**Introduction**

The purpose of this experiment is to personalize the operating system (OS), based upon usage and function to redefine settings, policies, and configuration to maximize system security, performance, data and memory proficiency within user defined parameters. It is hypothesized that if user defined input and computer information inquiry regarding usage, function, and preference undergoes evaluation and is managed to reconfigure the system, mitigate system resources, perform maintenance and procedural operations; and formulate user specific suggestions then performance can be ubiquitously increased 10+ %, security vulnerability and security risk count can be reduced significantly, and data management can be improved 5+ %.

**Procedures**

1. Decide on target system
2. Create a list of all the program functions that will be used:
   1. Performance procedures
      1. Visual adjustment
      2. Windows Service reconfiguration
      3. Maintenance operations
      4. Startup configuration
      5. Hardware analysis
      6. Power Settings
      7. Folder / Files / Registry refinement
   2. Security procedures
      1. Windows Service reconfiguration
      2. Local security policy refinement
      3. Folder / Files / Registry settings refinement
      4. Maintenance operations
      5. Built-In windows security evaluation
   3. Data management procedures
      1. ReadyBoost Configuration
      2. Hard Drive policy refinement
      3. Maintenance operations
3. Create user groups and user types; identify usage patterns, traits and intent.
4. Assign functions to designated user group or type.
5. Download and install Visual Studio to program in language Visual basic.
6. Organize functions to accommodate for a fully functional user friendly Graphic User Interface (GUI).
   1. Categorize functions, and then allocate each to a form.
   2. Correlate user input and computer information inquiry with function to appropriate performance, security and data management procedures.
7. Program form items and corresponding function.
8. Incorporate interactive forms by automating selections based upon user input and computer information inquiry.
9. Run the program.
10. Debug.
11. Compile into an executable.
12. Measure before and after performance, security and data management enhancement.
13. Analyze results.

**Analysis**

Methods to be used to identify performance enhancement:

* Frame rate
* Games
* Windows frame rate
* Computation speed (word processing)
* Windows performance monitor (overall)
* Time duration (casual / web usage)
* System start up
* App start up
* Website load time
* Latency
* Navigation
* Render time

Methods to be used identify security enhancement:

* Security score rating
* Vulnerability count (MBSA)

Methods to be used to identify data enhancement:

* Read/Write Speed Comparison
* Access time

**References**

Bob Caswell. ( June 27, 2005). Tech Consumer. In *What Are The Main Uses For Computers?*. Retrieved Dec. 28, 2012, from <http://www.techconsumer.com/2005/06/27/what-are-the-main-uses-for-computers/>.

Chris Tull. (n.d.). microsoft at home. In *Speed up your PC: Automate your computer maintenance schedule*. Retrieved Dec 28, 2012, from <http://www.microsoft.com/athome/setup/maintenance.aspx#fbid=g_vffivdTL9>.

jmurrayhead. (August 5th, 2007). ASP/free. In *Test you System Security*. Retrieved Dec 29, 2012, from h<ttp://forums.aspfree.com/windows-security-65/test-your-system-security-1>80969.html.

Joe Moran. (09-May-12). Small Business Computing. In *5 Tips to Improve Windows 7 PCs Security*. Retrieved Dec 29, 2012, from <http://www.smallbusinesscomputing.com/News/Security/5-tips-to-improve-windows-7-pcs-security.html>.

M.S. Smith. (5/19/2011). Bright Hub. In *Windows 7 Security Tips: Making Windows 7 Even More Secure*. Retrieved Dec 29, 2012, from <http://www.brighthub.com/computing/windows-platform/articles/71765.aspx>.

Microsoft. (June 28, 2012). Microsoft Support. In *Improve computer security*. Retrieved Dec 29, 2012, from <http://support.microsoft.com/kb/969417>.

Microsoft. (n.d.). Windows. In *Maintenance tasks that improve performance*. Retrieved Dec. 28, 2012, from <http://windows.microsoft.com/en-US/windows-xp/help/setup/maintenance-improve-performance>.

Mitz. (n.d.). Tips4PC. In *Computer Maintenance Checklist – Keep Your Computer Running Smoothly*. Retrieved Dec. 28, 2012, from <http://tips4pc.com/articles/computer%20maintenance/computer_maintenance_checklis_tips.htm>.

Northwestern University.(14 November 2011). NUIT. In *Computer Security and Maintenance Checklist*. Retrieved Dec 28. 2012, from <http://www.it.northwestern.edu/security/checklist.html>.

Roger A. Grimes. (n.d.). InfoWorld. In *Seven steps to securing Windows 7*. Retrieved Dec 29, 2012, from h<ttp://www.infoworld.com/d/security-central/seven-steps-securing-windows-7>-326.

Stan Schroeder. (September 4, 2012). CNN Tech. *In Finally! Windows XP no longer most popular desktop system*. Retrieved Dec 28, 2012, from <http://www.cnn.com/2012/09/03/tech/gaming-gadgets/microsoft-windows-7/index.html>.

Technology USA. (n.d.). Technology-USA. In *A Complete PC Maintenance Checklist*. Retrieved Dec 28, 2012, from <http://www.technology-usa.net/Downloads/A%20Complete%20PC%20Maintenance%20Checklist.pdf>.

Society for Science and the Public. “IntelInternational Science and Engineering Fair,  InternationalRules and Guidelines 2012-2013.” Washington, D.C. Science Education Programs, 2012.