```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);
 void arr_ViewReservations(void);
```

```c
//****************************************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);
                            }
                            else
                            {
                                printf("you entered unexisted ID\n");
                            }
```

```c
                                                break;
//^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^third feature
admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

                            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
mode_____


        case 2 :

                printf("\n*************************************\n");
```

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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
251                            {
252                                arr_ViewReservations();
253                                printf("Do you want to show another day 's reservations ?\n
       [1]Yes                 [2]Go to start menu\n");
254                                scanf("%d",& yyy );
255                                printf("\n-------------------\n");
256                                if( yyy == 2)
257                                    {
```

```c
                                               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);
    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);
```

```c
323                  if(Ok == 1||Ok == 2)
324                  {
325                      ptr -> gender = Ok;
326                      flag3 = 1;
327                  }
328                  else
329                  {
330                   printf("{You must enter number 1 or 2 only}\n");
331                  }
332          }
333      printf("-------------------\n");
334
335      printf("\n(4)id\n");
336      scanf("%d",& check);
337
338      if( head == NULL)
339      {
340          ptr -> id = check;
341      }
342
343      else
344      {
345          u8 diss = ll_checkid(check);
346
347          switch(diss)
348          {
349              case repeated :
350                  while(1)
351                  {
352                    printf("You entered an already used id choose new one\n");
353                    scanf("%d",& check);
354                    u8 case1 = ll_checkid(check);
355                    if(case1 == unrepeated)
356                     {
357                        ptr -> id = check;
358                        break;
359                     }
360                  }
361                  break;
362
363              case unrepeated :
364                   ptr -> id = check;
365
366                  break;
367
368          }
369      }
370      printf("-------------------\n");
371
372
373      if(head == NULL)
374      {
375          head = ptr;
376          tail = ptr;
377          ptr -> nptr = NULL;
378      }
379      else
380      {
381          tail -> nptr = ptr;
382          tail = ptr;
383          ptr -> nptr = NULL;
384
385      }
386
387      do
388      {
389          printf("Do you want to add another new patient ?\n[1]yes          [2]No\n");
390          scanf("%d",& again);
391
392          if(again == 1)
393          {
```

```c
                    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");
        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);

```

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459            Ok = ll_checkid(y);
460            if(Ok == 0)
461            {
462             ptr -> id = y;
463            }
464            else
465            {
466             printf("you entered used ID try again\n");
467            }

469        }

471     else if (y == 3)//gender
472     {
473            printf("--------------------\n");

475            while(flag1 == 0)
476            {
477                printf("you choose to change gender which is number %d\nchoose update 1 or
                   2: 1]male                 2]female\n", ptr -> gender);
478                scanf("%d",& Ok);
479                    if(Ok == 1||Ok == 2)
480                    {
481                        ptr -> gender = Ok;
482                        flag1 = 1;
483                    }
484                    else
485                    {
486                     printf("{you must enter number 1 or 2 only}\n");
487                    }
488            }
489        }

491     else if (y == 4)//age
492     {
493            printf("--------------------\n");
494            printf("you choose to change the age which is %d\nso,Please enter the new
                   one\n", ptr -> age);
495            scanf("%d",& ptr -> age);
496        }
497     else
498     {
499            printf("--------------------\n");
500            printf("you entered wrong choice \n");
501        }

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

506     if(y == 1)
507     {

509            u8 Edit = ll_checkid (ptr->id);
510            if( Edit == 1 )
511            {
512                ll_EditPatient(ptr -> id);
513            }
514        }

516 }
517 //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&& fun3 print
    info&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
518 void ll_ViewRecord(u32 x)
519 {
520     node *ptr = head;

522     while((ptr -> id) != x)
523     {
524            ptr = ptr -> nptr;
525        }
```

```c
526
527     printf(" I)user Name:%s\n II)Age:%d\n III)gender: ", ptr -> name, ptr -> age);
528     switch(ptr -> gender)
529     {
530         case male :
531         printf("Male\n");
532         break;
533
534         case female :
535         printf("Female\n");
536         break;
537
538         default:
539         printf("error , refer to admin please");
540     }
541 }
542 //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&& fun reserve
    slot&&&&&&&&&&&&&&&&&&&&&&&&&&&
543
544 void arr_ReserveSlot(u32 x)
545 {
546     static u8 free,i ;
547
548     printf("\n--------------------\n");
549     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");
550     scanf("%d",& i);
551     printf("\n--------------------\n");
552
553     if(i < 8 && i > 0)
554     {
555         i-=1;//choosen day of week
556
557         printf("Second ,Please enter desired slot :\n");
558         slots();
559         scanf("%d",& free);//desired slot
560         printf("\n--------------------\n");
561
562         switch(free)//must be from 1 to 5
563         {
564             case 1://from 2pm
565             if((week[i].slot1)!=1)
566             {
567                 week[i].slot1=1;
568                 week[i].id1= x ;
569             }
570             else
571             {
572                 printf("{This slot is choosen by another patient} \n");
573                 printf("\n--------------------\n");
574             }
575             break;
576
577             case 2://from 2:30 pm
578             if((week[i].slot2)!=1)
579             {
580                 week[i].slot2=1;
581                 week[i].id2= x;
582             }
583             else
584             {
585                 printf("{This slot is choosen by another patient} \n");
586                 printf("\n--------------------\n");
587             }
588             break;
589
590             case 3://from 3 pm
591             if((week[i].slot3)!=1)
592             {
593                 week[i].slot3=1;
594                 week[i].id3= x;
```

```c
595                }
596                else
597                {
598                    printf("{This slot is choosen by another patient} \n");
599                    printf("\n--------------------\n");
600                }
601                break;

603                case 4://from 4 pm
604                if((week[i].slot4)!=1)
605                {
606                    week[i].slot4=1;
607                    week[i].id4= x;
608                }
609                else
610                {
611                    printf("{This slot are choosen by another patient} \n");
612                    printf("\n--------------------\n");
613                }
614                break;

616                case 5://from 4:30
617                if((week[i].slot5)!=1)
618                {
619                    week[i].slot5=1;
620                    week[i].id5= x;
621                }
622                else
623                {
624                    printf("{This slot are choosen by another patient} \n");
625                    printf("\n--------------------\n");

627                }
628                break;

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


635            }
636        }
637    else
638    {
639        printf("{You entered wrong day}\n");
640        printf("\n--------------------\n");
641    }


644    /*for(u8 i=0;i<7;i++)
645    {

646        printf("%d,%d,%d,%d,%d,%d,%d,%d,%d,%d\n",week[i].slot1,week[i].slot2,week[i].slot3,week[i].slot4,week[i].slot5,week[i].id1,week[i].id2,week[i].id3,week[i].id4,week[i].id5);
647    }*/
648 }
649 //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&fun View today reservation&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
650 void arr_ViewReservations(void)
651 {
652    static u8 free,i ;

654    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]thursday\n [7]Friday\n");
655    scanf("%d",& i);
656    printf("\n--------------------\n");

658    if(i < 8 && i > 0)
659    {
660        i-=1;//choosen day of week
```

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