Union Game Non-Functional Requirements

Operating constraints
- The program requires the JRE 6 from Sun Microsystems.

Platform constraints
- The program requires a Pentium 4 or higher processor with 256 Megabytes of RAM and 2 Megabytes of available hard drive space.

Portability
- The program will run on Win 95/98/XP/Vista/7, Fedora Core 9, Mac OS X Snow Leopard, and Ubuntu 8.10 and higher

Reliability
- Since the program is purely for recreation and involves no user data, reliability is of low importance.

Usability
- A new user must be able to play a complete game of Union in less than twenty minutes.
- A new user commits less than two errors in use of the game (e.g. clicking three cards that do not form a union) every ten minutes.
- A user who is familiar with the rules of Union or Set! by Set Enterprises, Inc is able to correctly operate the program without any written documentation.
- A new user must be able to navigate the main menu UI without needing any assistance.

Accuracy
- The clock for competitive mode must be within 10 kHz of the actual clock rate (The timer must be accurate to .01 seconds of an actual clock)

Adaptability
- The program must be able to run in two modes which the user can specify through the command line: a graphical mode and a console mode.

Performance
- The program must be able to replace used cards with three new cards in < 1 second
- When activating the ‘hint’ button, hinted cards will be selected in < 1 second
- The main menu must taken < 5 seconds to appear when the game is executed

Consistency
- In the GUI, the cards must be placed in the same positions on the table during game play (i.e. cards will be placed in areas on the table that are only designated for the cards)
• The ‘hint’ button must be placed in the same x-y coordinates in the GUI at every instance of the game during normal play.
• The “Hall of Fame” records will be maintained after the program is closed

Documentation
• If attempting to open the game through the command line, a short (< 200 words) message explaining command line syntax should be displayed if the user enters incorrect command line parameters.
• The source code must be self-documented by placing the design description in a Javadoc-readable method header
• Documentation of source code must follow Dr. Dalbey’s Java Coding Standard

Maintainability
• The developer must be able to correct a single defect < 2 person-days,

Predictability
• The program must crash < 1 times for every 100 times the game is opened, played, and closed

Security
• The program will not access any user data files or programs that are not generated by the program itself
• The program will not alter, replace, or delete any system files

Testability
• If the user provides a "-c" flag on the command line when starting the application, it will run in "console mode" without a GUI. Console mode provides a minimal text user interface that can be used to exercise all the game features.
• All source code files must be individually unit tested.

Understandability
• The user must be able to access documentation describing the rules of the game both before beginning the game and during play.
• The user must be able to spend < 10 minutes reading the documented rules and understanding the basic mechanics of the game

Modifiability
• If it is desired to change the deck-size of the game, how many cards are initially placed at the start of the game, the developer will be able to make the required changes in < 1 person-hours
• If it is desired to enable the ‘hint’ button during competitive mode or disable the ‘hint’ button during normal mode, the developer will be able to make the required change in < 1 person-hours
• If it is desired to change the amount of times the user can consecutively click the hint button, the developer will be able to make the required change in < 1 person-hours
• If it is desired to create an alternate user interface, the developer should be able to make the required change without altering any of the game logic components of the application.
• If it is desired to use different card images, the developer should be able to make the change with no modification to the source code.

Deployment
• The program is to be deployed as an executable JAR file. The user must be able to download the JAR file, launch it, and the application should run with no configuration required.

Legal
• The software’s name, in any of its forms of development (storyboards, diagrams, prototype, finished production, etc), must not be named or labeled as “Set,” in reference to the game name “Set” owned by Set Enterprises, Inc.
• The software must not use the phrase “The Family Game Of Visual Perception.”
• The software can only borrow the general rules of the game “Set,” nothing else.
• In the documentation for the rules of the game, the software must not use the term “The Magic Rule” or phrase “If two are... and one is not, then it is not a 'Set'” in any way or form (verbatim or altered).