

## Experiment No – 03

Code:


```
J experiment3.java X
J experiment3.java > ...
1 // ----- Base Class -----
2 class Person {
3     String name;
4     int age;
5
6     void setPersonDetails(String n, int a) {
7         name = n;
8         age = a;
9     }
10
11     void displayPersonDetails() {
12         System.out.println("Name: " + name);
13         System.out.println("Age: " + age);
14     }
15 }
16
17 // ----- Single Inheritance -----
18 class Student extends Person {
19     String course;
20     int rollNumber;
21
22     void setStudentDetails(String n, int a, String c, int r) {
23         setPersonDetails(n, a);
24         course = c;
25         rollNumber = r;
26     }
27
28     void displayStudentDetails() {
29         displayPersonDetails();
```

```
J experiment3.java X
J experiment3.java > ...
18 class Student extends Person {
19     // -----
20     void displayStudentDetails() {
21         displayPersonDetails();
22         System.out.println("Course: " + course);
23         System.out.println("Roll Number: " + rollNumber);
24     }
25 }
26
27 // ----- Multilevel Inheritance -----
28 class GraduateStudent extends Student {
29     int graduationYear;
30
31     void setGraduateStudentDetails(String n, int a, String c, int r, int y) {
32         setStudentDetails(n, a, c, r);
33         graduationYear = y;
34     }
35
36     void displayGraduateStudentDetails() {
37         displayStudentDetails();
38         System.out.println("Graduation Year: " + graduationYear);
39     }
40 }
41
42 // ----- Hierarchical Inheritance -----
43 class Teacher extends Person {
44     String subject;
45
46     void setTeacherDetails(String n, int a, String s) {
```

```
J experiment3.java X
J experiment3.java > ...
51 class Teacher extends Person {
52
53     void setTeacherDetails(String n, int a, String s) {
54         setPersonDetails(n, a);
55         subject = s;
56     }
57
58     void displayTeacherDetails() {
59         displayPersonDetails();
60         System.out.println("Subject: " + subject);
61     }
62 }
63
64
65 class Administrator extends Person {
66     String department;
67
68     void setAdministratorDetails(String n, int a, String d) {
69         setPersonDetails(n, a);
70         department = d;
71     }
72
73     void displayAdministratorDetails() {
74         displayPersonDetails();
75         System.out.println("Department: " + department);
76     }
77 }
78
79 // ----- Main Class -----
80 public class experiment3 {
```

```
J experiment3.java X
J experiment3.java > ...
80 public class experiment3 {
81     public static void main(String[] args) {
82         // Single Inheritance Example
83         Student s = new Student();
84         s.setStudentDetails(n:"Rahul", a:20, c:"B.Tech", r:123);
85         System.out.println(x:"Student Details:");
86         s.displayStudentDetails();
87         System.out.println();
88
89         // Multilevel Inheritance Example
90         GraduateStudent gs = new GraduateStudent();
91         gs.setGraduateStudentDetails(n:"Anjali", a:22, c:"M.Tech", r:456, y:2023);
92         System.out.println(x:"Graduate Student Details:");
93         gs.displayGraduateStudentDetails();
94         System.out.println();
95
96         // Hierarchical Inheritance Example
97         Teacher t = new Teacher();
98         t.setTeacherDetails(n:"Meera", a:35, s:"Mathematics");
99         System.out.println(x:"Teacher Details:");
100        t.displayTeacherDetails();
101        System.out.println();
102
103        Administrator a = new Administrator();
104        a.setAdministratorDetails(n:"Raj", a:40, d:"HR");
105        System.out.println(x:"Administrator Details:");
106        a.displayAdministratorDetails();
107    }
108 }
```

Output:



The screenshot shows the top toolbar of the JupyterLab interface. The 'Run' button, represented by a play icon, is highlighted with a red box. The text 'Run: experiment3' is visible next to the button.

```
PS C:\Users\91788\Downloads\java> java experiment3
```

Age: 20

Course: B.Tech  
Roll Number: 12

Graduate Student Details:

Age: 22  
Course:

Graduation Year:

Subject:

Subject: Mathematics

Age: 40  
Subject:

Subject: Mathematics

Age: 40

Age: 40  
Departme

Department: HR

PS C:\Users\917

1000