1.

```
import java.util.*;


interface AdvancedArithmetic{
int divisor_sum(int n);
}


class MyCalculator implements AdvancedArithmetic{


@Override
public int divisor_sum(int n) {
// TODO Auto-generated method stub
int sum=0;
for(int i=1;i<=n;i++) {
if(n%i==0) {
sum+=i;
}
}

return sum;
}

}
public class Ques_1 {


public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc=new Scanner(System.in);
System.out.println("Enter a number: ");
int n=sc.nextInt();
```

```
AdvancedArithmetic mc=new MyCalculator();
System.out.println("Divisor
Sum:"+""+mc.divisor_sum(n));

}


}
```

2.

```
import java.util.*;
public class Ques_2 {


public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc=new Scanner(System.in);
int n=sc.nextInt();
int k=sc.nextInt();
ArrayList<String> str=new ArrayList<String>(n);
for(int i=0;i<n;i++) {
str.add(sc.next());

}
int x=0;
String new_str=sc.next();
for(int i=0;i<n;i++) {

if(str.get(i).charAt(0)!=new_str.charAt(x)) {
x+=1;
if(str.get(i).charAt(0)!=new_str.charAt(x)) {
 System.out.print("0");
 break;
}
}else {
continue;
}
}
```

```
}

}
```

3.

```
package Debug;

import java.util.Scanner;

interface MenuItem{

double trioitems(double p1,double p2,double p3);

void trioitems(String s1);
}

class Sandwich implements MenuItem{

@Override
public double trioitems(double p1, double p2, double
p3) {
// TODO Auto-generated method stub
return 0;
}

@Override
public void trioitems(String s1) {
// TODO Auto-generated method stub
System.out.print(s1+"/");

}
```

```
}
class Salad implements MenuItem{


@Override
public double trioitems(double p1, double p2, double
p3) {
// TODO Auto-generated method stub
return 0;
}


@Override
public void trioitems(String s1) {
// TODO Auto-generated method stub
System.out.print(s1+"/");

}

}


class Drink implements MenuItem{


@Override
public double trioitems(double p1, double p2, double
p3) {
// TODO Auto-generated method stub
return 0;
}


@Override
public void trioitems(String s1) {
```

```
// TODO Auto-generated method stub
System.out.println(s1);

}

}
class Trio implements MenuItem{


@Override
public double trioitems(double p1, double p2, double
p3) {
// TODO Auto-generated method stub
if(p1>=p2 && p2>=p3) {
return p1+p2;
}else if(p3>=p2 && p1>=p2) {
return p3+p2;
}else {
return p3+p2;
}

}


@Override
public void trioitems(String s1) {
// TODO Auto-generated method s
return;

}



}
public class Ques_3 {
```

```
public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc=new Scanner(System.in);

System.out.println("Enter Sandwich Details: ");
String s1=sc.next();
//System.out.println(s1);
double p1=sc.nextDouble();

Sandwich m1=new Sandwich();
m1.trioitems(s1);
String s2=sc.next();
double p2=sc.nextDouble();

Salad m2=new Salad();
m2.trioitems(s2);
String s3=sc.next();
double p3=sc.nextDouble();

Drink m3=new Drink();
m3.trioitems(s3);
Trio m4=new Trio();
//
System.out.println(m4.trioitems(p1,p2,p3));
}


}
```

4.

```
import java.util.Scanner;

interface DigitalTree {
int absorbSunlight(int hr);
String getTreeDetails(int x);
}

class produceEnergyForForest{
public int produceEnergyForForest(String s,int n) {
if(s.compareTo("Binary")==0) {
return n*n;
}else if( s.compareTo("Quantum")==0) {
return 3*n*n;
}
return n*n*n;
}


}
class getForestReport extends produceEnergyForForest{
public void report(String s,int n) {
System.out.println(s+" "+"-Energy"+"
"+produceEnergyForForest(s,n));
}


}
public class Ques_5 {

public static void main(String[] args) {
```

```
// TODO Auto-generated method stub
Scanner sc=new Scanner(System.in);
int x=3,sum=0;
while(x>0) {
//System.out.println("Enter tree:");
produceEnergyForForest p=new
produceEnergyForForest();
String s=sc.next();
//System.out.println("Enter hours:");
int h=sc.nextInt();
getForestReport pef =new getForestReport();
pef.report(s,h);
x--;
sum+=p.produceEnergyForForest(s,h);
}
System.out.println("Total Energy Produced: "+"
"+sum);
}


}
```