Tutorial-5

Object Class

Balloon buster game is very popular in carnivals across the globe and some of the organizers are now looking for a software implementation of this game. You have been approached by these organizers to implement this software. The details of this game are explained below.

The game consists of a 10x10 board with a balloon pinned at each index in this board. Some of these balloons are associated (tagged) with a prize to be won. The organizer is miser and has decided that only 50% of these total balloons will be tagged with a prize (note that two prizes can never be tagged with one balloon). He randomly selects 50% of these balloons on the board that will be tagged with a prize object. The organizer treats each type of prize objects equally.

Prize objects available with the organizers are of three categories and each prize has some weight (mentioned in grams within brackets below) associated with it as follows:

1. Soft toys: Dog (50), Cat (40), Rabbit (20)
2. Candy bars: Kit-Kat (10), Snickers (5), Five-Star (7)
3. Stationery items: Pen (2), Pencil (1), Eraser (3)

Game Rules:

1. When a player starts playing the game, he will first create a list of any 5 (unique) objects of his choice from the above mentioned prize types. Organizer guarantees that his hidden prize list includes each type of prizes mentioned above.
2. Assume that each index on the board is always pinned with a balloon (although only 50% of these will have prizes). The player never misses a shot and always hits a balloon. As it is a virtual game, you can also assume that hitting a balloon merely symbolize the balloon being hit but not actual bursting of the balloon so that the organizer has to pin a new balloon at that index.
3. Each player gets 10 chances to shoot at the balloon board. Note that each of these shots should be targeted at a new position i.e the player cannot repeat his/her previous shots in his 10 attempts.
4. After hitting a balloon, the player has to guess the prize hidden behind the board for this balloon and then give that object from his list (see bullet 1 above) to the organizer. E.g., after hitting a balloon if the player guesses that the hidden prize object is a Cat, he will retrieve the Cat from his list and then hand over this Cat to the Organizer. The Organizer will then compare this object with the one tagged with that balloon behind the board. If it is an exact match, the Organizer will give an identical copy of the tagged prize object back to the player. Player maintains a separate list of prizes he wins in the game. Every time he wins a prize he will add that prize in this list.
5. Apart from this, the player also gets some points (added or deleted) when he hits a balloon. At the start of game, player doesn't own any points. There are three scenarios for updating total points owned by the player at any hitting of balloon (all calculations are integer based):

a. Player hits an untagged balloon: total points of the player gets halved.
b. Player hits a tagged balloon and guesses the prize correctly: a soft toy would double the player's points and also add 10 extra points. A candy bar would add 20 extra points and a stationary item first increases the total points by 10% and then add 5 extra points.
c. Player hits a tagged balloon but prize guessed is incorrect: if the player guessed for prize object of type X, points equal to the absolute difference between the weight of the tagged object and the guessed object will be deducted from player's total points. Note that the total points of a player never goes below zero at any moment.

Given this game specifications, you need to simulate the whole process and at the end of the player's 10 shots you need to print the prizes in the same order that he/she won and the number of points accumulated. Take a look at the sample test case provided at the end of this description.

Sample Test Case (non-bonus portion) - Blue: Input, Red: Output

```
2          <Number of players>
Player1 Player1          <Player's names space separated>
--Player1          started
playing--  dog  cat  kitkat
snickers  pen  Choose  a
coordinate
3 4
Sorry, no prize
here 0 points
Choose a
coordinate 4 4
Guess the
prize 0
You won
dog 10
points
Choose a
coordinate 1 2
Sorry, no prize
here 5 points
Choose a
coordinate 5 5
Guess the
prize 4
Sorry, you guessed wrong, it was
snickers 2 points
Choose a
coordinate 0 0
Sorry, no prize
here 1 points
```

Choose a coordinate 7 3
Sorry, no prize here 0 points
Choose a coordinate 3 3
Guess the prize 2
You won kitkat

20 points
Choose a
coordinate 9 9
Sorry, no prize
here 10 points
Choose a
coordinate 1 9
Guess the
prize 4
You won
pen 16
points
Choose a
coordinate 8 8
Sorry, no prize
here 8 points
--Summary of Player1--
You have won dog, kitkat, pen. Total points won = 8
--Player1 started
playing-- Maximum
Points = 6330 Strategy
= kitkat, pen, dog