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

4
5
6
7
8    //======================================typedefs=======================================
     ================

9
10
11   typedef unsigned  char u8;
12   typedef unsigned long int u32;
13   typedef float f32;
14   typedef double f64;

15
16   //======================================#defines=======================================
     ================
17   #define male 1
18   #define female 2
19   #define repeated 1
20   #define unrepeated 0
21   #define slots()      printf("|1| From 2:00 pm to 2:30 pm\n");\
22                        printf("|2| From 2:30 pm to 3:00 pm\n");\
23                        printf("|3| From 3:00 pm to 3:30 pm\n");\
24                        printf("|4| From 4:00 pm to 4:30 pm\n");\
25                        printf("|5| From 4:30 pm to 5:00 pm\n")
26   typedef enum
27       {
28           Add_new_patient_record = 1,
29           Edit_patient_record ,
30           Reserve_a_slot_with_the_doctor,
31           Cancel_reservation
32       }features;

33
34   struct  user
35       {
36           u8 name[10];
37           u8    age;
38           u8    gender;
39           u32   id;
40           struct user *nptr;
41       };

42
43   typedef struct user node;

44
45   struct day
46   {
47       u8 slot1 ;
48       u8 slot2 ;
49       u8 slot3 ;
50       u8 slot4 ;
51       u8 slot5 ;
52       u32 id1;
53       u32 id2;
54       u32 id3;
55       u32 id4;
56       u32 id5;
57   };

58
59   //*****************************************functions_prototypes++++++++++++++++++++++++++++
     +++++++++++++++++++++++

60
61    void ll_NewPatient(void);
62    u8  ll_checkid(u32 check);
63    void ll_EditPatient(u32 x);
64    void ll_ViewRecord(u32 x);
65    void arr_ReserveSlot(u32 x);
66    void arr_ViewReservations(void);
67
```

```
68   //****************************************linked
     list++++++++++++++++++++++++++++++++++++++++++++++++++++++++
69       node *head = NULL;
70       node *tail = NULL;
71
72   //****************************************global
     values****************************************
73       u32 ID;//used each time i take id
74       struct day week[7];
75
76   //****************************************main
     function****************************************
77   void main(void)
78   {
79       u8 mode, user_mode, y, yy, yyy, flag = 0, flag1=0, flag5 = 0, flag6 = 0, flag7 =
         0, i;
80       static u8 Edit ;
81       static u32 password;
82       features feature;
83   while(flag != 1)
84   {
85       printf("\n==================\n");
86       printf("\nchoose  the mode number please\n(1)Admin mode\n(2)User mode\n");
87       scanf("%d",& mode);
88       printf("==================\n");
89
90       switch(mode)
91       {
92   //==========================================admin
     mode==============================================================
93           case 1 :
94
95           for(i = 0; i < 3; i++)
96           {
97                   printf("\nplease enter password\n");
98                   scanf("%d",& password);
99
100                  if( password == 1234)//true pass dah lsa
101                  {
102                      printf("\n==================\n");
103                      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 ");
104                      scanf("%d",& feature);
105                      switch(feature)
106                      {
107   //^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^first feature in
     admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
108                          case Add_new_patient_record:
109
110                              printf("\n==================\n");
111                              ll_NewPatient();
112
113                              break;
114   //^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^second featurein
     admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
115                          case Edit_patient_record:
116
117                              printf("\n==================\n");
118                              printf("Enter the ID of user you wanted to edit\n");
119                              scanf("%d",& ID);
120                              Edit  = ll_checkid (ID);
121                              if( Edit == 1 )
122                              {
123                                  ll_EditPatient(ID);
124                              }
125                              else
126                              {
127                                  printf("you entered unexisted ID\n");
128                              }
```

```c
129                                  break;
130 //^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^third feature
    admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
131
132                          case Reserve_a_slot_with_the_doctor:
133
134                                  do
135                                  {
136                                   printf("\n=================\n");
137                                   printf("Enter the ID of user \n");
138                                   scanf("%d",& ID);
139                                   Edit  = ll_checkid (ID);
140                                   if( Edit == 1 )
141                                   {
142                                      arr_ReserveSlot(ID);
143                                   }
144                                   else
145                                   {
146                                      printf("you entered unexisted ID\n");
147                                      printf("\n------------------\n");
148
149                                   }
150
151                                   printf("Do you want to reserve another
                                      reservation ?\n [1]Yes              [2]Go to
                                      start menu\n");
152                                   scanf("%d",& yy );
153                                   printf("\n------------------\n");
154                                   if( yy == 2)
155                                   {
156                                      flag6 = 1;
157                                   }
158                                   else if( yy == 1);
159                                   else
160                                   {
161                                       printf("{You entered wrong choice}\n");
162                                       printf("\n------------------\n");
163                                   }
164                                  }
165                                  while(flag6 == 0);
166                              break;
167
168 //^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^fourth feature
    admin^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
169                                              printf("4");
170                              break;
171
172                          default:
173                              printf("{wrong feature number}\n");
174                      }
175                  break;//end of features
176              }
177
178              else if( i == 2)
179              {
180                  printf("sorry, you entered password wrong for 3 times\n");
181                  break;
182              }
183
184          }//end of for loop
185
186
187
188      break;//end of admin case
189 //_____user
    mode_____
190
191      case 2 :
192
193              printf("\n***********++++++++++**********\n");
```

```c
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                             {
```

```
258                          flag7 = 1;
259                         }
260                       else if( yyy == 1);
261                       else
262                        {
263                            printf("{You entered wrong choice}\n");
264                            printf("\n-------------------\n");
265                        }
266                      }
267                    while(flag7 == 0);
268                  }
269                else
270                {
271                    printf("sorry , no available feature has this number\n ");
272                }
273
274        break;//end of user case
275        default:
276
277        printf("you entered undefined mode number\n");
278        printf("\n==================\n");
279      }
280 //====================================close the
    program===============================================
281      while(flag1 == 0)
282      {
283
284          printf("*********************************************************************\n\nDO
                you want to : \n(1)Exit                    (2)go to start menu\n");
            scanf("%d",& Edit);
285
286          if(Edit == 1)
287          {
288              flag = 1;
289              flag1 = 1;
290              printf("&&&&&&&&&&&&&&&&&&&&&&&&&&&{The Program is closed
                }&&&&&&&&&&&&&&&&&&&&&&&& ");
291          }
292          else if(Edit == 2)
293          {
294              flag1=1;
295          }
296          else
297          {
298              printf("error ,you entered wrong choice\n ");
299          }
300      }
301 }}
302 //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&fun1&&&&&&&&&&&&&
    &&&&&&&&&&&&&&&
303 void ll_NewPatient(void)
304  {
305      struct user *ptr;
306      u8 again, Ok, flag3 = 0;
307      static u8 flag4 = 0;
308      u32 check;
309      ptr = (struct user*) malloc(sizeof(struct user));
310
311      printf("Enter patient:\n_____\n\n(1)first name \n[In case the name exceed
            10 letters enter Nickname & do not use spaces ]\n");
312      scanf("%s",& ptr -> name);
313      printf("-------------------\n");
314
315      printf("\n(2)age\n");
316      scanf("%d",& ptr -> age);
317      printf("-------------------\n");
318
319      while(flag3 == 0)
320          {
321              printf("\n(3)gender number: 1]male                    2]female\n");
322              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
394              printf("------------------\n");
395               ll_NewPatient();
396
397          }
398          else if(again == 2)
399          {
400              flag4 = 1;
401          }
402          else
403          {
404              printf("{You must choose [1] OR [2]}\n");
405          }
406      }
407      while(flag4 == 0);
408   }
409
410   //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
      fun2&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
411
412   u8  ll_checkid (u32 check)
413   {
414      struct user *ptr = head;
415
416      while (ptr != NULL)
417      {
418          if((ptr->id)==check)
419          {
420           return repeated ;
421          }
422          else
423          {
424           ptr = ptr-> nptr;
425          }
426      }
427      return unrepeated ;
428   }
429   //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&fun3(edit exist
      id)&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
430   void ll_EditPatient(u32 x)
431   {
432      node *ptr = head;
433      static u32 y;
434      static u8 Ok, flag1;
435
436      while((ptr -> id) != x)
437      {
438          ptr = ptr -> nptr;
439      }
440
441      printf("Choose one number for type of information you want to edit(1]Name, 2]ID,
          3]Gender, 4]Age)\n");
442      scanf("%d",& y);
443
444
445      if (y == 1)//name
446      {
447          printf("------------------\n");
448          printf("you choose to change the name which is %s\nso,Please enter the new
              one\n", ptr -> name);
449          scanf("%s",& ptr -> name);
450      }
451
452      else if (y == 2)//ID
453      {
454          printf("------------------\n");
455          printf("(Note : if you make any reservations with the old ID,you must change
              it by the new ID)\n ");
456          printf("you choose to change the ID which is %d\nso,Please enter the new
              one\n", ptr -> id);
457          scanf("%d",& y);
458
```

```c
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            }
468
469        }
470
471        else if (y == 3)//gender
472        {
473            printf("------------------\n");
474
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        }
490
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        }
502
503        printf("DO you want to change another user's information
           \n(1)yes                (2)no\n");
504        scanf("%d",& y);
505
506        if(y == 1)
507        {
508
509            u8 Edit = ll_checkid (ptr->id);
510            if( Edit == 1 )
511            {
512                ll_EditPatient(ptr -> id);
513            }
514        }
515
516 }
517 //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&& fun3 print
    info&&&&&&&&&&&&&&&&&&&&&&&&&&&
518 void ll_ViewRecord(u32 x)
519 {
520        node *ptr = head;
521
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;
602
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;
615
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");
626
627              }
628              break;
629
630              default :
631              printf("{You choose unexisted slot} \n");
632              printf("\n------------------\n");
633
634
635          }
636      }
637      else
638      {
639          printf("{You entered wrong day}\n");
640          printf("\n------------------\n");
641      }
642
643
644      /*for(u8 i=0;i<7;i++)
645      {
646
647          printf("%d,%d,%d,%d,%d,%d,%d,%d,%d,%d\n",week[i].slot1,week[i].slot2,week[i].slo
648          t3,week[i].slot4,week[i].slot5,week[i].id1,week[i].id2,week[i].id3,week[i].id4,w
649          eek[i].id5);
647      }*/
648 }
649 //&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&fun View today
    reservation&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&
650 void arr_ViewReservations(void)
651 {
652      static u8 free,i ;
653
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]thurday\n [7]Friday\n");
655      scanf("%d",& i);
656      printf("\n------------------\n");
657
658      if(i < 8 && i > 0)
659      {
660          i-=1;//choosen day of week
```

```c
661            slots();//appear slots
662            printf("\nSlot case :\n ");
663            printf("~~~~~~~~~~~~\n");
664
665
666                //from 2pm
667                if((week[i].slot1)==1)
668                {
669                    printf("|1|BUSY by User of ID -> %d\n",week[i].id1);
670                }
671                else
672                {
673                    printf("|1|Empty \n");
674                }
675
676                if((week[i].slot2)==1)//2:30 pm
677                {
678                    printf("|2|BUSY by User of ID -> %d\n",week[i].id2);
679                }
680                else
681                {
682                    printf("|2|Empty \n");
683                }
684
685                if((week[i].slot3)==1)//3 pm
686                {
687                    printf("|3|BUSY by User of ID -> %d\n",week[i].id3);
688                }
689                else
690                {
691                    printf("|3|Empty \n");
692                }
693
694                if((week[i].slot4)==1)//4 pm
695                {
696                    printf("|4|BUSY by User of ID -> %d\n",week[i].id4);
697                }
698                else
699                {
700                    printf("|4|Empty \n");
701                }
702
703                if((week[i].slot5)==1)//4:30 pm
704                {
705                    printf("|5|BUSY by User of ID -> %d\n",week[i].id5);
706                    printf("\n------------------\n");
707                }
708                else
709                {
710                    printf("|5|Empty \n");
711                    printf("\n------------------\n");
712                }
713        }
714    else
715    {
716        printf("{You entered wrong day}\n");
717        printf("\n------------------\n");
718    }
719 }
```