
AUTOTEAU

**<QuickKar>
Software Architecture Document**

Version <1.0>

QuickKar	Version: 1.0
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System Requirement Specification	

Revision History

Date	Version	Description	Author
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Software Architecture Document

1. Introduction

1.1 Purpose

- This document provides a general architectural overview of the system. There are some aspects of the system which are described by using some different architectural view .It is built to analysis and impart the important architectural decisions.

1.2 Scope

- This document have been created by AUTOTEAU and implemented in RUP model. The generality of the sections have been taken from RUP model combine with the Software Architecture Document temple.
- This document also provides an overview of the architecture of QuickKar system. This program intends to be used in the Karaoke Bar to simplify the searching song process and management.

1.3 References

- <http://www.agilemodeling.com/essays/agileModelingRUP.htm>
- Priestley, M. (2004). *Practical Object-Oriented Design with UML*. Mc Graw Hill.

2. Architectural Goals and Constraints

- MVC must be used in the system's design.
- The software development process must follow the RUP Model.
- Abstract class, inheritance, polymorphism, interface (the principle of OO concepts) must be followed.
- Safety: This program pause at every important, data loss/overridden risk tasks such as deletion, adding data by asking users to confirm their action.
- Security & Privacy: This program makes use of username-password login mechanism to secure the data inside. Password should be complex enough and its complexity is to be checked when creating account.
- Portability: This program is developed in Java – a portable programming language that can run at any computer, on any platform that has Java Runtime Environment. Data of the program is also exportable.
- Distribution: None.
- Reuse: Divide and implements many interfaces and abstract classes.
- Development tools: Netbeans 6.9.1, JDK 1.4.2, Subversion 1.7 with Unfuddle.com SVN, Microsoft Word 2010.
- Team structure: 5 members: 1 leader, 2 coders, 1 diagram drawer, 1 web and working environment maintainer.
- Schedule: 3 weeks and 3 days. The 1st week is used for planning and researching. The 2nd week is used to coding. The 3rd week is used to check, fix and patch bugs. The remaining is used to finalize everything.
- Legacy code: Code in the program is legacy-compatible – it makes use of no deprecated functions. It can run on nearly any JRE version not too old.

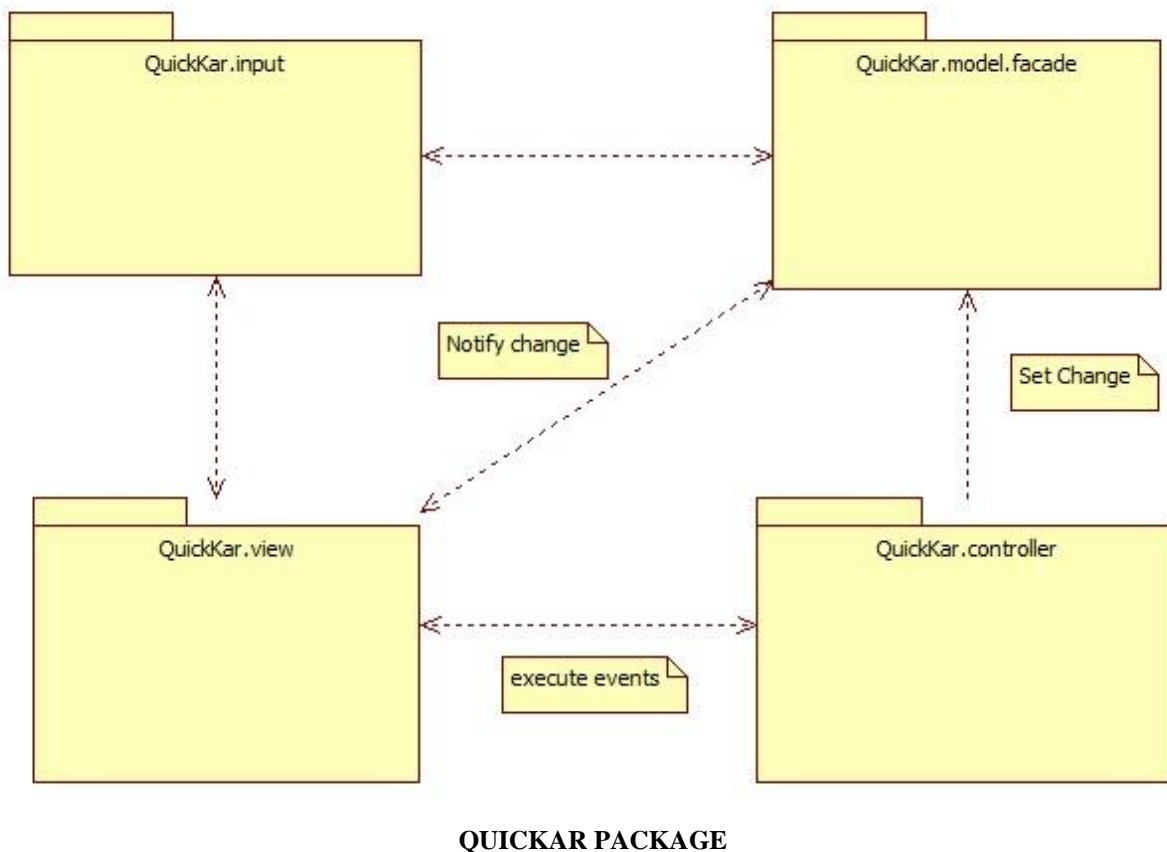
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3. Logical View

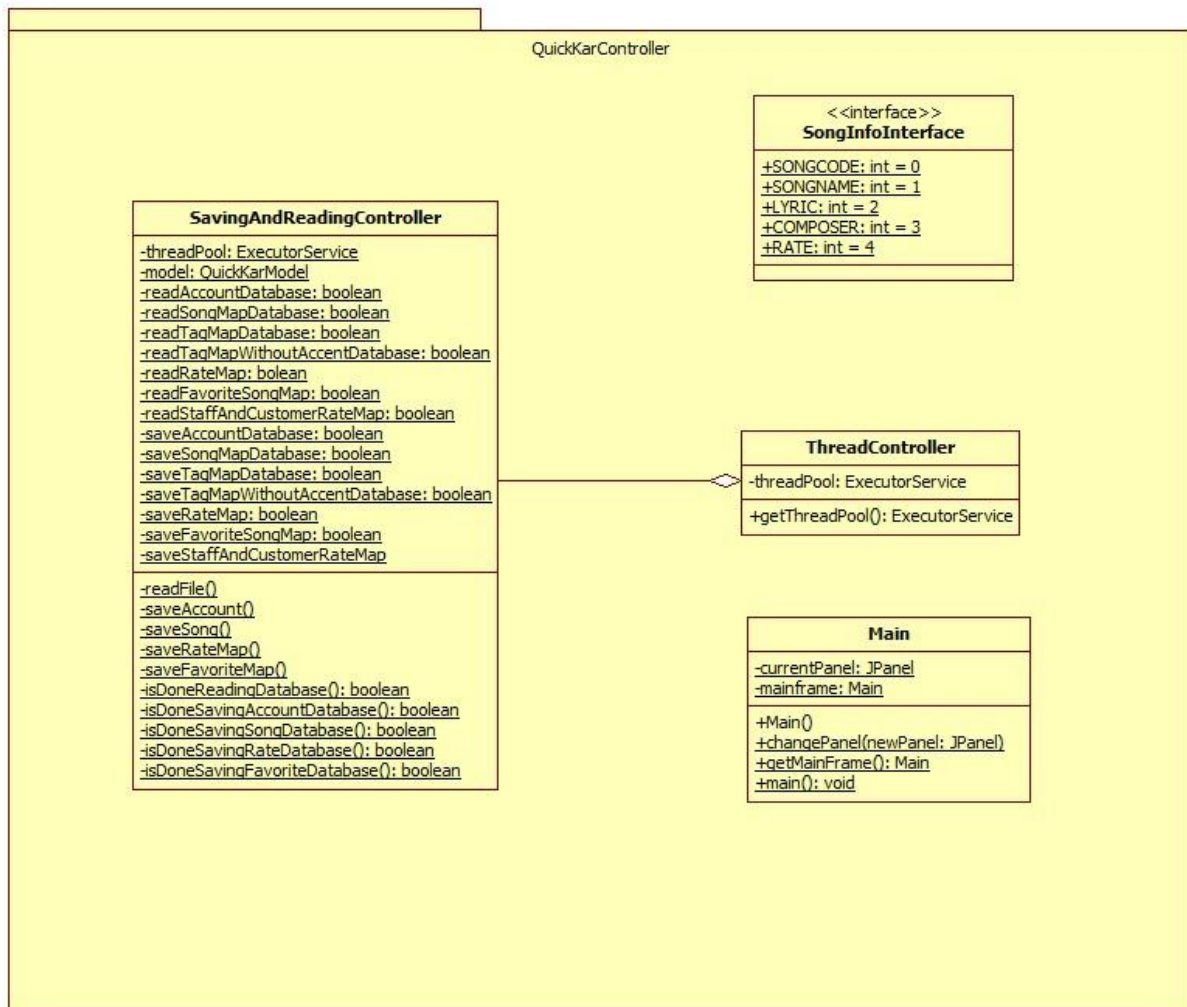
3.1 Overview

- The system will be designed based on the MVC model which contains three main packages: Model, View and Controller.
- In Model package, it comprises the main classes such as: Account, Song Information. Moreover, it can help the system to manage data, functions in the logic way.
- In View package, it helps the system to create an easy understanding user interface.
- Controller package is the place where contains any actions or events of the users based on the View package.

3.2 Package and Class Diagrams

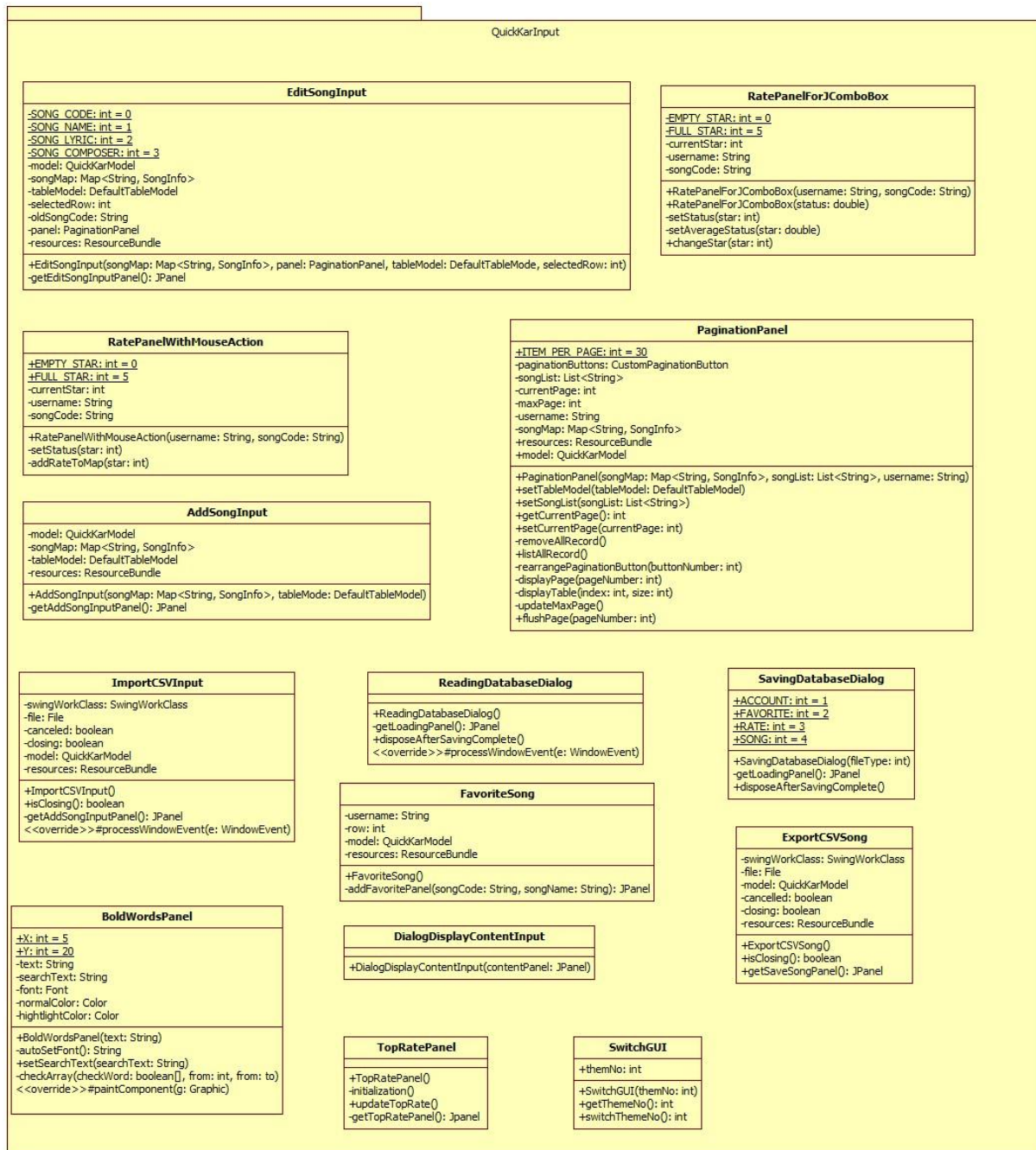


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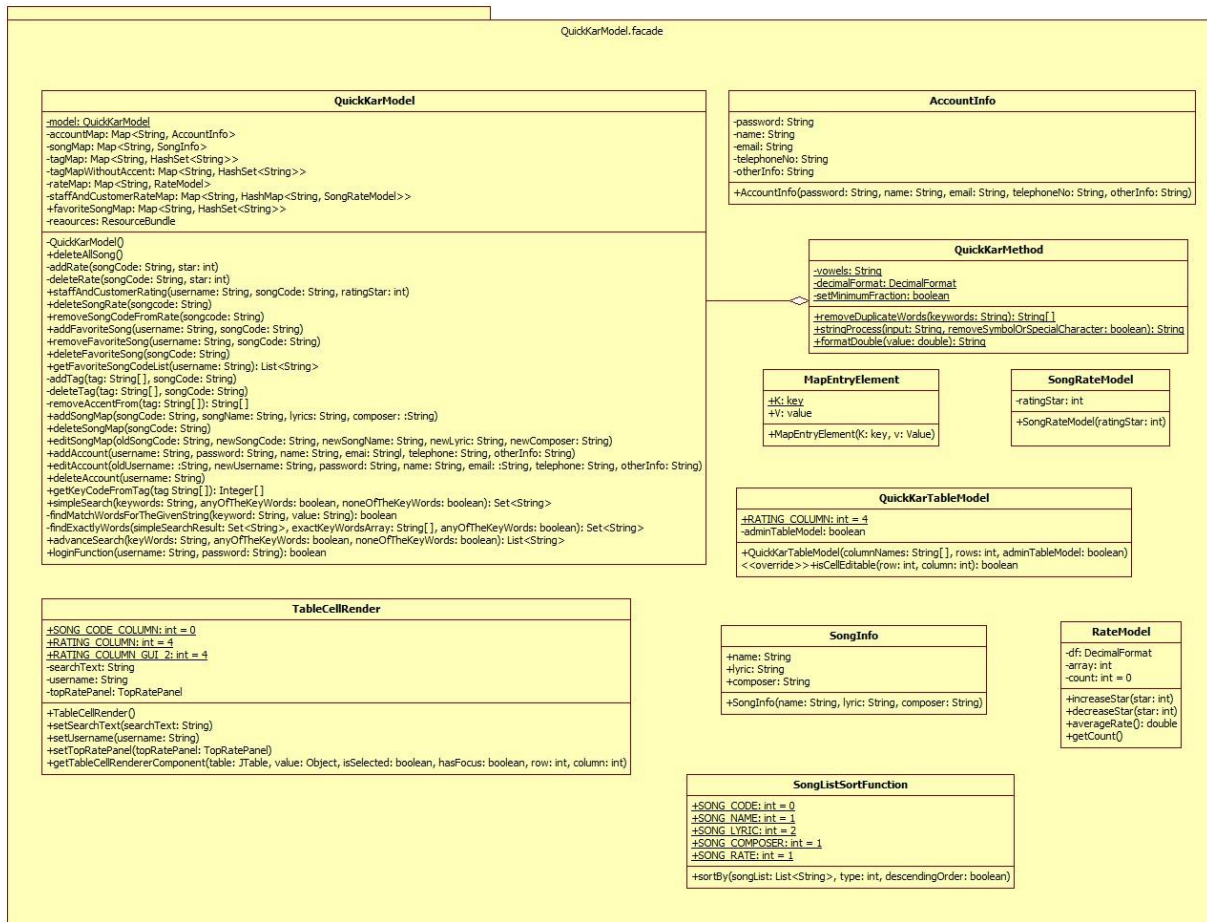
QUICKKAR CONTROLLER

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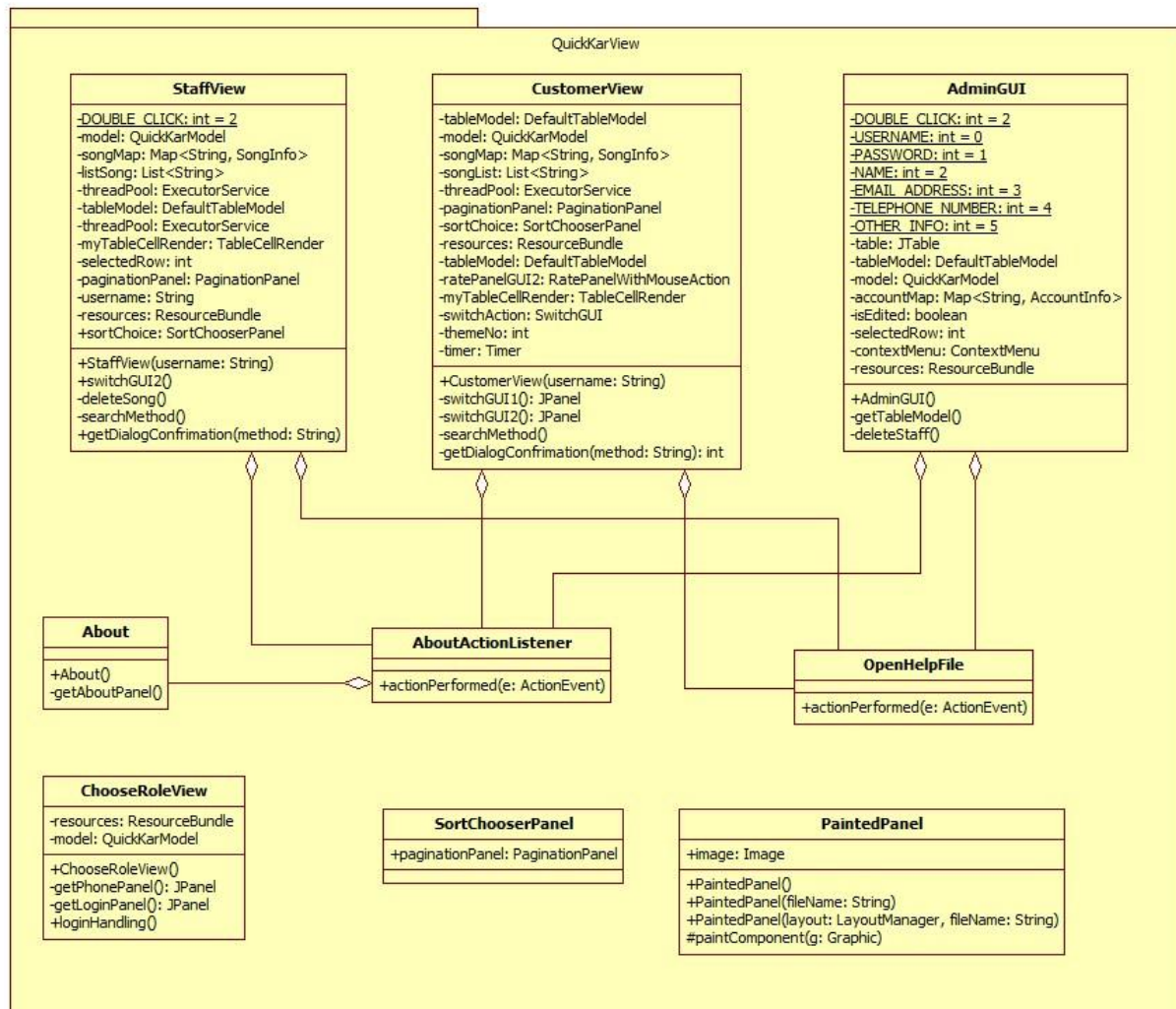
QUICKKAR INPUT

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QUICKKAR MODEL

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QUICKKAR VIEW

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4. Design Justifications

- The design is mainly based on map and array list data structure. The reason is that the map data is fast for managing, finding a specific data in the system, while array list tend to use for accessing elements in an array. The relationship between a model and view follows on MVC model with the controllers responsible for updating and changing data. The structure of the system has one main controller that manages all the other controllers in the system.
- The design has low coupling between classes and high cohesion between methods in a class. For example, the system has only one model for other controllers to fetch and process data.

Searching algorithm:

- For the given song, we divide the song words (song name, song lyric, and song composer) into small tags and store those in a hash map.
- For example, the song "I DON'T WANT TO MISS A THING" will be divided into small tags like ("I", "DON'T", "WANT", "TO", "MISS", "A", "THING"), and those tags will be store in the hash map with the key is the tag word, and the value is the set of song codes contained that word.
- Thus, when looking for a word, searching algorithm will look for the words in the hash table instead of looking that words specifically in song code or song info (song info included song name, song lyric, and song composer).

4.1 Size and Performance

- Based on the requirement of client, this software is developed as a Java desktop program for a local karaoke.
- The software will be supported to different kinds of user.
- In term of using the software, the user needs to login into the system by username and password which were provided by the Administrator.
- The Administrator has the full power to interact with others user such as creating, updating and deleting user from the system.
- Only the Administrator can edit the control tables for staff account.
- The system also contains the user guide in HTML format for supporting uncommon user.
- Staffs can manage the tables by using multi-selection method.

4.2 Quality

- The application has friendly user interface.
- Every feature occurs in the user guide (HTML file).
- Feasible in managing.
- Follow MCV model.
- Easy to maintain and upgrade.
- Multiple choices for searching methods.
- Hashmap is good for managing specific object with the given key so it is easy to delete or find object. Thus, we divide the key word for the different tags then it will improve the search.

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4.3 Convert PDF to CSV:

❖ SOFTWARE FOR CONVERTING PDF TO CSV:

- Nitro Pro 7 (<http://www.nitropdf.com>)
- Unikey 4 (<http://unikey.org>)
- Notepad++ (<http://notepad-plus-plus.org>)

❖ CONVERTING PDF TO CSV:

1. Install Nitro Pro 7 (Trial version), Unikey 4, Notepad++

2. Use Nitro Pro 7 to convert to .xlsx

- Open Nitro Pro 7.
- Load file “List Vol 45.pdf”.
- Click button “Convert to Excel”.

3. Use Microsoft Excel 2007+ to convert to .csv

- Open MS Excel 2007+.
- Load file “List Vol 45.xlsx”.
- Copy data from 12 sheets to 1 sheet only.
- Active that sheet.
- Menu File > Save As... > under File Type, choose “CSV (Comma delimited) *.csv”.

4. Determine encoding used in .pf:

- Open .pdf in Foxit Reader or Adobe Acrobat Reader, look for its Properties and see Font: VNI- fonts are used.

5. Use Unikey and Notepad++ to change encoding from VNI to Unicode:

- Open “List Vol 45.csv” in Notepad++.
- Press Ctrl+A, Ctrl+C.
- Menu Encode > Encode in UTF-8.
- Open Unikey, right-click on the icon on system tray, choose “Cong cu...”.
- Under Nguon, choose “VNI-Windows”. Under Dich, choose “Unicode”.
- Check the checkbox “Chuyen ma Clipboard”.
- Click “Chuyen ma” > OK.
- Switch back to Notepad++, paste the result back.
- Use Search and Replace feature to fix some problems: “ “, “ “, “...” (Double and triple spaces, three dots).
- Replace line-break with comma for every same record.
- Use Search and Replace to change comma delimiter to “|” delimiter.
- Save.

(Repeat those steps with other pdf files.)