

# Online on Structural Pattern for A1

## 1 Introduction

Suppose you have been assigned to revamp the official website of Arsenal FC. Your first responsibility is to maintain some basic information on team staffs. There are primarily three different types of staffs – coach, manager, and medical officer. There are again two types of medical officers – doctors and physiotherapist. You may assume these are the only types of staffs available. More than one person can be assigned to a post. The full structure can be expressed as follows:

- Staff
  - Coach
    - \* Unai Emery
    - \* Neil Banfield
  - Manager
    - \* Steve Bould
    - \* Vic Akers OBE
  - Medical Officer
    - \* Doctors
      - Gary O’Driscoll
    - \* Physiotherapist
      - Andrew Rolls

Each of the personnel has some attributes as shown in table 1. At startup of your code you should have this structure and data already setup. Apart from the salary received from the club, the staff earns from other sources (*external revenue*) such as advertisements, promotions, etc. A certain percentage (*commission percentage*) of this income has to be donated to the club by each staff.

## 2 To Do

Simulate a system which allows you to view detailed reports of age, salary, and club commission. See the attached figure at the end of the document for clarification. You should also be able to add or remove terminal staffs from your team structure.

Table 1: Description of various personnel.

| <b>Name</b>     | <b>Age</b> | <b>Salary</b> | <b>External Revenue</b> | <b>Commission Percentage</b> | <b>type</b>     |
|-----------------|------------|---------------|-------------------------|------------------------------|-----------------|
| Unai Emery      | 46         | 6000000       | 3000000                 | 20                           | Coach           |
| Neil Banfield   | 56         | 520000        | 100000                  | 12                           | Coach           |
| Steve Bould     | 55         | 1560000       | 500000                  | 16                           | Manager         |
| Vic Akers OBE   | 71         | 62000         | 100000                  | 5                            | Manager         |
| Gary O'Driscoll | 58         | 40000         | 20000                   | 2                            | Doctor          |
| Andrew Rolls    | 38         | 41000         | 20000                   | 2                            | Physiotherapist |

### 3 Points to be Noted

- You must follow **composite pattern** to complete this assignment.
- Implementing the composite pattern should be your first priority. Simply simulating the application logic without the correct application and implementation of design pattern does not make you eligible for a mark greater than zero.

```
saquib2527@saquib2527:~/Documents/codes/foundations/teaching/CSE308/structural-patterns/composite/code$ java Main
```

1. View Salary
2. View Age
3. View Club Commission
4. Add Staff
5. Remove Staff
6. Exit

```
1
Salary of Unai Emery is 6000000.0
Salary of Neil Banfield is 520000.0
Salary of Coach is 6520000.0
Salary of Steve Bould is 1560000.0
Salary of Vic Akers OBE is 62000.0
Salary of Manager is 1622000.0
Salary of Gary O'Driscoll is 40000.0
Salary of Doctor is 40000.0
Salary of Andrew Rolls is 41000.0
Salary of Physiotherapist is 41000.0
Salary of Medical Officer is 81000.0
Salary of All Staffs is 8223000.0
```

1. View Salary
  2. View Age
  3. View Club Commission
  4. Add Staff
  5. Remove Staff
  6. Exit
- ```
█
```

saquib2527@saquib2527:~/Documents/codes/foundations/teaching/CSE308/structural-patterns/composite/code\$ java Main

1. View Salary
2. View Age
3. View Club Commission
4. Add Staff
5. Remove Staff
6. Exit

4

Name: John Doe

Age: 32

Salary: 50000

External Revenue: 10000

Commission Percentage: 5

Type of Staff [1/2/3/4 - Coach/Manager/Doctor/Physiotherapist]: 3

1. View Salary
2. View Age
3. View Club Commission
4. Add Staff
5. Remove Staff
6. Exit

1

Salary of Unai Emery is 6000000.0

Salary of Neil Banfield is 520000.0

Salary of Coach is 6520000.0

Salary of Steve Bould is 1560000.0

Salary of Vic Akers OBE is 62000.0

Salary of Manager is 1622000.0

Salary of Gary O'Driscoll is 40000.0

Salary of John Doe is 50000.0

Salary of Doctor is 90000.0

Salary of Andrew Rolls is 41000.0

Salary of Physiotherapist is 41000.0

Salary of Medical Officer is 131000.0

Salary of All Staffs is 8273000.0

1. View Salary
2. View Age
3. View Club Commission
4. Add Staff
5. Remove Staff
6. Exit

```
saquib2527@saquib2527:~/Documents/codes/foundations/teaching/CSE308/structural-patterns/composite/code$ java Main
```

1. View Salary
2. View Age
3. View Club Commission
4. Add Staff
5. Remove Staff
6. Exit

5

Enter Name of Staff: Unai Emery

1. View Salary
2. View Age
3. View Club Commission
4. Add Staff
5. Remove Staff
6. Exit

1

Salary of Neil Banfield is 520000.0

Salary of Coach is 520000.0

Salary of Steve Bould is 1560000.0

Salary of Vic Akers OBE is 62000.0

Salary of Manager is 1622000.0

Salary of Gary O'Driscoll is 40000.0

Salary of Doctor is 40000.0

Salary of Andrew Rolls is 41000.0

Salary of Physiotherapist is 41000.0

Salary of Medical Officer is 81000.0

Salary of All Staffs is 2223000.0

1. View Salary
2. View Age
3. View Club Commission
4. Add Staff
5. Remove Staff
6. Exit

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