

Lab 08 (2-12-2021)

OOP – BCS

Task 1: Write class Over. Over represent the over bowled in cricket match. Over should contain:

- baller id (representing bowler, store index of bowler according to number of bowler, define list of bowlers on top of your program as global variable)
- number of balls (normally over has 6 balls, however in case of no ball or wide ball, there can be more)
- runs on every ball (there may be zero or more runs on each ball)
- status of ball (0 for normal, 1 for no ball, 2 for wide ball)
- wicket or without wicket (0 for without wicket, 1 for bold, 2 for catch out, 3 for LBW, 4 for stump, 5 for run out)

Write a non-parameterized constructor to initialize over with random values. Write some intelligent code, where most of the time, there will be 6 balls in the over, however, in some case say (1 or 2 out of 10 with 7 or 8 balls). According to number of balls, set:

- score on each ball (there may be 0 or more runs, set upper limit yourself)
- wicket or without wicket (if there are runs, then there is only run out possible, in case of wicket store 1 to 5 according to type of wicket)
- store status of each ball
- store total runs made in the over

Overload stream operator to display over like:

Bowler: Sajid Ali

Number of balls: 7

1	2	3	4	5	6	7
	Wide				Run Out	Bold
0	1	2	4	1	1	0

Total runs in the over: 9

Total wickets: 2

Define list of bowlers on the top like "Ahmad Butt", "Nadeem Ali", "Sohail Rana", "Najam Khan" etc.

Write main create an array of 5 overs and display them on the screen.

Task 2: Write class Rectangle. Take required data members. Write draw function to draw rectangle on screen with stars according to dimensions (one is drawn on right hand side for your understanding). Implement following member functions:

- parameterized constructor with dimensions as parameter (call setters inside)
- setters to set dimensions (check for 0 and negative values, default is 10)
- set style, pass any character, default is star but it can be any character and draw function should use the specified character, for understanding see second rectangle
- ++ both pre & post increment to increase both dimensions by 1
- *= operator to change size number of times. Take parameter as float and change both dimensions according to value like if dimensions are 6 by 8 and parameter is 1.5, new dimensions will be 9 by 12
- setSize, pass size as percentage like if dimensions are 10 by 20 and percentage is 50, the new dimensions will be 5 by 10
- += to add dimensions of second rectangle in dimensions of first rectangle
- -= to subtract dimensions of larger rectangle from smaller rectangle and set as dimension of first rectangle
- draw to draw rectangle with normal boundary
- draw with integer parameter to draw rectangle with multiple outlines, see triangle with 3 outlines

Write main function. Take 2 rectangles of different dimensions, draw them.

Apply all functions on each of them and together as well like addition & subtraction of both rectangles. Draw rectangles after each operation to check new dimensions.

```
*****
*           *
*           *
*****
Size: 4 x 10

#####
#         #
#         #
#         #
#####
```

```
*****
*****
*****
***      ***
***      ***
*****
*****
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```