

Institute of Computer Technology

B. Tech. Computer Science and Engineering

Sub: ESFP – II

Course Code: 2CSE203

Practical – 7

Objective:

To learn about object-oriented programming, constructors, destructors, and string functions.

Definition:

Complete the code for the object assigned to you to satisfy following specifications.

1. Minimum 2 constructor should be in a program like (Default constructor, two Parameterized constructor and copy constructor).
2. You must use access specifiers like (public/private/protected) for data member and member function declaration in program as per the requirements.
3. You are supposed to define normal function as per the requirement for displaying the information.
4. You must declare a variable as string type. If required, you can use the string function also.
5. You need to add a minimum one function with an object as a parameter for the practical. As per your practical functionality requirement, if necessary, you can add more functions.
6. Add one separate module in your given topic, where you must implement the concept of operator overloading.
7. Take minimum 5 data from the user and display according to the choice of user category wise. (Minimum three different options should be there for displaying information, and if you want more as per program requirement you can add more choices). Use string comparison to check and display a specific record based on string inputs from user.
8. After all functionality execution, you need to call the destructor function.

[Note: You must implement object-oriented concept for the practical]

Chauhan Manan M.

CS-Batch-25

Eid.:23162171004

Code:

```
1 #include <iostream>
2 #include <string>
3 #include <limits>
4 using namespace std;
5 class Player {
6 private:
7     string playerName;
8     int age;
9     char ch;
10    int matchplayed;
11    int runsScored;
12    float batavg;
13    int notouts;
14    int halfCenturies;
15    int centuries;
16    int wickets;
17    int fifertaken;
18    float bowlavg;
19    int over;
20 public:
21     Player() {}
22     Player(string name, int playerAge, char choice)
23         : playerName(name), age(playerAge), ch(choice) {
24         matchplayed = 0;
25         runsScored = 0;
26         batavg = 0.0;
27         notouts = 0;
28         halfCenturies = 0;
29         centuries = 0;
30         wickets = 0;
31         fifertaken = 0;
32         bowlavg = 0.0;
33     }
34     void inputData() {
35         cout << "Enter match played: ";
36         cin >> matchplayed;
37         if (ch == 'b' || ch == 'B') {
38             cout << "Enter runs scored: ";
39             cin >> runsScored;
40             cout << "Enter not outs: ";
41             cin >> notouts;
42             cout << "Enter half centuries: ";
43             cin >> halfCenturies;
44             cout << "Enter centuries: ";
45             cin >> centuries;
46         } else if (ch == 'w' || ch == 'W') {
47             cout << "Enter wickets taken: ";
48             cin >> wickets;
49             cout << "Overs Bowled: ";
50             cin >> over;
51             cout << "Enter five-wicket hauls: ";
52             cin >> fifertaken;
53         }
54     }
55     void displayData() {
56         cout << "Player Name:" << playerName << endl;
57         cout << "Age: " << age << endl;
58         cout << "Choice: " << ch << endl;
59         cout << "Matches Played: " << matchplayed << endl;
60         if (ch == 'b' || ch == 'B') {
61             cout << "Runs Scored: " << runsScored << endl;
62             batavg = (float)runsScored / (matchplayed - notouts);
63             cout << "Batting Average: " << batavg << endl;
64             cout << "Not Outs: " << notouts << endl;
65             cout << "Half Centuries: " << halfCenturies << endl;
66             cout << "Centuries: " << centuries << endl;
67         } else if (ch == 'w' || ch == 'W') {
68             cout << "Wickets Taken: " << wickets << endl;
69             cout << "Five-Wicket Hauls: " << fifertaken << endl;
70             bowlavg = (float)over * 6 / (wickets);
71             cout << "Bowling Average: " << bowlavg << endl;
72         }
73         cout << "-----" << endl;
74     }
```

Chauhan Manan M.

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Eid.:23162171004

```
75     void searchByName(string searchName) {
76         if (playerName == searchName) {
77             cout << "Player found:\n";
78             displayData();
79         }
80     }
81 };
82 int main() {
83     int choice;
84     Player players[5];
85     do {
86         cout << "Choose an option:\n";
87         cout << "1. Insert Player Data\n";
88         cout << "2. Display Player Data\n";
89         cout << "3. Search Player by Name\n";
90         cout << "4. Exit\n";
91         cout << "Enter your choice: ";
92         cin >> choice;
93         switch (choice) {
94             case 1:
95                 for (int i = 0; i < 5; ++i){
96                     string name;
97                     int age;
98                     char playerChoice;
99                     cout << "Enter player name for Player " << i + 1 << ": ";
100                    cin.ignore();
101                    getline(cin, name);
102                    cout << "Enter player age: ";
103                    cin >> age;
104                    cout << "Enter choice (b/B for batsman, w/Wfor bowler): ";
105                    cin >> playerChoice;
106
107                    players[i] = Player(name, age, playerChoice);
108                    players[i].inputData();
109                }
110                break;
111             case 2:
112                 for (int i = 0; i < 5; ++i) {
113                     cout << "Player " << i + 1 << ":\n";
114                     players[i].displayData();
115                 }
116                 break;
117             case 3:{
118                 string searchName;
119                 cout << "Enter the name to search: ";
120                 cin.ignore();
121                 getline(cin, searchName);
122                 for (int i = 0; i < 5; ++i) {
123                     players[i].searchByName(searchName);
124                 }
125                 break;
126             case 4:
127                 cout << "Exiting program.\n";
128                 break;
129             default:
130                 cout << "Invalid choice. Please enter a valid option.\n";
131             }
132         } while (choice != 4);
133         return 0;
134     }
```

Chauhan Manan M.

CS-Batch-25

Eid.:23162171004

Output:

```
Choose an option:
1. Insert Player Data
2. Display Player Data
3. Search Player by Name
4. Exit
Enter your choice: 1
Enter player name for Player 1: Manan
Enter player age: 17
Enter choice (b/B for batsman, w/Wfor bowler): b
Enter match played: 5
Enter runs scored: 400
Enter not outs: 0
Enter half centuries: 3
Enter centuries: 2
Enter player name for Player 2: Virat Kohli
Enter player age: 35
Enter choice (b/B for batsman, w/Wfor bowler): b
Enter match played: 280
Enter runs scored: 13600
Enter not outs: 32
Enter half centuries: 75
Enter centuries: 50
Enter player name for Player 3: MS Dhoni
Enter player age: 42
Enter choice (b/B for batsman, w/Wfor bowler): b
Enter match played: 300
Enter runs scored: 11680
Enter not outs: 25
Enter half centuries: 80
Enter centuries: 12
Enter player name for Player 4: Ravindra Jadeja
Enter player age: 65
Enter choice (b/B for batsman, w/Wfor bowler): w
Enter match played: 75
Enter wickets taken: 190
Overs Bowled: 650
Enter five-wicket hauls: 9
Enter player name for Player 5: Ravichandran Ashvin
Enter player age: 37
Enter choice (b/B for batsman, w/Wfor bowler): w
Enter match played: 99
Enter wickets taken: 507
Overs Bowled: 1600
Enter five-wicket hauls: 36
Choose an option:
```

Chauhan Manan M.

CS-Batch-25

Eid.:23162171004

```
Choose an option:
1. Insert Player Data
2. Display Player Data
3. Search Player by Name
4. Exit
Enter your choice: 2
Player 1:
Player Name:Manan
Age: 17
Choice: b
Matches Played: 5
Runs Scored: 400
Batting Average: 80
Not Outs: 0
Half Centuries: 3
Centuries: 2
-----
Player 2:
Player Name:Virat Kohli
Age: 35
Choice: b
Matches Played: 280
Runs Scored: 13600
Batting Average: 54.8387
Not Outs: 32
Half Centuries: 75
Centuries: 50
-----
Player 3:
Player Name:MS Dhoni
Age: 42
Choice: b
Matches Played: 300
Runs Scored: 11680
Batting Average: 42.4727
Not Outs: 25
Half Centuries: 80
Centuries: 12
-----
Player 4:
Player Name:Ravindra Jadeja
Age: 65
Choice: w
Matches Played: 75
Wickets Taken: 100
Five-Wicket Hauls: 9
Bowling Average: 20.5263
-----
Player 5:
Player Name:Ravichandran Ashvin
Age: 37
Choice: w
Matches Played: 99
Wickets Taken: 507
Five-Wicket Hauls: 36
Bowling Average: 18.9349
-----
Choose an option:
1. Insert Player Data
2. Display Player Data
3. Search Player by Name
4. Exit
Enter your choice: 3
Enter the name to search: Ravichandran Ashvin
Player found:
Player Name:Ravichandran Ashvin
Age: 37
Choice: w
Matches Played: 99
Wickets Taken: 507
Five-Wicket Hauls: 36
Bowling Average: 18.9349
-----
Choose an option:
1. Insert Player Data
2. Display Player Data
3. Search Player by Name
4. Exit
Enter your choice: 4
Exiting program.
```