24/11/2012

0112541
Programming Languages
Assignment - 3
(Due 05/12/2012 – 23:59h)

The student is asked to implement a lottery program (**6/49**) written in C language.

- The program should create 1…N users.
- Each user would play (randomly generated) M columns for the lottery.
- New users and new columns could be added until the draw starts.
- During the draw, **6 different numbers** would be selected randomly from 49 numbers (1..49). These numbers would appear on the screen.
- After the draw, the program should detect the columns where **3** numbers out of 6, **4** numbers out of 6, **5** numbers out of 6 and **all** the numbers match with the result of the draw.
- The total income of the lottery week should be computed. X% of the income would be paid to the participants. Participants with 6 true numbers, 5 true numbers, 4 true numbers and 3 true numbers would win %SIX,%FIVE,%FOUR and %THREE of the delivered money, respectively. These variables should be given by the user.
- If there is no column with 3, 4, 5, or 6 numbers, the associated amount would be transferred next week.
- The price of one column should be given at the beginning of the program.
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Your algorithm should give the outputs specified below:

- A list of the participants sorted by the acquired money (tcId, the columns with any matches (3, 4, 5, or 6), spent money, acquired money, number of columns with 3, 4, 5, and 6 true numbers)
- The number of columns with 3, 4, 5, and 6 true numbers
- The total amount of transferred money

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- The program should give the information of a user with a given tcId.
- The program should give how many numbers is matched with the lottery numbers in a given column.

The program should include a menu for the given tasks.

You should define some structures to save related information jointly.

For example, some structures might be as follows;

```
typedef struct {
char tcId[11];
int  numberOfColumns;
int coupon[20][6]
float spMoney;
float acMoney;
int threeTrueInColumn;
int fourTrueInColumn;
int fiveTrueInColumn;
int sixTrueInColumn;
} USER;

typedef struct {
char lotteryName[30];
int oneColumnCost;
long totalIncome;
float X;
float SIX;
float FIVE;
float FOUR;
float THREE;
long transferredMoney;
int numberOfThreeColumns;
int numberOfFourColumns;
int numberOfFiveColumns;
int numberOfSixColumns;
} LOTTERY;
```

You should also report;

- The list of your functions with the parameters.
- Test results.

Note: Use reasonable variable names.

ATTENTION

Do not forget to read the document “ASSIGNMENT RULES”, located in my website.