

Lớp SinhVien

```
6 public class SinhVien {
7     private String maSV;
8     private String hoTen;
9     private String cmdn;
0     private int namSinh;
1     private String email;
2     private String sdt;
3     private String khoaQL;
4     private String khoaDT;
5     private String lop;
6     private DiemSo diemSo;
7     public SinhVien() {}
8     public SinhVien(String maSV, String hoTen, String cmdn, int namSinh, String email,
9         String sdt, String khoaQL, String khoaDT, String lop, DiemSo diemSo) {
0         super();
1         this.maSV = maSV;
2         this.hoTen = hoTen;
3         this.cmdn = cmdn;
4         this.namSinh = namSinh;
5         this.email = email;
6         this.sdt = sdt;
7         this.khoaQL = khoaQL;
8         this.khoaDT = khoaDT;
9         this.lop = lop;
0         this.diemSo = diemSo;
1     }
}
```

SinhVien.java DiemSo.java QLSV.java

```
32 public String getMaSV() {  
33     return maSV;  
34 }  
35 public void setMaSV(String maSV) {  
36     this.maSV = maSV;  
37 }  
38 public String getHoTen() {  
39     return hoTen;  
40 }  
41 public void setHoTen(String hoTen) {  
42     this.hoTen = hoTen;  
43 }  
44 public String getCmnd() {  
45     return cmnd;  
46 }  
47 public void setCmnd(String cmnd) {  
48     this.cmnd = cmnd;  
49 }  
50 public int getNamSinh() {  
51     return namSinh;  
52 }  
53 public void setNamSinh(int namSinh) {  
54     this.namSinh = namSinh;  
55 }
```

SinhVien.java DiemSo.java QLSV.java

```
55     }
56     public String getEmail() {
57         return email;
58     }
59     public void setEmail(String email) {
60         this.email = email;
61     }
62     public String getSdt() {
63         return sdt;
64     }
65     public void setSdt(String sdt) {
66         this.sdt = sdt;
67     }
68     public String getKhoaQL() {
69         return khoaQL;
70     }
71     public void setKhoaQL(String khoaQL) {
72         this.khoaQL = khoaQL;
73     }
74     public String getKhoaDT() {
75         return khoaDT;
76     }
77     public void setKhoaDT(String khoaDT) {
78         this.khoaDT = khoaDT;
79     }
80     public String getLop() {
81         return lop;
82     }
83     public void setLop(String lop) {
84         this.lop = lop;
85     }
86     public DiemSo getDiemSo() {
87         return diemSo;
88     }
89     public void setDiemSo(DiemSo diemSo) {
90         this.diemSo = diemSo;
91     }
```

```

91     }
92     public void input() {
93         System.out.println("-----Nhap SinhVien-----");
94         Scanner sc = new Scanner(System.in);
95         System.out.print("Nhap ma sv: ");
96         this.maSV = sc.next();
97         System.out.print("Nhap ho ten: ");
98         sc.nextLine();
99         this.hoTen = sc.nextLine();
100        System.out.print("Nhap cmd: ");
101        this.cmd = sc.next();
102        System.out.print("Nhap nam sinh: ");
103        this.namSinh = sc.nextInt();
104        System.out.print("Nhap email: ");
105        this.email = sc.next();
106        System.out.print("Nhap sdt: ");
107        this.sdt = sc.next();
108        System.out.print("Nhap khoa QL: ");
109        sc.nextLine();
110        this.khoaQL = sc.nextLine();
111        System.out.print("Nhap khoa DT: ");
112        this.khoaDT = sc.next();
113        System.out.print("Nhap lop: ");
114        this.lop = sc.next();
115        this.diemSo = new DiemSo();
116        this.diemSo.input();
117    }
118    public void display() {
119        System.out.println(this.toString());
120    }
121    @Override
122    public String toString() {
123        return "SinhVien [maSV=" + maSV + ", hoTen=" + hoTen + ", cmd=" + cmd + ", namSinh=" + namSinh + ", email="
124            + email + ", sdt=" + sdt + ", khoaQL=" + khoaQL + ", khoaDT=" + khoaDT + ", lop=" + lop + ", diemSo="
125            + diemSo + "]";
126    }
127
128

```

Lớp DiemSo


```

public class DiemSo {
    private double diemCN;
    private double diemTC;
    private double diemTB;
    private String diemHC;
    public DiemSo() {
        this.diemCN = this.diemTC = this.diemTB = -1;
        this.diemHC = "NULL";
    }
    public DiemSo(double diemCN, double diemTC) {
        super();
        this.diemCN = diemCN;
        this.diemTC = diemTC;
        this.diemTB = (this.diemCN + this.diemTC)/2;
        if(this.diemTB > 8) {
            this.diemHC = "A";
        }else if(this.diemTB > 6) {
            this.diemHC = "B";
        }else {
            this.diemHC = "C";
        }
    }
    public void input() {
        Scanner sc = new Scanner(System.in);
        System.out.print("Nhap diem chuyen nganh: ");
        this.diemCN = sc.nextDouble();
        System.out.print("Nhap diem tu chon: ");
        this.diemTC = sc.nextDouble();
        this.diemTB = (this.diemCN + this.diemTC)/2;
        if(this.diemTB > 8) {
            this.diemHC = "A";
        }else if(this.diemTB > 6) {
            this.diemHC = "B";
        }else {
            this.diemHC = "C";
        }
    }
}

```

```

public void display() {
    System.out.println(this.toString());
}
@Override
public String toString() {
    return "DiemSo [diemCN=" + diemCN + ", diemTC=" + diemTC + ", diemTB=" + diemTB + ", diemHC=" + diemHC
        + "]";
}
public double getDiemCN() {
    return diemCN;
}
public void setDiemCN(double diemCN) {
    this.diemCN = diemCN;
}
public double getDiemTC() {
    return diemTC;
}
public void setDiemTC(double diemTC) {
    this.diemTC = diemTC;
}
public double getDiemTB() {
    return diemTB;
}
public void setDiemTB(double diemTB) {
    this.diemTB = diemTB;
}
public String getDiemHC() {
    return diemHC;
}
public void setDiemHC(String diemHC) {
    this.diemHC = diemHC;
}
}

```

```

public static void main(String[] args) {
    DiemSo ds1 = new DiemSo(8.5, 6);
    DiemSo ds2 = new DiemSo();
    ds1.display();
    ds2.input();
    ds2.display();
}

```

```

SinhVien.java  DiemSo.java  QLSV.java
11 public class QLSV {
12     public static void main(String[] args) {
13         int n;
14         SinhVien sv;
15         ArrayList<SinhVien> listSinhViens = new ArrayList<>();
16         Scanner sc = new Scanner(System.in);
17
18         System.out.print("Nhap so luong sv: ");
19         n = sc.nextInt();
20         for(int i = 0; i < n; i++) {
21             sv = new SinhVien();
22             sv.input();
23             listSinhViens.add(sv);
24         }
25
26         listSinhViens.add(new SinhVien("755105001", "Nguyen Van A", "0123456", 2004,
27             "anv@gmail.com", "091356789", "CNTT", "75", "C", new DiemSo(6, 9)));
28         listSinhViens.add(new SinhVien("705105002", "Nguyen Van B", "0123444", 2002,
29             "bnv@gmail.com", "093644567", "Toan Tin", "70", "CLC", new DiemSo(9, 8.25)));
30         listSinhViens.add(new SinhVien("715105003", "Nguyen Van C", "0333444", 2003,
31             "cnv@gmail.com", "093666987", "Hoa Hoc", "71", "A", new DiemSo(6, 9)));
32         listSinhViens.add(new SinhVien("705105003", "Le Thu Hien", "01248578", 2002,
33             "halt@gmail.com", "09154256", "CNTT", "70", "E", new DiemSo(6, 5.75)));
34         listSinhViens.add(new SinhVien("715105004", "Vu Tien Dong", "0125486", 2003,
35             "dongvt@gmail.com", "09132026", "CNTT", "70", "A", new DiemSo(4.5, 6)));
36         listSinhViens.add(new SinhVien("725105005", "Tran Thanh Nam", "0442456", 2004,
37             "namtt@gmail.com", "091876026", "CNTT", "70", "B", new DiemSo(7, 9)));
38         System.out.println("-----DS SinhVien-----");
39         for(int i = 0; i < listSinhViens.size(); i++) {
40             listSinhViens.get(i).display();
41         }

```

```

SinhVien.java  DiemSo.java  QLSV.java
42      System.out.println("-----SV ho ten chua \'Nguyen\'-----");
43      for(int i = 0; i < listSinhViens.size(); i++) {
44          if(listSinhViens.get(i).getHoTen().contains("Nguyen") == true) {
45              listSinhViens.get(i).display();
46          }
47      }
48      System.out.println("-----SV 3 so cuoi sdt \'026\'-----");
49      for(int i = 0; i < listSinhViens.size(); i++) {
50          if(listSinhViens.get(i).getSdt().endsWith("026")) {
51              listSinhViens.get(i).display();
52          }
53      }
54      System.out.println("-----SV khoa CNTT va ten chua \'Tran\'-----");
55      for(int i = 0; i < listSinhViens.size(); i++) {
56          if(listSinhViens.get(i).getKhoaQL().equals("CNTT")
57              && listSinhViens.get(i).getHoTen().contains("Tran")) {
58              listSinhViens.get(i).display();
59          }
60      }
61      System.out.println("-----SV theo nam sinh tang dan'-----");
62      Comparator<SinhVien> dkSapxep = new Comparator<SinhVien>() {
63          @Override
64          public int compare(SinhVien o1, SinhVien o2) {
65              // TODO Auto-generated method stub
66              return o1.getNamSinh() - o2.getNamSinh();
67          }
68      };
69      Collections.sort(listSinhViens, dkSapxep);
70      for(int i = 0; i < listSinhViens.size(); i++) {
71          listSinhViens.get(i).display();
72      }

```

```

System.out.println("-----SV theo diem TB tang dan'-----");
Comparator<SinhVien> sxDiemTB = new Comparator<SinhVien>() {
    @Override
    public int compare(SinhVien o1, SinhVien o2) {
        // TODO Auto-generated method stub
        return Double.compare(o1.getDiemSo().getDiemTB(), o2.getDiemSo().getDiemTB());
    }
};
Collections.sort(listSinhViens, sxDiemTB);
for(int i = 0; i < listSinhViens.size(); i++) {
    listSinhViens.get(i).display();
}

```