# List of sample projects

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# Sudoku Game

You have a grid of eighty-one tiles (nine across and nine down), and you try to fill them in with numbers so that each column, each row, and each of the three-by-three boxes contains the numbers 1 through 9 only once. When the game starts, some of the numbers (the *givens*) are already filled in. All the player has to do is supply the rest. A true Sudoku puzzle has only one unique solution. Sudoku is usually played with pencil and paper, but computerized versions are quite popular too. With the paper version, it’s easy to make a mistake early on, and when that happens, you have to go back and erase most of your work.

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# Library system

The library system can provide functions as below:

**[1. Borrow process]**

The borrower can borrow the books by bring copy of the book they want to borrow to librarian. He also can to collect copy of reserved book

The librarian will check if it is the expected borrower. The librarian will then take the reserved copy and loan it out to the borrower.

The librarian will confirm the following information:

Borrower’s card number

Name

Unreturned books if any

Expected return date of these books

The copy number of each book to be borrowed is then keyed into the machine. The status of each copy indicates it is available, referenced, or borrowed. Only the available copy is allowed to be borrowed. **A 2 week loan period** is allowed per book. A referenced or borrowed copy is not allowed to be borrowed. If the copies to be borrowed are all available, the copy number, book name, borrow date and expected return date is used for confirmation

The maximum number of copies allowed to be borrowed is 5.

**[2. Return process]**

The book will be returned is brought to counter. The librarian then keys in the copy number.

The copy number, book name, and borrower name is checked for confirmation. If the book is overdue, the borrower will have to pay a fine of 1 USD per day

The librarian will keep the copy if there is a reservation waiting for a copy and, a first come first served basis is used to assigned to the borrower.

**[3. Reservation process]**

Books may be reserved. Before the reservation is accepted, a check is made if they are any available copies in the shelf.

If they are available copies, the reservation is rejected and the reason is made known. If all available copies are out, the reservation is accepted.

The following is accepted for the reservation

The book number

The borrower card number

A first come, first served basic is used to assign copies when they are returned.

A borrower can only make 1 reservation.

**[4. Book registration process]**

The librarian may also register new books into the Library.

The registration can be an

1. Addition of a new copy

This means a new copy can be appended to an existing set of copies. The book number, the number of new copies, and price of each copy is entered

1. Creation of a new book entry and copy

The librarian enter the classification, book title, publisher and whether the copy reference or for borrow.

A book and copy number is automatically generated by the system

The following data are required for registration

Book information

Book number (should be generated by the system)

Title

Publisher

Authors

Copy information

Copy number

Book number

Sequence number

Price

The sequence number is a sequence number for each copy of the same book

The price indicates the cost of the copy

**[5. Borrower registration process]**

The following information are recorded when a new borrower is registered

Borrower number (this is sequential number)

Borrower name

Sex (F or M)

Address

Telephone

e-mail

# POS system

**Overview of Project**

A point-of-sale terminal (POST) is a computerized system used to record sales and handle payments; it is typically used in a retail store. It includes hardware components such as a computer and a bar code scanner, and software to run the system (See the following figure).

[](http://www.google.com.vn/imgres?q=Point-of-sale+image&um=1&hl=vi&sa=X&biw=1362&bih=583&tbs=isch:1&tbnid=VbBi9miVYIQ-VM:&imgrefurl=http://www.fitnessmarketingmuscle.com/fitness-sales-point-of-sale-systems/&imgurl=http://www.fitnessmarketingmuscle.com/wp-content/uploads/2010/03/rp5700pos.jpg&ei=Uz41TcrwDqTKcPi0kbkH&zoom=1&w=800&h=541&iact=hc&vpx=315&vpy=80&dur=523&hovh=185&hovw=273&tx=163&ty=93&oei=Uz41TcrwDqTKcPi0kbkH&esq=1&page=1&tbnh=123&tbnw=182&start=0&ndsp=19&ved=1t:429,r:1,s:0)



The purpose of this project is to create a Virtual POST system, Web based POS software can be run on any computer with an Internet connection and supported browser, without additional software.

**Goals**

This is to describe how the system fits into the overall business or strategic objectives of the organization commissioning the software.

The goals of the POST system can be stated as

In general the goal is increased checkout automation, to support faster, better and cheaper

services and business processes. More specifically, these include:

* quick checkout for the customer,
* fast and accurate sales analysis,
* automatic inventory control.

**System description**

Your system will support two different configurations: a distributed configuration and a stand-alone configuration. Your software will support either configuration without code level changes. This means that your system must be configured at deployment to support either configuration. In the distributed configuration, a server (one of your team’s laptops) will be used as a secure server repository and the other team members’ laptops will be the POST. Assume that the distributed configuration can support any number of POSTs.

The cashier log in POST system successfully by his/her ID and password, and record the underway (current) sale - the items purchased. The price and description of each item and current sale total will be displayed. The customer can pay by cash or credit card (this feature will be simulated for this project). Of course your system should not compromise any Customer account information. If the customer pay by cash, the amount tendered will be input and balance due will be calculated. When the sale is committed, it will be recorded and the inventory will be reduced

The system will have an administration capability and appropriate interfaces that can be used to set and change the item type and add/remove items from the virtual POST and generally administer and configure deployed systems. The administrator can also add/remove cashiers. The administration interface will allow system administrators to easily add/remove items to/from the system and manage staffs. Your system should support local or remote administration of deployed systems.

Your system should also be esthetically pleasing as well – but not in the physical sense as the POST have in above figures. We will not have a physical housing for the virtual POST other than the laptops themselves, but assume that you will have the laptop display (standalone or table-side) to show videos, pictures, and so forth in your product to increase the esthetic appeal of your device. Also, your device should be intuitively easy for users to use. To add a item, the system will ask the administrator to specify the type of the item, the UPC, the description, and price. If there is a problem locating a particular item, a simple, pleasing message should be displayed.