Shri Ramdeobaba College Of Engineering And Management

Department Of Electronics Engineering

LAB BASED ACTIVITY

Topic: **Quarantine Ward Management System**

Subject: *Data Structure*

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Quarantine Ward Management System

Problem Statement:- Design an Application for real life usage by using the concepts of Data structures and Algorithm.

Objectives:-

- Main objectives of a Quarantine ward management system are:
- Design a system for better patient care.
- Reduce ward operating costs.
- Provide MIS (Management Information System) report on demand to management for better decision making.
- Better co-ordination among the different departments.
- Provide top management a single point of control.

Applications:-

Quarantine ward management systems allows us the ability to optimize and digitize all the processes within the institution, which will help the government to improve customer service, reduce process costs, streamline the search of records, bills, patients, doctors, etc.; thus, having a database of each module implemented.

Algorithms:-

We have used Linked List to store the data and Bubble sort to sort the data.

Linked List Algorithm:-

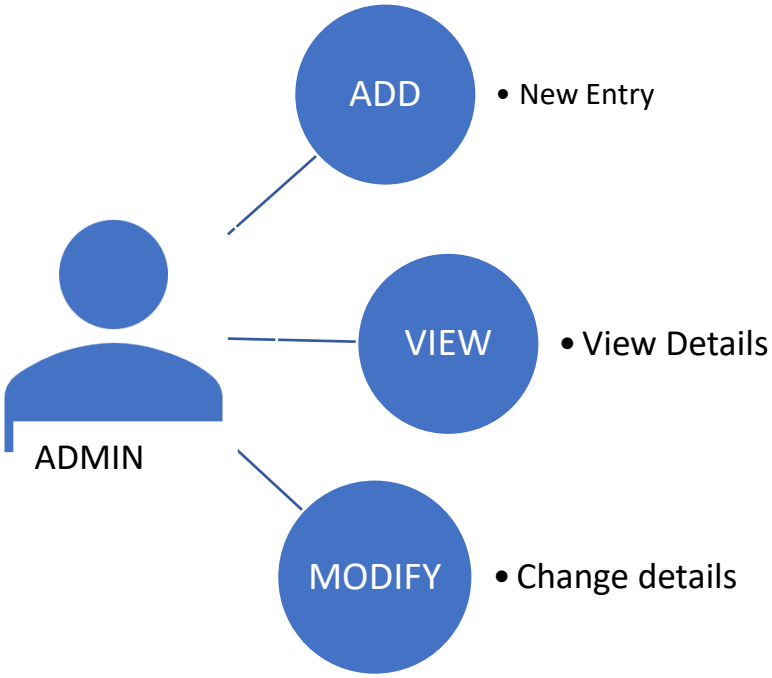
```
struct LinkedList{
   int data;
   struct LinkedList *next;
 };

//creating the linked list

typedef struct LinkedList *node; //Define node as pointer of data type struct LinkedList


node createNode(){
   node temp; // declare a node
   temp = (node)malloc(sizeof(struct LinkedList)); // allocate memory using malloc()
   temp->next = NULL;// make next point to NULL
   return temp;//return the new node
}
```

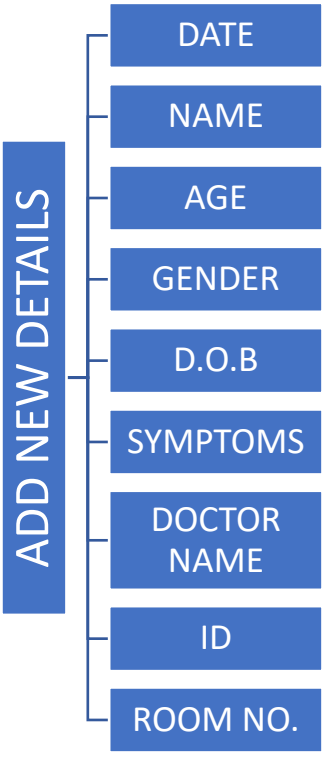
```
//add Node
node addNode(node head, int value){
   node temp,p;// declare two nodes temp and p
   temp = createNode();//createNode will return a new node with data = value and next
pointing to NULL.
   temp->data = value; // add element's value to data part of node
   if(head == NULL){
      head = temp;     //when linked list is empty
   }
   else{
      p  = head;//assign head to p
      while(p->next != NULL){
         p = p->next;//traverse the list until p is the last node.The last node always points to
NULL.
      }
      p->next = temp;//Point the previous last node to the new node created.
   }
   return head;
}

//traverse the list
node p;
p = head;
while(p != NULL){
   p = p->next;
}
```

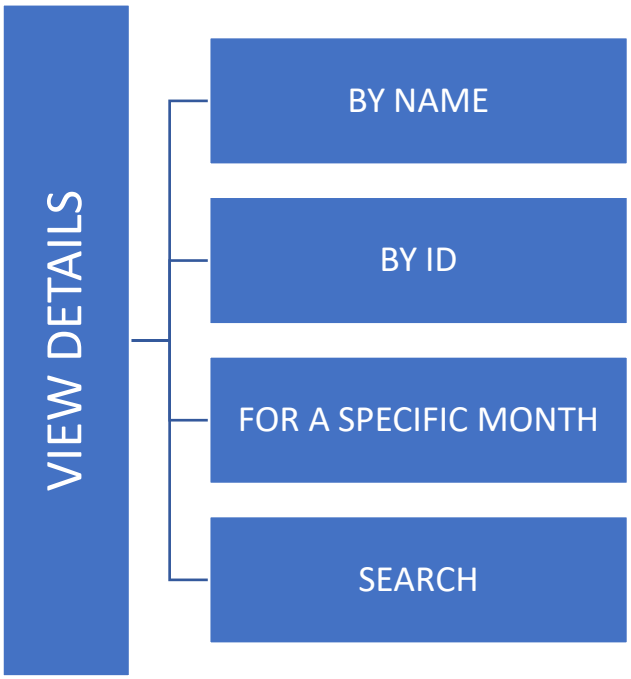
Bubble sort Algorithm:-

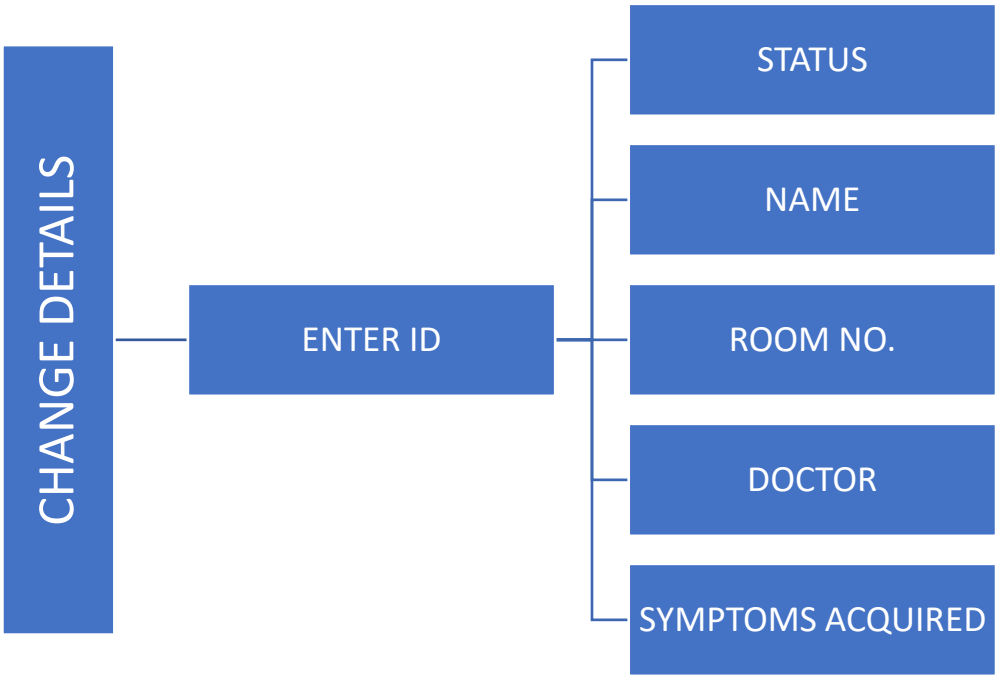
```
bubbleSort(array)
  swapped <- false
  for i <- 1 to indexOfLastUnsortedElement-1
    if leftElement > rightElement
      swap leftElement and rightElement
      swapped <- true
end bubbleSort
```

Flow Diagram:-






VIEW DETAILS
BY NAME
BY ID
FOR A SPECIFIC MONTH
SEARCH


CHANGE DETAILS
ENTER ID
STATUS
NAME
ROOM NO.
DOCTOR
SYMPTOMS ACQUIRED

Advantages:-

1. User Friendly: Easy to use and operate.
2. Reliable: The project is very much reliable.
3. Supportability: Support almost to all systems.
4. Maintainability: Easy to maintain.

Limitations:-

1. Not very good Graphical User Interface.
2. Repeatability may be needed if any mistakes are done by user during insertion of the data.
3. Less features.

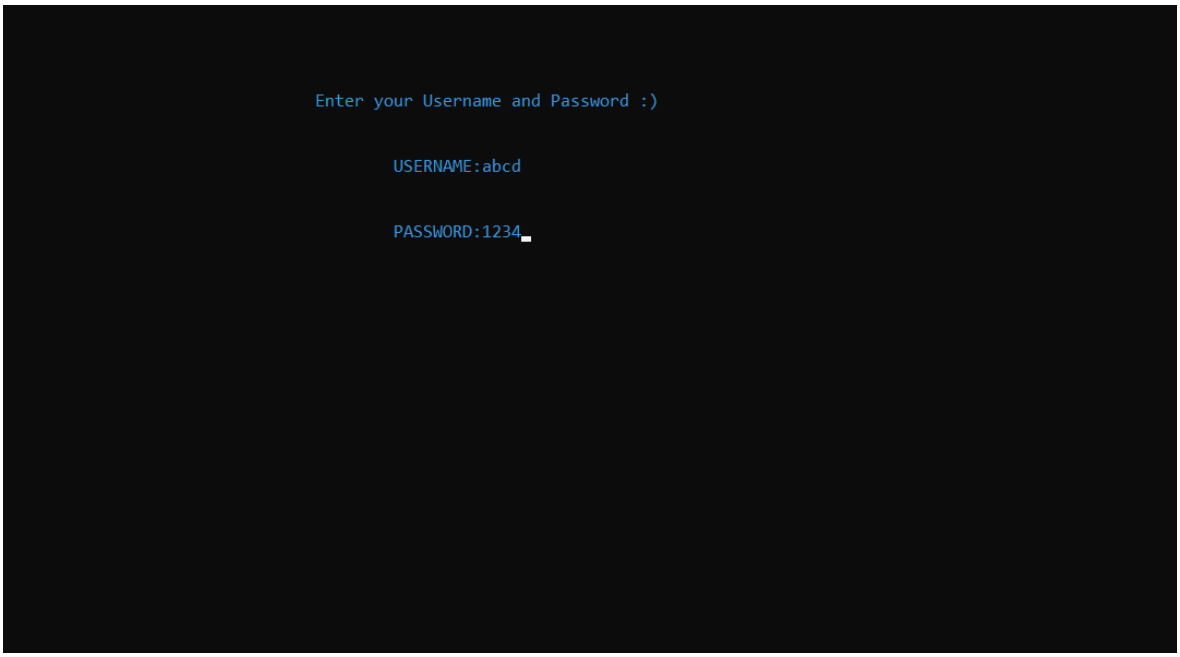
References:-

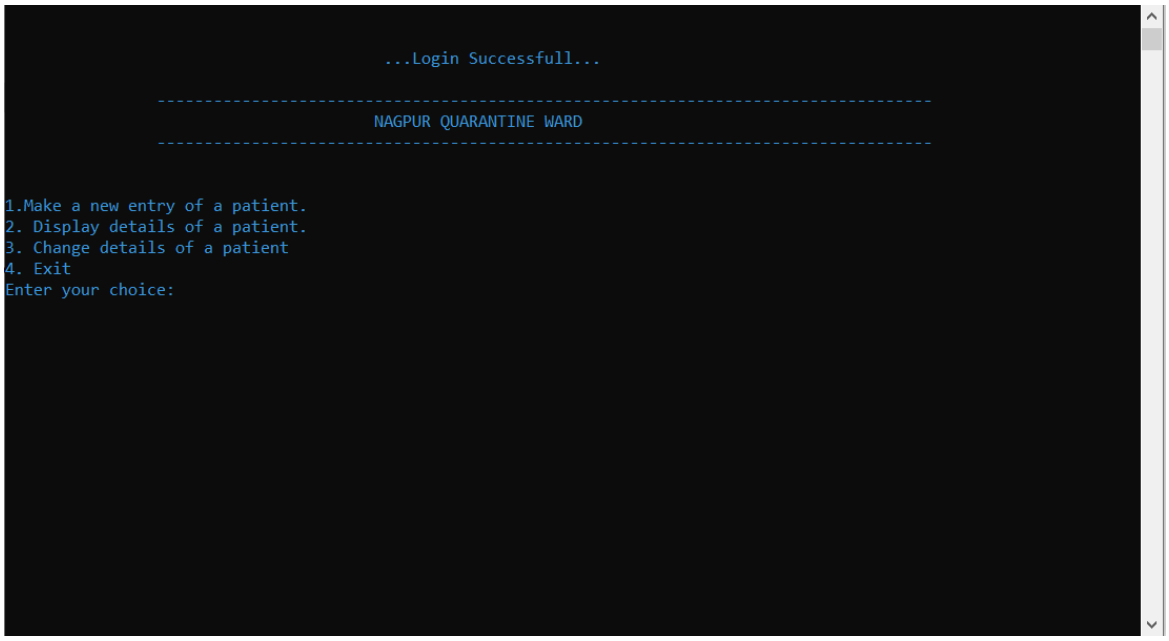
1. www.google.com
2. www.geeksforgeeks.org
3. www.stackoverflow.com
4. www.github.com
5. www.youtube.com

Time Complexity :-

Algorithm	Time Complexity (Average)	Time Complexity (Worst)
INSERT	O(1)	O(1)
SEARCH	O(n)	O(n)
ACCESS	O(n)	O(n)
DELETE	O(1)	O(1)
BUBBLE SORT	O(n^2)	O(n^2)

Output:-


Enter your Username and Password :)
USERNAME:abcd
PASSWORD:1234


...Login Successfull...
NAGPUR QUARANTINE WARD
1.Make a new entry of a patient.
2. Display details of a patient.
3. Change details of a patient
4. Exit
Enter your choice:

```
3. Change details of a patient
4. Exit
Enter your choice:
 2

1.Display by name
2.Display by ID
3.Display for a specific month.
4.Search patient by first name
5.Exit

Enter a choice: 1
ID              Name                    Disease                 Doctor                  Room No.
                Status
1001            nithlesh sathwane               cough                   shrey           2
        Quarantined
1002            pawan khadgi            vomiting                        shrey           3
        Quarantined
1003            prateek prateek         none                    shrey           4
Quarantined
1000            rishubh kumar           none                    shrey           1
Quarantined

1.Display by name
2.Display by ID
3.Display for a specific month.
4.Search patient by first name
5.Exit

Enter a choice:
```

F:\C codes\add.exe

```
 3
Which patient's detail is to be changed? Please enter the patient's Id: 1000
Which detail is to be changed?
1.Status of the patient 2.Name  3.Room Number   4.Doctor Assigned       5.Symptoms acquired     6.Exit
Enter your option:1
Is the patient 1.Admitted or 2.Discharged ? 2



1.Make a new entry of a patient.
2. Display details of a patient.
3. Change details of a patient
4. Exit
Enter your choice:
 2

1.Display by name
2.Display by ID
3.Display for a specific month.
4.Search patient by first name
5.Exit

Enter a choice: 2
ID              Name                    Disease                 Doctor                  Room No.
        Status
1000            rishubh kumar           none                    shrey           1
ischarged
1001            nithlesh sathwane               cough                   shrey           2
Quarantined
1002            pawan khadgi            vomiting                        shrey           3
Quarantined
1003            prateek prateek         none                    shrey           4
uarantined

1.Display by name
2.Display by ID
3.Display for a specific month.
4.Search patient by first name
5.Exit

Enter a choice:
```