CASE STUDY LIST

Case Study 1 : MHC-PMS (Mental Health Care-Patient Management System)

- A patient information system to support mental health care is a medical information system that maintains information about patients suffering from mental health problems and the treatments that they have received.
- Most mental health patients do not require dedicated hospital treatment but need to attend specialist clinics regularly where they can meet a doctor who has detailed knowledge of their problems.
- To make it easier for patients to attend, these clinics are not just run in hospitals. They may also be held in local medical practices or community centres.
- The MHC-PMS (Mental Health Care-Patient Management System) is an information system that is intended for use in clinics.
- It makes use of a centralized database of patient information but has also been designed to run on a PC, so that it may be accessed and used from sites that do not have secure network connectivity.
- When the local systems have secure network access, they use patient information in the database but they can download and use local copies of patient records when they are disconnected.

Goals:

- To generate management information that allows health service managers to assess performance against local and government targets.
- To provide medical staff with timely information to support the treatment of patients.

Features:

- Individual care management
    - Clinicians can create records for patients, edit the information in the system, view patient history, etc. The system supports data summaries so that doctors can quickly learn about the key problems and treatments that have been prescribed.
- Patient monitoring
    - The system monitors the records of patients that are involved in treatment and issues warnings if possible problems are detected.
- Administrative reporting
    - The system generates monthly management reports showing the number of patients treated at each clinic, the number of patients who have entered and left the care system, number of patients sectioned, the drugs prescribed and their costs, etc.

Case Study 2 – Weather Information System

- The government of a country with large areas of wilderness decides to deploy several hundred weather stations in remote areas.
- Weather stations collect data from a set of instruments that measure temperature and pressure, sunshine, rainfall, wind speed and wind direction.
- The weather station includes a number of instruments that measure weather parameters such as the wind speed and direction, the ground and air temperatures, the barometric pressure and the rainfall over a 24-hour period. Each of these instruments is controlled by a software system that takes parameter readings periodically and manages the data collected from the instruments.
- The weather station system
    - This is responsible for collecting weather data, carrying out some initial data processing and transmitting it to the data management system.
- The data management and archiving system
    - This system collects the data from all of the wilderness weather stations, carries out data processing and analysis and archives the data.
- The station maintenance system
    - This system can communicate by satellite with all wilderness weather stations to monitor the health of these systems and provide reports of problems.
- Features
    - Monitor the instruments, power and communication hardware and report faults to the management system.
    - Manage the system power, ensuring that batteries are charged whenever the environmental conditions permit but also that generators are shut down in potentially damaging weather conditions, such as high wind.
    - Support dynamic reconfiguration where parts of the software are replaced with new versions and where backup instruments are switched into the system in the event of system failure.

Case Study 3 – Hospital Management Information System

HMIS is an integrated health management system, which addresses the critical requirements of hospitals. HMIS streamlines the flow of information across the hospital that helps effective decision making for patient care, hospital administration/management and streamline financial accounting in an optimized and efficient manner.

The objective is to provide an integrated Solution for the Hospital, which could:

1. Help in Efficient Management of the Hospital.
2. Enhance Patient Care
3. Improve work efficiency
4. Improve Fiscal Control
5. Eliminate the chances of any Pilferage
6. Enable the Growth of the Hospital

The software could help in the following fields:

1. Hospital Administration
2. Out and In Patient Management
3. Roaster Scheduler
4. Bed Allotment
5. Daily Follow Up
6. Medicine Prescription
7. Billing

User Roles

1. **Administration:** The administrator can create User accounts for the staff, define the departments of the hospital, add Discount, add Tax and define the schedule for the doctors and other staff members which can be viewed all through the application.
2. **Registration:** The registration module captures the complete patient's information with a unique identification number. It keeps track of the department and the doctor to whom the patient is reporting, Doctor's daily schedule list, Patient visit history, etc.
3. **Doctor/ Radiologist:** The doctors registered with the application can view the list of patients in their inbox. They can also store/update the case summary and prescribe the tests and medicines to the patient.
4. **IPD Registrar:** The IPD Registrar admits the patient in IPD ward and allocates the bed to the patient according to the availability of the beds.
5. **Store:** This module keeps the watch over the stock/issue of various medicines to the Dispensary department.
6. **Billing:** This module is concerned with the OPD as well as the IPD and Emergency module. The bill is generated once the patient is discharged by the Doctor. There is a provision to generate a Duplicate bill if required by the Patient.

Case Study 4 – MediLab and Drug Store Information System

MLDIS is a system designed to cater to the needs of a typical test laboratory where patients can go for different types of prescribes tests and also buy prescription drugs.

The software should offer following features:

1. MediLab Administration
2. Out Patient Management
3. Laboratory Tests
4. Radiology Tests
5. Pathological Tests

6. Patient History
7. Drug Stock management
8. Billing

User Roles

1. **Administration:** The administrator can create User accounts for the staff, define the departments of the hospital, add Discount, add Tax and define the schedule for the doctors and other staff members which can be viewed all through the application.
2. **Registration:** The registration module captures the complete patient's information with a unique identification number. It keeps track of the department and the doctor to whom the patient is reporting, what kind of tests he/she is undergoing etc.
3. **Doctor/ Radiologist:** The doctors registered with the application can view the list of patients in their inbox. They can also store/update the case summary and prescribe the tests and medicines to the patient. They prepare summary reports based on the test results.
4. **Laboratory/Radiology/Pathology Test:** This module automates the investigation and the process involved in delivering the results to the concerned doctor. The laboratory module supports to perform various tests. For example, AMC ANC, Renal function, Lipid Profile, Thyroid function, Peripheral Blood, Routine Blood, etc. The Lab Technician stores and forwards the test reports for the tests prescribed by the doctor to the patient.
5. **Dispensary:** This module is utilized by the staff present in the dispensary where they can add and edit the medicine stock present in the dispensary which helps the doctor to prescribe those medicines which are available in the dispensary. Dispensary staff can easily view and issue the medicines prescribed to the patient in this module by the Doctor. The Dispensary staff can monitor their stock of medicines and send requisition to Store where the balance has reduced considerably.
6. **Store:** This module keeps the watch over the stock/issue of various medicines to the Dispensary department.
7. **Billing:** This module is concerned with the OPD as well as the IPD and Emergency module. The bill is generated once the patient is discharged by the Doctor. There is a provision to generate a Duplicate bill if required by the Patient.

Case 5 – Online Video Library Management System (VLMS)

1. The main objective of the Video Library Management system relates to the planning, organizing and management of a video library. It records details of CDs DVDs etc and retrieves the details of them available in the library. Members can request issue of CDs if available or hold of items, if not yet available. VLMS also maintains their records along with their issue transactions and other activities.

VLMS offers the following features –

1. Member registration
2. Member details maintenance – allowing update of various information
3. Issue CDs to members
4. Record CD returned to the library
5. Allow renewal of CDs (upto a maximum of n times (n to be decided by Librarian)

6. Maintain CD inventory
7. Place CD orders
8. Calculate fine in case of late return
9. Generate reports
10. Search CDs based on different criteria

Users –

1. Member – A member can be of various types with different privileges and rights. S/He can issue, return, renew CD/DVDs. Each member can be allotted a maximum number of CDs/DVDs
2. Librarian – Responsible for member administration and all other details
3. Guest – Can view/browse the library catalogue and search for titles
4. Management – Requests for various statistical reports regarding the library transactions

Case Study – 6: Supermarket Automation Software (SAS)

The manager of a supermarket wants to have automation software.
The supermarket stocks a set of items. Customers pick up items from different counters in required quantities and present thee to the sales clerk. The sales clerk enters the code number of these items along with respective quantity and units.
The SAS generates a bill indicating total amount payable and all details of the sales transaction. The SAS also maintains an inventory of items which is debited during sales and credited when supply arrives. The manager can query on the status of any item anytime and generate sales statistics for any period.

SAS provides the following features -
1. List of items with stock
2. Stock updation - entry & issue of items
3. Bill generation
4. Sales report
5. Shopping cart (adding, deleting items, etc)

Possible users -

1. Buyers
2. Shop owners
3. Vendors (suppliers)

Make assumptions wherever necessary.

Case Study – 7: Restaurant Automation System (RAS)

A restaurant owner wants to computerize his order processing, billing and accounting activities.
The RAS generates bills whenever food items are sold. For preparation of any food item, the ingredients should be issued and stock should be updated.
Purchase orders (PO) are generated for any ingredient/food items when their stock falls below a threshold value. Whenever ordered items arrive, the invoice data regarding quantity and price is entered.
If sufficient cash is available, cheques are issues against the invoices. Monthly sales receipt and expenses data are generated.
RAS provides the following features -
1. Computerized menu with price list
2. Ingredients required & quantity for each menu item
3. Stock management
4. Bill generation
5. Sales report

Possible users -
4. Restaurant owner
5. Food suppliers
6. Guest user

Make assumptions wherever necessary.

Case Study – 8: Hotel Management System (HMS)

A hotel manager uses HMS to manage the day-to-day activities of a hotel.
It provides a web interface that helps customers to view room options, availability, facilities, tariff and place reservation request between two dates.
Based on availability, the HMS allocates room to guests and generates a bill recording the advance paid and balance to be paid.
Customers can use other facilities like restaurant, laundry services, car, etc and this all gets added to the overall bill. On checkout, the final bill is settled.

Reports are generated showing room occupancy, room type based statistics for future planning.
Scope is there for visitors to give reviews for the hotel based on which the hotel is given a star rating.
Possible features -

1. Room reservation & cancellation
2. Availability & Occupancy for a specified period
3. Bill generation - room + food + extra
4. Housekeeping
5. Reports

Make assumptions wherever necessary.

Case Study – 9: Tool Stores Inventory System (TSIS)

A large manufacturing company maintains a store where components (tools) used to manufacture a particular product is maintained.
Different units of the company can generate MRN (Material Request Note) indicating the tool required and quantity.
If in stock, the manager of TSIS issues the items (tools) and updates the stock. When the stock falls to reorder level, an automatic reorder request is generated.
Stock is updated when fresh items arrive. Defective parts (tools) may be returned to stock.
Over a period, the transactions of the TSIS are printed as a report for the manager of TSIS.
Possible features -

1. Tools inventory management - update stock when tool item returned/issued
2. Generate Material request Note (MRN)
3. Generate Material return note
4. Availability/reseravation request
5. Reports of Item usage, etc.

Make assumptions wherever necessary.

Case Study – 10: Bookshop Automation Software (BAS)

The manager of a bookshop wants to have automation software. Following are the users of the system –

1. Shopkeeper
2. Customer
3. Vendor who supplies books

Following are some of the functionalities -

1. The shop stocks a set of books. Records of all details should be maintained.
2. Customers can query whether a book is available and select for purchase.
3. The BAS generates a bill indicating total amount payable and all details of the sales transaction.
4. The BAS should automatically update book stock when a purchase is made or when fresh supply arrives.
5. Customers can provide feedback for books and place demand for a particular book.
6. The shop owner can query on the status of any item anytime and generate sales statistics for any period.

Make assumptions wherever necessary.

Case Study – 11: Car Rental Software (CAS)

The manager of a car rental service wants to have automation software. Following are the users of the system –

1. Manager
2. Customer
3. Drivers

Following are some of the features -

1. Lookup facility for customers to see availability of cars
2. Car details - rental rates, vehicle type
3. Car reservation - booking, cancellation
4. Rating feedback from customers
5. Reports

Make assumptions wherever necessary.

Case Study – 12: Traffic Rule Violation Management Software (TRVMS)

The traffic rule violation management system wants to have automation software. Following are the users of the system –

1. Car Owner
2. Drivers
3. Police Officers

Following are some of the features -

1. Case categories - different types, description, fine
2. Booking of a case - customer, driver, vehicle, etc.
3. Fine payment
4. View case history for a customer/vehicle
5. Reports

Make assumptions wherever necessary.