Faculty of engineering - Shoubra
Benha University

Research Article / Research Project / Literature Review

Department	**Electrical Engineering department**
Division	**Electronics and Communications**
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Course name	**Test (1)**
Course code	**ECE 123**

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Examiners committee	Signature

Note: the program and the code are completely run and I uploaded it in github site and this is the site So if there is any wrong in the site write to me doc

Github link: https://github.com/mohamed-nabil-mohamed/programming-research

Question: Describe how do you store the patients records without any waste of memory without knowing the number of patients priory.

Answer:

I can store the patients by using the date structures as (linked list& stack& etc) by creating a node of type structure this node has a pointer called next this pointer points to another sorted node and this sorted node points to another node and so on and the first node called head finally you can get a list of nodes and you can access each node.

Next I am going to explain some of the program :

1- I defined a structure containing different data types one of them is a pointer of type of the structure itself called next points to the next node.
2- I made prototypes of some functions

The header pointer is the head node

3- In the main I made an infinite loop so user can use the program many times then i called the menu function and I asked the user to choose his/her option
4- In the new_patient function I asked the user to fill his/her information and made the first and the last name alphabetically only by using isalpha() , the age and id is digits only by using isdigit()

- then I checked the user id to see if it is similar to another sorted patients and if it is it will return to the main to start again.

-if the head is NULL the user clinic_number will be 1 and if it is not the user clinic_number will be the head clinic_number +1

-then I made the new_node->next =*head and made the *head =new_node

5- in the delet function I asked the user to enter his clinic_number to delete it and checked it with the sorted patients clinic_number if and to delete it I used the following code

```
struct node* temp;
  if(clinicNumber==(*head)->clinic_number){
    temp=*head;
    *head=(*head)->next;
    free(temp);
    printf("\nyour id is successfully deleted\n\n");
  }
  else if(clinicNumber==((*head)->clinic_number)-1){
    temp=(*head)->next;
    (*head)->next=temp->next;
    free(temp);
    printf("\nyour id is successfully deleted\n\n");

  }
  else {
        delet(&((*head)->next),clinicNumber);
}
}
```

6-in the check_id function I made the program print (there is no patients) if the linked list is empty -equal to NULL- and if it is not I asked the user to enter his id to check it with the patients id and print the user information

7-in the display_all_patients function I made the program print (there is no patients) if the linked list is empty -equal to NULL- and if it is not I made a nested loop to print the patients first and last name in alphabetical order.

That is short explanation for the program if there is any thing not understood in the code write to me.
