

DuAn.cpp

```
1 // cho mot danh sach gom n sinh vien
2 // struct sinh vien : id, ten, lop, GPA, dia chi
3 // Nhap thong tin cho sinh vien
4 // Hien thi thong tin sinh vien trong danh sach
5 // Tim kiem sinh vien theo ten
6 // Liet ke cac sinh vien co diem GPA >=2.5
7 // Sap xep sinh vien theo GPA
8
```

Test case

```
138
139 //4
140 //1
141 //Nguyen Van An
142 //9128721
143 //HGA12
144 //7.8
145 //Ho Chi Minh
146 //Ho The Linh
147 //8374713
148 //AKH88
149 //2.4
150 //Vung Tau
151 //Doan Gia Khang
152 //1265381
153 //WEF21
154 //1.4
155 //Hue
156 //Vu The Anh
157 //1129863
158 //ALD84
159 //6.8
160 //Lam Dong
161 //4
162
```

```

9 #include <stdio.h>
10 #include <stdlib.h>
11 #include <string.h>
12
13 struct sinh_vien{
14     long long id;
15     char ten[50], lop[20], dia_chi[100];
16     float GPA;
17 };
18 //typedef sinh_vien sinh_vien;
19
20 void nhap_1_sinh_vien(sinh_vien &sv){
21     printf("Nhap ten: "); gets(sv.ten);
22     printf("Nhap id: "); scanf("%lld",&sv.id);
23     getchar();
24     printf("Nhap lop: ");
25     gets(sv.lop);
26     printf("Nhap GPA: "); scanf("%f",&sv.GPA);
27     getchar();
28     printf("Nhap dia chi: "); gets(sv.dia_chi);
29 }
30

```

```
30
31 void nhap_danh_sach(sinh_vien sv[], int n){
32     for(int i = 0; i < n; ++i){
33         printf("\nNhap thong tin sinh vien thu %d\n", i + 1);
34         nhap_1_sinh_vien(sv[i]);
35     }
36 }
37
38 void xuat_1_sinh_vien(sinh_vien sv){
39     printf("\n| %-20s | %-10lld | %-10s | %-8.2f | %-14s|",
40         sv.ten, sv.id, sv.lop, sv.GPA, sv.dia_chi);
41 }
```

```

43 void xuat_danh_sach(sinh_vien sv[], int n){
44     printf("+----- Danh sach sinh vien ----
-----+");
45     printf("\n|   \t Ho va ten   |       Id       |       Lop       |
GPA   |\tDia chi\t   |");
46     printf("\n+-----+-----+-----+
+-----+-----+");
47     for(int i = 0; i < n; ++i){
48         xuat_1_sinh_vien(sv[i]);
49     }
50     printf("\n+-----+
-----+\n");
51 }
52

```

```

53 void tim_kiem(sinh_vien sv[],int n){
54     char name[100];
55     printf("Nhap ten ban muon tim: ");
56     gets(name);
57     printf("\n+----- Danh sach tim thay --
-----+");
58     printf("\n| \t Ho va ten          |          Id          |          Lop          |
GPA      |\tDia chi\t          |");
59     printf("\n+-----+-----+-----+
+-----+");
60     for(int i = 0; i < n; ++i){
61         if(strstr(sv[i].ten, name)){
62             xuat_1_sinh_vien(sv[i]);
63         }
64     }
65     printf("\n+-----
-----+\n");
66 }

```

```

67
68 void sap_xep_GPA(sinh_vien sv[], int n){
69     printf("+----- Danh sach sinh vien sau khi sap
xep -----+");
70     printf("\n| \t Ho va ten          |          Id          |          Lop          |
GPA    |\tDia chi\t          |");
71     printf("\n+-----+-----+-----+
+-----+-----+");
72     for(int i = 0; i < n; ++i){
73         for(int j = i + 1; j < n; ++j){
74             if(sv[j].GPA > sv[i].GPA){
75                 sinh_vien tmp = sv[i];
76                 sv[i] = sv[j];
77                 sv[j] = tmp;
78             }
79         }
80         xuat_1_sinh_vien(sv[i]);
81     }
82     printf("\n+-----+
-----+\n");
83 }

```

```

84
85 void GPA(sinh_vien sv[], int n){
86     printf("+----- Cac sinh vien co GPA >=2.5 -
-----+");
87     printf("\n|   \t Ho va ten           |           Id           |           Lop           |
GPA   |\tDia chi\t           |");
88     printf("\n+-----+-----+-----+
+-----+");
89     for(int i = 0; i < n; ++i){
90         if(sv[i].GPA >= 2.5)
91             xuat_1_sinh_vien(sv[i]);
92     }
93     printf("\n+-----+
-----+\n");
94 }

```



```

96 int main() {
97     int n,c;
98     printf("Nhap so luong sinh vien: ");
99     scanf("%d",&n);
100    getchar();
101    sinh_vien sv[n];
102    while(1) {
103        system("cls");
104        printf("      +----- Menu -----+");
105        printf("\n      |      1.Nhap danh sach sinh vien      |");
106        printf("\n      |      2.Xuat danh sach sinh vien      |");
107        printf("\n      |      3.Tim kiem sinh vien            |");
108        printf("\n      |      4.Cac sinh vien co GPA >= 2.5    |");
109        printf("\n      |      5.Sap xep sinh vien theo GPA     |");
110        printf("\n      |      0.Thoat                          |");
111        printf("\n      +-----+");
112        printf("\n\nBan chon so: ");
113        scanf("%d",&c);
114        getchar();

```

```
115         if(c == 1){
116             nhap_danh_sach(sv, n);
117         }else if(c == 2){
118             xuat_danh_sach(sv, n);
119             system("pause");
120         }else if(c == 0){
121             printf("\nChương trình kết thúc!\n");
122             break;
123         }else if(c == 3){
124             tim_kiem(sv, n);
125             system("pause");
126         }else if(c == 4){
127             GPA(sv, n);
128             system("pause");
129         }else if(c == 5){
130             sap_xep_GPA(sv, n);
131             system("pause");
132         }else{
133             printf("\nSố bạn chọn không thỏa mãn\n");
134             system("pause");
135         }
136     }
137 }
```