#include <iostream>

using namespace std;

class personal

{

string name;

string city;

int age ;

public:

void in()

{

cout<<"Enter the name: ";

cin>>name;

cout<<"Enter the city: ";

cin>>city;

cout<<"Enter the age: ";

cin>>age;

}

void out(int r)

{

cout<<"Roll no: "<<r<<"\n";

cout<<"Name: "<<name<<"\n";

cout<<"Enter the city: "<<city<<"\n";

cout<<"Enter the age: "<<age<<"\n";

}

};

class marks

{

protected:

int sub[5];

public:

marks()

{ int i;

for(i=0;i<5;i++)

{

sub[i]=0;

}

}

void getMarks()

{

int i;

for(i=0;i<5;i++)

{

cout<<"Enter the marks of subject "<<i+1<<" :\n";

cin>>sub[i];

if(sub[i]<0 && sub[i]>100)

{

cout<<"Enter valid marks";

cin>>sub[i];

}

}

}

};

class result:public marks

{

protected:

float avg;

public:

void operator !()

{ int i;

int sum=0;

for(i=0;i<5;i++)

{

sum+=sub[i];

}

avg=sum/5;

cout<<"Result in Percentage: "<<avg<<"%\n";

}

};

class academic:public result

{

public:

void garde()

{

if(avg>=91 && avg<=100)

{

cout<<"Result 2017: O Grade (Excellent Academic Performance)\n";

}

else if(avg>=81 && avg<=90)

{

cout<<"Result 2017: A Grade (Very Good Academic Performance)\n";

}

else if(avg>=71 && avg<=80)

{

cout<<"Result 2017: B Grade (Good Academic Performance)\n";

}

else if(avg>=61 && avg<=70)

{

cout<<"Result 2017: C Grade (Can Improve in Academic Performance)\n";

}

else if(avg>=61 && avg<=70)

{

cout<<"Result 2017: D Grade (Can Improve in Academic Performance)\n";

}

else if(avg>=51 && avg<=60)

{

cout<<"Result 2017: E Grade (Bad Academic Performance)\n";

}

else

{

cout<<"Result 2017: F Grade (Fail)\n";

}

}

};

class special

{

char x;

public:

void in()

{

cout<<"Deserves Special Appreciation?(Type 'y' for yes and 'n' for no):\n";

cin>>x;

if(x!='y' && x!='n' && x!='Y' && x!='N')

{

cout<<"Enter valid option\n";

cin>>x;

}

}

void out()

{

if(x=='y' || x=='Y')

{

cout<<"Special Remark:Specially Appreciated for the overall Performace over the year!";

}

}

};

int main()

{

int roll,n,i;

cout<<"Enter the no of Students: ";

cin>>n;

cout<<"\n";

for(i=0;i<n;i++)

{

cout<<"Enter the roll no of the Students: ";

cin>>roll;

cout<<"\n";

personal p;

p.in();

academic r;

r.getMarks();

special s;

s.in();

cout<<"\n\n";

cout<<"Student Report 2017"<<"\n";

p.out(roll);

!r;

r.garde();

s.out();

}

return 0;

}