```c
#include<stdio.h>
#include<stdlib.h>
//+++++++++++++++++++++++++++++++++++++++++include_files+++++++++++++++++++++++++++++++++++++
++++++++++++++++++++++++++




//==================================typedefs=================================================
================


typedef unsigned  char u8;
typedef unsigned long int u32;
typedef float f32;
typedef double f64;

//===================================#defines================================================
==================
#define male 1
#define female 2
#define repeated 1
#define unrepeated 0
#define slots()      printf("|1| From 2:00 pm to 2:30 pm\n");\
                     printf("|2| From 2:30 pm to 3:00 pm\n");\
                     printf("|3| From 3:00 pm to 3:30 pm\n");\
                     printf("|4| From 4:00 pm to 4:30 pm\n");\
                     printf("|5| From 4:30 pm to 5:00 pm\n")
typedef enum
    {
        Add_new_patient_record = 1,
        Edit_patient_record ,
        Reserve_a_slot_with_the_doctor,
        Cancel_reservation
    }features;

struct  user
    {
        u8 name[10];
        u8    age;
        u8    gender;
        u32   id;
        struct user *nptr;
    };

typedef struct user node;

struct day
{
    u8 slot1 ;
    u8 slot2 ;
    u8 slot3 ;
    u8 slot4 ;
    u8 slot5 ;
    u32 id1;
    u32 id2;
    u32 id3;
    u32 id4;
    u32 id5;
};

//**********************************functions_prototypes+++++++++++++++++++++++++++++++++++++
++++++++++++++++++++++++

 void ll_NewPatient(void);
 u8  ll_checkid(u32 check);
 void ll_EditPatient(u32 x);
 void ll_ViewRecord(u32 x);
 void arr_ReserveSlot(u32 x);
```

```c
 void arr_ViewReservations(void);

//*****************************************linked
list++++++++++++++++++++++++++++++++++++++++++++++++++++++++
    node *head = NULL;
    node *tail = NULL;

//*****************************************global
values***********************************************
    u32 ID;//used each time i take id
    struct day week[7];

//*****************************************main
function*************************************************
void main(void)
{
    u8 mode, user_mode, y, yy, yyy, flag = 0, flag1=0, flag5 = 0, flag6 = 0, flag7 =
    0, i;
    static u8 Edit ;
    static u32 password;
    features feature;
while(flag != 1)
{
    printf("\n===================\n");
    printf("\nchoose  the mode number please\n(1)Admin mode\n(2)User mode\n");
    scanf("%d",& mode);
    printf("===================\n");

    switch(mode)
    {
//=========================================admin
mode==============================================================
        case 1 :

        for(i = 0; i < 3; i++)
        {
                printf("\nplease enter password\n");
                scanf("%d",& password);

                if( password == 1234)//true pass dah lsa
                {
                    printf("\n===================\n");
                    printf("choose number of wanted
                    feature:\n_____\n(1)Add new patient
                    record\n(2)Edit patient record\n(3)Reserve a slot with the
                    doctor\n(4)Cancel reservation\n ");
                    scanf("%d",& feature);
                    switch(feature)
                    {
//^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^first feature in
admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
                        case Add_new_patient_record:

                            printf("\n===================\n");
                            ll_NewPatient();

                            break;
//^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^second featurein
admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
                        case Edit_patient_record:

                            printf("\n===================\n");
                            printf("Enter the ID of user you wanted to edit\n");
                            scanf("%d",& ID);
                            Edit  = ll_checkid (ID);
                            if( Edit == 1 )
                            {
                                ll_EditPatient(ID);
                            }
```

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                                    else
                                    {
                                        printf("you entered unexisted ID\n");
                                    }
                                break;
//^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^third feature
admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

            break;//end of admin case

                    case Reserve_a_slot_with_the_doctor:

                            do
                            {
                            printf("\n==================\n");
                            printf("Enter the ID of user \n");
                            scanf("%d",& ID);
                            Edit  = ll_checkid (ID);
                            if( Edit == 1 )
                            {
                                arr_ReserveSlot(ID);
                            }
                            else
                            {
                                printf("you entered unexisted ID\n");
                                printf("\n------------------\n");

                            }

                            printf("Do you want to reserve another
                            reservation ?\n [1]Yes                [2]Go to
                            start menu\n");
                            scanf("%d",& yy );
                            printf("\n------------------\n");
                            if( yy == 2)
                            {
                                flag6 = 1;
                            }
                            else if( yy == 1);
                            else
                            {
                                printf("{You entered wrong choice}\n");
                                printf("\n------------------\n");
                            }
                            }
                            while(flag6 == 0);
                        break;

//^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^fourth feature
admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
                                                        printf("4");
                        break;

                    default:
                        printf("{wrong feature number}\n");
                }
                break;//end of features
            }

            else if( i == 2)
            {
                printf("sorry, you entered password wrong for 3 times\n");
                break;
            }

        }//end of for loop



    break;//end of admin case
//_____user
```

```c
190
191            case 2 :
192
193                    printf("\n**********+++++++++**********\n");
194                    printf("Welcome User\n Choose wanted feature :\n [1]View patient
                       record\n [2]View today's reservations\n ->");
195                    scanf("%d",& user_mode);
196                    printf("\n**********+++++++++**********\n");
197
198     //first user feature{view
        record}:->>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
        >>>>>>>
199
200                    if(user_mode == 1)
201                    {
202                        printf("Enter the patient ID\n");
203                        scanf("%d",& ID);
204
205                        Edit  = ll_checkid (ID);
206
207                         if( Edit == 1 )
208                         {
209                            ll_ViewRecord(ID);
210                         }
211                         else
212                         {
213                            printf("you entered unexisted ID\n");
214                         }
215
216                        printf("\n*****************************\n");
217                        while(flag5 == 0)
218                        {
219                            printf("DO you want to view another patient record
                           ?\n1)yes                2)no\n");
220                            scanf("%d",& y);
221
222                            if(y == 1)
223                            {
224                                printf("Enter another patient ID\n");
225                                scanf("%d",& ID);
226                                Edit = ll_checkid (ID);
227
228                                if( Edit == 1 )
229                                    {
230                                        ll_ViewRecord(ID);
231                                    }
232                                else
233                                    {
234                                        printf("you entered unexisted ID\n");
235                                    }
236                            }
237                            else if( y == 2)
238                            {
239                                flag5 = 1;
240                            }
241                            else
242                            {
243                                printf("{you must choose 1 OR 2}\n");
244                            }
245                        }
246                    }
247     //second user feature{view
        today}:->>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
248                    else if(user_mode == 2)//reservations
249                    {
250                        do
```

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                          {
                              arr_ViewReservations();
                              printf("Do you want to show another day 's reservations ?\n
                              [1]Yes                        [2]Go to start menu\n");
                              scanf("%d",& yyy );
                              printf("\n-----------------\n");
                              if( yyy == 2)
                               {
                                    flag7 = 1;
                               }
                              else if( yyy == 1);
                              else
                               {
                                    printf("{You entered wrong choice}\n");
                                    printf("\n-----------------\n");
                               }
                          }
                          while(flag7 == 0);
                      }
                      else
                      {
                          printf("sorry , no available feature has this number\n ");
                      }

          break;//end of user case
          default:

          printf("you entered undefined mode number\n");
          printf("\n==================\n");
      }
//=====================================close the
program=============================================
      while(flag1 == 0)
      {

          printf("******************************************************************\n\nDO
          you want to : \n(1)Exit                    (2)go to start menu\n");
          scanf("%d",& Edit);

          if(Edit == 1)
          {
              flag = 1;
              flag1 = 1;
              printf("&&&&&&&&&&&&&&&&&&&&&&&{The Program is closed
              }&&&&&&&&&&&&&&&&&&&&&&&& ");
          }
          else if(Edit == 2)
          {
              flag1=1;
          }
          else
          {
              printf("error ,you entered wrong choice\n ");
          }
      }
}}
//&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&fun1&&&&&&&&&&&&&&
&&&&&&&&&&&&&&&&
void ll_NewPatient(void)
 {
    struct user *ptr;
    u8 again, Ok, flag3 = 0;
    static u8 flag4 = 0;
    u32 check;
    ptr = (struct user*) malloc(sizeof(struct user));

    printf("Enter patient:\n_____\n\n(1)first name \n[In case the name exceed
    10 letters enter Nickname & do not use spaces ]\n");
    scanf("%s",& ptr -> name);
```

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    printf("-------------------\n");

    printf("\n(2)age\n");
    scanf("%d",& ptr -> age);
    printf("-------------------\n");

    while(flag3 == 0)
        {
            printf("\n(3)gender number: 1]male                2]female\n");
            scanf("%d",& Ok);
                if(Ok == 1||Ok == 2)
                {
                    ptr -> gender = Ok;
                    flag3 = 1;
                }
                else
                {
                 printf("{You must enter number 1 or 2 only}\n");
                }
        }
    printf("-------------------\n");

    printf("\n(4)id\n");
    scanf("%d",& check);

    if( head == NULL)
    {
        ptr -> id = check;
    }

    else
    {
        u8 diss = ll_checkid(check);

        switch(diss)
        {
            case repeated :
                while(1)
                {
                  printf("You entered an already used id choose new one\n");
                  scanf("%d",& check);
                  u8 case1 = ll_checkid(check);
                  if(case1 == unrepeated)
                   {
                     ptr -> id = check;
                     break;
                   }
                }
                break;

            case unrepeated :
                 ptr -> id = check;

                break;

        }
    }
    printf("-------------------\n");

    if(head == NULL)
    {
        head = ptr;
        tail = ptr;
        ptr -> nptr = NULL;
    }
    else
    {
        tail -> nptr = ptr;
```

```c
            tail = ptr;
            ptr -> nptr = NULL;

    }

    do
    {
        printf("Do you want to add another new patient ?\n[1]yes         [2]No\n");
        scanf("%d",& again);

        if(again == 1)
        {
         printf("-------------------\n");
         ll_NewPatient();

        }
        else if(again == 2)
        {
            flag4 = 1;
        }
        else
        {
            printf("{You must choose [1] OR [2]}\n");
        }
    }
    while(flag4 == 0);
 }

//&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
fun2&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
u8  ll_checkid (u32 check)
{
    struct user *ptr = head;

    while (ptr != NULL)
    {
        if((ptr->id)==check)
        {
         return repeated ;
        }
        else
        {
         ptr = ptr-> nptr;
        }
    }
    return unrepeated ;
}
//&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&fun3(edit exist
id)&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
void ll_EditPatient(u32 x)
{
    node *ptr = head;
    static u32 y;
    static u8 Ok, flag1;

    while((ptr -> id) != x)
    {
        ptr = ptr -> nptr;
    }

    printf("Choose one number for type of information you want to edit(1]Name, 2]ID,
    3]Gender, 4]Age)\n");
    scanf("%d",& y);


    if (y == 1)//name
    {
        printf("-------------------\n");
```

```c
            printf("you choose to change the name which is %s\nso,Please enter the new
            one\n", ptr -> name);
            scanf("%s",& ptr -> name);
        }

        else if (y == 2)//ID
        {
            printf("-------------------\n");
            printf("(Note : if you make any reservations with the old ID,you must change
            it by the new ID)\n ");
            printf("you choose to change the ID which is %d\nso,Please enter the new
            one\n", ptr -> id);
            scanf("%d",& y);

            Ok = ll_checkid(y);
            if(Ok == 0)
            {
             ptr -> id = y;
            }
            else
            {
             printf("you entered used ID try again\n");
            }

        }

        else if (y == 3)//gender
        {
            printf("-------------------\n");

            while(flag1 == 0)
            {
                printf("you choose to change gender which is number %d\nchoose update 1 or
                2: 1]male                   2]female\n", ptr -> gender);
                scanf("%d",& Ok);
                    if(Ok == 1||Ok == 2)
                    {
                        ptr -> gender = Ok;
                        flag1 = 1;
                    }
                    else
                    {
                     printf("{you must enter number 1 or 2 only}\n");
                    }
            }
        }

        else if (y == 4)//age
        {
            printf("-------------------\n");
            printf("you choose to change the age which is %d\nso,Please enter the new
            one\n", ptr -> age);
            scanf("%d",& ptr -> age);
        }
        else
        {
            printf("-------------------\n");
            printf("you entered wrong choice \n");
        }

        printf("DO you want to change another user's information
        \n(1)yes                   (2)no\n");
        scanf("%d",& y);

        if(y == 1)
        {

            u8 Edit = ll_checkid (ptr->id);
            if( Edit == 1 )
```

```c
                {
                    ll_EditPatient(ptr -> id);
                }
        }

}
//&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&& fun3 print info&&&&&&&&&&&&&&&&&&&&&&&&
void ll_ViewRecord(u32 x)
{
    node *ptr = head;

    while((ptr -> id) != x)
    {
        ptr = ptr -> nptr;
    }

    printf(" I)user Name:%s\n II)Age:%d\n III)gender: ", ptr -> name, ptr -> age);
    switch(ptr -> gender)
    {
        case male :
        printf("Male\n");
        break;

        case female :
        printf("Female\n");
        break;

        default:
        printf("error , refer to admin please");
    }
}
//&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&& fun reserve slot&&&&&&&&&&&&&&&&&&&&&&&&&&

void arr_ReserveSlot(u32 x)
{
    static u8 free,i ;

    printf("\n------------------\n");
    printf("first, Choose the day at  this week:\n [1]Saturday\n [2]Sunday\n [3]Monday\n [4]Tuesday\n [5]Wednesday\n [6]thurday\n [7]Friday\n");
    scanf("%d",& i);
    printf("\n------------------\n");

    if(i < 8 && i > 0)
    {
        i-=1;//choosen day of week

        printf("Second ,Please enter desired slot :\n");
        slots();
        scanf("%d",& free);//desired slot
        printf("\n------------------\n");

        switch(free)//must be from 1 to 5
        {
            case 1://from 2pm
            if((week[i].slot1)!=1)
            {
                week[i].slot1=1;
                week[i].id1= x ;
            }
            else
            {
                printf("{This slot is choosen by another patient} \n");
                printf("\n------------------\n");
            }
            break;
```

```c
            case 2://from 2:30 pm
            if((week[i].slot2)!=1)
            {
                week[i].slot2=1;
                week[i].id2= x;
            }
            else
            {
                printf("{This slot is choosen by another patient} \n");
                printf("\n------------------\n");
            }
            break;

            case 3://from 3 pm
            if((week[i].slot3)!=1)
            {
                week[i].slot3=1;
                week[i].id3= x;
            }
            else
            {
                printf("{This slot is choosen by another patient} \n");
                printf("\n------------------\n");
            }
            break;

            case 4://from 4 pm
            if((week[i].slot4)!=1)
            {
                week[i].slot4=1;
                week[i].id4= x;
            }
            else
            {
                printf("{This slot are choosen by another patient} \n");
                printf("\n------------------\n");
            }
            break;

            case 5://from 4:30
            if((week[i].slot5)!=1)
            {
                week[i].slot5=1;
                week[i].id5= x;
            }
            else
            {
                printf("{This slot are choosen by another patient} \n");
                printf("\n------------------\n");

            }
            break;

            default :
            printf("{You choose unexisted slot} \n");
            printf("\n------------------\n");


        }
    }
    else
    {
        printf("{You entered wrong day}\n");
        printf("\n------------------\n");
    }


    /*for(u8 i=0;i<7;i++)
    {
```

```c
        printf("%d,%d,%d,%d,%d,%d,%d,%d,%d,%d\n",week[i].slot1,week[i].slot2,week[i].slo
        t3,week[i].slot4,week[i].slot5,week[i].id1,week[i].id2,week[i].id3,week[i].id4,w
        eek[i].id5);
    }*/
}
//&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&fun View today
reservation&&&&&&&&&&&&&&&&&&&&&&&&&&&&
void arr_ViewReservations(void)
{
    static u8 free,i ;

    printf("first, Choose the day at  this week:\n [1]Saturday\n [2]Sunday\n
    [3]Monday\n [4]Tuesday\n [5]Wednesday\n [6]thurday\n [7]Friday\n");
    scanf("%d",& i);
    printf("\n------------------\n");

    if(i < 8 && i > 0)
    {
        i-=1;//choosen day of week
        slots();//appear slots
        printf("\nSlot case :\n ");
        printf("~~~~~~~~~~~~\n");


            //from 2pm
            if((week[i].slot1)==1)
            {
                printf("|1|BUSY by User of ID -> %d\n",week[i].id1);
            }
            else
            {
                printf("|1|Empty \n");
            }

            if((week[i].slot2)==1)//2:30 pm
            {
                printf("|2|BUSY by User of ID -> %d\n",week[i].id2);
            }
            else
            {
                printf("|2|Empty \n");
            }

            if((week[i].slot3)==1)//3 pm
            {
                printf("|3|BUSY by User of ID -> %d\n",week[i].id3);
            }
            else
            {
                printf("|3|Empty \n");
            }

            if((week[i].slot4)==1)//4 pm
            {
                printf("|4|BUSY by User of ID -> %d\n",week[i].id4);
            }
            else
            {
                printf("|4|Empty \n");
            }

            if((week[i].slot5)==1)//4:30 pm
            {
                printf("|5|BUSY by User of ID -> %d\n",week[i].id5);
                printf("\n------------------\n");
            }
            else
            {
```

```c
                printf("|5|Empty \n");
                printf("\n-------------------\n");
            }
    }
    else
    {
        printf("{You entered wrong day}\n");
        printf("\n-------------------\n");
    }
}
```