CS 466, Spring 2015
Assignment #5
An OS Project
Due 4/20/15, in class

Input
An OS related topic that you are interested in.
1 or 2 friends.

Output
An OS project (a paper, a program, or a mix of the two).
A presentation on your project.
An evaluation of group members.

Notes
(1) Important: by 13 March I need a one paragraph project proposal.
(2) The project is 20% of your grade.
(3) I am interested in quality not quantity; thus, papers are limited to 10 pages (10 point min · · ·), and programs should be significant, well written, and working, but not necessarily long.
(4) Alas, your predecessors have motivated
   - Pre-approved topic changes cost 20 points.
   - Un-approved topic changes cost 50 points.
(5) Code projects require a 2-3 page writeup in addition to the (working) code.
(6) Express the organization of the paper in the paper.
(7) Paragraphs have a topic sentence. Everything in a paragraph relates to or supports this sentence.
(8) For your talk, ask me for a copy of “how to give a good research talk.”

Project Ideas
You should try and come up with a topic that interests your group. If you can’t, then use the following list for suggestions.
(1) http://tempos-project.org/about-it
(2) http://hadoop.apache.org
   The Apache Hadoop project develops open-source software for distributed computing.
(3) Play with the multi-user shared virtual environment Croquet: www.croquetproject.org.
(4) Bricks! os bricks-os.org
(5) Digital signatures
(6) Build a distributed white board
(7) Circular files (requires understanding and then modifying the FAT or NTFS file structure).
(8) Write challenge login

(9) Distributed systems: any subtopic (e.g., distributed game playing)

(10) Write a program using Remote Procedure Calls (RPCs) (Or any project dealing with RPC.)

(11) Implement a small kernel on top of BIOS on a PC or a Mac.

(12) Write a disk device driver for an encrypted USB key (using cheesy encryption).

(13) Write a paper on one (or more) of the following topics:
  (1) Unix Implementation
  (2) Ethernet: Distributed Packet Switching for Local Computer Networks
  (3) Encryption and Secure Computer Networks
  (4) Design and implementation of a log structured files system
  (5) A language with distributed scope
  (6) Randomized distance-vector routing protocol
  (7) Middleware
  (8) Decentralized communication efficient distributed shared memory
  (9) OS issues in Cloud Computing

(14) Write a monitor-to-C front end that inserts necessary DOWN and UP calls.

(15) (X)windows producer / consumer demo program

(16) Play with Linda sal.kachinatech.com/C/3/PLINDA.html

(17) Synchronous and Asynchronous group communication

(18) Internet time synchronization

(19) Adaptive prefetching for Disk Buffers

(20) Finding and dealing with race conditions

(21) NetDyn a tool for characterizing packet delay and loss

(22) Write a program to explore different disk scheduling algorithms in real time.

(23) Beowulf: linux clustering

(24) NIST network emulation tool for emulating IP networks

(25) Experiment with and demo the concurrent computing tool ThreadMentor (tool for teaching concurrent computing) www.cs.mtu.edu/ThreadMentor


(27) Come look through by ideas folder

(28) experiment with disk benchmarking (e.g., bonnie)

(29) Work with menuetos http://www.menuetos.org

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1 I have some information on this topic.