

Programming Assignment 5 – CSCI 111

Bunco!

As it is played today, bunco is a social dice game involving 100% luck (no skill since there are no decisions to be made), scoring and a simple set of rules. Players are divided into teams. Each team throws 3 dice, keeping track of their own scores. The first team to 21 wins the round (*Bunco!*).

Scoring:

- Roll 3 sixes: 21 points (automatic *Bunco!*)
- Roll 2 sixes: 5 points
- Roll 1 six: 1 point
- Roll no sixes: 0 points

For this assignment you will declare 3 class variables and 2 methods. Because these are all used/invoked within *main*, which is a static method, all must be declared as static.

Class Variables:

In Java, you may create Class Variables that can be used within the *main* method as well as all other methods in the class. Because you will be writing 2 methods in addition to *main*, there are 3 integer class variables you should declare:

1. Current team that is rolling the dice; initialize to 1, representing team 1 who rolls first
2. Team 1's current score; initialize to 0
3. Team 2's current score; initialize to 0

Note: these should be declared within the class but before main. Also, because main and the two methods are static, these variables must also be static.

Rolling a die:

In Java, simulate rolling a die using random integers:

```
int roll1, roll2, roll3;  
Random die = new Random();
```

```
roll1 = die.nextInt(6) + 1;  
// similar code used for roll 2 and roll 3
```

Keep in mind that Random is in the java.util package so you will need to import it.

Method *bunco*:

1. Return value: integer, the points resulting from the roll of the dice
2. Method name: *bunco*
3. Parameter List: three arguments: three integers representing the roll of each die.
4. Algorithm:
 - a. Output the roll of each of the die (See Sample Output).
 - b. If roll1, roll2, and roll3 are all 6's, output the phrase ***Bunco!*** and return 21.
 - c. If two of the three rolls are 6's, output the phrase ***Box Cars*** and return 5.
 - d. If any one of the rolls is a 6, return 1.
 - e. If none are 6, return 0.

Method *winner*:

1. Return value: void
2. Method name: *winner*
3. Parameter List: empty
4. Algorithm:

- a. If team1 has won (more than 21 points), output they are the winner as well as their total points.
- b. If team 2 has won (more than 21 points), output they are the winner as well as their total points.
- c. If no team has won, then if team 1 is the current team, output their current score and change the current team to 2 since team 2 will be the next to roll the dice. Otherwise, output team 2's current score and change the current team to 1.

Simulating the game:

You will simulate one table of bunco (2 teams of players). You will need to keep track of the round number, where a round is completed after both teams have rolled (or a winner is declared).

Begin your round of play (i.e., within the while loop) by rolling the dice. Call the **bunco** method to determine the points to be added to the team's score, either team 1's score or team 2's score. If team 1 just rolled, then change the current team to 2. If, team 2 just rolled, change the current team to team 1. Then, call the winner method to determine if there is a winner. Continue play until either team has reached a score of 21. For each roll of the die, output the round number, the team who is rolling, and what they rolled.

Sample Output:

```

Round 1, Team 1's roll
  1 -- 3 -- 4
Team 1's Current Score: 0
Round 1, Team 2's roll
  4 -- 2 -- 6
Team 2's Current Score: 1
Round 2, Team 1's roll
  5 -- 4 -- 2
Team 1's Current Score: 0
Round 2, Team 2's roll
  1 -- 3 -- 5
Team 2's Current Score: 1
Round 3, Team 1's roll
  1 -- 1 -- 3
Team 1's Current Score: 0
Round 3, Team 2's roll
  4 -- 3 -- 3
Team 2's Current Score: 1
Round 4, Team 1's roll
  5 -- 5 -- 3
Team 1's Current Score: 0
Round 4, Team 2's roll
  4 -- 6 -- 2
Team 2's Current Score: 2
Round 5, Team 1's roll
  1 -- 2 -- 6
Team 1's Current Score: 1
Round 5, Team 2's roll
  6 -- 3 -- 1
Team 2's Current Score: 3
.
.
.
Round 9, Team 1's roll
  2 -- 5 -- 4
Team 1's Current Score: 6
Round 9, Team 2's roll

```

```
    5 -- 6 -- 5
Team 2's Current Score: 4
Round 10, Team 1's roll
    6 -- 4 -- 4
Team 1's Current Score: 7
Round 10, Team 2's roll
    4 -- 6 -- 5
Team 2's Current Score: 5
Round 11, Team 1's roll
    6 -- 6 -- 6
Bunco!
Team 1 wins with a score of 28
```

Include header comments and the Honor Code statement. Your electronic submission of the program file will represent your endorsement of the Honor Code

```
// CSCI 111, section
// Jane Doe
// Student ID 12345678
// Programming Assignment 5
// Due

// In keeping with the Honor Code of the University of Mississippi, I have neither
// given nor received assistance from anyone other than the instructor.

//Put a program description here
```