CENG113 – Programming Basics
HOMEWORK #3

A bowling game consists of ten frames. For each frame, a player has two chances to knock down all ten pins.

The rules for the game are:

- *A strike frame:* The player knocks down all ten pins with one ball (on the first roll). The score for a strike is 10 + the next two rolls.
- *A spare frame:* The player knocks down all ten pins with two balls. The score for a spare is 10 + the next roll.
- *An open frame:* The player fails to knock down all ten pins with two balls in a frame. The score is the number of pins knocked down in that frame.
- In the 10th frame, the player may get one or two more bonus ball(s) if a spare or strike occurs.

You are expected to write a Python program which scores a bowling game for two players. The initial player who starts the game first can be determined randomly. Ask the user for the number of pins bowled (0-10), and display the ball scores and total scores as shown in the scenario. Assume that the user enters only integers. At the end, display who wins the game.

Note that in your implementation you have to include the **functions** to reduce code duplication. For example, is_strike, is_spare, etc. You can define other functions as you like. **Your code will be checked whether it contains redundancies.**

Some examples to help you understand that your code is working correctly:

- 4 1 7 2 4 0 3 4 0 5 2 1 9 0 7 0 8 1 4 2
- 5 2 7 3 8 1 0 10 6 4 9 1 9 0 7 3 8 1 4 6 1
- 6 2 10 7 3 5 1 9 1 10 10 10 8 2 10 10 6
- 10 10 10 10 10 10 10 10 10 10 10 10

SUBMISSION RULES:

1. You should submit your homeworks through **Microsoft Teams**.
2. One submission per group is expected. Do not submit two times as a group.
3. Submit **only one python file** which should be named as **CENG113_HW3_GroupID.py**.
4. Use comments in your code to explain important parts, otherwise you will **lose** some points.
5. Write your **student IDs – Name & Surnames** as comments at the beginning of your code.
6. You can use only the topics covered so far, including lists.

Please note that your code will be checked against plagiarism.

```
Player B rolls...
Pins:6
Pins:2
Ball Scores: 6 2
Total Scores: 8 |   |   |   |   |   |   |   |   |
Player A rolls...
Pins:13
An invalid input. Pins:5
Pins:2
Ball Scores: 5 2
Total Scores: 7 |   |   |   |   |   |   |   |   |
Player B rolls...
Pins:10
Ball Scores: 6 2 10
Total Scores: 8 |   |   |   |   |   |   |   |   |
Player A rolls...
Pins:7
Pins:3
Ball Scores: 5 2 7 3
Total Scores: 7 |   |   |   |   |   |   |   |   |
Player B rolls...
Pins:7
Pins:3
Ball Scores: 6 2 10 7 3
Total Scores: 8 | 28 |   |   |   |   |   |   |   |
Player A rolls...
Pins:8
Pins:1
Ball Scores: 5 2 7 3 8 1
Total Scores: 7 | 25 | 34 |   |   |   |   |   |   |
Player B rolls...
Pins:5
Pins:1
Ball Scores: 6 2 10 7 3 5 1
Total Scores: 8 | 28 | 43 | 49 |   |   |   |   |   |
Player A rolls...
Pins:0
Pins:10
Ball Scores: 5 2 7 3 8 1 0 10
Total Scores: 7 | 25 | 34 |   |   |   |   |   |   |
Player B rolls...
Pins:9
Pins:1
Ball Scores: 6 2 10 7 3 5 1 9 1
Total Scores: 8 | 28 | 43 | 49 |   |   |   |   |   |
Player A rolls...
Pins:6
Pins:4
Ball Scores: 5 2 7 3 8 1 0 10 6 4
Total Scores: 7 | 25 | 34 | 50 |   |   |   |   |   |
Player B rolls...
Pins:10
Ball Scores: 6 2 10 7 3 5 1 9 1 10
Total Scores: 8 | 28 | 43 | 49 | 69 |   |   |   |   |
Player A rolls...
Pins:9
Pins:1
```

```
Ball Scores: 5 2 7 3 8 1 0 10 6 4 9 1
Total Scores: 7 | 25 | 34 | 50 | 69 |    |    |    |    |
Player B rolls...
Pins:10
Ball Scores: 6 2 10 7 3 5 1 9 1 10 10
Total Scores: 8 | 28 | 43 | 49 | 69 |    |    |    |    |
Player A rolls...
Pins:9
Pins:0
Ball Scores: 5 2 7 3 8 1 0 10 6 4 9 1 9 0
Total Scores: 7 | 25 | 34 | 50 | 69 | 88 | 97 |    |    |
Player B rolls...
Pins:10
Ball Scores: 6 2 10 7 3 5 1 9 1 10 10 10
Total Scores: 8 | 28 | 43 | 49 | 69 | 99 |    |    |    |
Player A rolls...
Pins:7
Pins:3
Ball Scores: 5 2 7 3 8 1 0 10 6 4 9 1 9 0 7 3
Total Scores: 7 | 25 | 34 | 50 | 69 | 88 | 97 |    |    |
Player B rolls...
Pins:8
Pins:2
Ball Scores: 6 2 10 7 3 5 1 9 1 10 10 10 8 2
Total Scores: 8 | 28 | 43 | 49 | 69 | 99 | 127 | 147 |    |
Player A rolls...
Pins:8
Pins:1
Ball Scores: 5 2 7 3 8 1 0 10 6 4 9 1 9 0 7 3 8 1
Total Scores: 7 | 25 | 34 | 50 | 69 | 88 | 97 | 115 | 124 |
Player B rolls...
Pins:10
Pins:10
Pins:6
Ball Scores: 6 2 10 7 3 5 1 9 1 10 10 10 8 2 10 10 6
Total Scores: 8 | 28 | 43 | 49 | 69 | 99 | 127 | 147 | 167 | 193
Player A rolls...
Pins:4
Pins:6
Pins:1
Ball Scores: 5 2 7 3 8 1 0 10 6 4 9 1 9 0 7 3 8 1 4 6 1
Total Scores: 7 | 25 | 34 | 50 | 69 | 88 | 97 | 115 | 124 | 135
Winner is player B.
```