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ITE-1004
DATA STRUCTURES AND ALGORITHM
EXERCISE - 7

Assume in the Regional Passport Office, a multitude of applicants arrive each day for passport renewal. A list is maintained in the database to store the renewed passports arranged in the increased order of passport ID. The list already would contain there cords renewed till the previous day. Apply Insertion sort technique to place the current day's records in the list. Later the office personnel wish to sort the records based on the date of renewal so as to know the count of renewals done each day. Taking into consider ation the fact that each record has several fields (around 25 fields), follow Selection sort logic to implement the same.

```
#include<stdio.h>

struct pass
{
    int id;
    char date[10];
} t, a[100], b[100];

int main()
{
    int i,j,min,n;

    printf("Enter number of records: ");
    scanf("%d",&n);
    printf("Enter records: ");
    for(i=0;i<n;i++)
    {
        printf("\nid: ");
        scanf("%d",&a[i].id);
        printf("date: ");
        scanf("%d",a[i].date);
    }

    for(i=0;i<n;i++)
    {
        b[i]=a[i];
    }

    for (i=1;i<n;i++)
    {
        t=a[i];
        j=i-1;
        while(a[j].id > t.id && j>=0)
        {
            a[j+1]=a[j];
            j--;
        }
    }
}
```

```
        }
        a[j+1]=t;

    }

    printf("current day's records in the list\n");

    for (i=0;i<n;i++)
    {
        printf("\nid: ");
        scanf("%d",&a[i].id);
        printf("date: ");
        scanf("%d",a[i].date);
    }

    for (i=0;i<n;i++)
    {
        min=i;
        for(j=i+1;j<n;j++)
        {
            if(b[j].date<b[min].date)
            {
                min=j;
            }
        }
        t=b[i];
        b[i]=b[min];
        b[min]=t;
    }

    printf("records based on the date of renewal\n");

    for (i=0;i<n;i++)
    {
        printf("date: ");
        scanf("%d",a[i].date);
        printf("\nid: ");
        scanf("%d",&a[i].id);
    }
}
```

sorting.c - Code::Blocks 16.01

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Management

Projects Workspace linkedqueue

```
1 #include<stdio.h>
2
3 struct pass
4 {
5     int id;
6     char date[10];
7 } t, a[100], b[100];
8
9 int main()
10 {
11     int i,j,min,n;
12
13     printf("Enter number of records: ");
14     scanf("%d",&n);
15     printf("Enter records: ");
16     for(i=0;i<n;i++)
17     {
18         printf("\nid: ");
19         scanf("%d",&a[i].id);
20         printf("date: ");
21         scanf("%s",a[i].date);
22     }
23
24     for(i=0;i<n;i++)
25     {
26         b[i]=a[i];
27     }
28
29     for (i=1;i<n;i++)
30     {
31         t=a[i];
```

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Management

Projects Workspace linkedqueue

```
30 {
31     t=a[i];
32     j=i-1;
33     while(a[j].id > t.id && j>=0)
34     {
35         a[j+1]=a[j];
36         j--;
37     }
38     a[j+1]=t;
39 }
40
41 printf("Current day's records in the list\n");
42
43 for (i=0;i<n;i++)
44 {
45     printf("\nid: ");
46     scanf("%d",&a[i].id);
47     printf("date: ");
48     scanf("%s",a[i].date);
49 }
50
51
52
53 for (i=0;i<n;i++)
54 {
55     min=i;
56     for (j=i+1;j<n;j++)
57     {
58         if (b[j].date<b[min].date)
59         {
60             min=j;
```

C:\Users\Rites\Documents\linkedqueue\sorting.c Windows (CR+LF) default Line 53, Column 22 Insert Read/Write default 7:04 PM 13-Mar-18

```
49     scanf("%d", a[i].date);
50 }
51
52
53 for (i=0; i<n; i++)
54 {
55     min=i;
56     for (j=i+1; j<n; j++)
57     {
58         if (b[j].date < b[min].date)
59         {
60             min=j;
61         }
62     }
63     t=b[i];
64     b[i]=b[min];
65     b[min]=t;
66 }
67
68 printf("records based on the date of renewal\n");
69
70 for (i=0; i<n; i++)
71 {
72     printf("date: ");
73     scanf("%d", a[i].date);
74     printf("id: ");
75     scanf("%d", &a[i].id);
76 }
77 }
78
79 }
```

OUTPUT

```
Enter number of records: 5
Enter records:
id: 1
date: 1022018
id: 2
date: 3022018
id: 3
date: 4022018
id: 4
date: 7022018
id: 5
date: 2022018

current day's records in the list
id: 1
date: 1022018
id: 2
date: 3022018
id: 3
date: 4022018
```

current day's records in the list

id: 1

date: 1022018

id: 2

date: 3022018

id: 3

date: 4022018

id: 4

date: 7022018

id: 5

date: 2022018

records based on the date of renewal

date: 1022018

id: 1

date: 2022018

id: 5

date: 3022018

id: 2

date: 4022018

id: 3

date: 7022018

id: 4

...Program finished with exit code 0

Press ENTER to exit console.