AMERICAN UNIVERSITY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE

CSI 205: COMPUTER PROGRAMMING I

Fall Term 2011-2012

PROJECT 1
Due Friday January **13***, 2012*

Problem 1: (30 points)

Write a C++ program for "Casino". This program:

1. Greets the user, explains the program purpose, and informs the user that he/she has $1000 as initial sum.

2. Displays a menu with the following seven options:
    1. Play Craps
    2. Play MiniRoulette
    3. Play Guess the Number
    4. Play Slot Machine
    5. Play Coin Race
    6. EXIT

3. Asks the user which option he/she wishes to run, accepts the user's reply, and then plays the game of the corresponding option, as listed below.

4. If the user chooses the EXIT option, then the program should output the final sum the player has and then terminates its work.

5. If the user chooses any option, which is not in the menu (e.g. option number 0 or number 9) then the program displays an error message and ask to re-enter an existing option.

6. If the user chooses 1, he/she will play the game of craps (see section 6.8 in your textbook). (Every round will cost from $10 to $100 and the winnings are the same bet amount). Modify the program so that the user can double the bet when a point has to be rolled.

7. If the user chooses 2, he/she will play the game of mini-roulette (placing bets on a number between 1 and 10, then the roulette should be rolled to generate a random number between 1 and 10, then compare it to the player's choice) (every round will cost from $10 to $100 and the winnings are the same bet amount).

8. If the user chooses 3, he/she will play the game of guess the number (see exercises 6.34 and 6.35, with the condition that the player wins if he/she guesses the number in less than or equal to 5 guesses) (every round will cost $10 and the winnings are $100).

9. If the user chooses 4, he/she will play the game of a slot machine in which three numbers between 0 and 9 are randomly selected and printed side by side. The player wins $1000 if all three of the numbers are the same, and $100 if any two of the numbers are the same. Continue playing until the user chooses to stop (every round will cost $10).

10. If the user chooses 5, he/she will play the game of coin race in which two coins are tossed. The player should bet on one of the coins a dollar amount between 10 and 100.

The coins are tossed until one coin displays three tails in a row. If this is the coin chosen by the player, the player will win the same bet amount. Else the player loses.

11. Use functions in every case of the switch statement for every casino game.

12. Pay attention to the case where the user has a sum that is less than the amount of money required to play a game.

Problem 2: (20 points)

Can you add N positive integer numbers?

Input

Your program will be tested on one or more test cases. The first line of the input will be a single integer T, the number of test cases ($1 \leq T \leq 100$). Next T lines contain the test cases, each on a single line.

Each case starts with a single integer N, the number of positive integers to add ($1 \leq N \leq 1,000$), followed by N integers, which are the integers you have to add, each is between 1 and 1,000,000, inclusive. All numbers in each line are separated by a single line.

Output

For each test case, outputon a single line the sum of the given numbers.

Sample Input/output

Input
3
3 1000000 2 1
1 1
10 1 2 3 4 5 6 7 8 9 10

Output
1000003
1
55

Problem 3: (30 points)

Some computer programs have problems in displaying Arabic text, especially when mixed with English words in the same line, because Arabic is written from right to left and English is written from left to right. In this problem we will try to fix a text with some corrupted lines which consist of a mixture of Arabic and English words. For simplicity, all Arabic letters will be replaced with the letter '#'.

Each line will contain at most one English word. For a line containing an English an English word, the program that will fix the text will swap the words before the English word with the words after the English word. The words before the English word will remain in the same order. The words after the English word will also remain in the same order. For example, if the line is "# #### ### abc ##", it will be fixed to become "## abc # #### ###".

Please note that a line that contains words only of the same language is not corrupt.

Input

Your program will be tested on one or more test cases. The first line of the input will be a single integer *T*, the number of test cases (1 ≤ *T* ≤ 100). Next 2*T* lines contain the test cases, each on a pair of lines.

The first line of each case contains a single integer *N*, the number of words in the line to fix (1 ≤ *N* ≤ 100). The second line contains *N* words, separated by single spaces, with no leading or trailing spaces, and each word will be at least 1 character and at most 10 characters long.

Each word will be either Arabic or English. Arabic words will consist of one to ten '#' letters, and English words will consist of one to ten English lower case letters.

Each line contains at most one English word.

Output
For each test case, output, on a single line, the fixed line of input text.

Sample Input/Output

```
                 Input
3
5
# #### ### abc ##
4
## ### ## #####
4
## ##### # xyz
```

```
                 Output
## abc # #### ###
## ### ## #####
xyz ## ##### #
```

Documentation: (20 points)
- You should submit a soft copy of the source files, the executable files, and the report.
- A report to document the programs that includes:
  - Table of Content.
  - Introduction.
  - A hard copy of the source files.
  - Screen Shots
  - The problems faced in the solution.
  - Conclusion.

- END OF PROJECT -