SE Factory

Week 2 - Assignments

`version 04BD_1807`

```
Changelog
- Update wall of fame conditions
- Added sample output disclaimer
- Replaced the double + sign with /
- Fixed a few typos
- Fixed the delivery date
- Fixed the multiplication sign in the sample outputs
```

Object Oriented Programming in PHP

Exercise 1

You need to develop a game we will call **"Reach It"** while adopting all the Object Oriented Programming Principles (discussed in yesterday's lecture). The rules of the game are as follows:

- You will write the code for a `GameGenerator` object, that will need to select a total of **6 numbers** as follows:
    - Select at **random** 1 or more numbers (up to 4) from this list (the selection should be random):
        - 25, 50, 75, 100
    - Select at **random** the remaining numbers (if 3 are chosen from the list above, you need to choose 3) from this list:
        - 1, 1, 2, 2, 3, 3, 4, 4, 5, 5, 6, 6, 7, 7, 8, 8, 9, 9, 10, 10
- `GameGenerator` will generate a **random 3 digit number** (101 to 999 inclusive) after the selection of the numbers above is complete.
- `GameSolver` is another object that will take input from `GameGenerator` and try, using the numbers selected, to get as close as possible to the chosen 3 digit target by using, just, the four basic arithmetic operators: `+ - x /`
- Concatenation of the digits **is not allowed** (You can't use `1` and `1` to make the number `11`).
- At no intermediate step in the process can the current running total become negative or involve a

fraction.
- Each selected number can only be used once in the calculation.
- Not all digits selected need to be used.
- `GameOutput` will take the best solution reached by `GameSolver` and output the solution in the format described in **Sample Output**

You need to implement at least `GameGenerator`, `GameSolver` and `GameOutput` and you can create as many other objects as you deem necessary.

`GameGenerator` will take as input an integer `n` which will be used to generated an `n` number of games and output their solution.

Sample Input

```
How many games would you like me to play today?
3
```

Sample Output:

Note – The solutions provided below are for illustration purposes only and they might not be optimal.

```
Game 1:
{ 50, 8, 3, 7, 2, 10 }
Target: 556

Solution [Exact]:
(50 x 10) + (8 x 7) = 556

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Game 2:
{ 25, 75, 2, 5, 8, 7 }
Target: 105

Solution [Exact]:
(75 + 25 + 5) = 105

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Game 3:
{ 100, 1, 5, 8, 9, 10 }
Target: 553

Solution [Remaining: +3]:
(5 x 9 x  10) + 100 = 550
```

Wall of Fame Conditions

- Strict adoption of PSR-1, PSR-2, PSR-4
- Output rendered in less than 5 seconds per game
- Solution is correct and edge cases are covered
- Delivered in full within the deadline