CS 470 - Operating Systems
Spring 2013 - Guidelines for Operating Systems Case Study
Out: February 27, 2013
Outline with References Due: March 22, 2011 (Friday)
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 design choices were made and why these choices were made.

Logistics
This assignment will be done in pairs (plus one trio). All case studies will discuss mobile operating systems for small devices. Operating systems will be distributed by random draw. Students may swap operating systems, if all parties agree. Inform the instructor of any such changes. Other operating systems in the same category may be proposed, which may or may not be accepted by the instructor. Proposed operating systems must have had at least one stable release.

Operating systems (listed in alphabetical order) in the random draw are:

1. Android OS
2. iPhone OS
3. Symbian OS - until recently the most popular smartphone OS, from Nokia
4. Windows Phone/8

Each student pair/trio is responsible for:

- An approximately 10-page written report in PDF format, due by 4:30pm one day before the presentation. Copies of the report will be distributed to the rest of the class
- A 15-20 minute class presentation. An electronic copy of the presentation in PDF format must be submitted to the instructor after the presentation.

In addition, the following due dates are in effect

- A basic outline of the written report with at least 3 references is due no later than Friday, March 22.
- A draft of the written report is due no later than one week before the presentation. Order of presentations will be assigned by the instructor.

Each student pair/trio 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 also will 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**
The report should follow standard formatting for technical reports. Report sections should be titled and numbered. The report pages should be numbered not including the cover page, which 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.
   You should point out the rationale behind the choices, any unexpected interactions between design choices, and places where you might choose differently and why.
3. The report also should include a discussion of any unique characteristics of the operating system.
4. A brief discussion on the programming API used to write applications for the operating system may be included.
5. 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.
6. A list of references used in the preparation of the report should be included. A reference should include the author (or organization, if something like a reference manual), title, name of publication, and date. Include a URL if reference is available on-line. The 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 source information. In addition, references should be to reputable resources. Most blogs are not acceptable unless written by a recognized expert.

**Presentation**
Each student pair/trio will make one 20-25 minute presentation on their operating system, including time for questions. Each student in the pair/trio must speak for at least 5 minutes during the presentation. 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.

Presentations will be the week of April 15. All students must be present in order for the presentation to be given. Unexcused absences will be penalized 10% for the absent student(s).