

Criterion B: Design

List of Objects:

Team

Game

Player

Criterion

Object Descriptions:

Team is an instance of the Team class. The properties of Team and its methods are described in the following UML class diagram.

<Team>
-String name -int type -boolean forMesac -int numCourts -ArrayList <Players> playerlist -ArrayList <Criterion> criterionlist -ArrayList <Game> gamelist
+createTeam() +createNewGames() +findImportantGames(Player tofind) returns Game[] +findImportantGames() returns Game[] +returnTeam(int team) returns Player[]

The screenshot shows a window titled "Team Manager" with a standard macOS-style title bar (red, yellow, green buttons). Inside the window, there is a "Help" button in the top-left corner. The main content area is titled "Add Team". It contains two input fields: "Enter Team Name" with the text "e.g. Badminton S2" and "Add Criterion to Use" with the text "e.g. Drop". Below the "Enter Team Name" field is a "Select Team Type" section with a list box containing "Badminton", "Tennis", and "Class", where "Badminton" is selected. To the right of the "Add Criterion to Use" field is a list box containing "Jump", "Lunge", and "Smash", where "Jump" is selected. Below the "Add Criterion to Use" field is a "Remove Criterion" button. At the bottom right of the window is a "Done" button.

Game is an instance of the Game class. The properties of Game and its methods are described in the following UML class diagram.

<Game>
-char[] team1score -char[] team2score -ArrayList<Player> team1 -ArrayList<Player> team2 -Boolean important -String comments -int courtplayedin
+contains(int playerid) returns boolean +Getters and Setters

Player is an instance of the Player class. The properties of Player and its methods are described in the following UML class diagram.

<Player>
-Int team -int rating -int doublesrating -int singlesrating -int gamesWon -boolean isJVelgible -boolean isVeligible -String emailAddress -String firstName -String lastName
+calculaterating() +publishRecords() +Getters and Setters

Team Manager

Help Add A New Player Quit

Player Name: Yash Pande

Age: 15

Grade: 11

Email Address: 16ypande@aes.ac.in

Yash Pande is JV and Varsity Eligible

Cancel Okay

Criterion is an instance of the Criterion class. The properties of Criterion and its methods are described in the following UML class diagram.

<Criterion>
-String name -String category -int effectonsingles -int effectondoubles -int effectoverall
+Getters and Setters

TeamManager is the main the class of the program. The methods and variables TeamManager are described in the following UML class diagram.

<TeamManager>
-boolean showWelcomeMessage -ArrayList <Team> teamlist
+void createWelcomeMessage() +void createHomeScreen() +void createHelpMessage() +void createTeamScreen (Team toCreate) +void createRoster (Team toCreate) +void createGames (Team toCreate) +void createCourts (Team toCreate) +void createCriterion (Team toCreate) +void showResults(Player toShow) +void showImportantGames(Team toShow) +void editTeam (Team toShow)

The team manager class will contain an arraylist of team objects.

Each team object will contain an arraylist of player, criterion and game objects.

Each game object will contain two arraylists of player objects.

The arraylist of team objects in the teammanager class is stored as a .ser file when the program ends.

A diagram displaying interactions between objects in my program is at the end of this document.

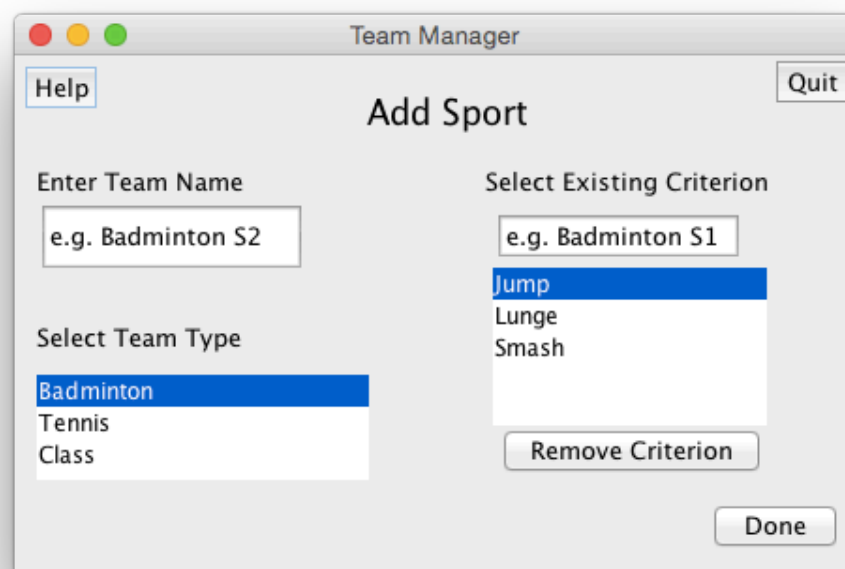
Input to my system will be through a GUI. My input screens will look like this:

1) Welcome Screen

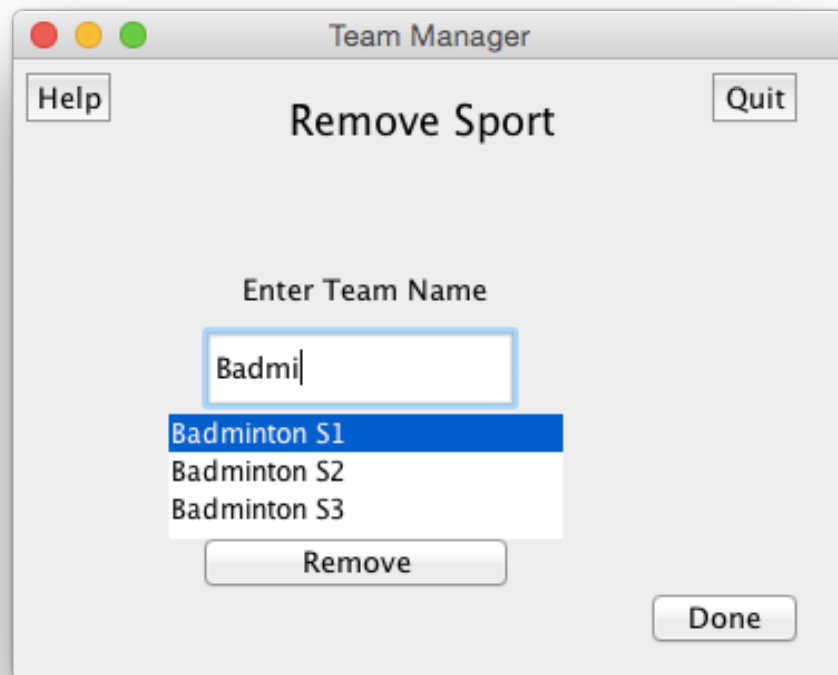


Clicking Add Sport opens next screen, remove sport screen 3 and a team name screen 4

2) Add Sport



3) Remove Sport



4) View Sport



Clicking Add New Player opens screen 5, clicking Manage Team opens screen 8, clicking View Games opens screen 9, clicking Manage Criterion opens screen 6.

5) Add new player

The screenshot shows a macOS-style dialog box titled "Team Manager" with a subtitle "Add A New Player". It features a "Help" button in the top-left and a "Quit" button in the top-right. The form contains four input fields: "Player Name" with the text "Yash Pande", "Age" with "15", "Grade" with "11", and "Email Address" with "16ypande@aes.ac.in". Below these fields, a status message reads "Yash Pande is JV and Varsity Eligible". At the bottom are "Cancel" and "Okay" buttons.

Field	Value
Player Name	Yash Pande
Age	15
Grade	11
Email Address	16ypande@aes.ac.in

Yash Pande is JV and Varsity Eligible

The statement at the bottom changes based on the player's age and grade.

6) Manage Criterion

The screenshot shows a macOS-style dialog box titled "Team Manager" with a subtitle "Manage Criterion". It features a "Help" button in the top-left, a "Back" button in the top-left below "Help", and a "Save" button in the top-right. Below the "Back" button is a "Criterion:" label. The main area contains a table with seven columns: "Criterion", "Average...", "25%/75%", "BV Score", "BJV Score", "GV Score", and "GJV Score". The table lists five criteria: Jump, Lunge, Smash, Block, and Drop. At the bottom are "Add", "Remove", and "Edit" buttons.

Criterion	Average...	25%/75%	BV Score	BJV Score	GV Score	GJV Score
Jump	5.5	3/8	7	4	6	5
Lunge	6.5	4/9	8	5	6	5
Smash	4.5	4/6	7	5	6	3
Block	6	4/9	9	4	8	4
Drop	3.5	2/6	6	2	4	3

Clicking add opens screen 7.

7) Add new criterion

The screenshot shows a macOS-style window titled "Team Manager" with a subtitle "Add New Criterion". It has "Help" and "Quit" buttons in the top left and right corners, respectively. The main content area has a text field labeled "Criterion Name:" containing the text "Lunge Forward". Below this, a prompt says "Please enter how much the criterion affects each ranking". There are three sliders: "Singles" (set to 10), "Doubles" (set to 6), and "Overall" (set to 8). At the bottom are "Cancel" and "Okay" buttons.

Team Manager

Help Quit

Add New Criterion

Criterion Name: Lunge Forward

Please enter how much the criterion affects each ranking

Singles 10

Doubles 6

Overall 8

Cancel Okay

8) View teams

The screenshot shows a macOS-style window titled "Team Manager" with a subtitle "View Teams". It has a "Help" button in the top left and a "Back" button below it. The main content area is divided into four team lists: "Varsity Boys", "JV Boys", "Varsity Girls", and "JV Girls". Each list contains the same set of names: Yash Pande, Nikhil Judge, Siddhant Datt, Jeyoon Lee, Shivashish Dwivedi, Yash Pande, Nikhil Judge, and Siddhant Datt. To the right of these lists are four buttons: "Print Team", "Show Rankings", "Edit", and "MESAC" (which is highlighted with a blue border).

Team Manager

Help Back

View Teams

Team:

Varsity Boys

Yash Pande

Nikhil Judge

Siddhant Datt

Jeyoon Lee

Shivashish Dwivedi

Yash Pande

Nikhil Judge

Siddhant Datt

JV Boys

Yash Pande

Nikhil Judge

Siddhant Datt

Jeyoon Lee

Shivashish Dwivedi

Yash Pande

Nikhil Judge

Siddhant Datt

Varsity Girls

Yash Pande

Nikhil Judge

Siddhant Datt

Jeyoon Lee

Shivashish Dwivedi

Yash Pande

Nikhil Judge

Siddhant Datt

JV Girls

Yash Pande

Nikhil Judge

Siddhant Datt

Jeyoon Lee

Shivashish Dwivedi

Yash Pande

Nikhil Judge

Siddhant Datt

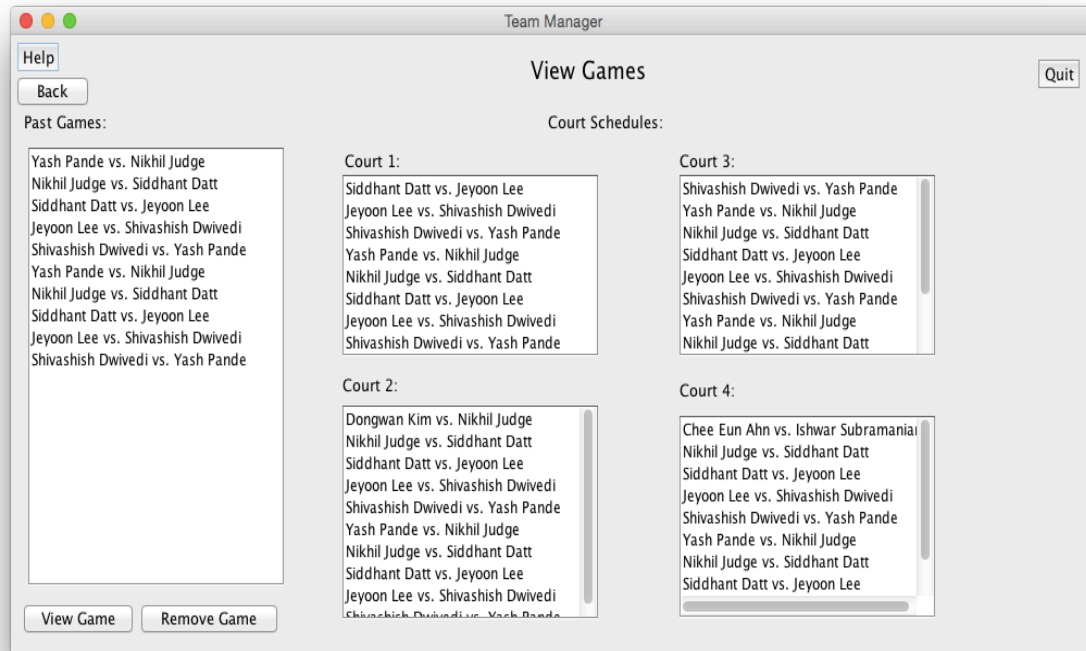
Print Team

Show Rankings

Edit

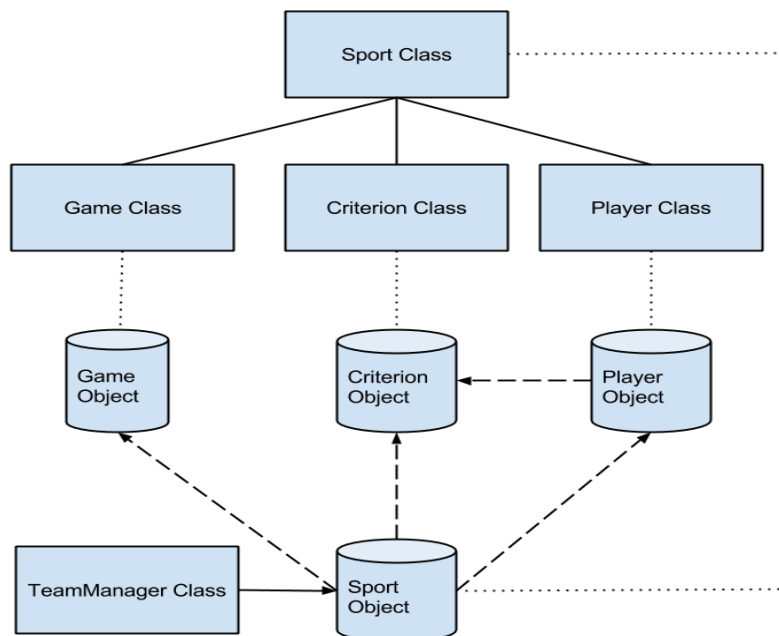
MESAC

9) View Games



Once my data is processed, there are multiple reports generated. These reports are Appendixes 4, 5 and 6.

This is a data flow diagram for my program:



The program will be tested several times to ensure that all parts work as desired. The strategy for testing follows:

#	Action to Test	Method of Testing	Expected Result
1	User can modify sports and classes	Create a new sport and a new class, delete the sport and change the name of the class	Welcome screen shows one more sport and the class has the new name
2	User can view and modify criterion	Add a new sport with 5 criterion, open the sport and add 5 more criterion, then remove the original 5 criterion.	Sport has 5 new criterion listed under criterion screen.
3	Player reports – viewing and emailing	Choose two players, send results to one and view results of other.	PDF opens with one player's report while other player's report is sent to their email.
4	Game/Court Schedules	Go to view games screen, select a game and enter its score.	Once game score is entered it should move to the past games section and a new game should populate that court's list.
5	Google Spreadsheet	Go to view games screen and click view as spreadsheet.	Spreadsheet with court information opens up in a new browser tab.
6	Evenly matched games	Create 2 very skilled players and two less skilled players then view games screen.	The two very skilled players are playing each other and the less skilled players are playing each other.
5	Game comments	View a game and enter information in the comments section.	These comments should show up on both the program and on Google Spreadsheet.
6	Rankings and player ratings	Create one player with a high skill rating and one player with a lower skill rating. Then view player rankings.	The player with a higher skill rating should be ranked higher than the lower skill rating player.
	Rankings with game results	Create two players with the same skill ratings but one of them always beats the other in a game.	The player who beats the other should be ranked higher than the other.
7	Creation of a team	Create - Player1 overallRating=8 singlesRating=2 Player2 overallRating = 2 singlesRating = 8	Player2 is selected for singles and Player1 for doubles.
	Team overall performance	Create - Player1	Players 1, 7-10 are placed in JV players 2-6 are placed in

		overallRating = 10 singlesRating = 10 doublesRating = 10 JVeligible = true Veligible = true Players2-6 overallRating = 7 singlesRating = 7 doublesRating = 7 JVeligible = false Veligible = true Players7-10 overallRating = 3 singlesRating = 3 doublesRating = 3 JVeligible = true Veligible = false Player11 overallRating = 1 singlesRating = 1 doublesRating = 1 JVeligible = true Veligible = true	Varsity player 11 is alternate.
8	Ranking modifications	Create – Player 1 overallRating = 10 singlesRating = 10 doublesRating = 10 JVeligible = false Veligible = true Players 2-3 overallRating = 5 singlesRating = 8 doublesRating = 2 JVeligible = false Veligible = true Player 4-5 overallRating = 5 singlesRating = 2 doublesRating = 8 JVeligible = false Veligible = true Move player 5 to mixed doubles	Player 1 should be moved to doubles.