MINI PROJECT



**Subject CODE: 19CSE100**

**Subject Title: Problem Solving and Algorithmic thinking**

**Group Number:7**

**Team Members:**

|  |  |  |
| --- | --- | --- |
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**Problem Definition**

→ To setup the cricket match score sheet with the available resources

→It is difficult to find the match stats without proper score sheet

→Stats include the following: runs, wickets, number of batsman and bowlers, overs, extras, strike rate of batsman, economy of a bowlers etc.

→We can find all the above stats in a score sheet. But how to do it?

**Problem Decomposition**

|  |  |  |
| --- | --- | --- |
| **S.no** | **Sub problem name** | **description** |
| 1. | Format of the match | Proper format |
| 2. | information of players | To collect the information of the players |
| 3. | Design for runs and overs | To design a method for counting runs |
| 4. | Design for batsmen,bowlers | To design a method to switch the batsmen and bowler |
| 5. | Design for batsmens | To design a method if batsmen is out |
| 6. | Decleration of winner | Declare the winner according to rules |

**Sub problem 1:****MATCH FORMAT**

→ Deciding the format of the match

→It is important to get the info about the format of the match because it will decide how many over to set limit on

**Sub problem 2:****Information of players**

→ Getting the name of the teams and players.

→ We Have to get the name of the teams to assign their total scores and wickets and Player name so that we can assign individual scores and wickets.

**Sub problem 3:** DESIGN FOR RUNS AND OVERS

→Designing an error free method to add runs , wickets and count overs.

→Adding the runs to get the total score and individual score is a crucial part in the cricket score sheet. Similarly, we should take the count of the over, so, that we can stop the innings once all over are bowled or all wickets are taken.

**Sub problem 4:DESIGN FOR BATSMEN AND BOWLER**

→Designing an error free method to switch the batsmen and bowler in end of each over.

→This will help us to assign us the individual score and wickets to the batsmen and bowler respectively. If we didn’t do this step Total score might be Correct but the individual score might get wrong.

**Sub problem 5:****DESIGN FOR BATSMEN**

→Designing an error free method to change the batsmen if he is out.

→Wickets is the crucial part of the cricket. So is necessary to change the batsmen once he get out.

Sub Problem 6: TO DECLARE A WINNER

Declare the winner depending upon the rules

**Abstraction**

→ We don’t need to know the rules for calling the scores, wickets, etc. We could get those from umpire’s call

→Other things Such as humidity, temperature etc will be hidden since this just a score sheet, not a analysis.

→And no of people who are watching the game will be looked by the

Cricket board organisation

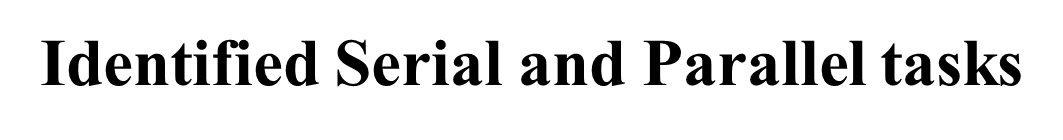
**Pattern Recognition**

→Repeating the procedure for each ball of an over.

→Checking for the pattern from previous over or match for a decision to be made

→Checking for the Batsmen once get out doesn’t bats again

→ Checking for the blower doesn’t blows 2 consecutive overs and doesn’t bowls after the maximum number of the over per bowler completed



**Serial tasks:**

1)Procedure for each bowl in a over

2)procedure for batsmen in getting batting

**Parallel tasks:**

1)checking for pattern in previous match

2)taking a break in the middle of the match

**MATCH FORMAT- Algorithm**

Sub Problem 1: Deciding the format of the match

→ We should get the format, that is, The total number overs of each innings.

→ Then we should set the limits for an innings Depending according to the format got.

→ So, after the completion Overs, if it is the first innings, we

should switch to Second Innings. Else if it is a Second Innings, We should End the Match and Announce the winner. (Not considering Test Match )

**Information of players** **-Algorithm**

Sub Problem 2: Getting the name of the teams and players.

→ We should get the name of the Players individual Score to the batsmen and individual wickets and overs to the bowlers.

→ All the eleven names from both the teams should be entered to avoid confusion

DESIGN FOR RUNS AND OVERS **-Algorithm**

Sub Problem 3: Designing an error free method to add runs, wickets and count overs.

→ We should Create a loop to add the runs and the wickets and count the overs.

→ This loop should also add the runs and wickets to the batsmen and the bowler respectively.

→ This loop will also add Individual scores and wickets

**DESIGN FOR BATSMEN AND BOWLER -Algorithm**

Sub Problem 4: Designing an error free method to switch the batsmen and bowler in end of each over.

→ Changing the batsman at end of the over or if there is an odd number of odd numbers of runs by running, so we will assign the run to the correct batsmen.

→ Changing the bowler at end of each over, so we can assign the number of overs bowled and wickets taken to the correct bowler.

**DESIGN FOR BATSMEN-Algorithm**

Sub Problem 5: Designing an error free method to change the batsmen if he is out.

→ A if condition to change the batsmen once he is out

TO DECLARE A WINNER**-Algorithm**

Sub Problem 6: To declare a winner.

1. If the runs of the team in second innings is greater than other team in first innings within the total overs with at least two batsmen not out. Then,

The team batted in second innings won.

2. Else,

The team batted in the first innings won.

3. If all wickets of the (10) are gone, The team batted in the first innings won.

