry OS - currently the second most popular smartphone OS
3. iPhone OS
4. QNX
5. Symbian OS - currently the most popular smartphone OS, from Nokia
6. VxWorks
7. webOS - successor to Palm OS
8. Windows Mobile