**Problem Solving Framework for Structures related Problems**

Varun Finchi is a manger of BCR franchise team, where he has to select 5 players to make squad full for playing in PPL League. He contacts Lord Hassan is an analyst of BCR team, where he has all the player details. Varun Finchi selects 3 players who have highest runs in their career, one who has least runs in his career and one more player who has Name "Rajat". Please help Varun Finchi to select players for BCR team.

I. **Understanding the Problem:**
   1. **Known's:** Players details.
   2. **Unknowns:** Select total 5 Players, first 3 Players with highest runs, One Player with least runs and one more Player with name "Rajat".
   3. **Extra Information:** BCR team, PPL league, Manager Varun Finchi.
   4. **Assumptions:** NIL
   5. **Constraints:** Consider number of Player details to store is more than 5.

II. **Devise a Plan:**
   1. **Problem Representation:** Numerical
   2. **Problem Solving Strategy:** Mathematical Reasoning
   3. **Identification of Structure name and its members:**
      a. **Structure Name:** players
      b. **Structure Members:** player_name, team_name, odi_rank, runs, centuries.
   4. **Identification of Operations:** read_player_details(), display_palyer_details(), sort_player_details()

III. **Carry Out a Plan:**
   1. **Write Structure as per syntax:**

      typedef struct players
      {
         char player_name[20],  team_name[10];
         int oid_rank, runs, centuries;
      } TEAM;

   2. **Algorithm:**

      **Algorithm: To Sort and display the selected players**
      Step 1: Start
      Step 2: Sort the Players details in descending order

Repeat for i=0 to n-1

Repeat for j=0 to n-i-1

Is players[j].runs less than players[j+1].runs?

[then, swap entire players details]

temp = players[j]

players[j] = players[j+1]

players[j+1] = temp

Step 3: Display 3 players with highest runs scorers. [Print index 0, 1 and 2 players details after descending order sort]

Repeat for i=0 to less than 3

Display player_name, team_name, odi_rank, runs and centuries.

Step 4: Display 1 player with least runs scorer [Print last index (i.e. n-1 index) player details after descending order sort]

Display player_name, team_name, odi_rank, runs and centuries.

Step 5: Search for Player name "Rajat" and display.

Repeat for i=0 to less than n

Is strcmp(player_name , "Rajat") is ture?

Display player_name, team_name, odi_rank, runs and centuries.

Step 6: Stop


**IV. Assess the Result:**

Enter number of player details to read

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Enter Player name, team name, odi rank, centuries, runs scored

virat india 1 40 25000

dhoni india 2 50 32000

rohit india 3 30 29000

ashwin india 12 10 12000

ishant india 34 2 2554

raina india 20 34 12455

Rajat india 10 12 4832


BCR Team Details

| Name | Team | ODi Rank | Centuries | Runs |
|---|---|---|---|---|
| virat | india | 1 | 40 | 25000 |
| dhoni | india | 2 | 50 | 32000 |
| rohit | india | 3 | 30 | 29000 |
| ashwin | india | 12 | 10 | 12000 |
| ishant | india | 34 | 2 | 2554 |
| raina | india | 20 | 34 | 12455 |
| Rajat | india | 10 | 12 | 4832 |

Selected Team Players are

| Name | Team | ODi Rank | Centuries | Runs |
|---|---|---|---|---|
| dhoni | india | 2 | 50 | 32000 |
| rohit | india | 3 | 30 | 29000 |
| virat | india | 1 | 40 | 25000 |
| ishant | india | 34 | 2 | 2554 |
| Rajat | india | 10 | 12 | 4832 |

**V. Summary:**

The BCR team manager's problem is solved using the descending order sort. Through descending order sort, we can obtain the players with highest runs scorers to lowest runs scorers. Therefore we select top 3 players that is indices 0, 1 and 2. Then we select last index play with least runs scorer that is n-1, and we perform linear search for player name with Rajat. Therefore we select and display the 5 players as per the manager's needs.