CHAPTER 3

GENERAL DESIGN

3.1 General Objectives

The main objectives of the study are to apply the principle and concepts to provide a solution to the existing problems of the company and provide an automated management system for the Gat Andres Bonifacio Memorial Medical Center Admitting and Discharge Section.

3.2 Specific Objectives

The specific objectives of the study based on the problems stated:

1. To immediately retrieve the hospital number of a patient by means of the patient's name.
2. To directly recognize the absconded patients that will be consulted and admitted again.
3. To immediately update the wards and the admitting and discharge section on the availability of rooms

3.3 Presentation of Alternatives

3.3.1 Alternative 1: Stand Alone Set-up

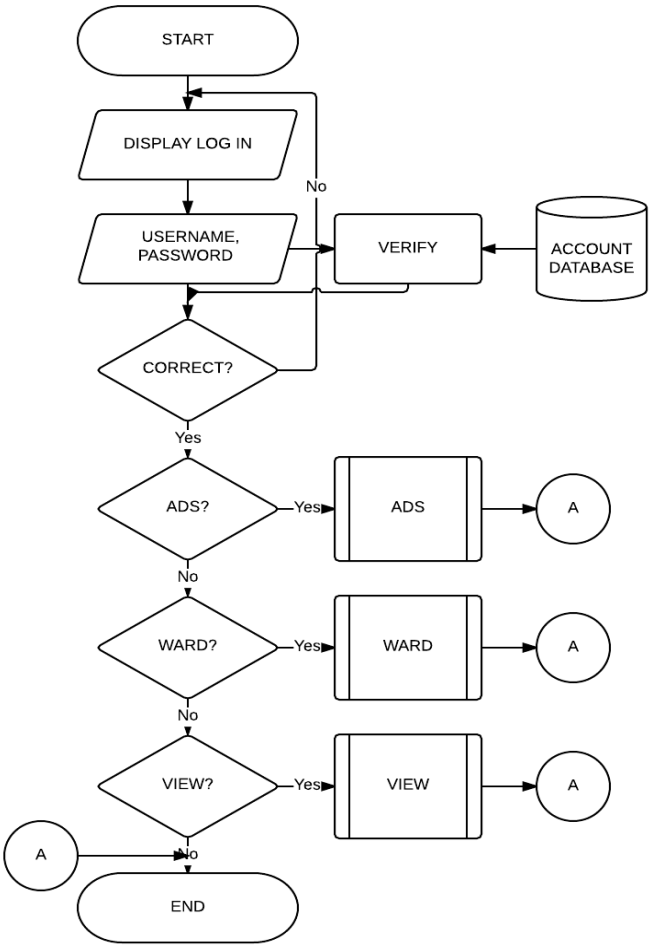
Stand alone is a kind of set-up where all terminals are independent of each other. The system should also install to each other at the terminal having the same capabilities. The accessing level and capabilities of a user will be determined by its account level. This proposed set up will require the ward per floor to have some terminal. The said ward will be the following: Surgery ward (3rd floor), OB ward (4th floor), Pediatric ward (5th floor), Medicine ward (6th floor) and ADS (1st floor).The proposed alternative will have the following advantages:

- Easy access of data needed: Data collected will be held by each database, thus retrieving of these will be independent of others.
- Less expensive: stand-alone system will be less expensive when compared to other type of set-up Local Area Network (LAN) or Wide Area Network (WAN)
- Data security: Data held by each terminal through their databases will not be accessed by other terminal

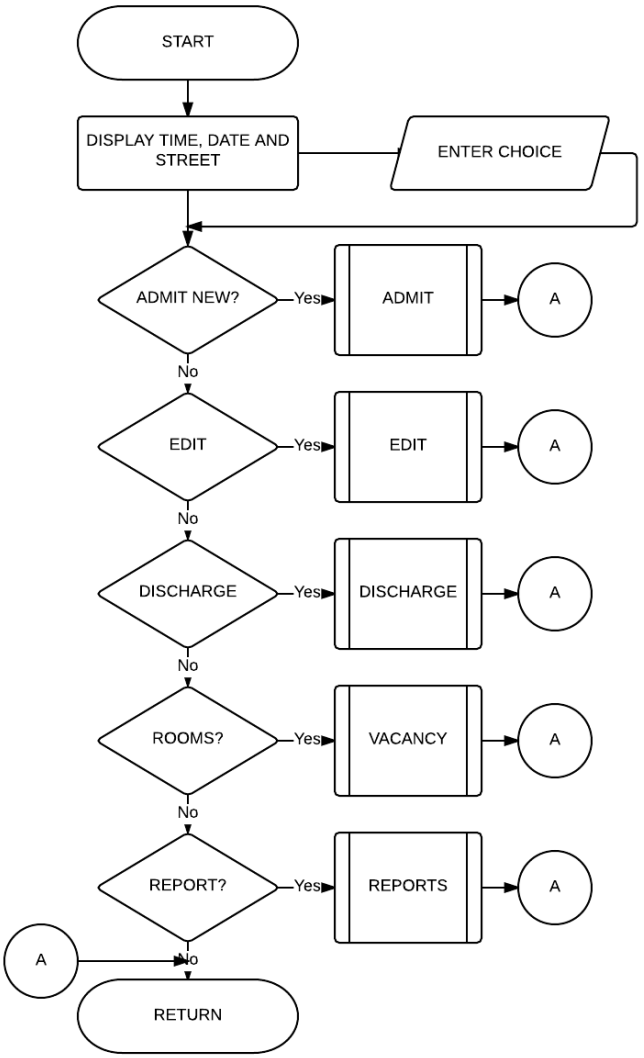
In this proposed alternative, the Ward-on-Duty per floor can access the system using their log-in username and log-in password. For example, the ward nurse at Surgery ward can access his/her appropriate module in the system after he/she log-in. He can check the available rooms in his respective ward. He will transfer the information about the available rooms in their ward to the Admitting and Discharge Section through the telephone. The ADS can now update their room vacancy module to monitor vacant beds and rooms.

3.3.1.1 System Flowchart

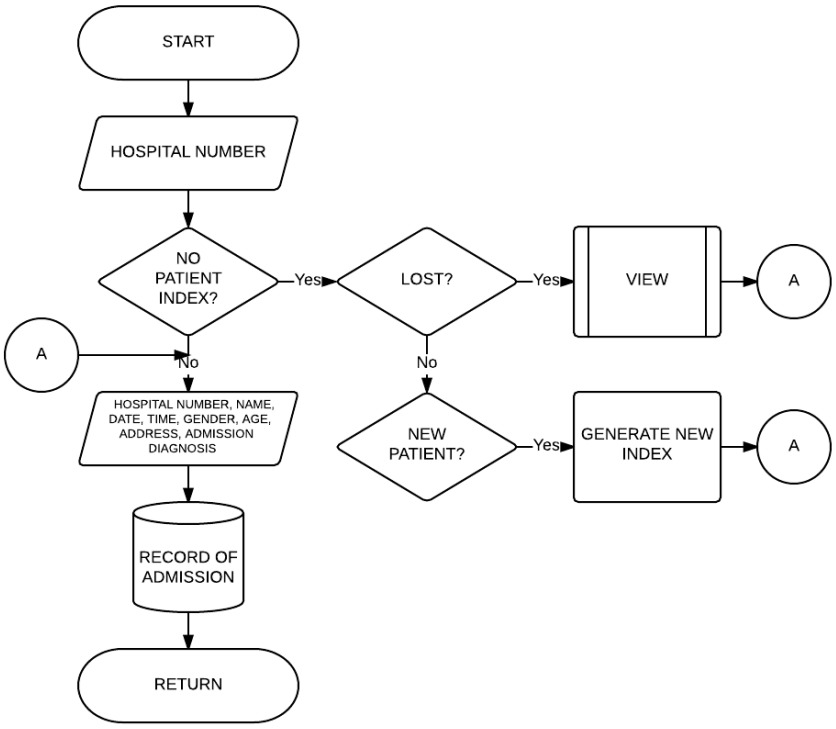
Main Module



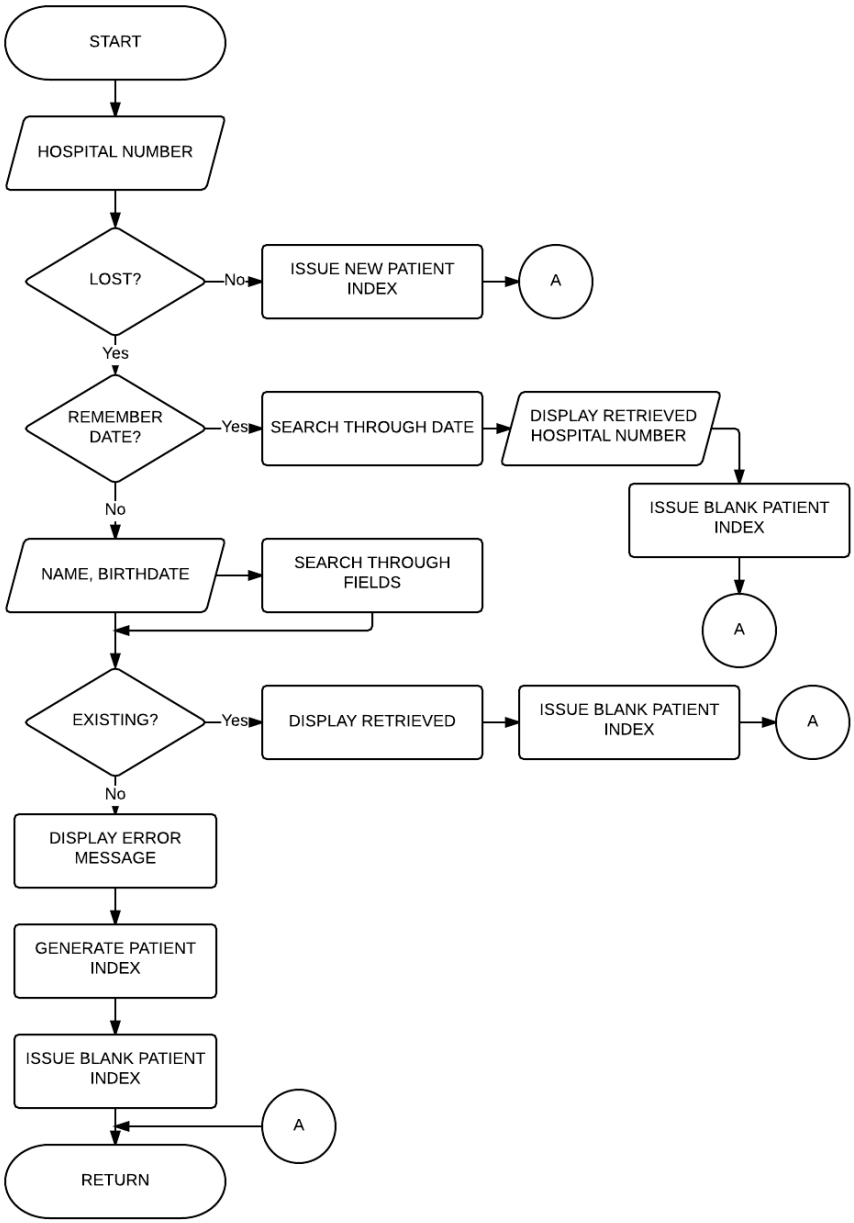
ADS Module


START
DISPLAY TIME, DATE AND STREET
ENTER CHOICE
ADMIT NEW?
Yes
ADMIT
A
No
EDIT
Yes
EDIT
A
No
DISCHARGE
Yes
DISCHARGE
A
No
ROOMS?
Yes
VACANCY
A
No
REPORT?
Yes
REPORTS
A
A
No
RETURN

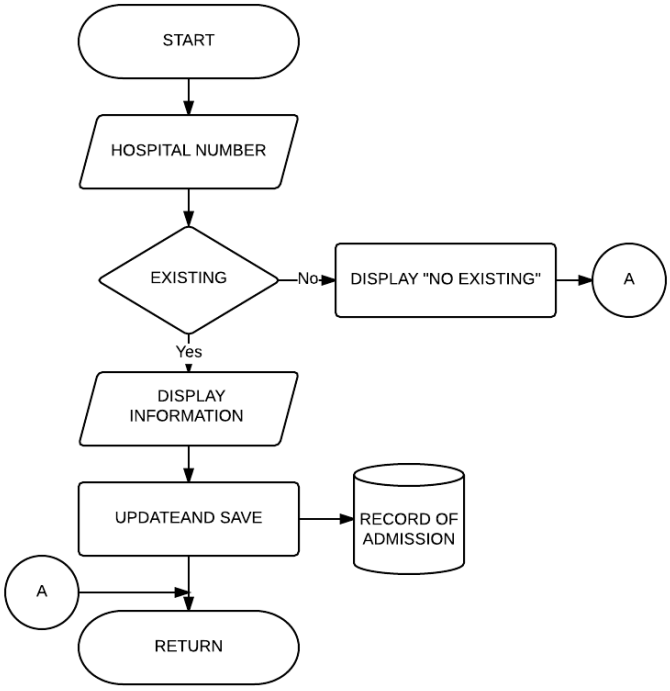
Admit Module



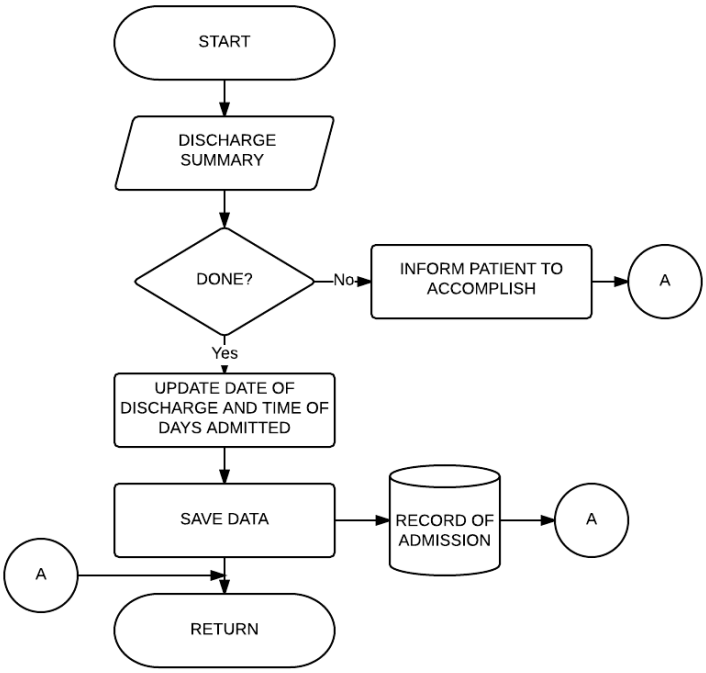
View Module


START
HOSPITAL NUMBER
LOST?
No
ISSUE NEW PATIENT INDEX
A
Yes
REMEMBER DATE?
Yes
SEARCH THROUGH DATE
DISPLAY RETRIEVED HOSPITAL NUMBER
ISSUE BLANK PATIENT INDEX
A
No
NAME, BIRTHDATE
SEARCH THROUGH FIELDS
EXISTING?
Yes
DISPLAY RETRIEVED
ISSUE BLANK PATIENT INDEX
A
No
DISPLAY ERROR MESSAGE
GENERATE PATIENT INDEX
ISSUE BLANK PATIENT INDEX
A
RETURN

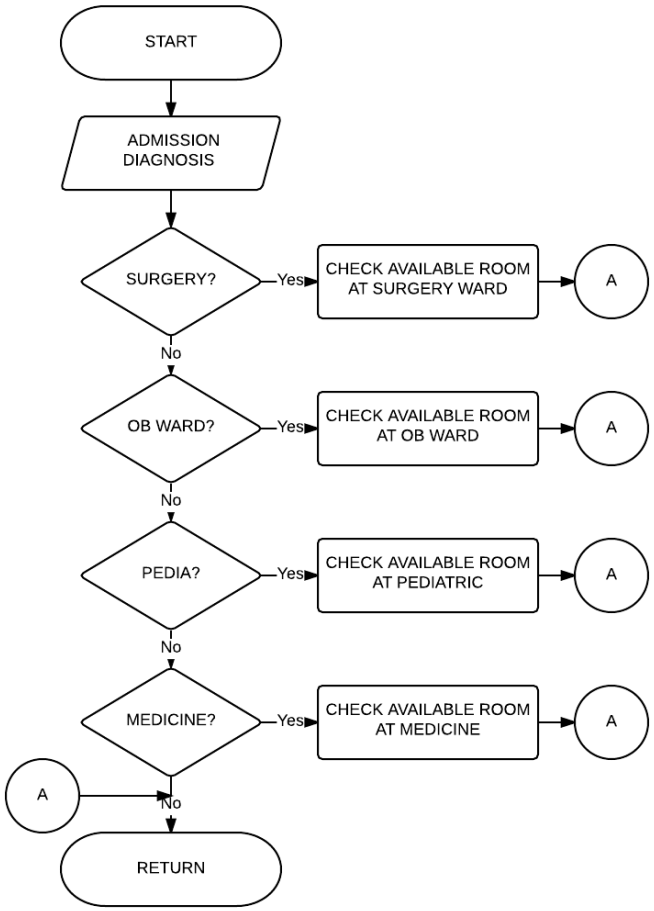
Edit Module


START
HOSPITAL NUMBER
EXISTING
No
DISPLAY "NO EXISTING"
A
Yes
DISPLAY INFORMATION
UPDATEAND SAVE
RECORD OF ADMISSION
A
RETURN

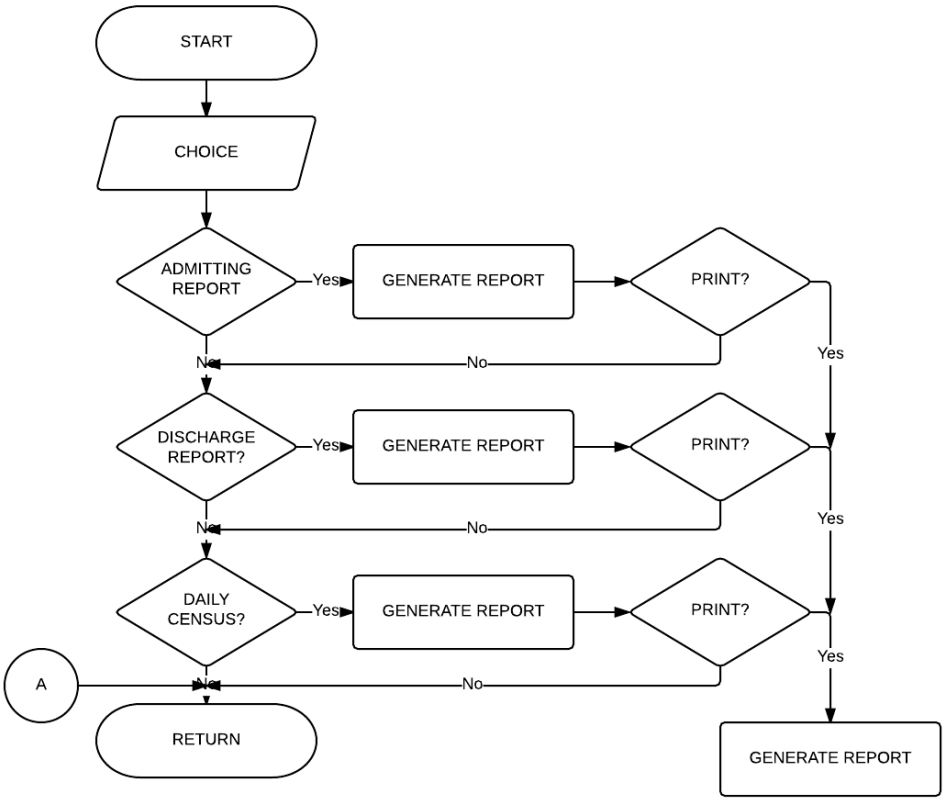
Discharge Module



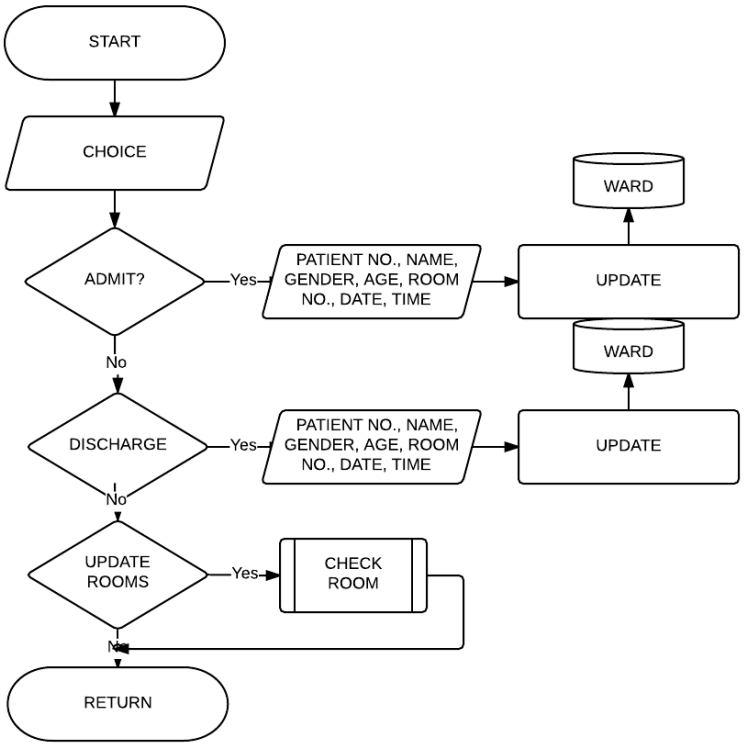
Vacancy Module



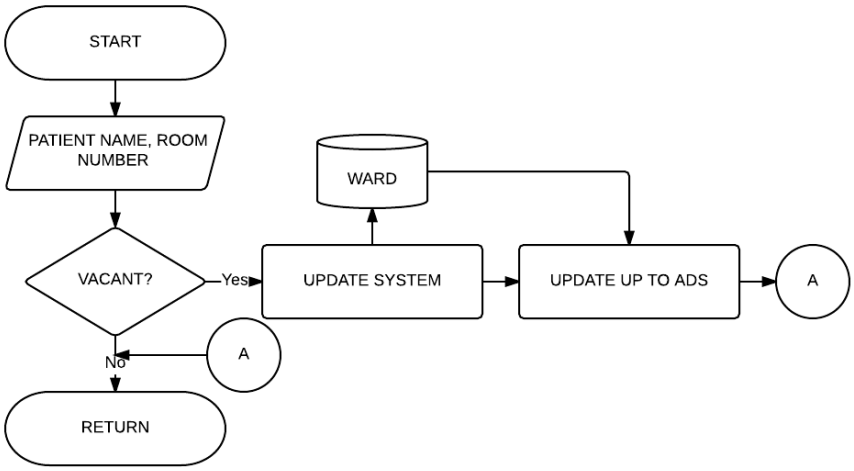
Reports Module



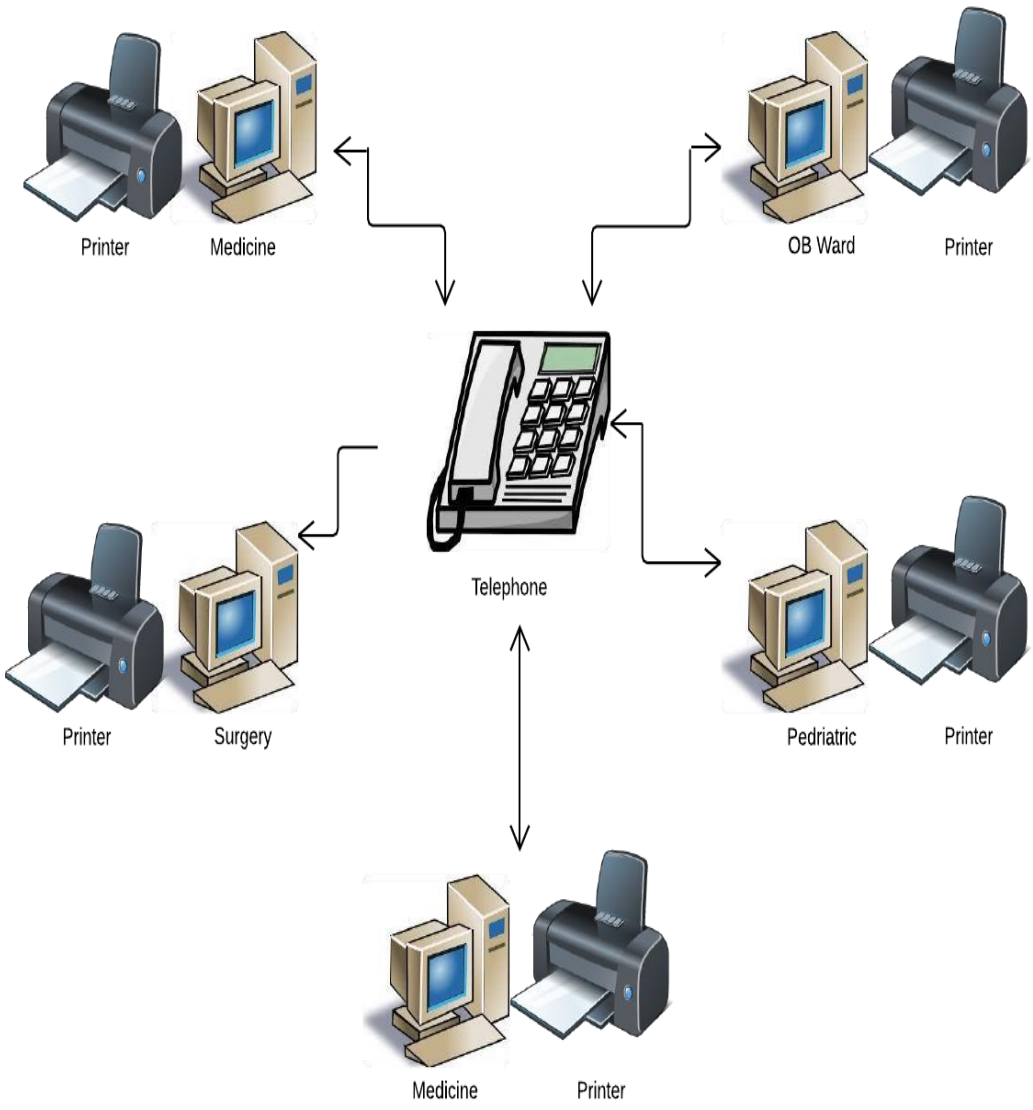
Ward Module


START
CHOICE
ADMIT?
Yes
PATIENT NO., NAME, GENDER, AGE, ROOM NO., DATE, TIME
WARD
UPDATE
WARD
No
DISCHARGE
Yes
PATIENT NO., NAME, GENDER, AGE, ROOM NO., DATE, TIME
UPDATE
No
UPDATE ROOMS
Yes
CHECK ROOM
RETURN

Check Room Module



3.3.1.2 Physical Elements



3.3.1.2.1 Database/Table

Admitting Staff Database

Field Data	Field Type	Length	Description
Username	Alphanumeric	15	Log-in username
Password	Alphanumeric	15	Log-in password
First Name	Alphabet	15	First name of Admitting staff
Last Name	Alphabet	15	Last name of Admitting staff
Middle Name	Alphabet	15	Middle name of Admitting staff
Age	Numeric	2	Age of Admitting Staff
Birthday	Alphanumeric	10	Admitting staff's Birthday
Position	Alphabet	20	Position Admitting staff

Ward Nurse Database

Field Data	Field Type	Length	Description
Username	Alphanumeric	15	Log-in username
Password	Alphanumeric	15	Log-in password
First Name	Alphabet	15	First name of Ward Nurse
Last Name	Alphabet	15	Last name of Ward Nurse
Middle Name	Alphabet	15	Middle name of Ward Nurse
Age	Numeric	2	Age of Ward Nurse
Birthday	Alphanumeric	10	Ward Nurse Birthday
Position	Alphabet	20	Position Ward Nurse
Floor	Alphanumeric	1	Ward nurse floor

In Patient Services Database

Field Data	Field Type	Length	Description
Service	Alphabetic	15	Type of Sevice
Admitted	Numeric	5	No. Of Admitted patients
Discharge	Numeric	5	No. Of Discharged Patients
Total Length of Stay	Numeric	5	Length of stay
REC./IMP	Numeric	5	Number of Improved Patients
Transferred	Numeric	3	No. Of Transferred Patients
Absconded	Numeric	3	No. Of Absconded patients
Home Against Medical Advice	Numeric	3	No. Of HAMA patients
Mortality	Numeric	3	No. Of patients <48 and >48

Daily Census Database

Field Data	Field Type	Length	Description
Room Number	Numeric	10	Room Designation Number
Date Admitted	Numeric	10	Date of Admission
Patients Name	Alphabetic	30	Name of Patients
Estimated Length of Stay	Numeric	3	Length of Stay(Estimated)
Remarks	Alphabetic	5	Employee's Remark

Record of Admission Database

Field Data	Field Type	Length	Description
Hospital Number	Numeric	10	Patient's Hospital Number
First Name	Alphabetic	20	Patient's First Name
Surname	Alphabetic	10	Patient's Surname
Middle Name	Alphabetic	10	Middle Name of Patient
Age	Numeric	2	Patient Age
Admission Diagnosis	Alphabetic	20	Patient Diagnosis
Room Number	Numeric	10	Room Number
Room Floor	Numeric	1	Floor number
Att. Physician	Alphabet	30	Name of Physician
Date Admitted	Numeric	10	Date Admitted
Time Admitted	Numeric	10	Time Admitted
Days Admitted	Numeric	10	No of Days Admitted
Date Discharged	Numeric	10	Discharged Date
Time Discharged	Numeric	10	Discharged Time
PH membership	Alphabetic	10	Type of PH membership
Address	AlphaNumeric	30	Address of Patient

Patient Record Database (Basic)

Field Data	Field Type	Length	Description
Hospital Number	Numeric	10	Patient's Identity
First Name	Alphabetic	20	First Name of Patient
Surname	Alphabetic	15	Surname Of Patient

Middle Name	Alphabetic	15	Middle Name Of Patient
Latest date Admission	Numeric	10	Last date of Admission
Address	AlphaNumeric	30	Patients
Patients Diagnosis	Alphabetic	20	Diagnosis of Patient

Ward Information's Database

Field Data	Field Type	Length	Description
Ward Classification	Alphabetic	15	Classification of ward
Ward Room Number	Numeric	5	Room number
Ward Bed Number	Numeric	5	Bed number
Availability	Alphabetic	10	Availability of Rooms
Patient First Name	Alphabetic	20	First name of Patient
Patient Surname	Alphabetic	15	Surname of Patient
Patient Middle Name	Alphabetic	15	Middle name of Patient
Date of Admission	Numeric	10	Date of Admission
Estimated No. Of Days	Numeric	5	Estimated days of Patient in the Hospital
Hospital No.	Numeric	10	Hospital Number

3.3.1.2.2 Reports

The following are the reports generated by the proposed system:

- Admission Report – Contains the total number of Admitted patients per classification
- Discharge Report - Contains the total number of Discharge patient per month

- Midnight (CENSUS) – Contains Information and remarks about the patient

3.3.1.2.3 Manual Process (Existing)

- Filling out of patient Index
- Issuance of notice of Admission
- Filling out of Notice of Admission
- Relative's signature on the bottom of Notice of Admission
- Submission of Notice of Admission to ADS
- Issuance of Consent Form
- Filling out of Consent Form
- Submission of consent form to ADS
- Ward Nurses filling out of Top Sheets
- Doctor's Order and progress Notes
- Issuance of Clearance Slip
- Issuance of Discharge Slip

3.3.1.3 Requirements Definition

ITEMS	REQUIRED	EXISTING	NEEDED
Hardware			
Personal Computer Definition (HP Compaq DC5800 Intel Core 2 Duo E8400 3.0GHz / 2GB DDR2 / 320GB SATA HDD / On Board Video Card 384MB / DVD-ROM with IBM THinkVision L190p 19-inch LCD Monitor)	5	1	4
Software Operating System Windows 7 (Ultimate)	5	1	4
Printer Canon IP Pixma 2770	5	0	5

3.3.1.4 Cost and Benefit Analysis

COSTS

ITEMS	COSTS
ONE TIME COST	
Hardware (4) Personal Computer (HP Compaq DC5800 Intel Core 2 Duo E8400 3.0GHz / 2GB DDR2 / 320GB SATA HDD / On Board Video Card 384MB / DVD-ROM with IBM THinkVision L190p 19-inch LCD Monitor) (PHP 11,780.00 each)	PHP 47,120.00
Software (4)Operating System (Windows XP/Windows Vista/but preferably Windows 7) (PHP 9,680.00)	PHP 38,720.00
TOTAL ONE TIME COST	**PHP 85,840.00**
RECURRING COST	
Maintenance Money Allotted for Computer Problems (Both Hardware and Software) (PHP 1,000.00 each)	PHP 5,000.00
Electricity Cost Monthly Cost of Computers and printers	PHP 10,000.00
Printer Cost CISS Dye Ink	PHP 2,500.00
TOTAL RECURRING COST	**PHP 17,500.00**
TOTAL COSTS	**PHP 103,340.00**

3.3.1.5 Computation for Payback Period

ITEMS	COSTS
Potential Income of the hospital in absconded patient	PHP 142,000.00
Elimination of Record of Admission	PHP 1,080.00
TOTAL SAVINGS	**PHP 143,080.00**

Total Cost: PHP 103,340.00

Total Savings: PHP 143,080.00

Computation of Payback Period: Total Cost/ Total Savings

PHP 103,340.00/PHP 143,080.00

0.72 Year

3.3.1.3.6 Tangible/Intangible Benefits

1. Easy access of the information of the patients
2. Terminate unnecessary workloads.
3. Real-time updating of bed vacancy.
4. Centralized data is secure and easy to backup.
5. Essential summary of reports for good-decision making.
6. More effective monitoring of the monthly census.
7. Delay in making reports will be prevented.

3.3.2 Alternative 2: Centralized set-up

The second alternative is a centralized set-up of the system. This kind of system setup will need the respective ward do have at least one terminal that is connected to the server with the use of RJ-45, commonly a telephone jack or computer networking equipment. Each terminal must install the proposed system in order to access it.

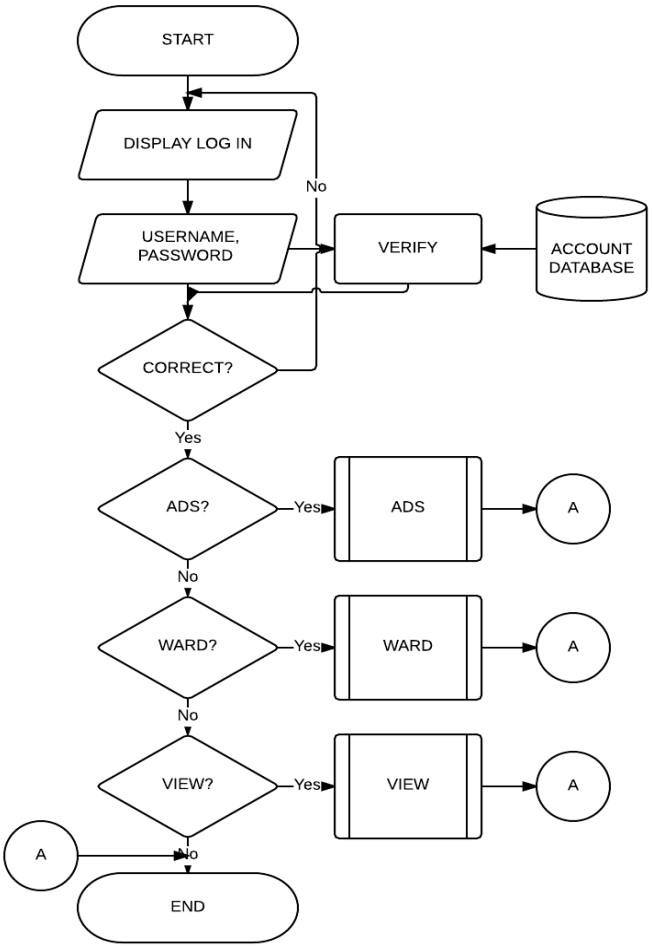
The accessibility of the system depends on the position of the users. Because the system is centralized, the admitting and discharge section can access all the reports on each area and print it whenever needed. Also, access a real time update on the availability of beds in the wards.

The proposed alternative will have the following advantages:

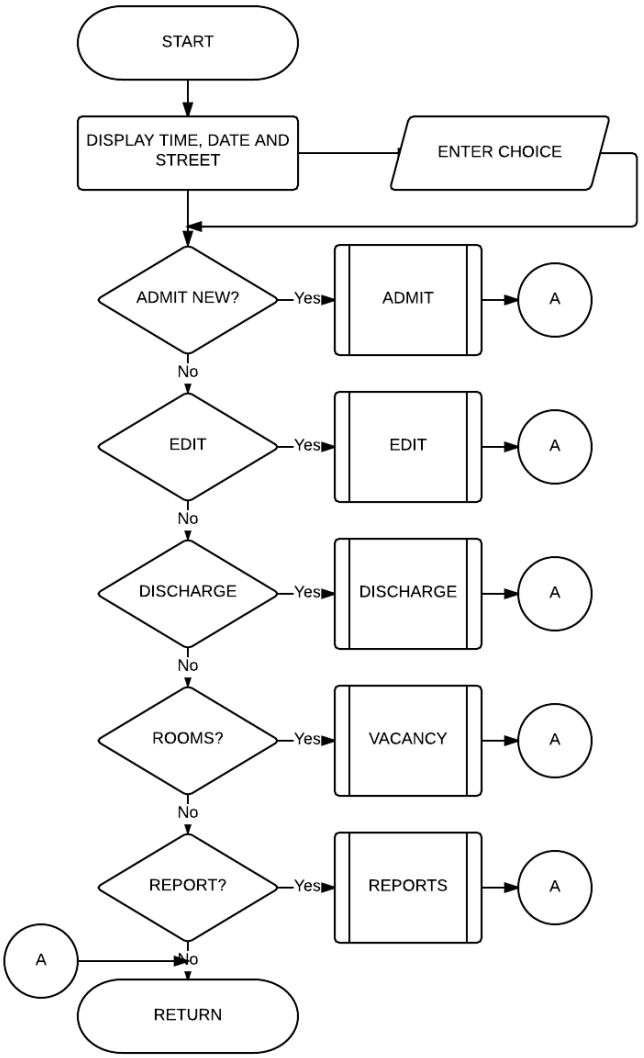
- Data security – only the main server can access all the reports.
- Less expensive- centralized set-up is less expensive compared to other types of set-up.
- Reliability of Data – the greatest benefit of centralizing a company's data management is reliability of data. One of the basic rules in database design is that no redundancy is allowed. A centralized database means that each member has one primary record.

3.3.2.1 System Flowchart

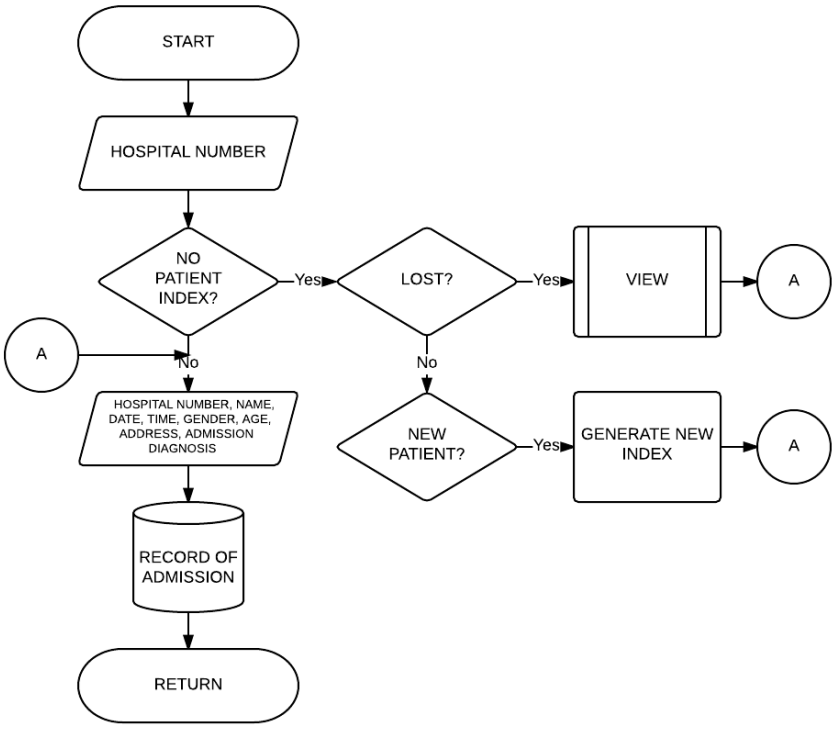
Main Module



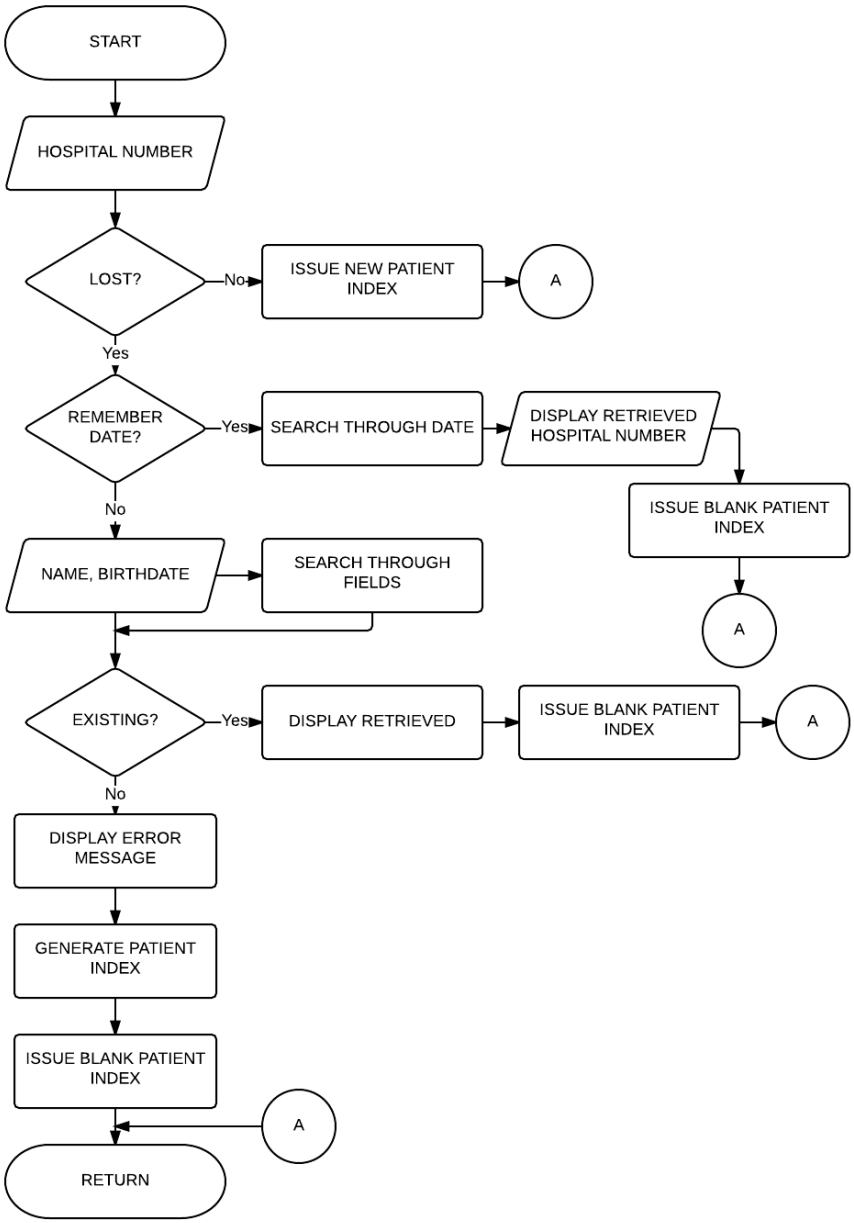
ADS Module


START
DISPLAY TIME, DATE AND STREET
ENTER CHOICE
ADMIT NEW?
Yes
ADMIT
A
No
EDIT
Yes
EDIT
A
No
DISCHARGE
Yes
DISCHARGE
A
No
ROOMS?
Yes
VACANCY
A
No
REPORT?
Yes
REPORTS
A
A
No
RETURN

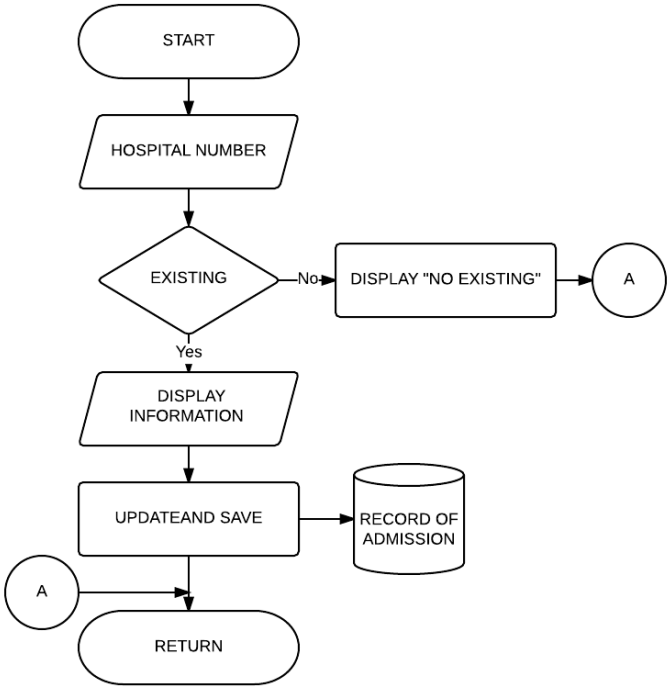
Admit Module



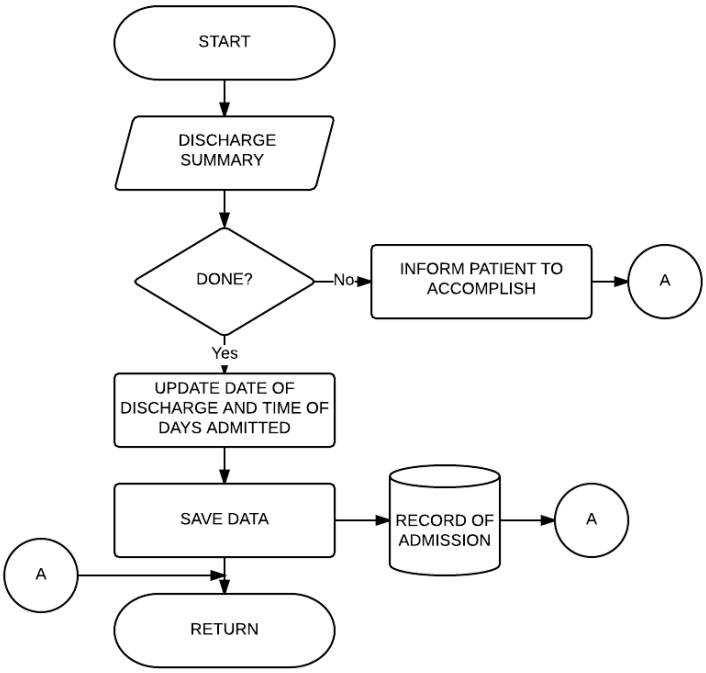
View Module


START
HOSPITAL NUMBER
LOST?
No
ISSUE NEW PATIENT INDEX
A
Yes
REMEMBER DATE?
Yes
SEARCH THROUGH DATE
DISPLAY RETRIEVED HOSPITAL NUMBER
ISSUE BLANK PATIENT INDEX
A
No
NAME, BIRTHDATE
SEARCH THROUGH FIELDS
EXISTING?
Yes
DISPLAY RETRIEVED
ISSUE BLANK PATIENT INDEX
A
No
DISPLAY ERROR MESSAGE
GENERATE PATIENT INDEX
ISSUE BLANK PATIENT INDEX
A
RETURN

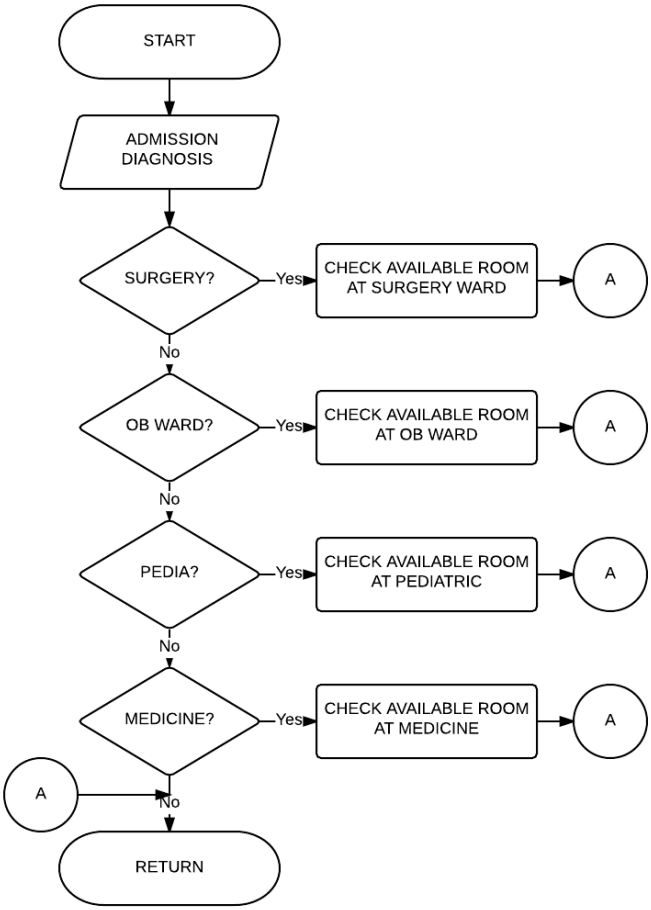
Edit Module


START
HOSPITAL NUMBER
EXISTING
No
DISPLAY "NO EXISTING"
A
Yes
DISPLAY INFORMATION
UPDATEAND SAVE
RECORD OF ADMISSION
A
RETURN

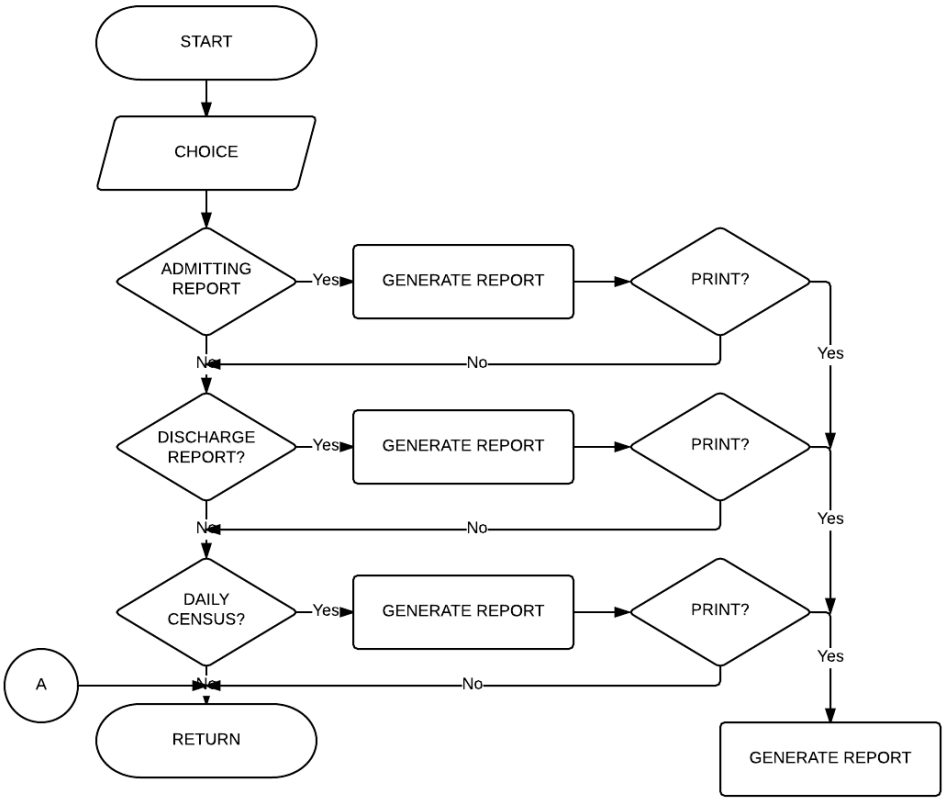
Discharge Module



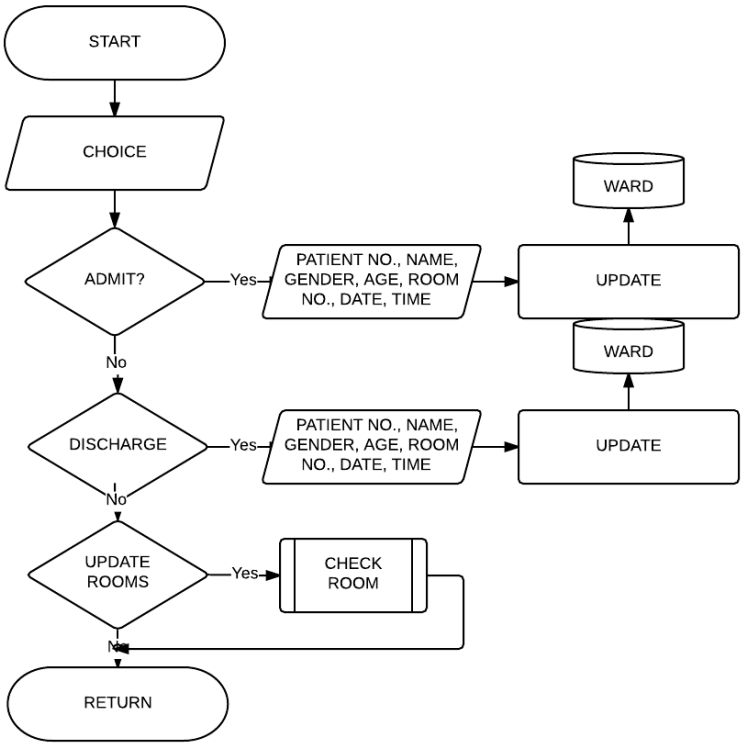
Vacancy Module



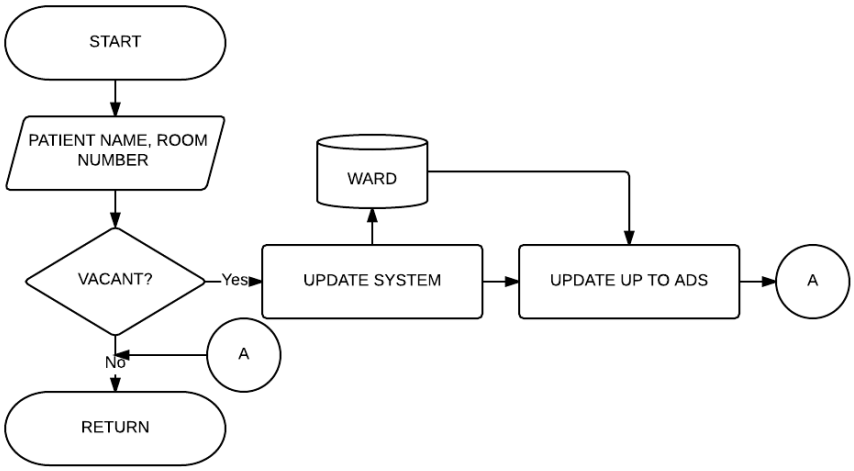
Reports Module



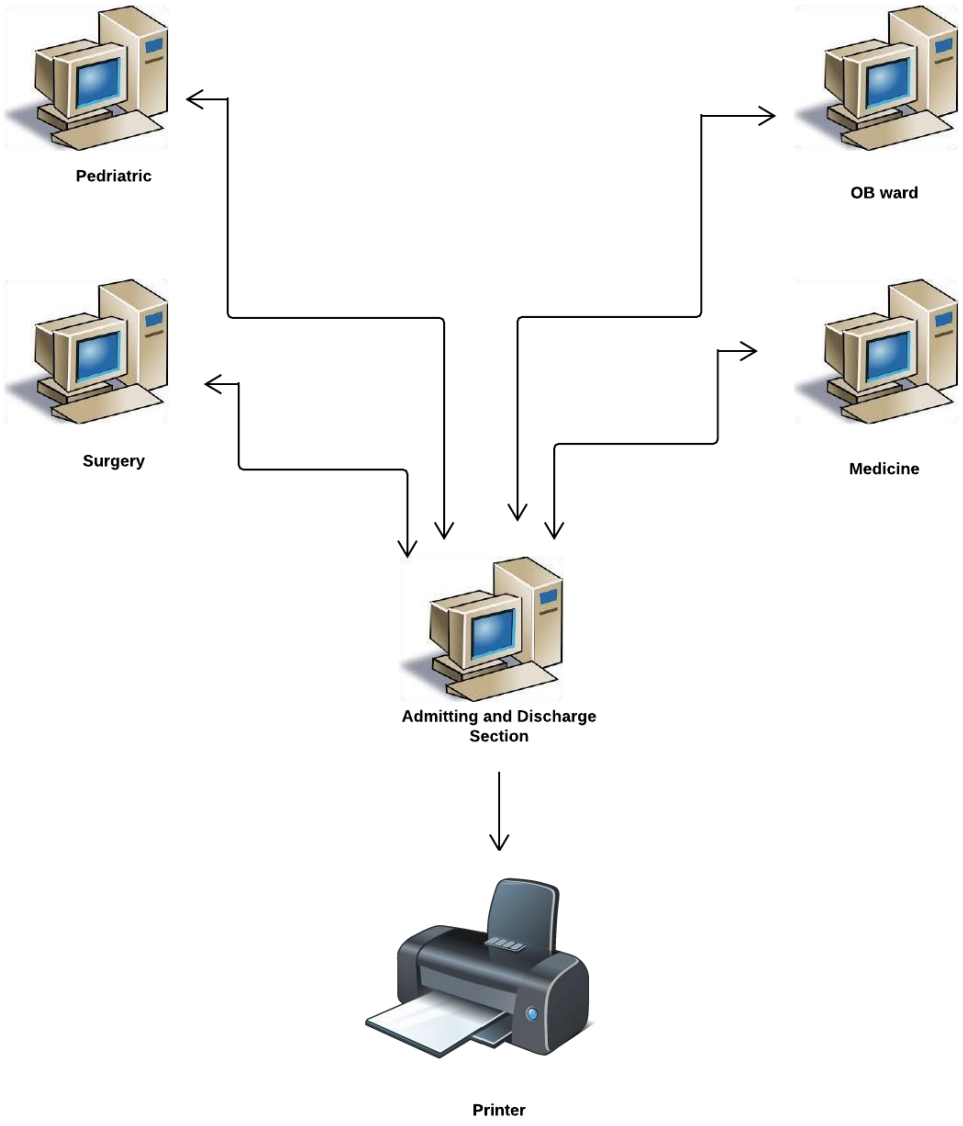
Ward Module


START
CHOICE
ADMIT?
Yes
PATIENT NO., NAME, GENDER, AGE, ROOM NO., DATE, TIME
WARD
UPDATE
WARD
No
DISCHARGE
Yes
PATIENT NO., NAME, GENDER, AGE, ROOM NO., DATE, TIME
UPDATE
No
UPDATE ROOMS
Yes
CHECK ROOM
RETURN

Check Room Module



3.3.2.2 Physical Elements



3.3.2.1.1.1 Database/Table

Admitting Staff Database

Field Data	Field Type	Length	Description
Username	Alphanumeric	15	Log-in username
Password	Alphanumeric	15	Log-in password
First Name	Alphabet	15	First name of Admitting staff
Last Name	Alphabet	15	Last name of Admitting staff
Middle Name	Alphabet	15	Middle name of Admitting staff
Age	Numeric	2	Age of Admitting Staff
Birthday	Alphanumeric	10	Admitting staff's Birthday
Position	Alphabet	20	Position Admitting staff

Ward Nurse Database

Field Data	Field Type	Length	Description
Username	Alphanumeric	15	Log-in username
Password	Alphanumeric	15	Log-in password
First Name	Alphabet	15	First name of Ward Nurse
Last Name	Alphabet	15	Last name of Ward Nurse
Middle Name	Alphabet	15	Middle name of Ward Nurse
Age	Numeric	2	Age of Ward Nurse
Birthday	Alphanumeric	10	Ward Nurse Birthday
Position	Alphabet	20	Position Ward Nurse
Floor	Alphanumeric	1	Ward nurse floor

In Patient Services Database

Field Data	Field Type	Length	Description
Service	Alphabetic	15	Type of Sevice
Admitted	Numeric	5	No. Of Admitted patients
Discharge	Numeric	5	No. Of Discharged Patients
Total Length of Stay	Numeric	5	Length of stay
REC./IMP	Numeric	5	Number of Improved Patients
Transferred	Numeric	3	No. Of Transferred Patients
Absconded	Numeric	3	No. Of Absconded patients
Home Against Medical Advice	Numeric	3	No. Of HAMA patients
Mortality	Numeric	3	No. Of patients <48 and >48

Daily Census Database

Field Data	Field Type	Length	Description
Room Number	Numeric	10	Room Designation Number
Date Admitted	Numeric	10	Date of Admission
Patients Name	Alphabetic	30	Name of Patients
Estimated Length of Stay	Numeric	3	Length of Stay(Estimated)
Remarks	Alphabetic	5	Employee's Remark

Record of Admission Database

Field Data	Field Type	Length	Description
Hospital Number	Numeric	10	Patient's Hospital Number
First Name	Alphabetic	20	Patient's First Name
Surname	Alphabetic	10	Patient's Surname
Middle Name	Alphabetic	10	Middle Name of Patient
Age	Numeric	2	Patient Age
Admission Diagnosis	Alphabetic	20	Patient Diagnosis
Room Number	Numeric	10	Room Number
Room Floor	Numeric	1	Floor number
Att. Physician	Alphabet	30	Name of Physician
Date Admitted	Numeric	10	Date Admitted
Time Admitted	Numeric	10	Time Admitted
Days Admitted	Numeric	10	No of Days Admitted
Date Discharged	Numeric	10	Discharged Date
Time Discharged	Numeric	10	Discharged Time
PH membership	Alphabetic	10	Type of PH membership
Address	AlphaNumeric	30	Address of Patient

Patient Record Database (Basic)

Field Data	Field Type	Length	Description
Hospital Number	Numeric	10	Patient's Identity
First Name	Alphabetic	20	First Name of Patient
Surname	Alphabetic	15	Surname Of Patient
Middle Name	Alphabetic	15	Middle Name Of Patient

Latest date Admission	Numeric	10	Last date of Admission
Address	AlphaNumeric	30	Patients
Patients Diagnosis	Alphabetic	20	Diagnosis of Patient

Ward Information's Database

Field Data	Field Type	Length	Description
Ward Classification	Alphabetic	15	Classification of ward
Ward Room Number	Numeric	5	Room number
Ward Bed Number	Numeric	5	Bed number
Availability	Alphabetic	10	Availability of Rooms
Patient First Name	Alphabetic	20	First name of Patient
Patient Surname	Alphabetic	15	Surname of Patient
Patient Middle Name	Alphabetic	15	Middle name of Patient
Date of Admission	Numeric	10	Date of Admission
Estimated No. Of Days	Numeric	5	Estimated days of Patient in the Hospital
Hospital No.	Numeric	10	Hospital Number

3.3.2.1.2 Reports

The following are the reports generated by the proposed system:

- Admission Report – Contains the total number of Admitted patients per classification
- Discharge Report - Contains the total number of Discharge patient per month Midnight (CENSUS) – Contains Information and remarks about the patient

3.3.2.1.3 Manual Process

- Filling out of patient Index
- Issuance of notice of Admission
- Filling out of Notice of Admission
- Relative's signature on the bottom of Notice of Admission
- Submission of Notice of Admission to ADS
- Issuance of Consent Form
- Filling out of Consent Form
- Submission of consent form to ADS
- Ward Nurses filling out of Top Sheets
- Doctor's Order and progress Notes
- Issuance of Clearance Slip
- Issuance of Discharge Slip

3.3.2.3 Requirement Definition

ITEMS	REQUIRED	EXISTING	NEEDED
Hardware			
Personal Computer Definition (HP Compaq DC5800 Intel Core 2 Duo E8400 3.0GHz / 2GB DDR2 / 320GB SATA HDD / On Board Video Card 384MB / DVD-ROM with IBM THinkVision L190p 19-inch LCD Monitor)	5	1	4
Software Operating System Windows 7 (Ultimate)	5	1	4
Printer Canon IP Pixma 2770	5	0	5
Router	1	0	1
Unshielded Twisted Pair (RJ-45)	100 meters	0	100 meters

3.3.2.4 Cost and Benefit Analysis

COSTS

ITEMS	COSTS
ONE TIME COST	
Hardware (4) Personal Computer (HP Compaq DC5800 Intel Core 2 Duo E8400 3.0GHz / 2GB DDR2 / 320GB SATA HDD / On Board Video Card 384MB / DVD-ROM with IBM THinkVision L190p 19-inch LCD Monitor) (PHP 11,780.00 each)	PHP 47,120.00
Software (4)Operating System (Windows XP/Windows Vista/but preferably Windows 7) (PHP 9,680.00)	PHP 38,720.00
Router	PHP 1,000.00
Unshielded Twisted Pair (RJ-45)	PHP 580.00
TOTAL ONE TIME COST	**PHP 87,420.00**
RECURRING COST	
Maintenance Money Allotted for Computer Problems (Both Hardware and Software) (PHP 1,000.00 each)	PHP 5,000.00
Electricity Cost Monthly Cost of Computers and printers	PHP 10,000.00
Printer Cost CISS Dye Ink	PHP 2,500.00
TOTAL RECURRING COST	**PHP 17,500.00**
TOTAL COSTS	**PHP 104,920.00**

3.3.2.5 Computation for Payback Period

ITEMS	COSTS
Potential Income of the hospital in absconded patient	PHP 142,000.00
Elimination of Record of Admission	PHP 1,080.00
TOTAL SAVINGS	**PHP 143,080.00**

Total Cost: PHP 104,920.00

Total Savings: PHP 143,080.00

Computation of Payback Period: Total Cost/ Total Savings

PHP 104,920.00/PHP 143,080.00

0.73 Year

3.3.2.2 Tangible/Intangible Benefits

1. Easy access of the information of the patients
2. Terminate unnecessary workloads.
3. Real-time updating of bed vacancy.
4. Centralized data is secure and easy to backup.
5. Essential summary of reports for good-decision making.
6. More effective monitoring of the monthly census.
7. Delay in making reports will be prevented.
8. Real time update on the availability of rooms on the wards.
9. The Census is dynamically created, thus minimizing error and human labor.

3.3.3 Alternative 3: Web Application Set-Up (Internet Based Network System)

Web application is a kind of set-up where the system will require the wards per floor to have one terminal. The said wards will be the following: Surgery Ward (3rd floor), OB Ward (4th floor), Pediatric Ward (5th floor), Medicine Ward (6th floor) and Admitting and Discharge Section (1st floor) through the use of internet. One computer designated at the Admitting and Discharge Section and one for each wards. The proposed system is assigned a specific address in the web so that users could access it.

The proposed system can be used as long as the employees are connected to the internet and logged in. The distinct wards will be their usernames and they will create their own passwords for security purposes and it will be having user levels. The system can only be accessed by the user according to their level. The user on the Admitting and Discharge Section could access all the reports on each level by the use of internet and can print it whenever needed. The Emergency Room and Admitting Office could access a real time update on the availability of beds in the wards.

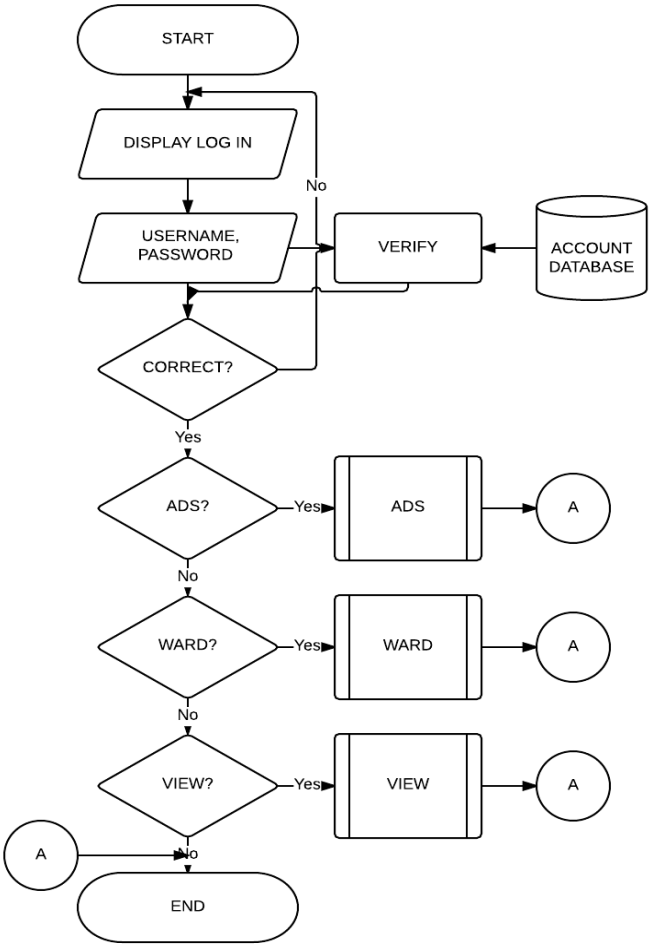
The proposed alternative will have the following advantages:

- Convenient – as long as there is internet connection and the employee is logged in, the system will be available.
- Secured – information is protected against incidence of system failure
- Cheaper – this cost lesser than market software
- Portability – the system can be used as long as employee is connected to the internet and logged in using any computer.
- Real time - can be updated easily
- Census is regularly updated and can be generated.

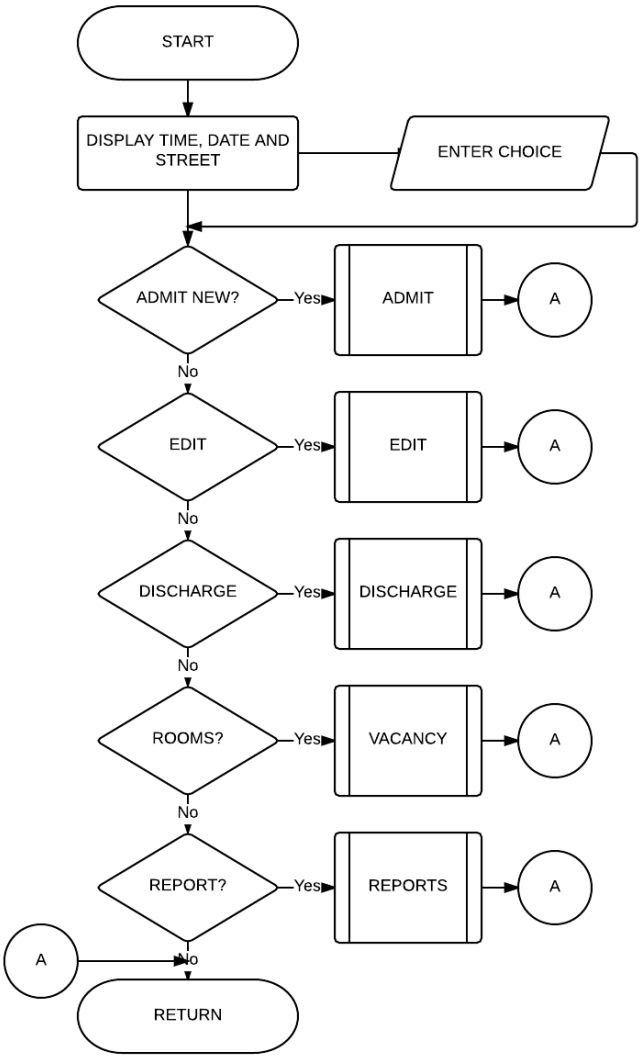
By this, we can minimize human errors and the updates can be regularly done.

System Flowchart

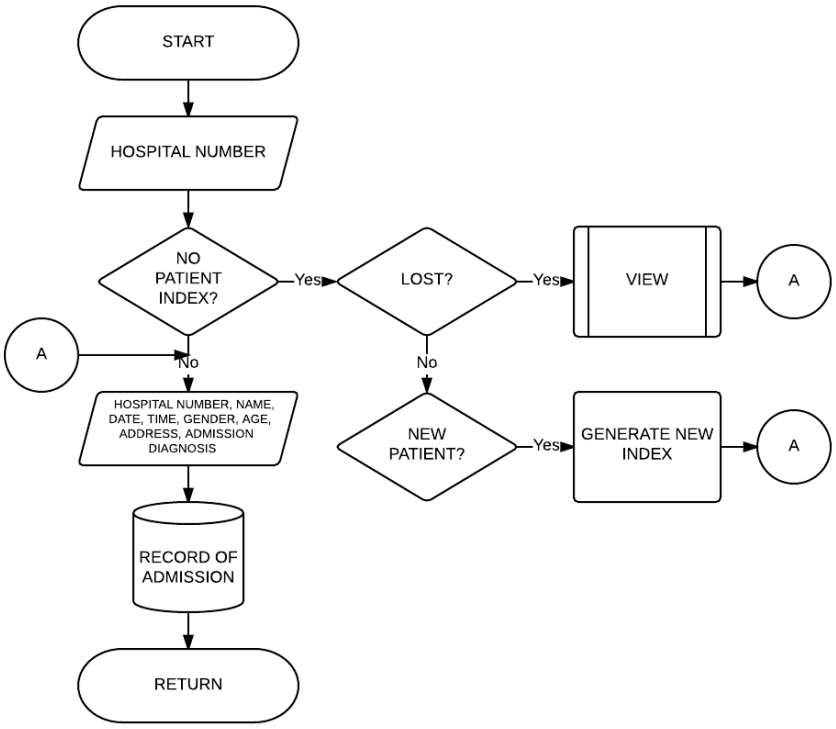
Main Module



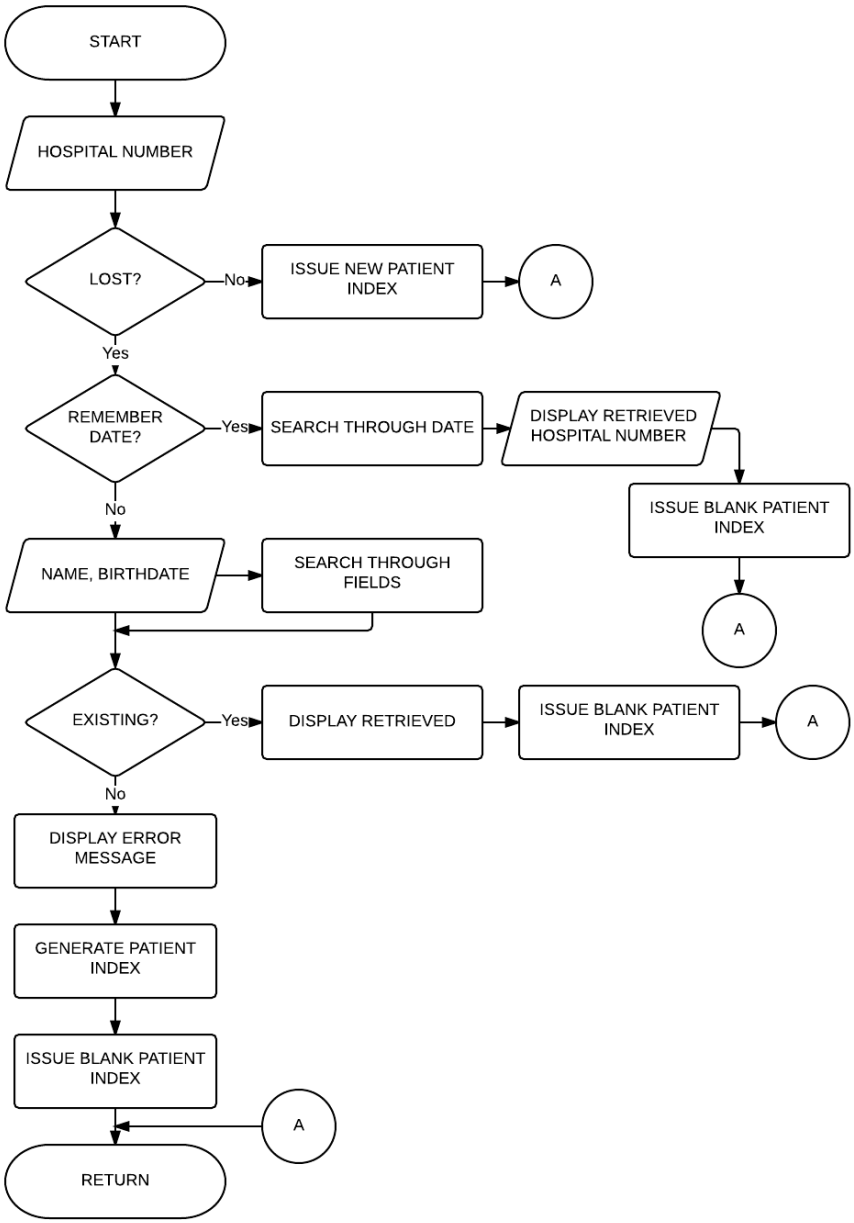
ADS Module


START
DISPLAY TIME, DATE AND STREET
ENTER CHOICE
ADMIT NEW?
Yes
ADMIT
A
No
EDIT
Yes
EDIT
A
No
DISCHARGE
Yes
DISCHARGE
A
No
ROOMS?
Yes
VACANCY
A
No
REPORT?
Yes
REPORTS
A
A
No
RETURN

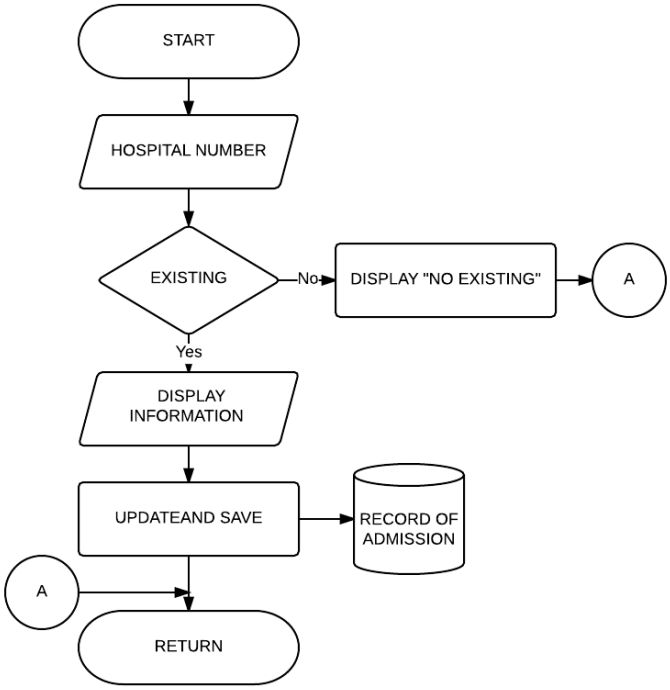
Admit Module



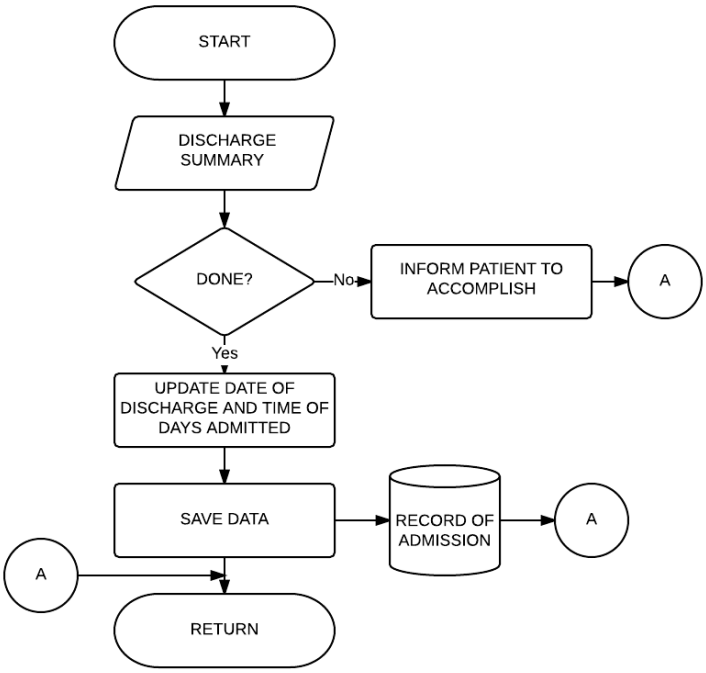
View Module


START
HOSPITAL NUMBER
LOST?
No
ISSUE NEW PATIENT INDEX
A
Yes
REMEMBER DATE?
Yes
SEARCH THROUGH DATE
DISPLAY RETRIEVED HOSPITAL NUMBER
ISSUE BLANK PATIENT INDEX
A
No
NAME, BIRTHDATE
SEARCH THROUGH FIELDS
EXISTING?
Yes
DISPLAY RETRIEVED
ISSUE BLANK PATIENT INDEX
A
No
DISPLAY ERROR MESSAGE
GENERATE PATIENT INDEX
ISSUE BLANK PATIENT INDEX
A
RETURN

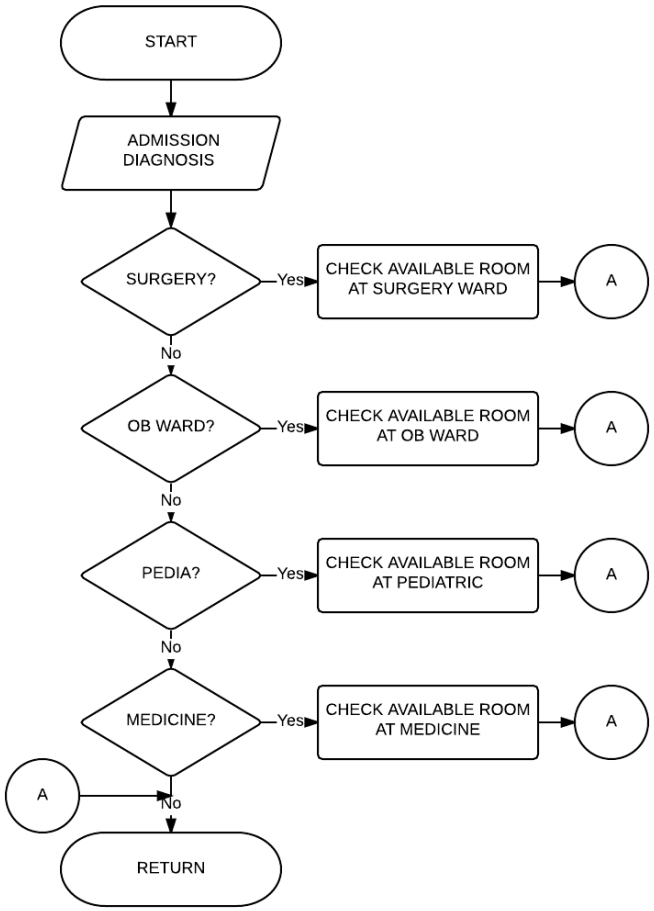
Edit Module


START
HOSPITAL NUMBER
EXISTING
No
DISPLAY "NO EXISTING"
A
Yes
DISPLAY INFORMATION
UPDATEAND SAVE
RECORD OF ADMISSION
A
RETURN

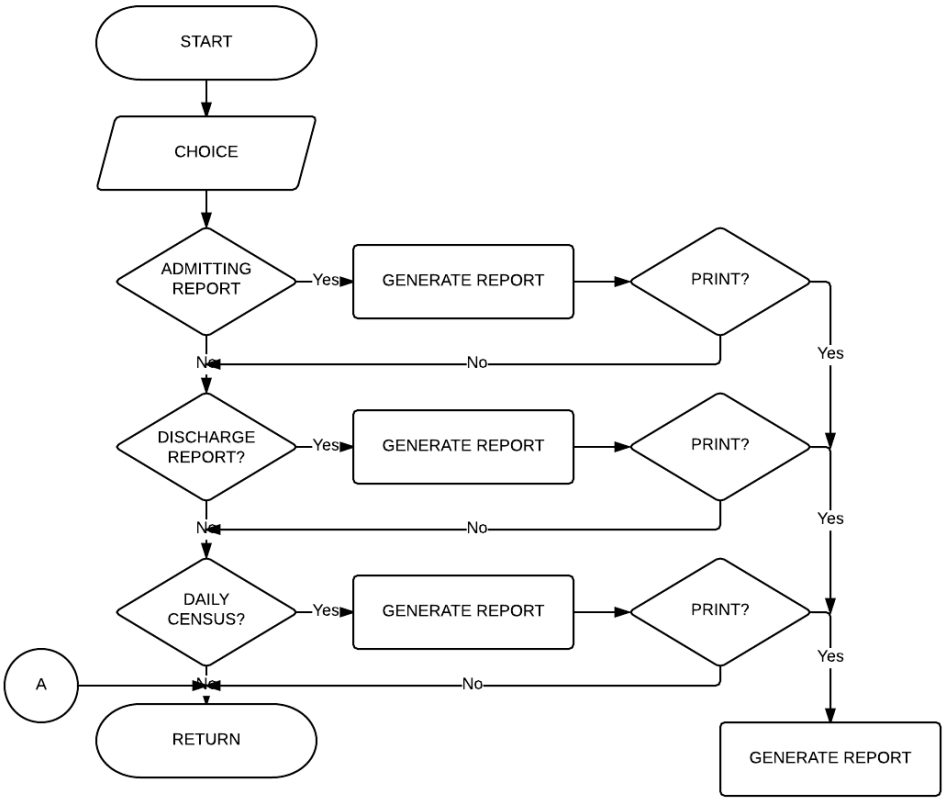
Discharge Module



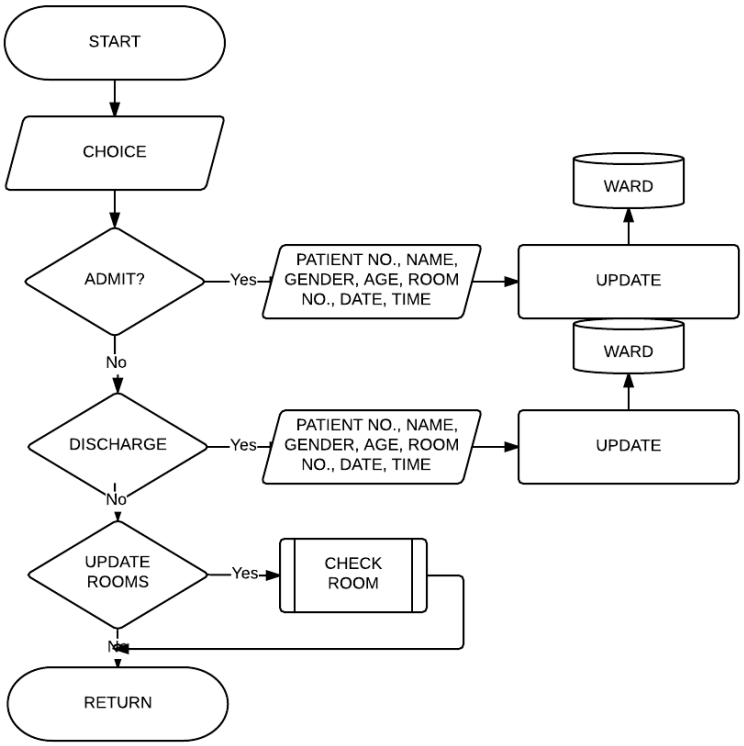
Vacancy Module



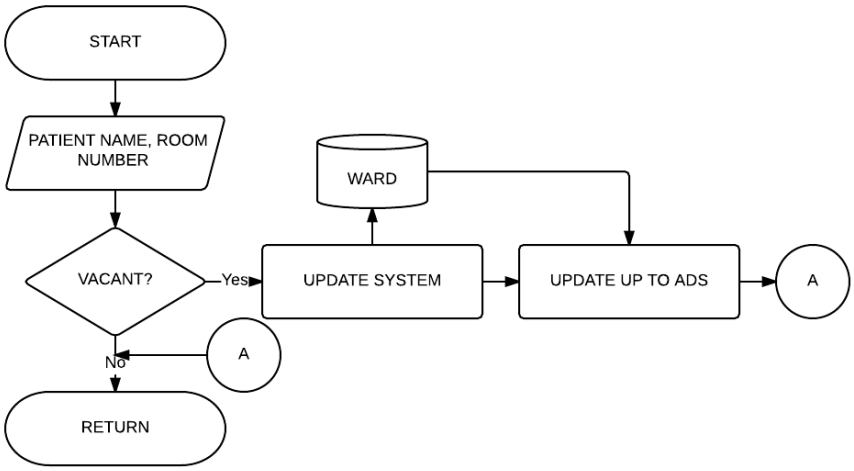
Reports Module



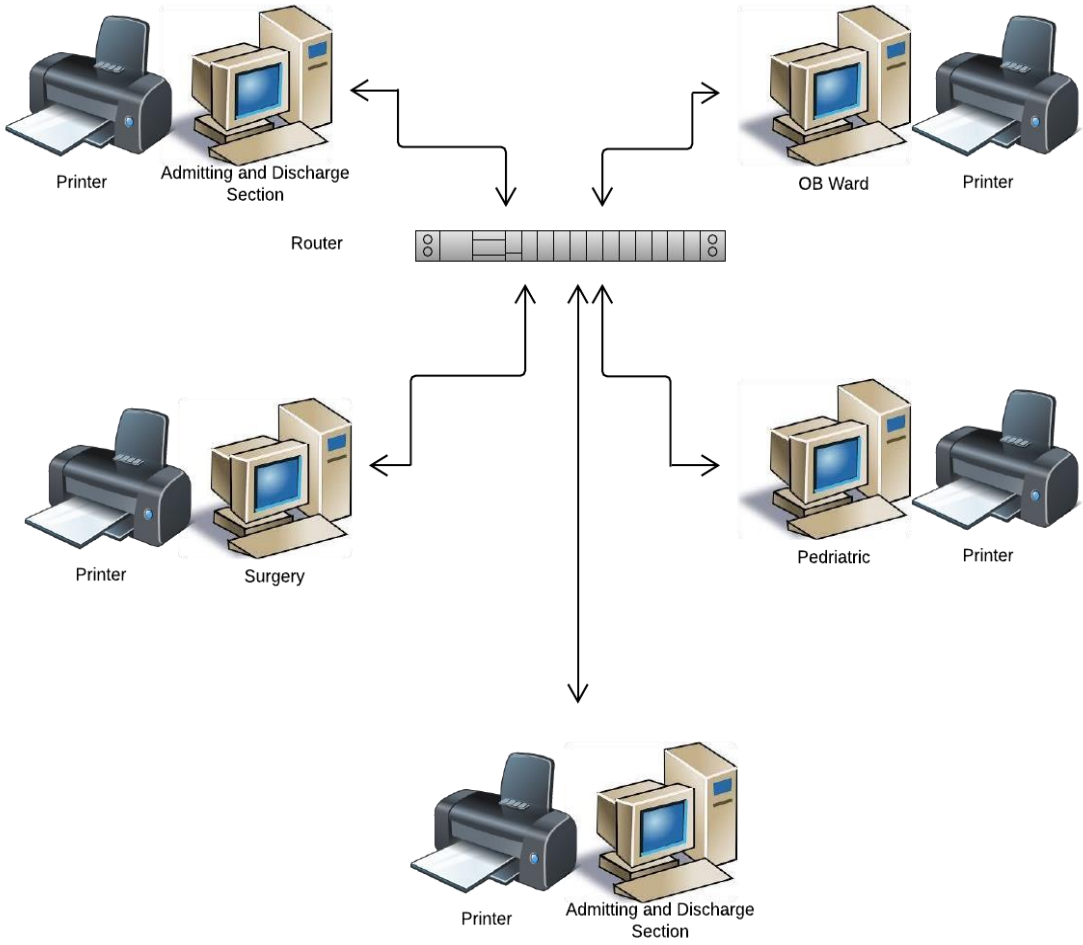
Ward Module


START
CHOICE
ADMIT?
Yes
PATIENT NO., NAME, GENDER, AGE, ROOM NO., DATE, TIME
WARD
UPDATE
WARD
No
DISCHARGE
Yes
PATIENT NO., NAME, GENDER, AGE, ROOM NO., DATE, TIME
UPDATE
No
UPDATE ROOMS
Yes
CHECK ROOM
RETURN

Check Room Module



3.3.3.1 Physical Elements



3.3.3.2.1 Database/ table

Admitting Staff Database

Field Data	Field Type	Length	Description
Username	Alphanumeric	15	Log-in username
Password	Alphanumeric	15	Log-in password
First Name	Alphabet	15	First name of Admitting staff
Last Name	Alphabet	15	Last name of Admitting staff
Middle Name	Alphabet	15	Middle name of Admitting staff
Age	Numeric	2	Age of Admitting Staff
Birthday	Alphanumeric	10	Admitting staff's Birthday
Position	Alphabet	20	Position Admitting staff

Ward Nurse Database

Field Data	Field Type	Length	Description
Username	Alphanumeric	15	Log-in username
Password	Alphanumeric	15	Log-in password
First Name	Alphabet	15	First name of Ward Nurse
Last Name	Alphabet	15	Last name of Ward Nurse
Middle Name	Alphabet	15	Middle name of Ward Nurse
Age	Numeric	2	Age of Ward Nurse
Birthday	Alphanumeric	10	Ward Nurse Birthday
Position	Alphabet	20	Position Ward Nurse
Floor	Alphanumeric	1	Ward nurse floor

In Patient Services Database

Field Data	Field Type	Length	Description
Service	Alphabetic	15	Type of Sevice
Admitted	Numeric	5	No. Of Admitted patients
Discharge	Numeric	5	No. Of Discharged Patients
Total Length of Stay	Numeric	5	Length of stay
REC./IMP	Numeric	5	Number of Improved Patients
Transferred	Numeric	3	No. Of Transferred Patients
Absconded	Numeric	3	No. Of Absconded patients
Home Against Medical Advice	Numeric	3	No. Of HAMA patients
Mortality	Numeric	3	No. Of patients <48 and >48

Daily Census Database

Field Data	Field Type	Length	Description
Room Number	Numeric	10	Room Designation Number
Date Admitted	Numeric	10	Date of Admission
Patients Name	Alphabetic	30	Name of Patients
Estimated Length of Stay	Numeric	3	Length of Stay(Estimated)
Remarks	Alphabetic	5	Employee's Remark

Record of Admission Database

Field Data	Field Type	Length	Description
Hospital Number	Numeric	10	Patient's Hospital Number
First Name	Alphabetic	20	Patient's First Name
Surname	Alphabetic	10	Patient's Surname
Middle Name	Alphabetic	10	Middle Name of Patient
Age	Numeric	2	Patient Age
Admission Diagnosis	Alphabetic	20	Patient Diagnosis
Room Number	Numeric	10	Room Number
Room Floor	Numeric	1	Floor number
Att. Physician	Alphabet	30	Name of Physician
Date Admitted	Numeric	10	Date Admitted
Time Admitted	Numeric	10	Time Admitted
Days Admitted	Numeric	10	No of Days Admitted
Date Discharged	Numeric	10	Discharged Date
Time Discharged	Numeric	10	Discharged Time
PH membership	Alphabetic	10	Type of PH membership
Address	AlphaNumeric	30	Address of Patient

Patient Record Database (Basic)

Field Data	Field Type	Length	Description
Hospital Number	Numeric	10	Patient's Identity
First Name	Alphabetic	20	First Name of Patient
Surname	Alphabetic	15	Surname Of Patient
Middle Name	Alphabetic	15	Middle Name Of Patient

Latest date Admission	Numeric	10	Last date of Admission
Address	AlphaNumeric	30	Patients
Patients Diagnosis	Alphabetic	20	Diagnosis of Patient

Ward Information's Database

Field Data	Field Type	Length	Description
Ward Classification	Alphabetic	15	Classification of ward
Ward Room Number	Numeric	5	Room number
Ward Bed Number	Numeric	5	Bed number
Availability	Alphabetic	10	Availability of Rooms
Patient First Name	Alphabetic	20	First name of Patient
Patient Surname	Alphabetic	15	Surname of Patient
Patient Middle Name	Alphabetic	15	Middle name of Patient
Date of Admission	Numeric	10	Date of Admission
Estimated No. Of Days	Numeric	5	Estimated days of Patient in the Hospital
Hospital No.	Numeric	10	Hospital Number

3.3.3.2.2 Reports

The following are the reports generated by the proposed system:

- Admission Report – Contains the total number of Admitted patients per classification
- Discharge Report - Contains the total number of Discharge patient per month
- Midnight (CENSUS) – Contains Information and remarks about the patient

3.3.3.2.3 Manual Process

- Filling out of patient Index
- Issuance of notice of Admission
- Filling out of Notice of Admission
- Relative's signature on the bottom of Notice of Admission
- Submission of Notice of Admission to ADS
- Issuance of Consent Form
- Filling out of Consent Form
- Submission of consent form to ADS
- Ward Nurses filling out of Top Sheets
- Doctor's Order and progress Notes
- Issuance of Clearance Slip
- Issuance of Discharge Slip

3.3.2.3 Requirement Definition

ITEMS	REQUIRED	EXISTING	NEEDED
Hardware			
Personal Computer Definition (HP Compaq DC5800 Intel Core 2 Duo E8400 3.0GHz / 2GB DDR2 / 320GB SATA HDD / On Board Video Card 384MB / DVD-ROM with IBM THinkVision L190p 19-inch LCD Monitor)	5	1	4
Software Operating System Windows 7 (Ultimate)	5	1	4
Printer Canon IP Pixma 2770	5	0	5
Router	1	0	1
Internet Connection (DSL)	1	0	1

3.3.2.4 Cost and Benefit Analysis

COSTS

ITEMS	COSTS
ONE TIME COST	
Hardware (4) Personal Computer (HP Compaq DC5800 Intel Core 2 Duo E8400 3.0GHz / 2GB DDR2 / 320GB SATA HDD / On Board Video Card 384MB / DVD-ROM with IBM THinkVision L190p 19-inch LCD Monitor) (PHP 11,780.00 each)	PHP 47,120.00
Software (4)Operating System (Windows XP/Windows Vista/but preferably Windows 7) (PHP 9,680.00)	PHP 38,720.00
Router with Internet Connection	PHP 1,000.00
TOTAL ONE TIME COST	**PHP 86,840.00**
RECURRING COST	
Maintenance Money Allotted for Computer Problems (Both Hardware and Software) (PHP 1,000.00 each)	PHP 5,000.00
Electricity Cost Monthly Cost of Computers and printers	PHP 10,000.00
Printer Cost CISS Dye Ink	PHP 2,500.00
Monthly Internet Connection	PHP 1,000.00
TOTAL RECURRING COST	**PHP 18,500.00**
TOTAL COSTS	**PHP 105,340.00**

3.3.2.4 Computation for Payback Period

ITEMS	COSTS
Potential Income of the hospital in absconded patient	PHP 142,000.00
Elimination of Record of Admission	PHP 1,080.00
TOTAL SAVINGS	**PHP 143,080.00**

Total Cost: PHP 105,340.00

Total Savings: PHP 143,080.00

Computation of Payback Period: Total Cost/ Total Savings

PHP 105,340.00/PHP 143,080.00

0.74 Year

3.3.3.6 Tangible / Intangible Benefits

1. Easy access of the information of the patients.
2. Terminate unnecessary workloads.
3. Real-time updating of bed vacancy.
4. Centralized data is secure and easy to backup.
5. Essential summary of reports for good-decision making.
6. More effective monitoring of the monthly census.
7. Delay in making reports will be prevented.
8. Real time update on the availability of rooms on the wards.
9. The Census is dynamically created, thus minimizing error and human labor.