Software Requirements Specification

for

Sudokuki

Version 1.0

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Contents

Revisions

Version	Primary Author	Description of version	Date Completed
1.0	Stavros Mavrakis	Initial Release	30/09/2012

1. Introduction

1.1 Document Purpose

This document serves as a complete description of the behavior of Sudokuki. It will list its functions, its target user base, its operating environment, its various requirements and so on. It will also include a set of use cases that describe interactions the users will have with the software. At the time of writing this document, the latest stable release of Sudokuki is 1.1.5.

1.2 Product Scope

Sudokuki is a free graphical Sudoku game developed in Java. It allows the user to generate, play and print Sudoku games. It also gives the option of solving games the user is having trouble with. It offers various difficulty levels and is available in 13 languages.

1.3 Intended Audience and Document Overview

This SRS document is intended for developers, testers and of course end users. It contains an overall description of the software, followed by specific requirements and also non-functional ones. It is recommended for the reader to begin with the overview sections and proceed with the sections that are most pertinent to his/her type.

1.4 Definitions, Acronyms and Abbreviations

GUI = Graphical User Interface

SRS = Software Requirements Specification

1.5 Document Conventions

In general this document follows the IEEE formatting requirements. Arial font 12 was used to write the majority of it. Italics were used for headers and comments.

1.6   References and Acknowledgments

Sudokuki home page: http://sudokuki.sourceforge.net/

Sudokuki forums: https://sourceforge.net/p/sudokuki/discussion/

This SRS document was written using the IEEE SRS template as a guide.

2. Overall Description

2.1 Product Perspective

Sudokuki is a new, self-contained product. It is an open source project that the author develops in his free time hoping that both new and experienced Sudoku players will find it fun and useful.

2.2 Product Functionality

A summary of the primary functions Sudokuki offers is as follows:

- Generate a new Sudoku grid
- Print the current grid
- Print 4 grids
- Open and resume a previously saved grid
- Save the current grid
- Download a new version of the project
- Change language
- Enter numbers on the grid
- Enter memos on the grid
- Clear previously entered memos
- Hide previously entered memos
- Clear previous moves
- Choose level of difficulty
- Choose between Arabic and Chinese numbers
- Let Sudokuki enter memos for you
- Automatically resolve the current grid
- Make a customized grid
- Use the help button to find information about the project and its contributors

2.3   Operating Environment

Sudokuki runs on both GNU/Linux and MS-Windows systems, as well as on MAC OS/X. In fact Sudokuki runs on all systems that have a Java Runtime Environment, Java version greater or equal to 1.6 is required.

2.4   User Documentation

The following documents are available along with the project in text format:

- COPYING – a document listing public license, copyright and terms and conditions of use.
- HOWTO_RUN_SUDOKUKI – as the name implies, it informs the end user on how to run Sudokuki on his/her system.
- NEWS – offers a link to the project's forums as well as explains the different versions of its development status.
- README – offers the project's changelog as well as lists various websites referencing it.

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

This is the main graphical user interface of Sudokuki:
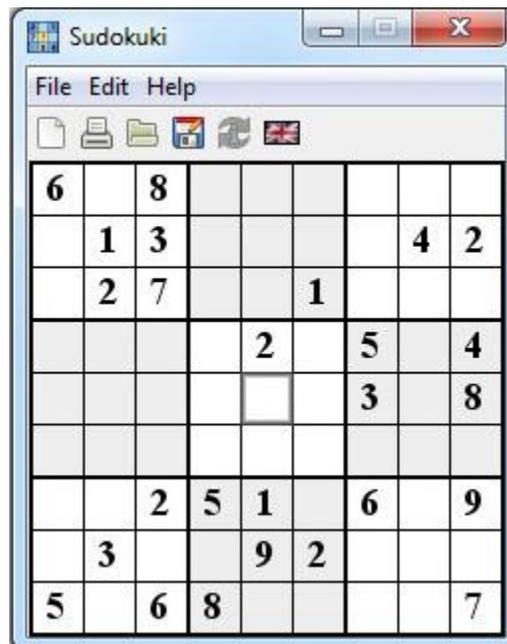
The current grid takes up the majority of the window and on the top we have the various buttons and functions.

Clicking on a square of the grid to add a number, the user is presented with the following GUI:
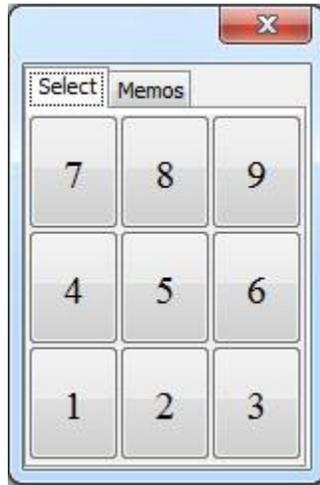
Where he/she can select the number to insert. The "Memos" tab leads the user to the following GUI:
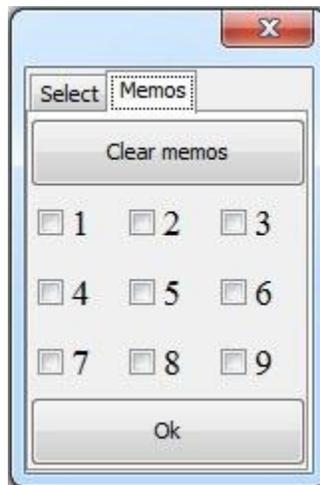
Where he/she can insert a memo on the previously selected square.

Clicking the "About…" option in the "Help" menu leads the user to the following GUI containing information about the project:
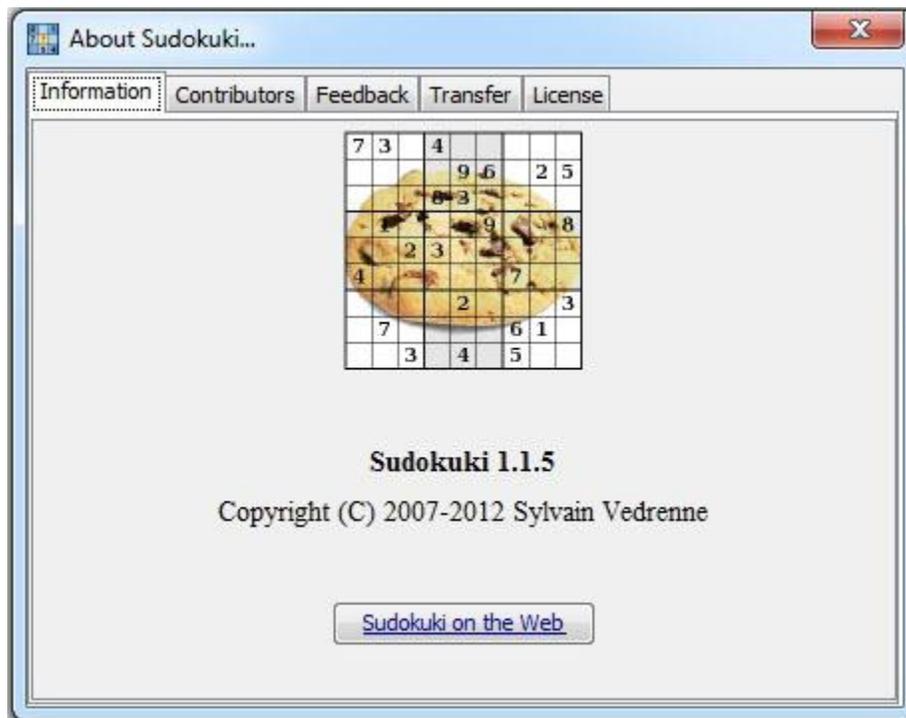
This window also contains the following tabs: Contributors -

Feedback -
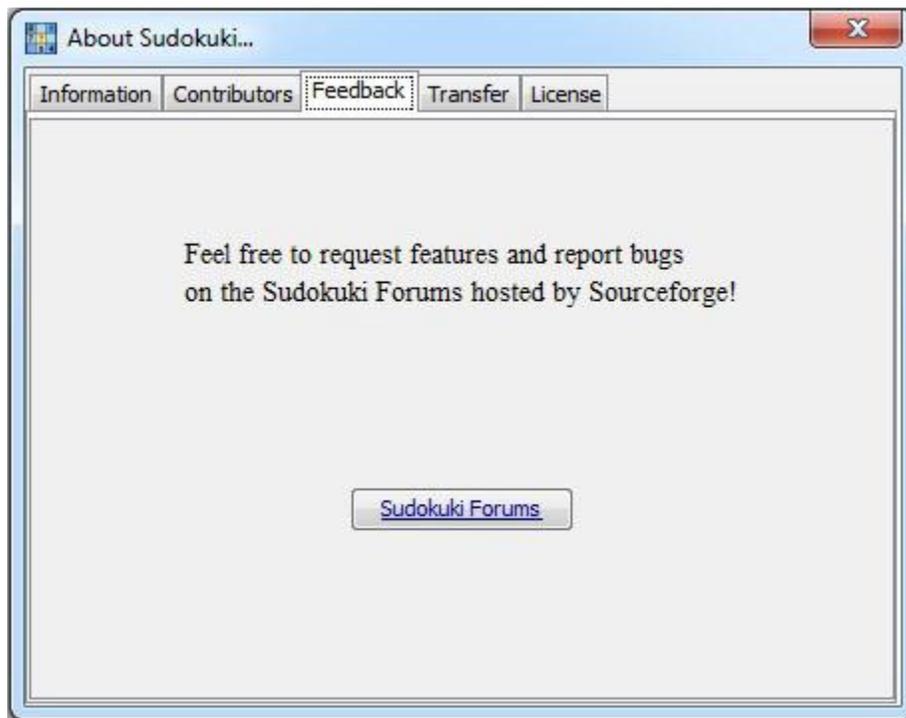
Transfer -
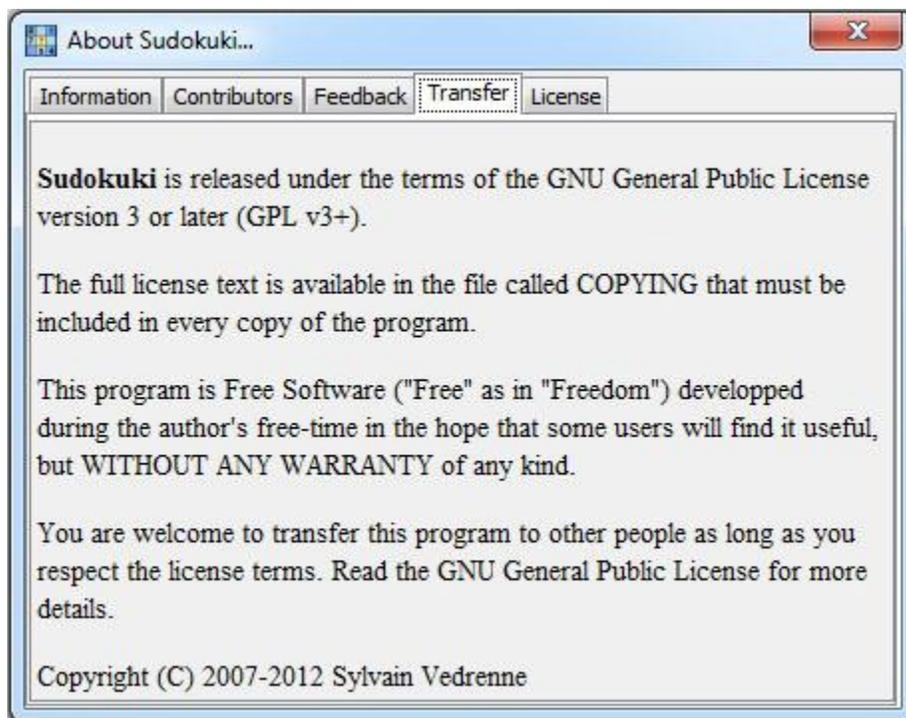
And lastly License -
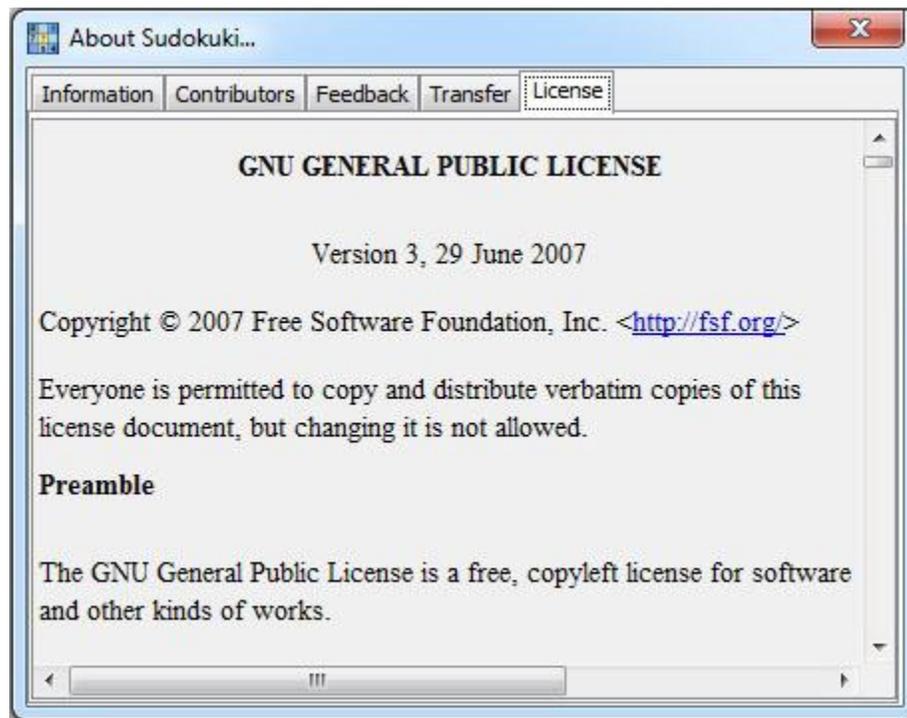
3.2 Functional Requirements

In this section all the different project functions are going to be listed in detail with specific explanations regarding each function.

3.2.1 Generate a new grid

Sudokuki offers 3 ways of generating a new Sudoku grid. The user can either click on the appropriate icon which is located on the upper part of the main GUI window (above the grid),
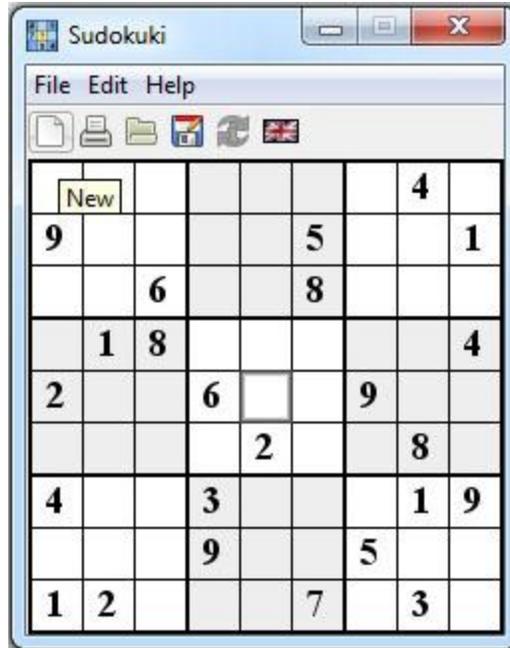
click on the "New" option in the "File" tab,
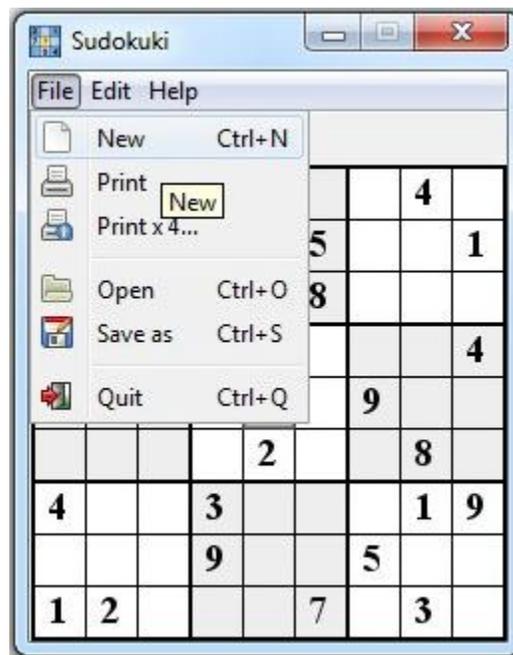
or simply press "Ctrl + N" on their keyboard. All three alternatives generate a new game of Sudoku on the main GUI.

3.2.2 Print the current grid

The users can print the current grid if they have a printer available. Once the option is selected, a new GUI appears where the users can specify the name of the printer, the number of copies etc. The option is accessed either by clicking on the icon at the top of the main GUI
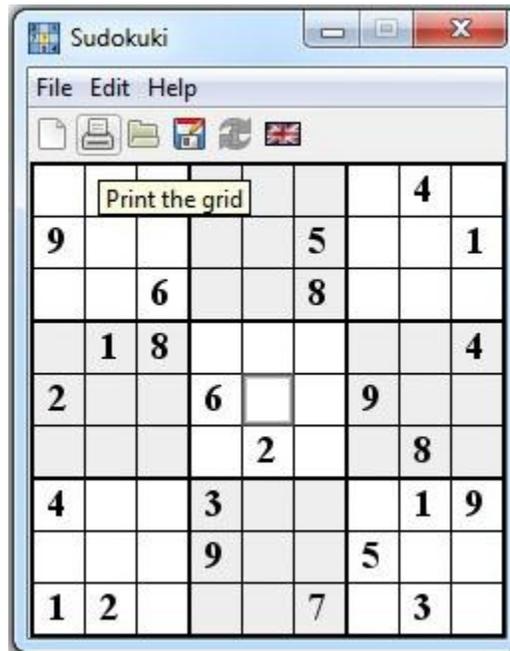
or by clicking on the "Print" button of the "File" tab
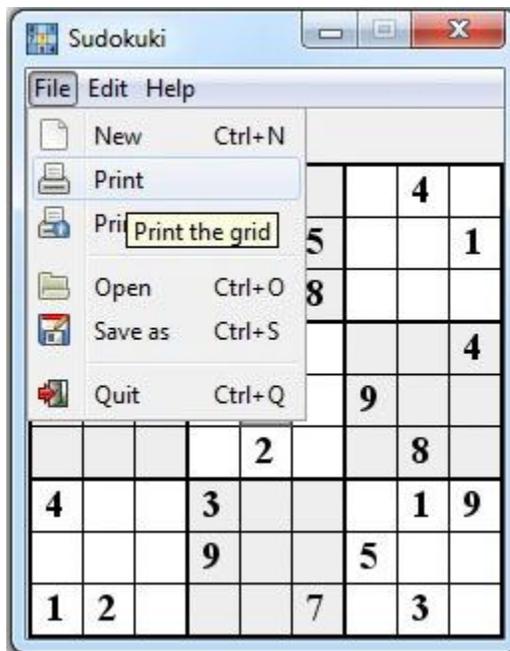
3.2.3 Print 4 grids

The users can print 4 automatically generated grids if they want. They can later solve those grids on paper. Once the option is selected, Sudokuki generates 4 random grids and then sends them to the printer, opening the printer GUI. This option is accessed via the "Print x 4…" button of the file tab
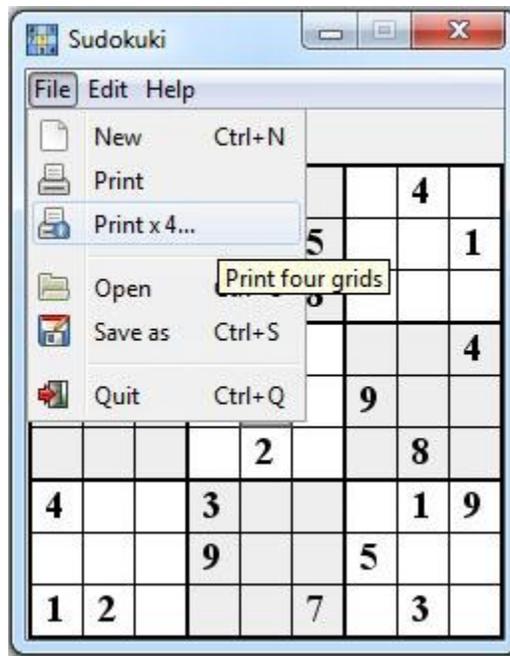
3.2.4 Open a previously saved grid

The users can open a previously saved grid and resume their work on it. Sudokuki grids are saved as ".skg" files. When the option is selected, Sudokuki lets the users choose their desired grid and then shows it on the main GUI. The option can be accessed by either clicking on the appropriate icon at the top of the main GUI,
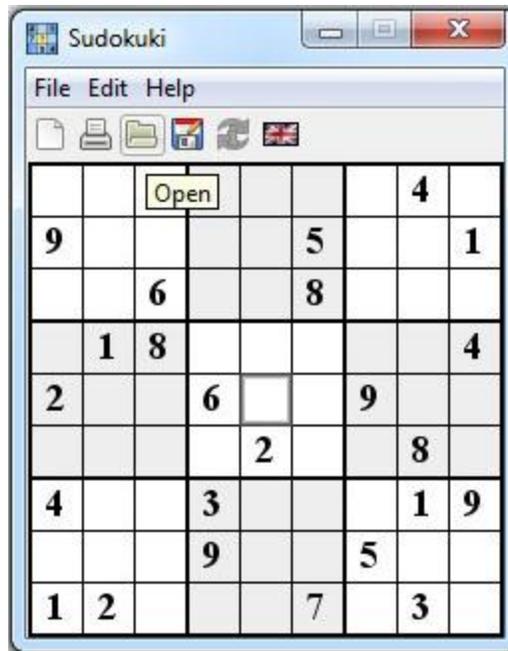
clicking on the "Open" button of the "File" tab,
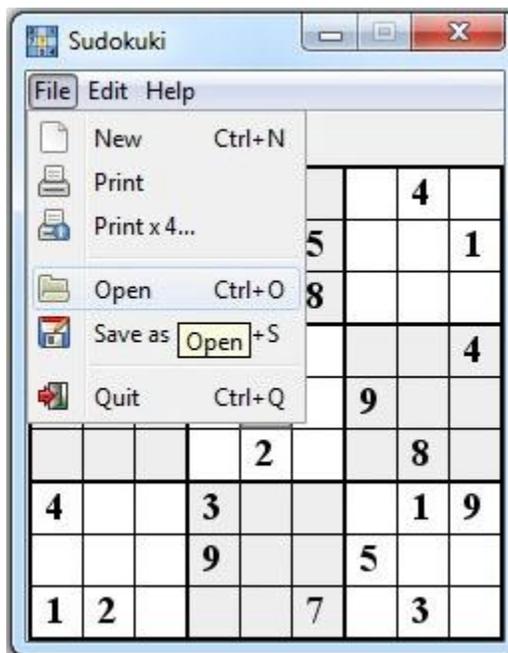
or by pressing "Ctrl + O" on the keyboard.

3.2.5 Save the current grid

The current grid can be saved at any time as a ".skg" file and stored anywhere the user wants. The option can be accessed either by clicking on the appropriate icon at the top of the main GUI,
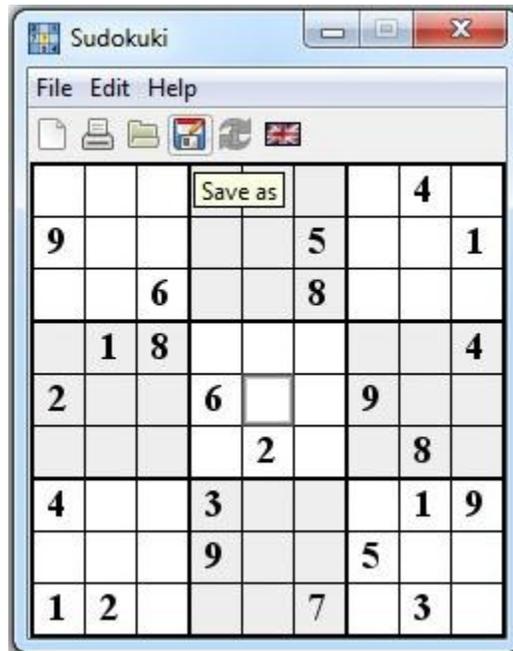
by clicking on the "Save as" button of the "File" tab,
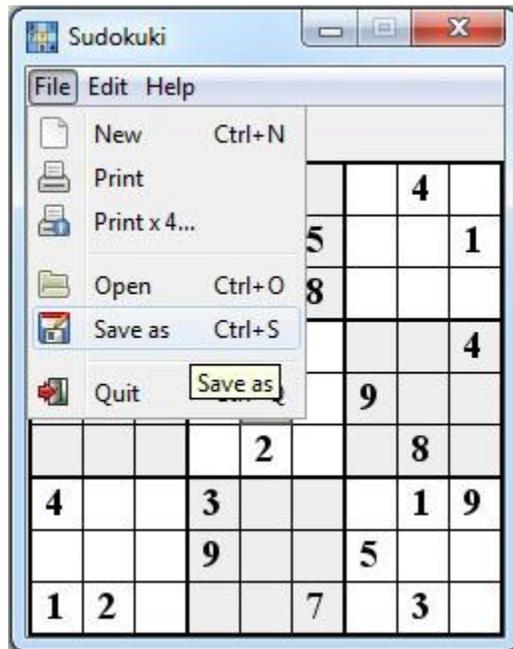
or by pressing "Ctrl + S" on the keyboard.

3.2.6 Download new version

The user can update to the newest version of Sudokuki if available. In general, newer versions of the project mean less bugs, more stable performance and new features. This option can be accessed either by clicking on the appropriate icon at the top of the main GUI
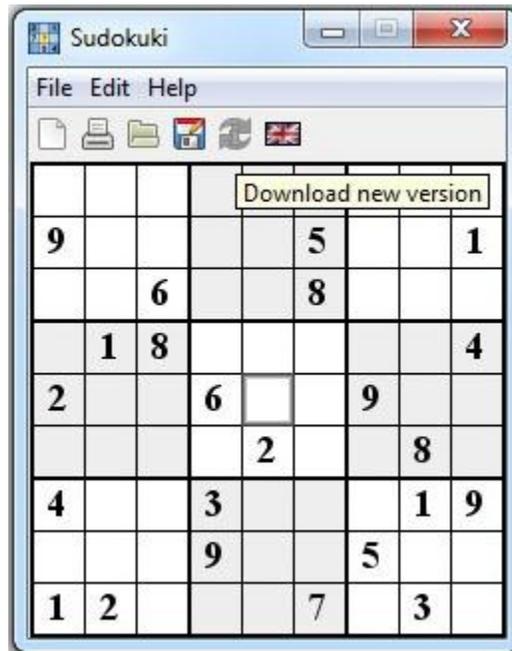
or by clicking on the "Download" button of the "Help" tab

3.2.7 Language selection

Sudokuki offers a wide variety of languages for the user to select, including German, Greek, English, Japanese, Chinese, Latvian, Dutch, Esperanto, French, Portuguese, Russian and Spanish. The selection can be made by clicking on the appropriate icon at the top of the main GUI, at which point this window appears,

or by clicking on the "Language" button of the "Edit" tab

3.2.8 Quit the application

Naturally Sudokuki also comes with the option of quitting the application. The user can click on the "Quit" command of the "File" tab, or press "Ctrl + Q" on the keyboard.
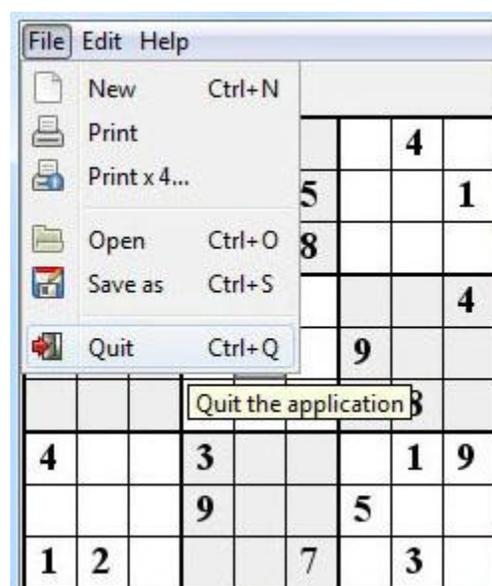
3.2.9 Clear all moves

The users can clear all previous moves they made in the current grid. This will reset the grid to its initial state, useful if it turns out there has been a mistake somewhere. The option is available on the "Edit" tab
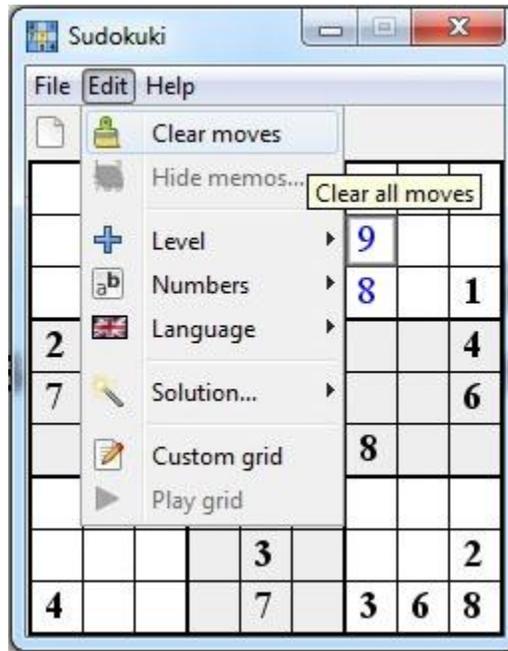
3.2.10 Hide memos

As the title implies, users also have the option of hiding all previously entered memos, thus clearing the grid of them. The option is available on the "Edit" tab
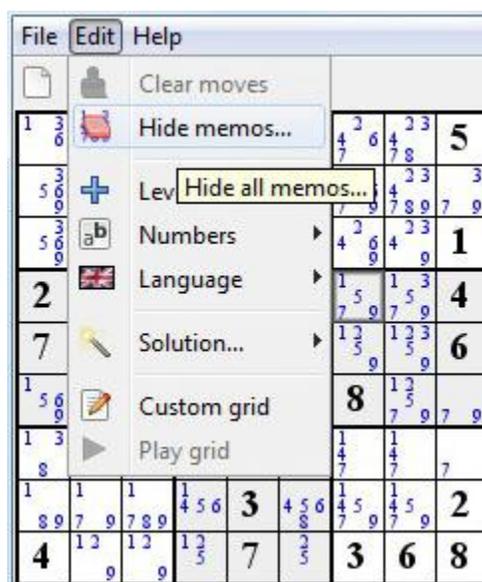
3.2.11 Difficulty level selection

Sudokuki offers 5 difficulty levels that apply to different users, from the beginners to the more experienced. The option to set the level is on the "Edit" tab
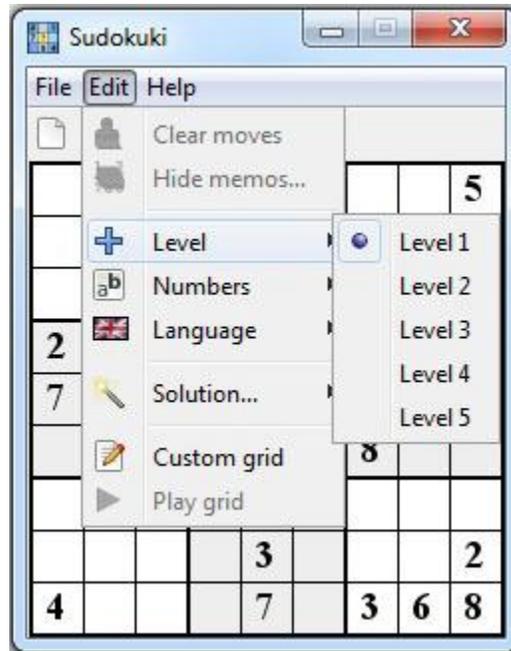
3.2.12 Numbers format selection

Users have the option of using either Arabic or Chinese/Japanese numbers (kanji). This option appears yet again on the "Edit" tab
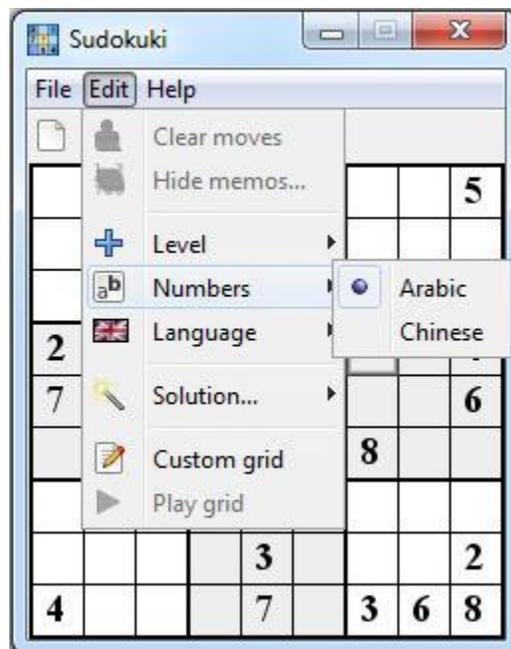
3.2.13 Solve the current grid

If the users finds the current grid too hard, they can opt to have Sudokuki solve it for them. There is also the option of automatically filling the grid with memos, helping the users by excluding some numbers in each square. The options appear on the "Edit" tab
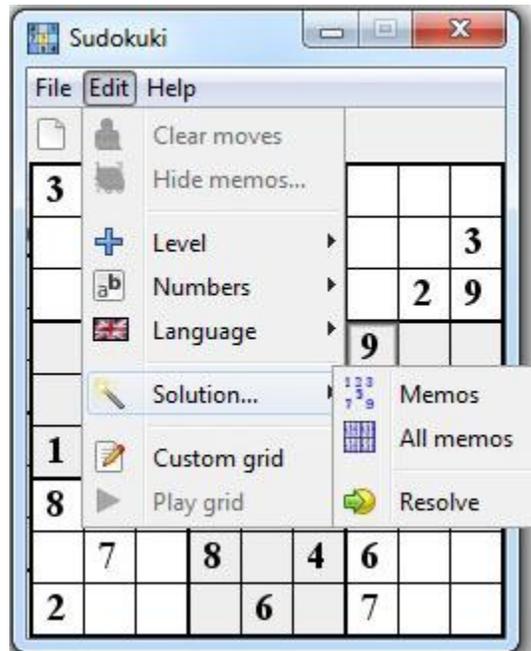
3.2.14 Compose a custom grid

The users also has the option of composing a grid of their own. They are given the freedom of inserting numbers anywhere they wish on the empty grid and then playing on that grid. The "Edit tab" again contains this option
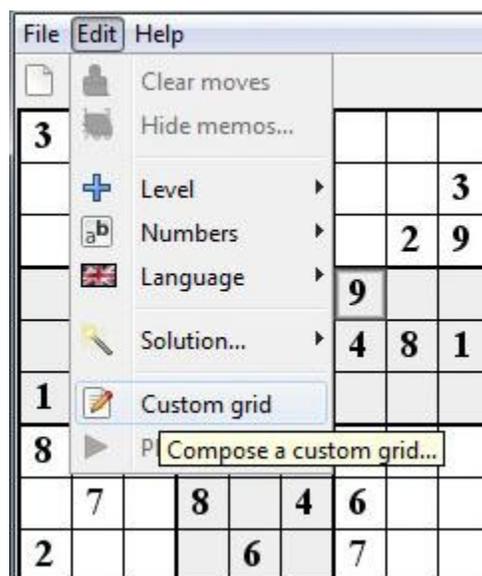
3.2.15 Check for updates

Before actually updating to the newest version of Sudokuki, the user will have to check if there *are* any updates available. The option appears on the "Help" tab
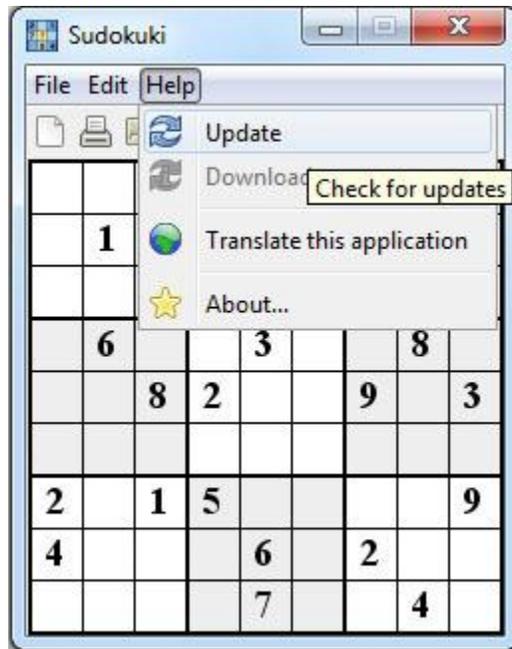
3.2.16 Translate Sudokuki

Users who want to help the project by translating it to their native language can do so by clicking on the "Translate this application" option on the "Help" tab. The following window appears with information
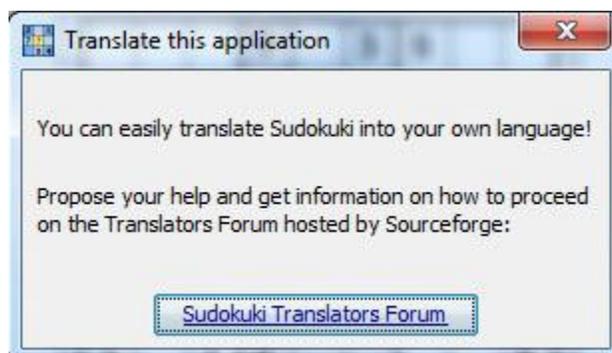
4. Other Non-functional Requirements

4.1   Software Quality Attributes

Sudokuki has been over 4 years in the making and with each new version it becomes more reliable and robust. It is available to everyone free of charge, it is adaptable and it still gets translated to many other languages so that everyone can enjoy it. It is very easy to use thanks to the friendly GUI and the author makes sure to listen to every bug report or feature request in the forums.