

# EXPERIMENT 1.3

**NAME : PALLAVI KUMARI**

**UID : 20BCS5485**

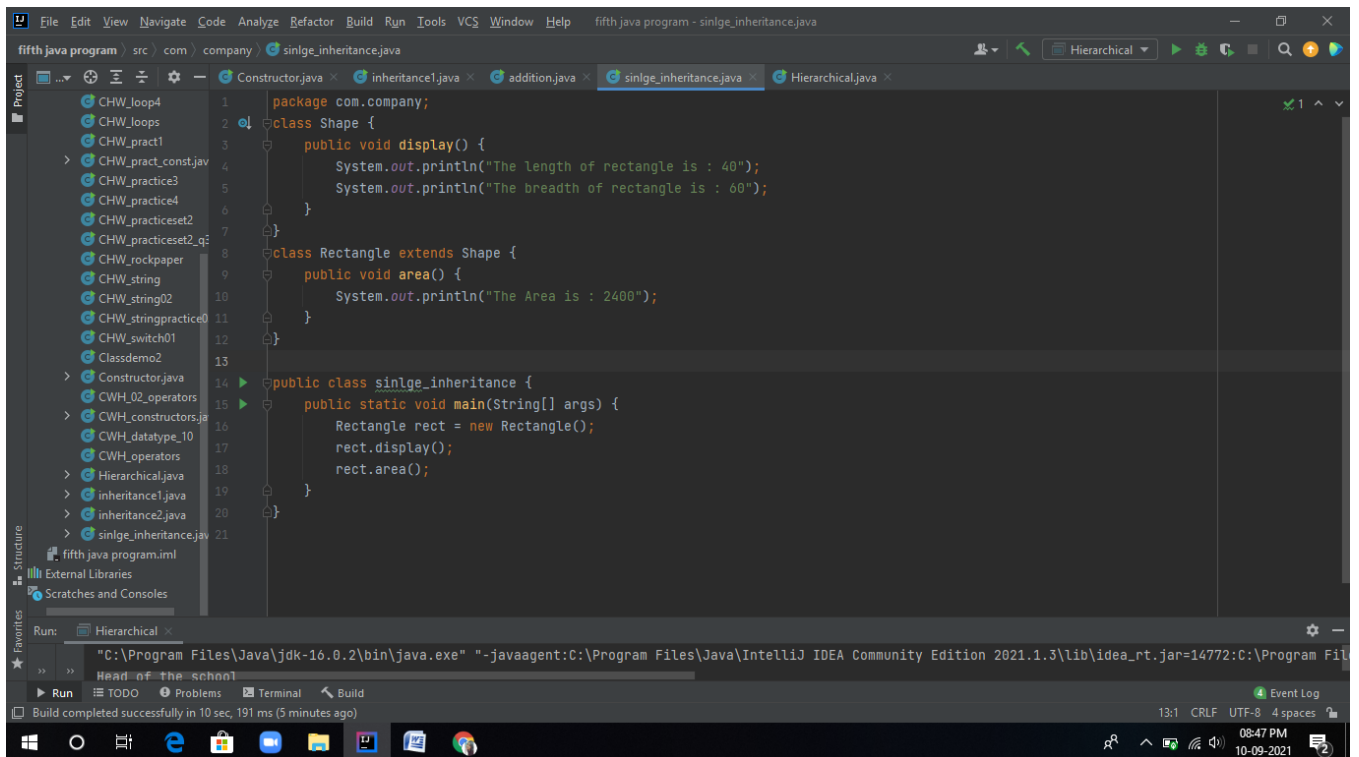
**SECTION: 20BCS48B**

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Program to learn different types of inheritance in java.

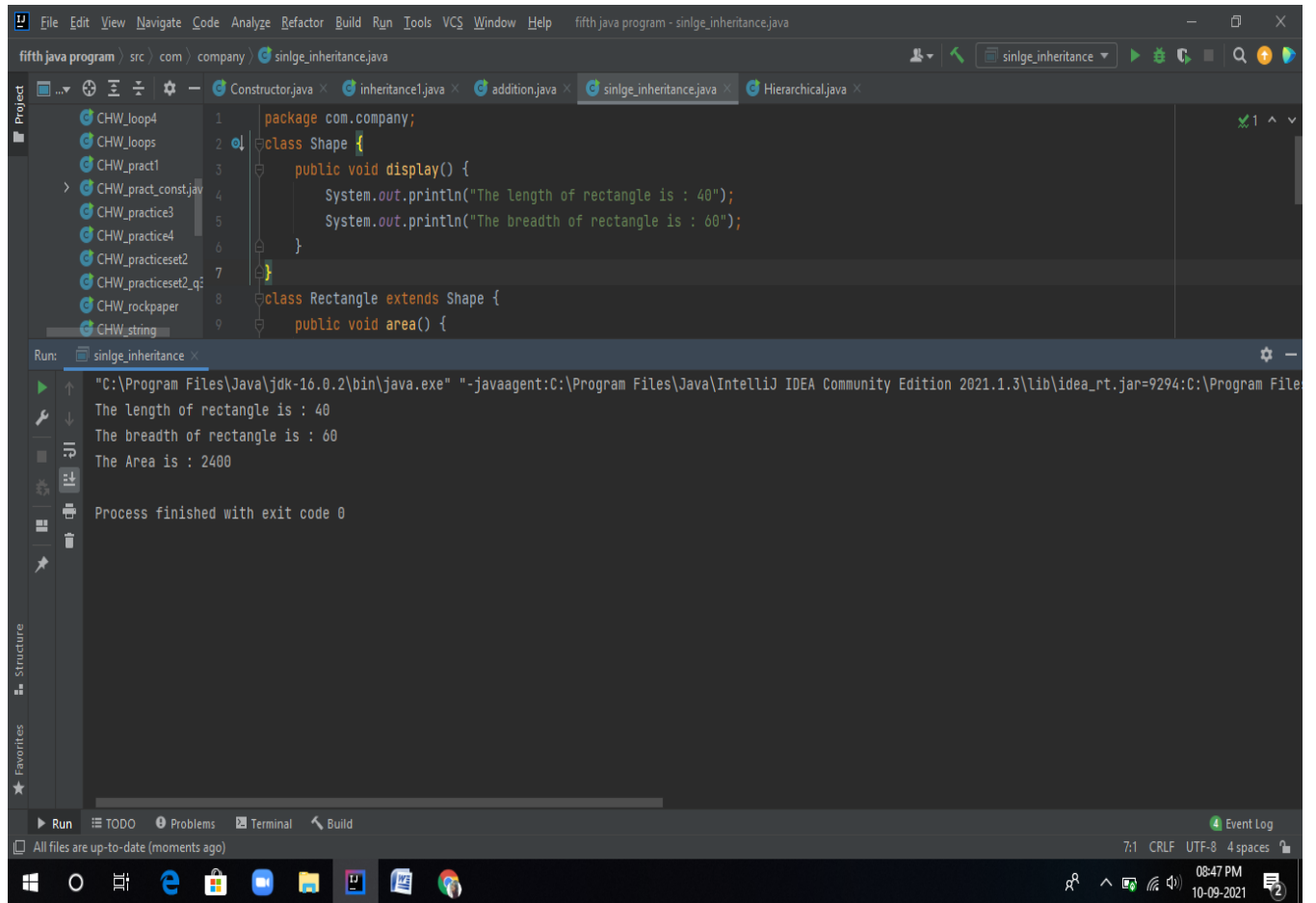
## 1. SINGLE INHERITANCE :

**CODE :**



```
1 package com.company;
2 class Shape {
3     public void display() {
4         System.out.println("The length of rectangle is : 40");
5         System.out.println("The breadth of rectangle is : 60");
6     }
7 }
8 class Rectangle extends Shape {
9     public void area() {
10        System.out.println("The Area is : 2400");
11    }
12 }
13
14 public class single_inheritance {
15     public static void main(String[] args) {
16         Rectangle rect = new Rectangle();
17         rect.display();
18         rect.area();
19     }
20 }
21
```

## OUTPUT:



The screenshot displays the IntelliJ IDEA IDE interface. The main editor window shows a Java file named `sinlge_inheritance.java` with the following code:

```
package com.company;

class Shape {
    public void display() {
        System.out.println("The length of rectangle is : 40");
        System.out.println("The breadth of rectangle is : 60");
    }
}

class Rectangle extends Shape {
    public void area() {
```

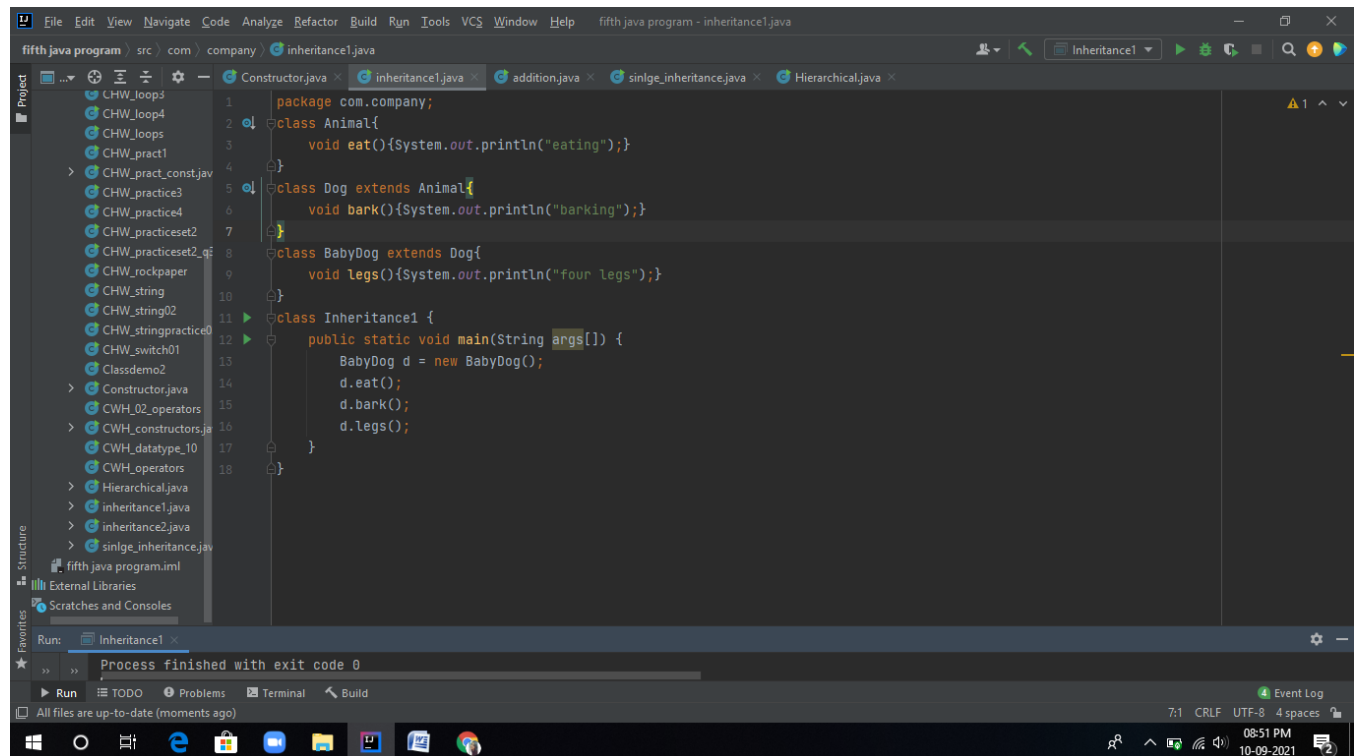
The Run window at the bottom shows the execution output for the `sinlge_inheritance` class:

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\Java\IntelliJ IDEA Community Edition 2021.1.3\lib\idea_rt.jar=9294:C:\Program File
The length of rectangle is : 40
The breadth of rectangle is : 60
The Area is : 2400
Process finished with exit code 0
```

The status bar at the bottom indicates the file encoding is UTF-8 with 4 spaces, and the time is 08:47 PM on 10-09-2021.

## 2. MULTILEVEL- INHERITANCE:

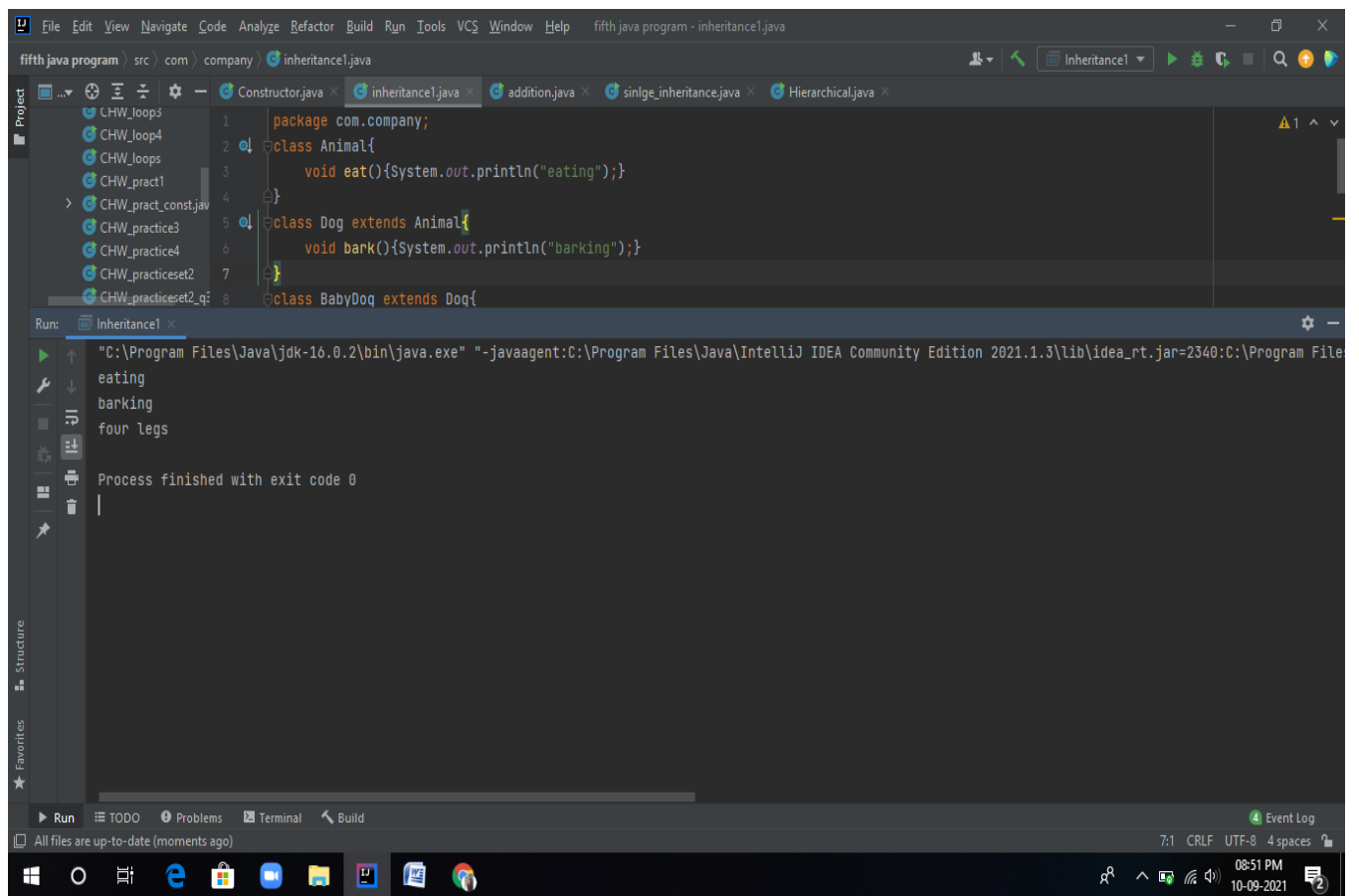
### CODE:



The screenshot shows an IDE window titled "fifth java program - inheritance1.java". The code defines a multilevel inheritance hierarchy. The `Animal` class has an `eat()` method. The `Dog` class extends `Animal` and adds a `bark()` method. The `BabyDog` class extends `Dog` and adds a `legs()` method. The `Inheritance1` class contains a `main` method that creates a `BabyDog` object and calls its `eat()`, `bark()`, and `legs()` methods. The IDE interface includes a Project Explorer on the left, a Run console at the bottom showing "Process finished with exit code 0", and a Windows taskbar at the very bottom.

```
1 package com.company;
2 class Animal{
3     void eat(){System.out.println("eating");}
4 }
5 class Dog extends Animal{
6     void bark(){System.out.println("barking");}
7 }
8 class BabyDog extends Dog{
9     void legs(){System.out.println("four legs");}
10 }
11 class Inheritance1 {
12     public static void main(String args[]) {
13         BabyDog d = new BabyDog();
14         d.eat();
15         d.bark();
16         d.legs();
17     }
18 }
```

## OUTPUT:

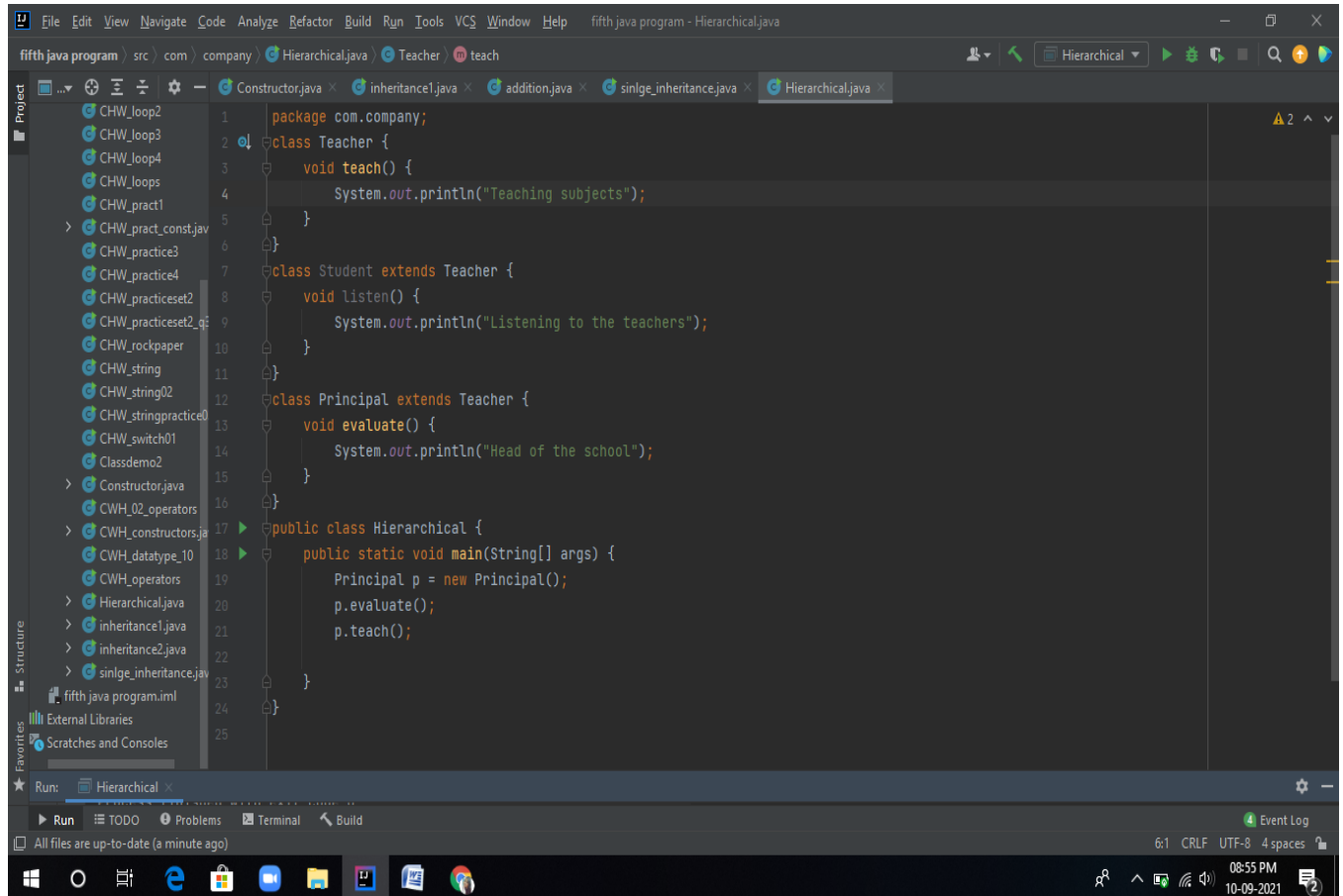


The screenshot displays an IDE window with the following components:

- Project Explorer:** Shows a project structure with files like CHW\_loops, CHW\_pract1, CHW\_pract3, CHW\_pract4, CHW\_practset2, and CHW\_practset2\_q.
- Code Editor:** Displays the content of `inheritance1.java`. The code defines a package `com.company` and three classes: `Animal` (with `eat()` method), `Dog` (extending `Animal` with `bark()` method), and `BabyDog` (extending `Dog`).
- Run Console:** Shows the execution output: `eating`, `barking`, and `four legs`. It also indicates "Process finished with exit code 0".
- Bottom Panel:** Includes tabs for Run, TODO, Problems, Terminal, and Build. The status bar at the bottom shows "All files are up-to-date (moments ago)", encoding "UTF-8", and a date/time stamp of "10-09-2021".

### 3. HIERARCHICAL- INHERITANCE

#### CODE:

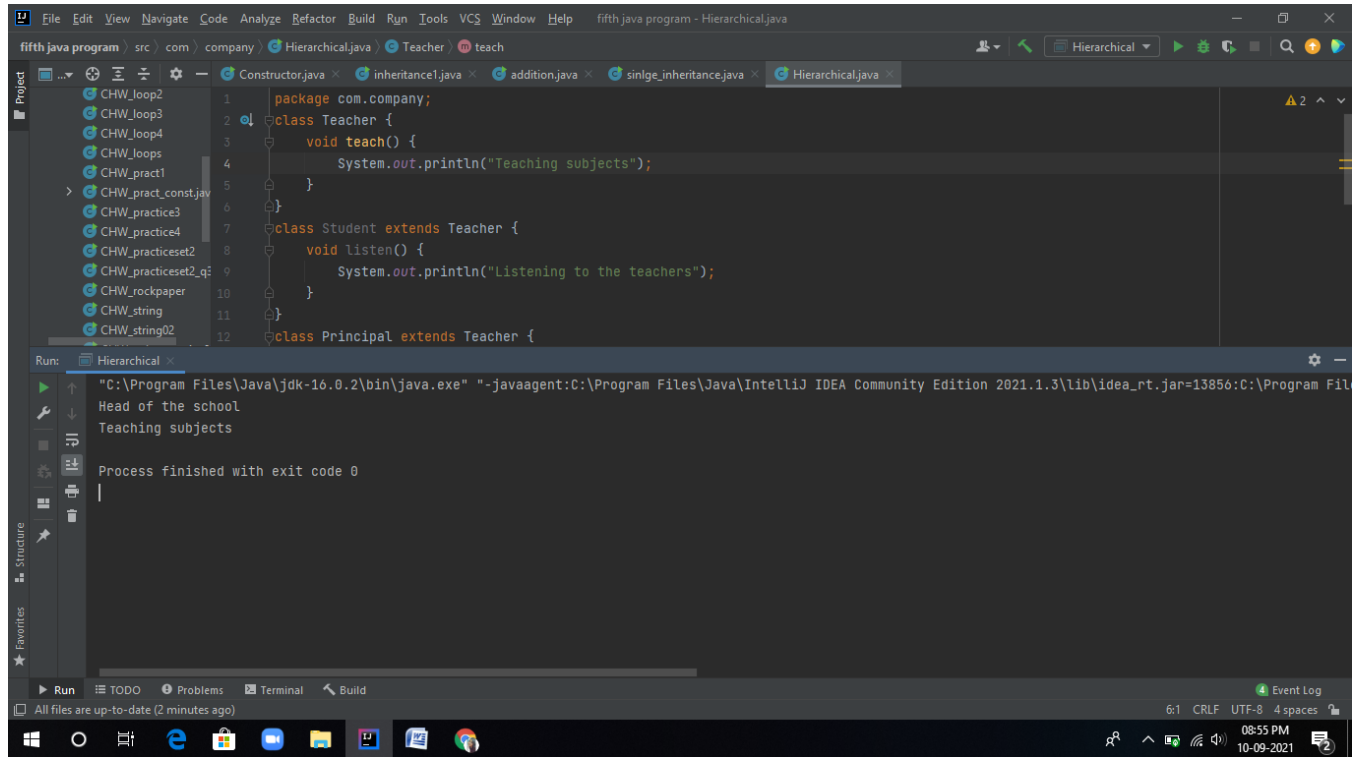


The screenshot shows an IDE window titled "fifth java program - Hierarchical.java". The code is as follows:

```
1 package com.company;  
2 class Teacher {  
3     void teach() {  
4         System.out.println("Teaching subjects");  
5     }  
6  
7     class Student extends Teacher {  
8         void listen() {  
9             System.out.println("Listening to the teachers");  
10        }  
11    }  
12    class Principal extends Teacher {  
13        void evaluate() {  
14            System.out.println("Head of the school");  
15        }  
16    }  
17    public class Hierarchical {  
18        public static void main(String[] args) {  
19            Principal p = new Principal();  
20            p.evaluate();  
21            p.teach();  
22        }  
23    }  
24 }  
25
```

The IDE interface includes a Project view on the left with a tree of files like CHW\_loop2, CHW\_pract1, and Constructor.java. A Run tab at the bottom shows the execution of the Hierarchical class. The status bar at the very bottom indicates "All files are up-to-date (a minute ago)", "6:1 CRLF UTF-8 4 spaces", and the time "08:55 PM 10-09-2021".

## OUTPUT:



The screenshot shows an IDE window titled "fifth.java program - Hierarchical.java". The code editor displays the following Java code:

```
1 package com.company;
2 class Teacher {
3     void teach() {
4         System.out.println("Teaching subjects");
5     }
6 }
7 class Student extends Teacher {
8     void listen() {
9         System.out.println("Listening to the teachers");
10    }
11 }
12 class Principal extends Teacher {
```

The Run console at the bottom shows the execution output:

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\Java\IntelliJ IDEA Community Edition 2021.1.3\lib\idea_rt.jar=13856:C:\Program Fil
Head of the school
Teaching subjects

Process finished with exit code 0
```

The status bar at the bottom indicates the file encoding is UTF-8 with 4 spaces, and the date is 10-09-2021.