Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:09:21 **Register Number:** RA2031241010094

Q. You and Me

In Argentina the COUPLE GAMESHOW named You and Me is going to happen.
In order to complete the application process for the game show the participants need to find their average age.
Can you help them them to find their average age?
NOTE:
The Programming Language need to be used is : C++
Refer sample input and output in the test cases.

Source Code

```
#include <iostream>
using namespace std;
int main()
{
  int a,b,c;
  cin>>a;
  cin>>b;
  c=(a+b)/2;
  cout<<"\nI am "<<a;
  cout<<"\nYou are "<<b;
  cout<<"\nWe are around "<<c;
 return 0;
}
```

Sample Input

```
28
24
```

Sample Output

```
I am 28
You are 24
We are around 26
```

Result

Thus, Program " **You and Me** " has been successfully executed

Q. SRM Calculator

SRM Students decides to create a software to extend our help to Petty shops and Shops. In this regard the "STUDENT" team has selected a few students to complete the task. The task was monitored by a group of experts and the software was tested by a expert team from corporate.

The task is as follows when there are two items and if the shop keeper says 1 then it needs to add the two items. If the shop keeper yells 2 then the two items should be subtracted. And when the shop keeper tells 3 then the product of the items needs to be outputted. When shop keeper tells as 4 then the items should fight with one another.

Refer sample input and output:

Input should be between 1 to 4

Only Integer numbers as input.

If input is less than or greater than 1 to 4 print "Invalid Input"

Source Code

```
#include <iostream>
using namespace std;
int main()
{
  char a;
  int b,c;
  cin>>a;
  switch(a)
  {
    case '1':
      cin>>b;
      cin>>c;
      cout<<b+c;
      break;
    case '2':
      cin>>b;
      cin>>c;
      cout<<b-c;
      break;
    case '3':
      cin>>b;
      cin>>c;
      cout<<b*c;
      break;
    case '4':
      cin>>b;
      cin>>c;
      cout<<b/c;
      break;
    default:
      cout<<"Invalid Input";
  }
 return 0;
}
```

Sample Input

```
1
35 36
```

Sample Output

```
71
```

Result

Thus, Program " **SRM Calculator** " has been successfully executed

Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:10:05 **Register Number:** RA2031241010094

Q. Swim

Gowtham is planning to go for swimming classes. He would prefer to enroll in the center which has the swimming pool of a greater area.
In the first centre that he visit, the swimming pool is a circular shape(radius-r).
In the next centre that he visit, the swimming pool is of a square shape (side-S).
Create a logic that will help him to make the choice of the swimming pool.
Input :
Input consists of 2 integers.
The first integer correspond to the radius (r) of the circular swimming pool.
The second integer corresponds to the side (S) of the square swimming pool.
NOTE:
The Programming Language need to be used is : C++
Refer sample test cases.

Source Code

```
#include <iostream>
using namespace std;
int main()
{
  int a,b;
  cin>>a;
  cin>>b;
  if(a>b)
    cout<<"I prefer centre 1";
  else
 cout<<"I prefer centre 2";
 return 0;
}
```

Sample Input

```
6
4
```

Sample Output

```
I prefer centre 1
```

Result

Thus, Program " **Swim** " has been successfully executed

Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:10:35 **Register Number:** RA2031241010094

Q. Play with XOR

Janani has written N binary integers (i.e. either zero or one) on a blackboard. She recently learned about XOR operation. Now she wants to erase exactly one integer in the array so that the XOR of the remaining N - 1 numbers is zero. Please help her to calculate the number of ways of doing so.

Input Format:

The first line of the input contains an integer T denoting the number of test cases. The description of T test cases follows.

The first line of each test case contains a single integer N denoting the number of numbers that Janani has written on a blackboard.

The second line contains N space-separated integers A1, A2, ..., AN denoting the numbers she had written.

Output Format:

For each test case, output a single line containing the number of ways to erase exactly one integer so that the XOR of the remaining integers is zero. The ways where you erase the same integer but on different places in the given sequence are considered different.

Constraints:

1 â‰¤ T â‰¤ 20
2 â‰¤ N â‰¤ 10 power 5
0 â‰¤ A subscript i â‰¤ 1

Refer Sample Test Cases

Programming Language need to be used:C++

Source Code

```
#include <iostream>
using namespace std;
int main()
{
  int i,a;
  cin>>a;
  for(i=0;i<a;i++)
  {
    int count=0;
    int b;
    cin>>b;
    int ab[b];
    for(int j=0;j<b;j++)
    {
      cin>>ab[j];
      if(ab[j]==1)
        count++;
    }
    if(count%2!=0)
      cout<<"\n"<<count;
    else
 cout<<"\n"<<b-count;
  }
 return 0;
}
```

Sample Input

```
2
5
1 0 0 0 0
5
1 1 1 1 1
```

Sample Output

```
1
5
```

Result

Thus, Program " **Play with XOR** " has been successfully executed

Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:10:59 **Register Number:** RA2031241010094

Q. Dhoni and Ziva in Chennai

Dhoni's daughter Ziva is hyper active child,so she used to ask lot of question to Dhoni while playing with him.
One fine evening Dhoni and Ziva were palying in Chepak Stadium in Chennai,at that time ziva looking at the Moon in sky asked Dhoni what is the gravity in moon? Dhoni said it's 16.6 percentage that of earth.
Ziva didn't got satisfied with that then she asked what will be my weight in moon?
Dhoni was little bit confused to answer ziva !!!!!
Can you help Dhoni to answer the question by creating a logic which calculates the weight of the person in moon so that Ziva will be happy knowing her weight.
Input Format:
Get the actual weight of the person
Output Format:
Print the weight in moon.
Refer Sample Testcases.
Programming Language need to be use:C++

Source Code

```
#include <iostream>
using namespace std;
int main()
{
  int a;
  float b;
  cin>>a;
  b=a*0.166;
 cout<<"Your weight on moon is : "<<b;
 return 0;
}
```

Sample Input

17

Sample Output

Your weight on moon is : 2.822

Result

Thus, Program " **Dhoni and Ziva in Chennai** " has been successfully executed

Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:11:24 **Register Number:** RA2031241010094

Q. Waiting or Not Waiting

Raju's maths teacher gave him a task of identifying the number name.
If the number is greater than 0 then he should utter to the teacher as "I am waiting".
If the number is less than 0 then he should utter the word as "I am not waiting".
If the number is "0" the he should utter the word as "Sorry" Help him by completing his task.
Refer Sample Test Cases.
Programming Language need to be used:C++

Source Code

```
#include <iostream>
using namespace std;
int main()
{
  int a;
  cin>>a;
  if(a>0)
    cout<<"I am waiting";
  else if(a<0)
 cout<<"I am not waiting";
  else
    cout<<"Sorry";
 return 0;
}
```

Sample Input

15

Sample Output

I am waiting

Result

Thus, Program " **Waiting or Not Waiting** " has been successfully executed

Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:11:48 **Register Number:** RA2031241010094

Q. Professor Omkar

Omkar is the Professor in SRM he has decided to give a simple task to his students.
He asked his students to create a logic for automatically calculating the amount of energy needed to head X amount of water from Y initial temperature to Z final temperature.
The formula to compute the energy is as follows
Q = M * (finalTemperature â€“ initialTemperature) * 4184
Where,
M is the weight of water in kilograms,
Q is the energy measured in joules,
and
Temperatures are in degree Celsius.
Input Format:
Get the input of amount of water in kilograms , initial temperature of water and final temperature of the water.
Output Format:
Print the energy needed to heat the water.
Refer Sample Testcases
Programming Language need to be used:C++

Source Code

```
#include <iostream>
using namespace std;
int main()
{
 int a,b,c;
  float d;
  cin>>a>>b>>c;
  d=(a*(c-b))*4184;
  cout<<"The energy needed is "<<d;
 return 0;
}
```

Sample Input

567 12 56

Sample Output

The energy needed is 1.04382e+08

Result

Thus, Program " **Professor Omkar** " has been successfully executed

Q. Sachin and his Pills

Sachin visits his family doctor on a date given in the format yyyy:mm:dd. Sachin's doctor suggests him to take pills every alternate day starting from that day.
Sachin being a forgetful person are pretty sure wonâ€™t be able to remember the last day he took the medicine and would end up in taking the medicines on wrong days.
So he come up with the idea of taking medicine on the dates whose day is odd or even depending on whether dd is odd or even.
Now your task is to find the number of pills Sachin took on right time before messing up for the first time.
Note:
Every year that is exactly divisible by four is a leap year, except for years that are exactly divisible by 100.
The centurial years that are exactly divisible by 400 are still leap years.
For example, the year 1900 is not a leap year; the year 2000 is a leap year.
Input Format:
First line will contain T, number of testcases. Then the testcases follow.
Each testcase contains of a single line of input, in the format yyyy:mm:dd
Output Format:
For each testcase, output in a single line the required answer.
Constraints:
1â‰¤Tâ‰¤1000
1900â‰¤yyyyâ‰¤2038
yyyy:mm:dd is a valid date
Refer Sample Test Cases.
Programming Language need to be used:C++

Source Code

```
#include <iostream>
using namespace std;
class Month
{
  int days;
  public:
  Month(int,int);
    bool leapYear(int);
  int getDays();
};
Month::Month(int number,int year)
{
  if(number<8)(number%2==1)?(days=31):(days=30);
  else(number%2==0)?(days=31):(days=30);
  if(number==2){
    if(leapYear(year)==1) days=29;
    else days=28;
  }
}
bool Month::leapYear(int year){
  if(year%400==0) return 1;
  if(year%100==0) return 0;
  if(year%4==0) return 1;
  return 0;
}
int Month::getDays(){
  return days;
}
int pillDays(int day,int month,int year,int count=0){
  Month M(month,year);
  int monthDays = M.getDays();
  int i;
  for(i=day;i<=monthDays;i++) if(i%2==1)count++;
  if(monthDays%2==0){
    pillDays(1,month+1,(month==12)?(year+1):(year),count);
  }
  else return count;
}
int main(){
  int i,j,n,day,month,year,date[10];
  char temp[10];
  //char date[10];
  cin>>n;
  for(i=0;i<n;i++){
    cin>>temp;
    for(j=0;j<10;j++)
      date[j]=temp[j]-48;
    day=date[8]*10+date[9];
    month=date[5]*10+date[6];
    year=date[0]*1000+date[1]*100+date[2]*10+date[3];
 cout<<pillDays(day,month,year)<<endl;
  }
 return 0;
}
```

Sample Input

```
3
2018:01:13
2019:04:19
2015:08:05
```

Sample Output

```
10
22
14
```

Result

Thus, Program " **Sachin and his Pills** " has been successfully executed

Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:12:43 **Register Number:** RA2031241010094

Q. Legends of Indian Cricket

Indian Cricket Team needs the runs scored by some of the its biggest icons in wordings.
Since there are lot of greats such as Kapil Dev,Sachin,Dravid,Ganguly,Dhoni,it is very tough for the team management to convert their runs into wordings.
Can you help Indian Cricket team to automate this process??
Programming Language need to be used is:C++
Refer Sample test cases.

Source Code

```
#include <iostream>
using namespace std;
void expand(int);
int main()
{
  int num;
  cin>>num;
  expand(num);
}
void expand(int value)
{
  const char*const ones[20]={"zero","one","two","three","four","five","six","seven","eight","nine","ten","eleven","twelve","thirteen","fourteen","fifteen","sixteen","seventeen","eighteen","nineteen"};
  const char*const tens[10]={"","ten","twenty","thirty","fourty","fifty","sixty","seventy","eighty","ninety"};
  if(value<0)
  {
    cout<<"minus";
    expand(-value);
  }
  else if(value>=1000)
  {
    expand(value/1000);
    cout<<" thousand";
    if(value%1000)
    {
      if(value%1000<1000)
      {
        cout<<"";
      }
      cout<<" ";
      expand(value%1000);
    }
  }
  else if(value>=100)
  {
    expand(value/100);
      cout<<" hundred";
    if(value%100)
    {
      cout<<" and";
      expand(value%100);
    }
  }
  else if(value>=20)
  {
    cout<<" "<<tens[value/10];
    if(value%10)
    {
      cout<<" ";
      expand(value%10);
    }
  }
  else
  {
    cout<<ones[value];
  }
 return ;
}
```

Sample Input

12785

Sample Output

twelve thousand seven hundred and eighty five

Result

Thus, Program " **Legends of Indian Cricket** " has been successfully executed

Course: OOPS **Session:** I/O Operations **Timestamp:** 2021-4-1 10:13:08 **Register Number:** RA2031241010094

Q. Upper case conversion

Kamal is struggling to convert the characters of given string to upper case.
Help Kamal to convert the given string to upper case.Refer the following sample test cases.
Refer Sample Test Cases.
Programming Language need to be used:C++

Source Code

```
#include <iostream>
#include<string>
using namespace std;
int main()
{
  char s[30];
  int i;
  cin>>s;
  for(i=0;i<=10;i++)
  {
    if(s[i]>=97&&s[i]<=122)
    {
      s[i]=s[i]-32;
    }
  }
 cout<<s;
 return 0;
}
```

Sample Input

abcde

Sample Output

ABCDE

Result

Thus, Program " **Upper case conversion** " has been successfully executed