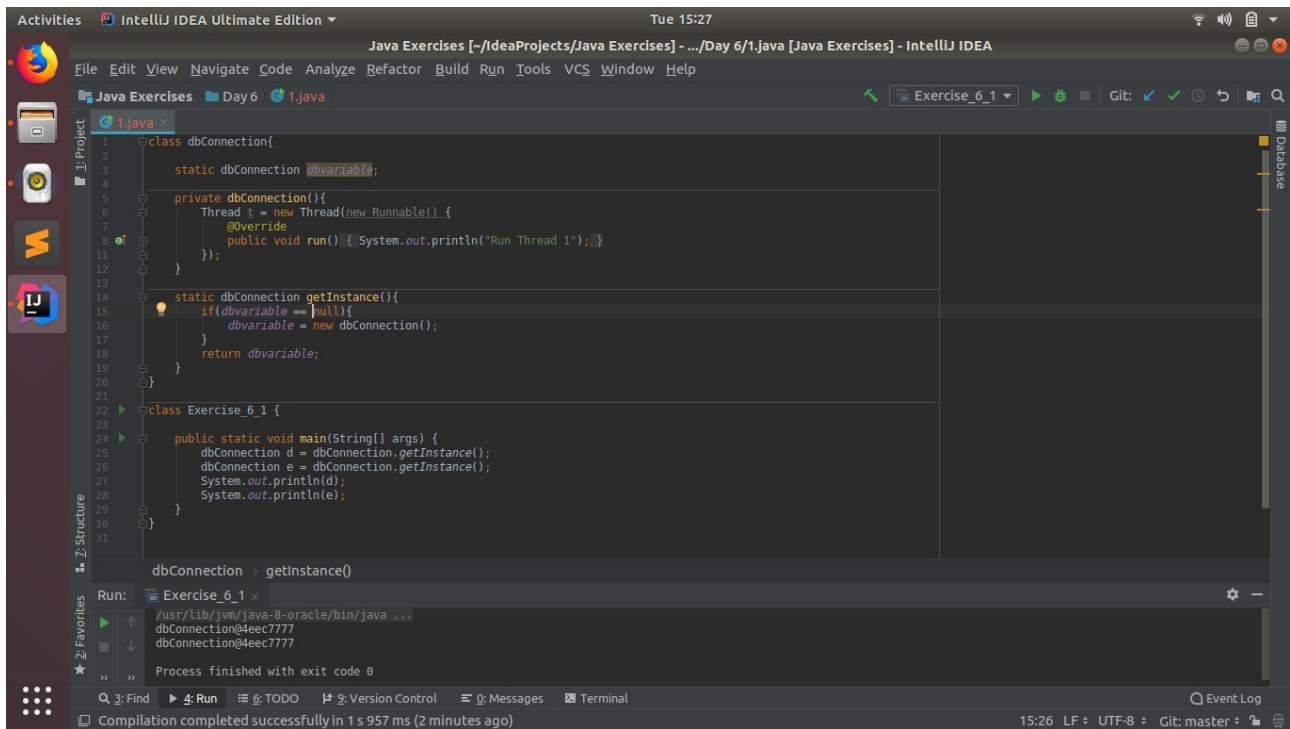


Q1. Implement Singleton Design Pattern on a dummy class.

A1.

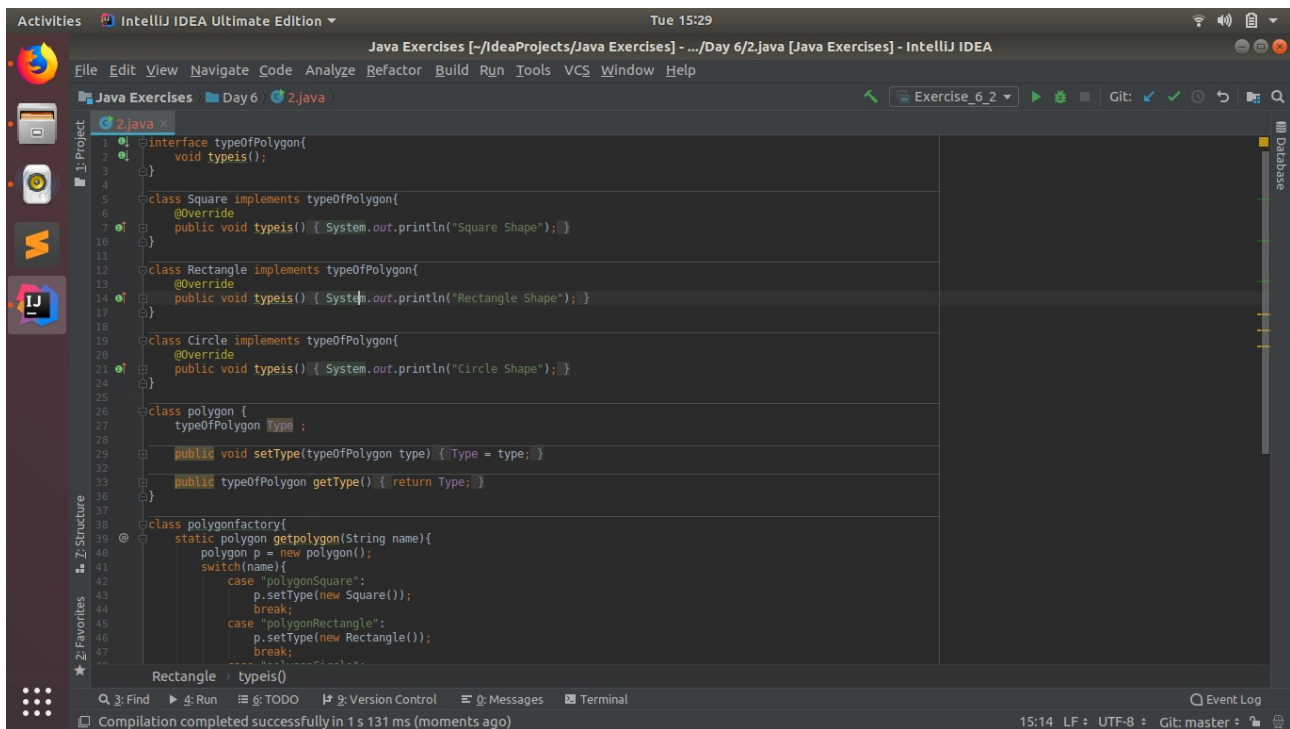


The screenshot shows the IntelliJ IDEA interface with a Java project named 'Java Exercises'. The main editor displays the code for '1.java'. The code implements the Singleton pattern for a class named 'dbConnection'. It includes a static variable 'dbvariable' of type 'dbConnection', a private constructor that starts a new thread, and a static method 'getInstance()' that checks if 'dbvariable' is null and creates a new instance if necessary. The 'main' method in 'Exercise\_6\_1' tests the Singleton by calling 'getInstance()' twice, which prints the same object reference. The Run window shows the output: 'dbConnection@4eec7777' printed twice. The status bar at the bottom indicates 'Compilation completed successfully in 1 s 957 ms (2 minutes ago)'.

```
1 class dbConnection{
2     static dbConnection dbvariable;
3
4     private dbConnection(){
5         Thread t = new Thread(new Runnable() {
6             @Override
7             public void run() { System.out.println("Run Thread 1"); }
8         });
9     }
10
11     static dbConnection getInstance(){
12         if(dbvariable == null){
13             dbvariable = new dbConnection();
14         }
15         return dbvariable;
16     }
17 }
18
19 class Exercise_6_1 {
20     public static void main(String[] args) {
21         dbConnection d = dbConnection.getInstance();
22         dbConnection e = dbConnection.getInstance();
23         System.out.println(d);
24         System.out.println(e);
25     }
26 }
27
28 dbConnection > getInstance()
```

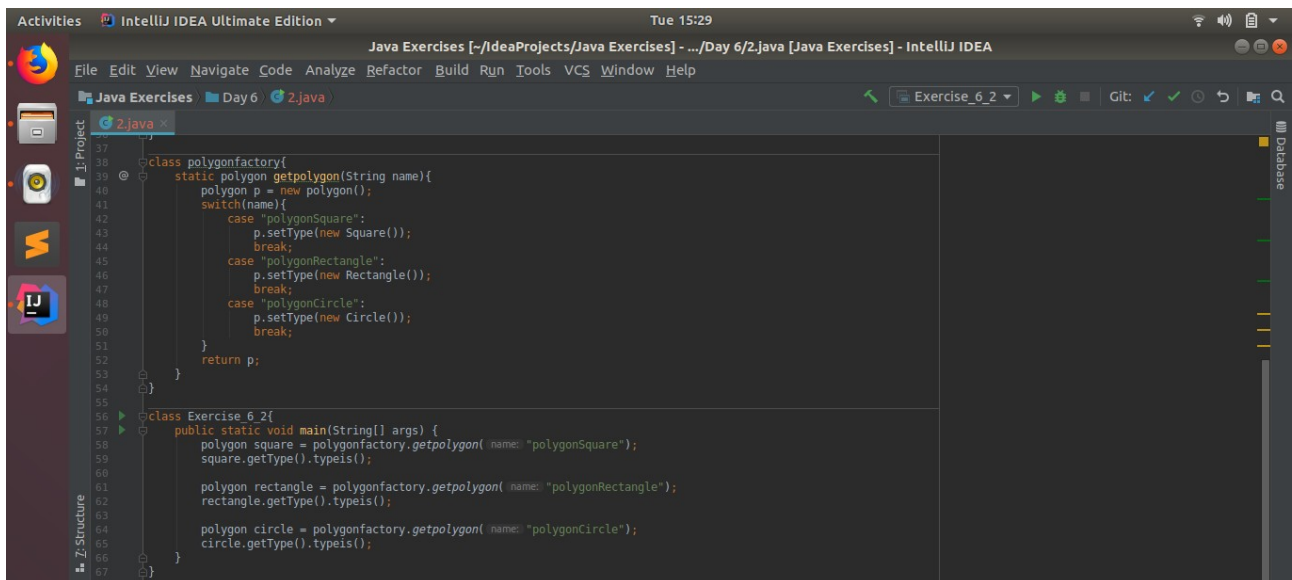
Q2. Implement Factory Pattern to get the Polygon of differnt type.

A2.

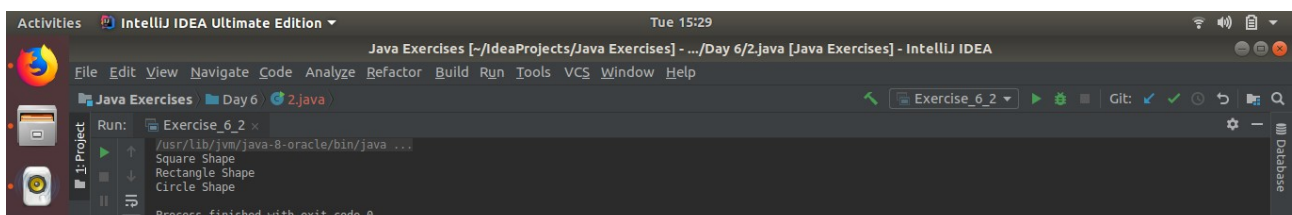


The screenshot shows the IntelliJ IDEA interface with a Java project named 'Java Exercises'. The main editor displays the code for '2.java'. The code implements the Factory pattern. It starts with an interface 'typeOfPolygon' with a method 'typeis()'. Three classes, 'Square', 'Rectangle', and 'Circle', implement this interface by printing their respective shapes. A 'polygon' class has a 'typeOfPolygon Type' and methods 'setType()' and 'getType()'. A 'polygonfactory' class has a static method 'getpolygon(String name)' that uses a switch statement to create and set the type of a 'polygon' object based on the input name ('square', 'rectangle', or 'circle'). The Run window shows the output for 'Rectangle > typeis()' as 'Rectangle Shape'. The status bar at the bottom indicates 'Compilation completed successfully in 1 s 131 ms (moments ago)'.

```
1 interface typeOfPolygon{
2     void typeis();
3 }
4
5 class Square implements typeOfPolygon{
6     @Override
7     public void typeis() { System.out.println("Square Shape"); }
8 }
9
10 class Rectangle implements typeOfPolygon{
11     @Override
12     public void typeis() { System.out.println("Rectangle Shape"); }
13 }
14
15 class Circle implements typeOfPolygon{
16     @Override
17     public void typeis() { System.out.println("Circle Shape"); }
18 }
19
20 class polygon {
21     typeOfPolygon Type ;
22
23     public void setType(typeOfPolygon type) { Type = type; }
24
25     public typeOfPolygon getType() { return Type; }
26 }
27
28 class polygonfactory{
29     static polygon getpolygon(String name){
30         polygon p = new polygon();
31         switch(name){
32             case "polygonSquare":
33                 p.setType(new Square());
34                 break;
35             case "polygonRectangle":
36                 p.setType(new Rectangle());
37                 break;
38             case "polygonCircle":
39                 p.setType(new Circle());
40                 break;
41         }
42         return p;
43     }
44 }
```



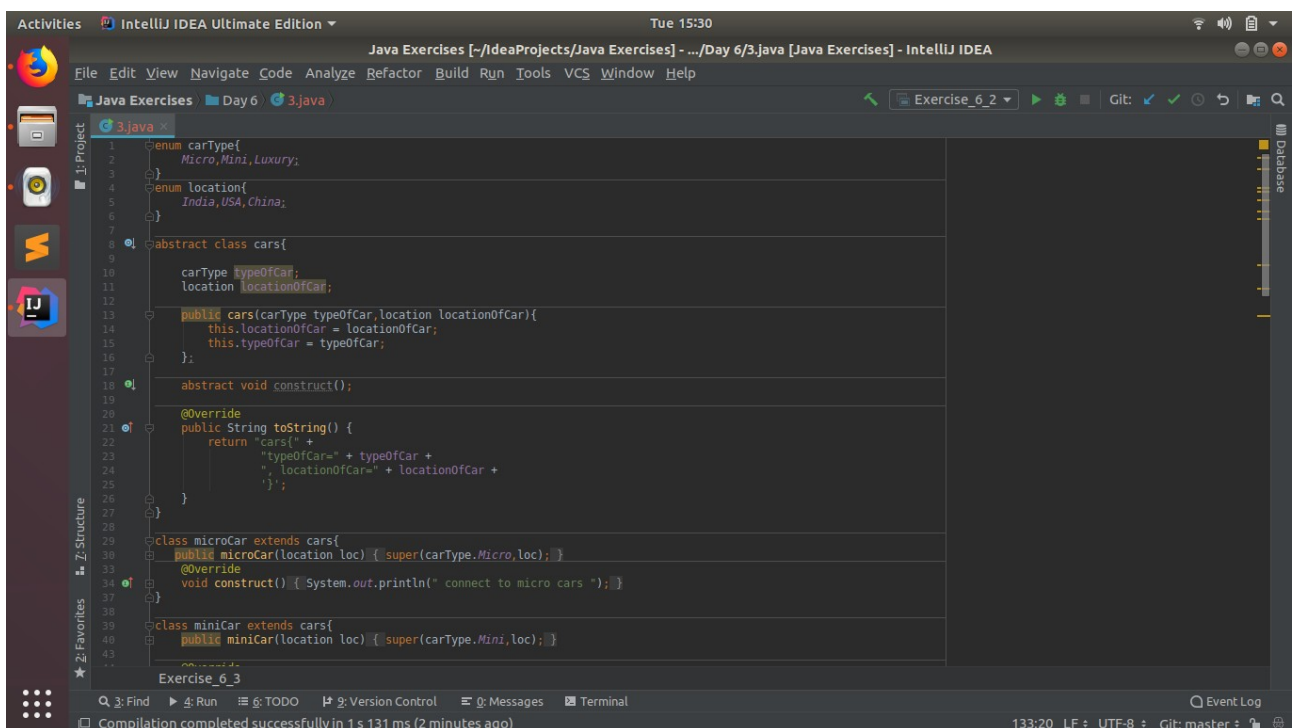
```
37 class polygonfactory{
38     static polygon getpolygon(String name){
39         polygon p = new polygon();
40         switch(name){
41             case "polygonSquare":
42                 p.setType(new Square());
43                 break;
44             case "polygonRectangle":
45                 p.setType(new Rectangle());
46                 break;
47             case "polygonCircle":
48                 p.setType(new Circle());
49                 break;
50         }
51         return p;
52     }
53 }
54
55
56 class Exercise_6_2{
57     public static void main(String[] args) {
58         polygon square = polygonfactory.getpolygon( names: "polygonSquare");
59         square.getType().typeis();
60
61         polygon rectangle = polygonfactory.getpolygon( names: "polygonRectangle");
62         rectangle.getType().typeis();
63
64         polygon circle = polygonfactory.getpolygon( names: "polygonCircle");
65         circle.getType().typeis();
66     }
67 }
```



```
Run: Exercise_6_2 x
/usr/lib/jvm/java-8-oracle/bin/java ...
Square Shape
Rectangle Shape
Circle Shape
Process finished with exit code 0
```

Q3. Implement Abstract Factory Pattern to create cars of different categories from different countries.

A3.



```
1 enum carType{
2     Micro, Mini, Luxury;
3 }
4 enum location{
5     India, USA, China;
6 }
7
8 abstract class cars{
9     carType typeOfCar;
10    location locationOfCar;
11
12    public cars(carType typeOfCar, location locationOfCar){
13        this.locationOfCar = locationOfCar;
14        this.typeOfCar = typeOfCar;
15    }
16
17    abstract void construct();
18
19    @Override
20    public String toString() {
21        return "cars(" +
22            "typeOfCar=" + typeOfCar +
23            ", locationOfCar=" + locationOfCar +
24            ')';
25    }
26 }
27
28 class microCar extends cars{
29     public microCar(location loc) { super(carType.Micro, loc); }
30
31     @Override
32     void construct() { System.out.println(" connect to micro cars "); }
33 }
34
35 class miniCar extends cars{
36     public miniCar(location loc) { super(carType.Mini, loc); }
37 }
```

```
28 class microCar extends cars{
29     public microCar(location loc) { super(carType.Micro,loc); }
30
31     @Override
32     void construct() { System.out.println(" connect to micro cars ");}
33 }
34
35 class miniCar extends cars{
36     public miniCar(location loc) { super(carType.Mini,loc); }
37
38     @Override
39     void construct() { System.out.println(" connect to mini cars ");}
40 }
41
42 class luxuryCar extends cars{
43     public luxuryCar(location loc) { super(carType.Luxury,loc); }
44
45     @Override
46     void construct() { System.out.println(" connect to micro cars ");}
47 }
48
49 class IndianCarFactory{
50     static cars buildCar(carType typeOfCar){
51         cars c = null;
52         switch(typeOfCar){
53             case Mini:
54                 c = new miniCar(location.India);
55                 break;
56             case Micro:
57                 c = new microCar(location.India);
58                 break;
59             case Luxury:
60                 c = new luxuryCar(location.India);
61                 break;
62         }
63         return c;
64     }
65 }
```

Exercise\_6\_3

Find Run TODO Version Control Messages Terminal

Compilation completed successfully in 1 s 131 ms (2 minutes ago)

133:20 LF : UTF-8 : Git: master : Event Log

Activities IntelliJ IDEA Ultimate Edition Tue 15:30

Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/3.java [Java Exercises] - IntelliJ IDEA

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

Java Exercises Day 6 3.java Exercise\_6\_2

```
79 class ChinaCarFactory{
80     static cars buildCar(carType typeOfCar) {
81         cars c = null;
82         switch (typeOfCar){
83             case Mini:
84                 c = new miniCar(location.China);
85                 break;
86             case Micro:
87                 c = new microCar(location.China);
88                 break;
89             case Luxury:
90                 c = new luxuryCar(location.China);
91                 break;
92         }
93         return c;
94     }
95 }
96
97 class USACarFactory{
98     static cars buildCar(carType typeOfCar) {
99         cars c = null;
100         switch (typeOfCar) {
101             case Mini:
102                 c = new miniCar(location.USA);
103                 break;
104             case Micro:
105                 c = new microCar(location.USA);
106                 break;
107             case Luxury:
108                 c = new luxuryCar(location.USA);
109                 break;
110         }
111         return c;
112     }
113 }
```

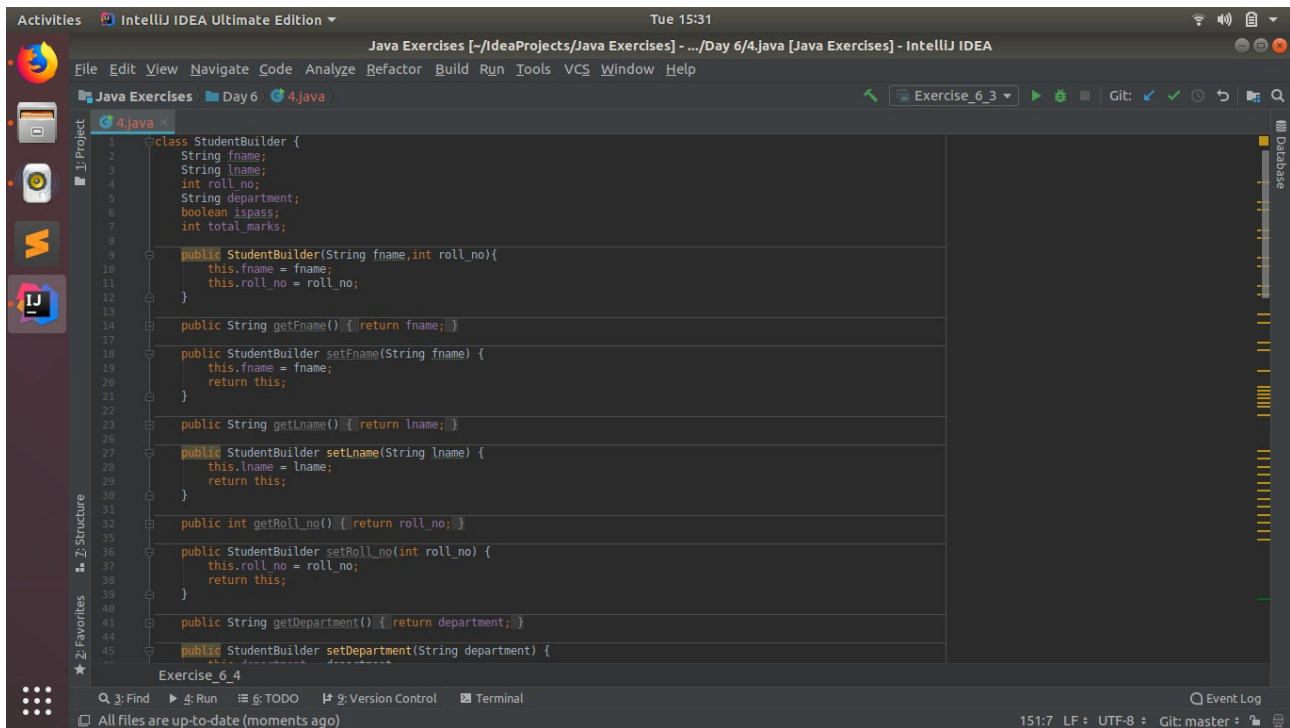
```
114 class carFactory{
115     static cars buildCar(carType typeOfCar,location locationOfCar) {
116         cars c = null;
117         switch (locationOfCar) {
118             case India:
119                 c = IndianCarFactory.buildCar(typeOfCar);
120                 break;
121             case USA:
122                 c = USACarFactory.buildCar(typeOfCar);
123                 break;
124             case China:
125                 c = ChinaCarFactory.buildCar(typeOfCar);
126                 break;
127         }
128         return c;
129     }
130 }
131
132 class Exercise_6_3 {
133     public static void main(String[] args) {
134         System.out.println(carFactory.buildCar(carType.Micro,location.India));
135         System.out.println(carFactory.buildCar(carType.Mini,location.USA));
136         System.out.println(carFactory.buildCar(carType.Luxury,location.China));
137     }
138 }
139
140 }
```

```
/usr/lib/jvm/java-8-oracle/bin/java ...
cars{typeOfCar=Micro, locationOfCar=India}
cars{typeOfCar=Mini, locationOfCar=USA}
cars{typeOfCar=Luxury, locationOfCar=China}

Process finished with exit code 0
```

Q4. Implement Builder pattern to create a student object with more than 6 fields.

A4.



The screenshot shows the IntelliJ IDEA interface with the 'StudentBuilder' class implemented. The class has the following methods:

```
class StudentBuilder {
    String fname;
    String lname;
    int roll_no;
    String department;
    boolean ispass;
    int total_marks;

    public StudentBuilder(String fname, int roll_no) {
        this.fname = fname;
        this.roll_no = roll_no;
    }

    public String getFname() { return fname; }

    public StudentBuilder setName(String lname) {
        this.lname = lname;
        return this;
    }

    public String getLname() { return lname; }

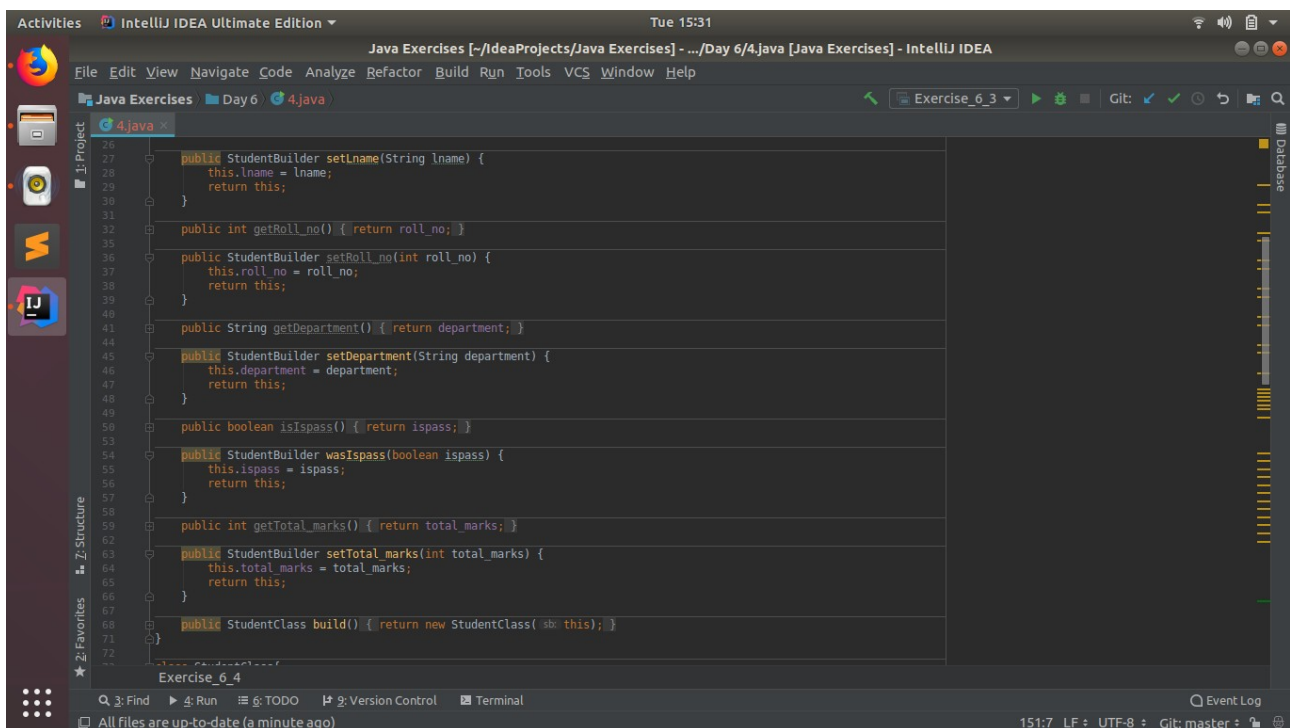
    public StudentBuilder setName(String lname) {
        this.lname = lname;
        return this;
    }

    public int getRoll_no() { return roll_no; }

    public StudentBuilder setRoll_no(int roll_no) {
        this.roll_no = roll_no;
        return this;
    }

    public String getDepartment() { return department; }

    public StudentBuilder setDepartment(String department) {
        this.department = department;
        return this;
    }
}
```



The screenshot shows the continuation of the 'StudentBuilder' class implementation. The class has the following methods:

```
public StudentBuilder setName(String lname) {
    this.lname = lname;
    return this;
}

public int getRoll_no() { return roll_no; }

public StudentBuilder setRoll_no(int roll_no) {
    this.roll_no = roll_no;
    return this;
}

public String getDepartment() { return department; }

public StudentBuilder setDepartment(String department) {
    this.department = department;
    return this;
}

public boolean isIsPass() { return ispass; }

public StudentBuilder wasIsPass(boolean ispass) {
    this.ispass = ispass;
    return this;
}

public int getTotal_marks() { return total_marks; }

public StudentBuilder setTotal_marks(int total_marks) {
    this.total_marks = total_marks;
    return this;
}

public StudentClass build() { return new StudentClass(this); }
}
```



IntelliJ IDEA Ultimate Edition Tue 15:31

Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/4.java [Java Exercises] - IntelliJ IDEA

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

Java Exercises Day 6 4.java Exercise\_6\_3 Git: master

```
72
73 class StudentClass{
74     String fname;
75     String lname;
76     int roll_no;
77     String department;
78     boolean ispass;
79     int total_marks;
80
81     public StudentClass(StudentBuilder sb){
82         this.fname = sb.fname;
83         this.lname = sb.lname;
84         this.roll_no = sb.roll_no;
85         this.department = sb.department;
86         this.ispass = sb.ispass;
87         this.total_marks = sb.total_marks;
88     }
89
90     public String getFname() { return fname; }
93
94     public void setName(String fname) { this.fname = fname; }
96
97     public String getLname() { return lname; }
101
102     public void setName(String lname) { this.lname = lname; }
105
106     public int getRoll_no() { return roll_no; }
109
110     public void setRoll_no(int roll_no) { this.roll_no = roll_no; }
113
114     public String getDepartment() { return department; }
117
118     public void setDepartment(String department) { this.department = department; }
121
122     public boolean isIspass() { return ispass; }
125
126     public void setIspass(boolean ispass) { this.ispass = ispass; }
```

Exercise\_6\_4

Find Run TODO Version Control Terminal

All files are up-to-date (a minute ago) 15:17 LF UTF-8 Git: master

IntelliJ IDEA Ultimate Edition Tue 15:57

Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/4.java [Java Exercises] - IntelliJ IDEA

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

Java Exercises Day 6 4.java Exercise\_6\_8 Git: master

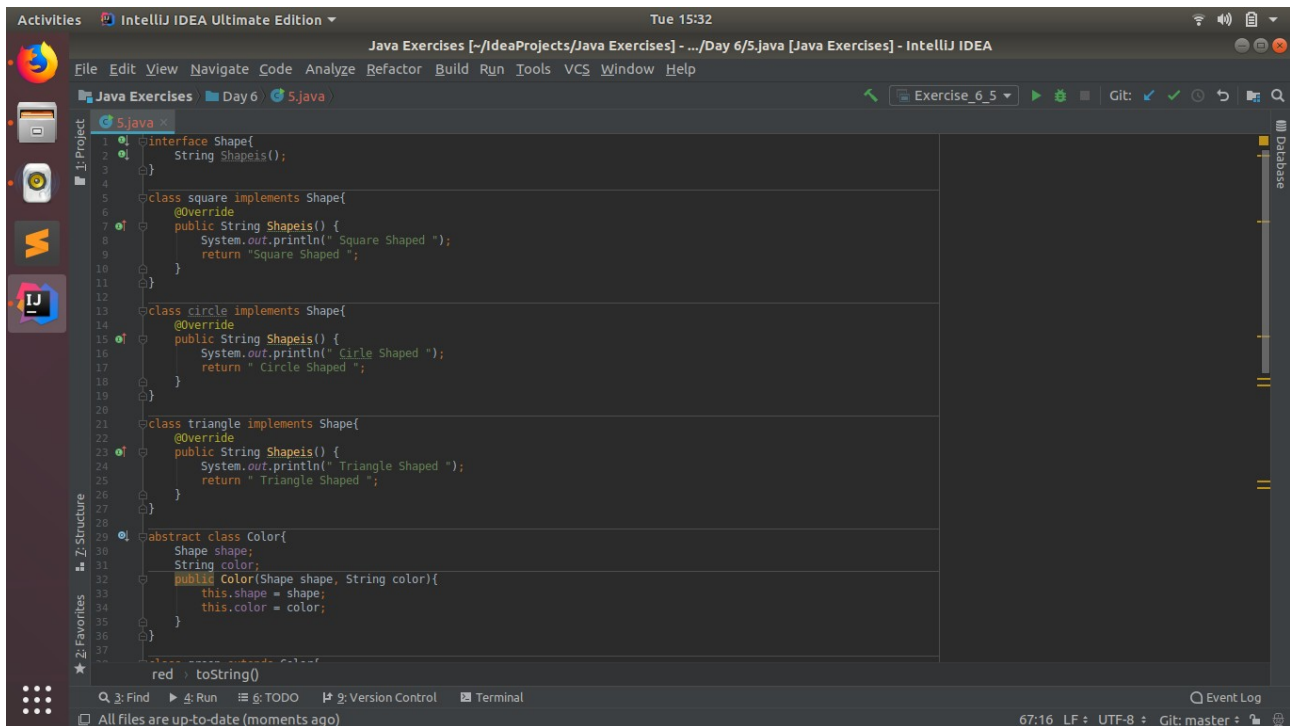
```
126     public void setIspass(boolean ispass) { this.ispass = ispass; }
129
130     public int getTotal_marks() { return total_marks; }
133
134     public void setTotal_marks(int total_marks) { this.total_marks = total_marks; }
137
138     @Override
139     public String toString() {
140         return "Student{" +
141             "fname='" + fname + '\'' +
142             ", lname='" + lname + '\'' +
143             ", roll_no=" + roll_no +
144             ", department='" + department + '\'' +
145             ", ispass=" + ispass +
146             ", total_marks=" + total_marks +
147             '}';
148     }
149 }
150
151 class Exercise_6_4 {
152     public static void main(String[] args) {
153         StudentClass s = new StudentBuilder( fname: "Parth", roll_no: 13).
154             setName("Agarwal").
155             setTotal_marks(28).
156             setDepartment("CSE").
157             wasIspass(true).build();
158         System.out.println(s);
159     }
160 }
161
```

Run: Exercise\_6\_4

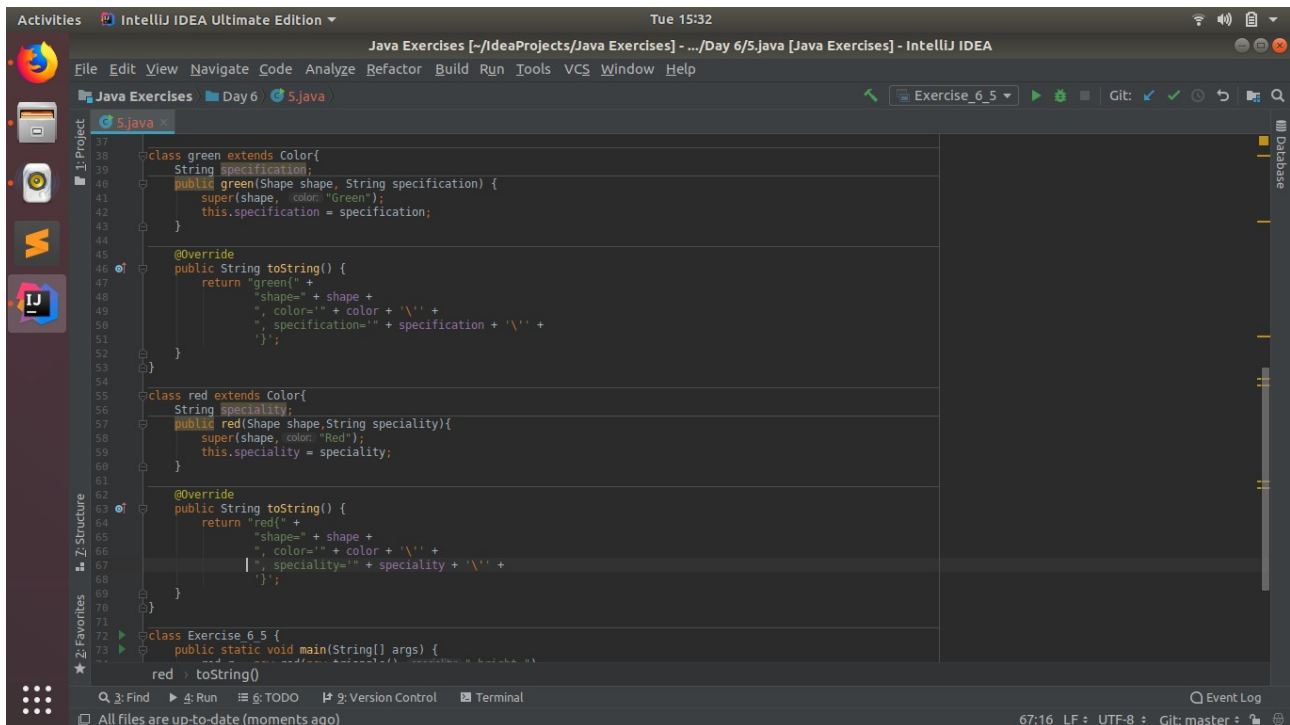
```
/usr/lib/jvm/java-8-oracle/bin/java ...
Student{fname='Parth', lname='Agarwal', roll_no=13, department='CSE', ispass=true, total_marks=28}
Process finished with exit code 0
```

Q5. Implement Bridge Design Pattern for Color and Shape such that Shape and Color can be combined together e.g BlueSquare, RedSquare, PinkTriangle etc.

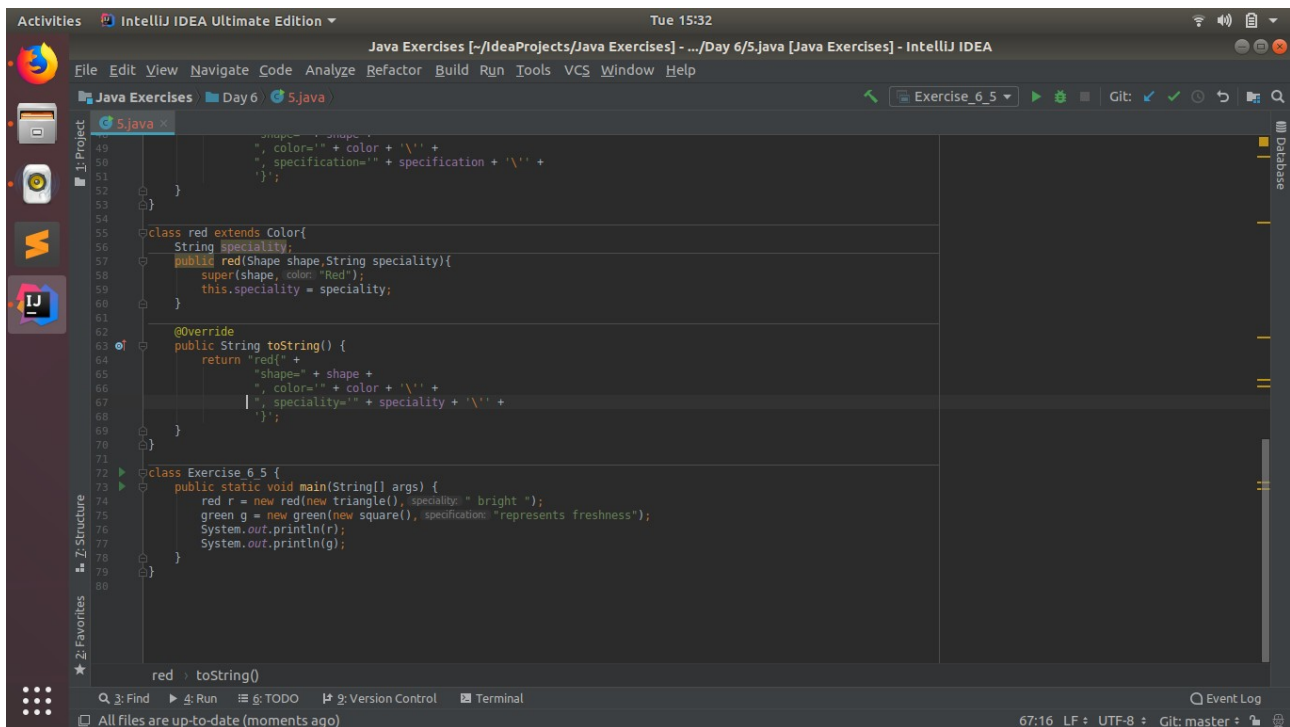
A5.



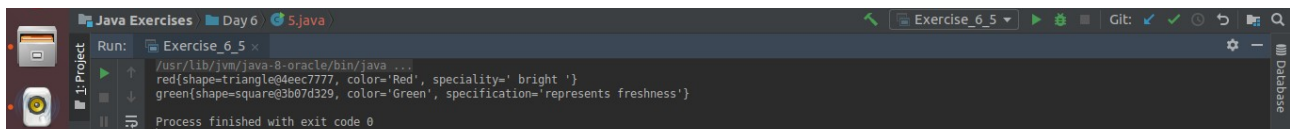
```
1 interface Shape{
2     String Shapes();
3 }
4
5 class square implements Shape{
6     @Override
7     public String Shapes() {
8         System.out.println(" Square Shaped ");
9         return "Square Shaped ";
10    }
11 }
12
13 class circle implements Shape{
14     @Override
15     public String Shapes() {
16         System.out.println(" Circle Shaped ");
17         return " Circle Shaped ";
18    }
19 }
20
21 class triangle implements Shape{
22     @Override
23     public String Shapes() {
24         System.out.println(" Triangle Shaped ");
25         return " Triangle Shaped ";
26    }
27 }
28
29 abstract class Color{
30     Shape shape;
31     String color;
32     public Color(Shape shape, String color){
33         this.shape = shape;
34         this.color = color;
35     }
36 }
37
38 red -> toString()
```



```
37
38 class green extends Color{
39     String specification;
40     public green(Shape shape, String specification) {
41         super(shape, color: "Green");
42         this.specification = specification;
43     }
44
45     @Override
46     public String toString() {
47         return "green(" +
48             "shape=" + shape +
49             ", color=" + color + '\n' +
50             ", specification=" + specification + '\n' +
51             ')';
52     }
53 }
54
55 class red extends Color{
56     String speciality;
57     public red(Shape shape,String speciality){
58         super(shape, color: "Red");
59         this.speciality = speciality;
60     }
61
62     @Override
63     public String toString() {
64         return "red(" +
65             "shape=" + shape +
66             ", color=" + color + '\n' +
67             ", speciality=" + speciality + '\n' +
68             ')';
69     }
70 }
71
72 class Exercise_6_5 {
73     public static void main(String[] args) {
74         red -> toString()
75     }
76 }
```



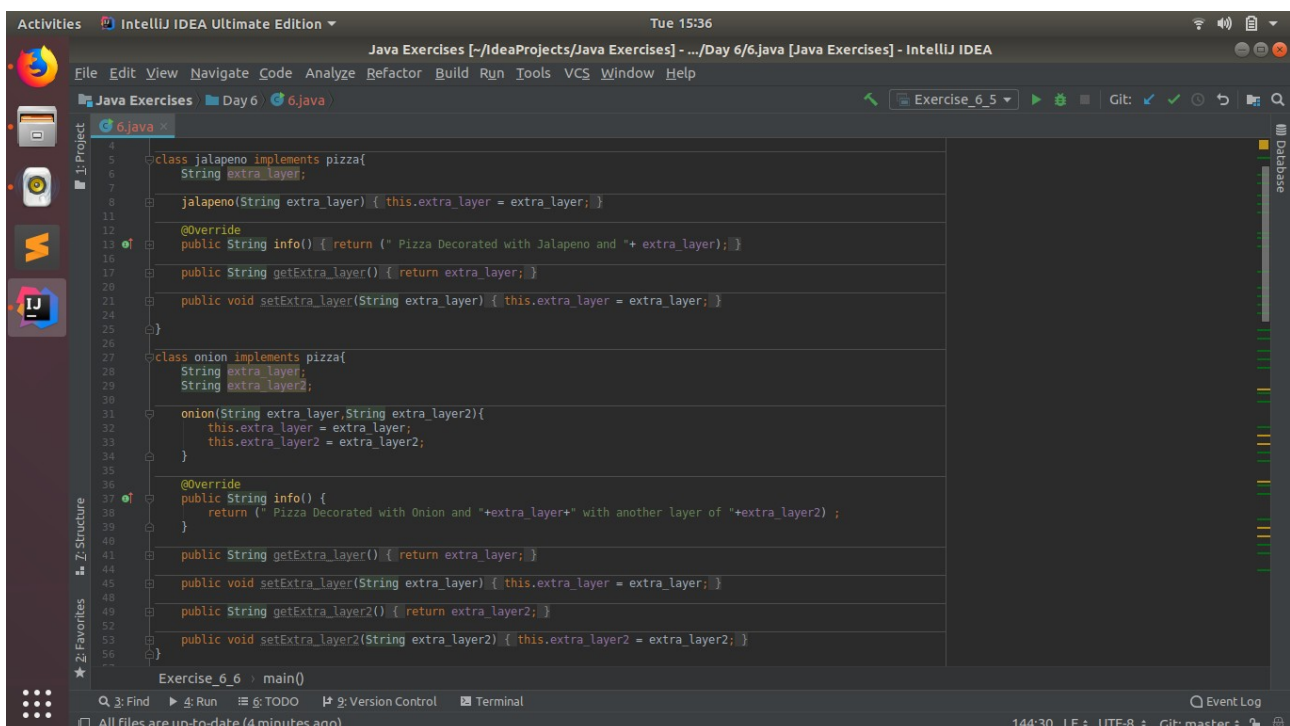
```
49         "color=" + color + '\n' +
50         "specification=" + specification + '\n' +
51         '));
52     }
53
54     class red extends Color{
55         String speciality;
56         public red(Shape shape,String speciality){
57             super(shape, color: "Red");
58             this.speciality = speciality;
59         }
60     }
61
62     @Override
63     public String toString() {
64         return "red" +
65             "shape=" + shape +
66             "color=" + color + '\n' +
67             "specification=" + specification + '\n' +
68             '));
69     }
70 }
71
72 class Exercise_6_5 {
73     public static void main(String[] args) {
74         red r = new red(new triangle(),speciality: " bright ");
75         green g = new green(new square(), specification: "represents freshness");
76         System.out.println(r);
77         System.out.println(g);
78     }
79 }
80
```



```
Run: Exercise_6_5 x
/usr/lib/jvm/java-8-oracle/bin/java ...
red(shape=triangle@4eec7777, color=Red, speciality= bright )
green(shape=square@3b07d329, color=Green, specification=represents freshness)
Process finished with exit code 0
```

Q6. Implement Decorator pattern to decorate the Pizza with toppings.

A6.



```
4 class jalapeno implements pizza{
5     String extra_layer;
6
7     jalapeno(String extra_layer) { this.extra_layer = extra_layer; }
8
9     @Override
10    public String info() { return (" Pizza Decorated with Jalapeno and "+ extra_layer); }
11
12    public String getExtra_layer() { return extra_layer; }
13
14    public void setExtra_layer(String extra_layer) { this.extra_layer = extra_layer; }
15 }
16
17 class onion implements pizza{
18     String extra_layer;
19     String extra_layer2;
20
21    onion(String extra_layer,String extra_layer2){
22        this.extra_layer = extra_layer;
23        this.extra_layer2 = extra_layer2;
24    }
25
26    @Override
27    public String info() {
28        return (" Pizza Decorated with Onion and "+extra_layer+" with another layer of "+extra_layer2 );
29    }
30
31    public String getExtra_layer() { return extra_layer; }
32
33    public void setExtra_layer(String extra_layer) { this.extra_layer = extra_layer; }
34
35    public String getExtra_layer2() { return extra_layer2; }
36
37    public void setExtra_layer2(String extra_layer2) { this.extra_layer2 = extra_layer2; }
38 }
39
40 Exercise_6_6 main()

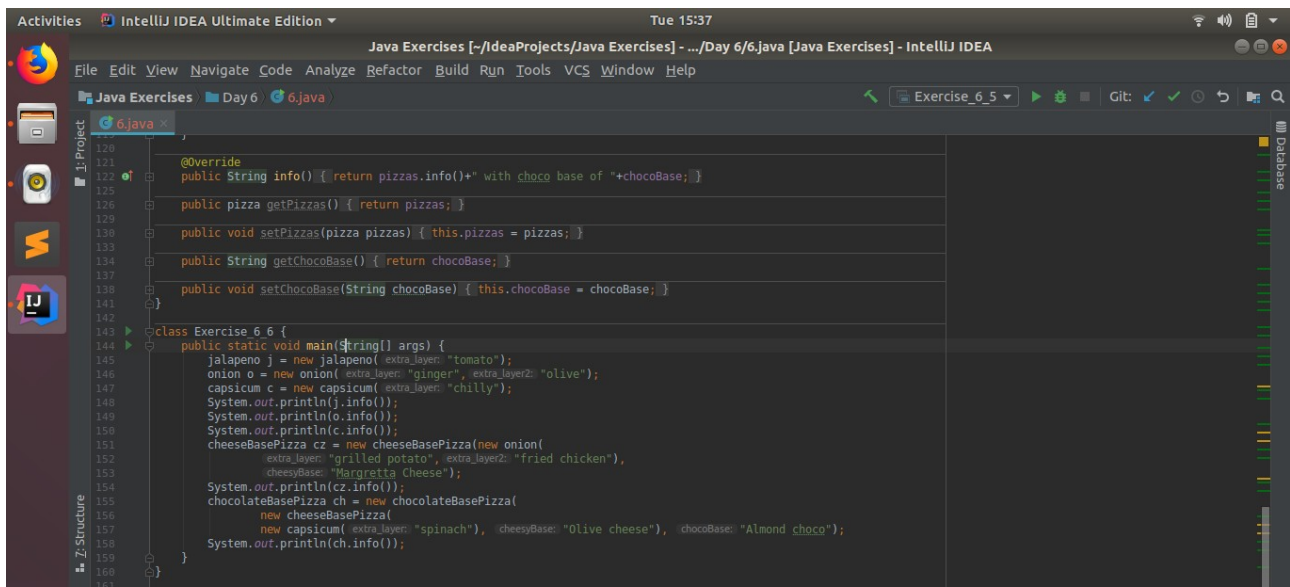
```

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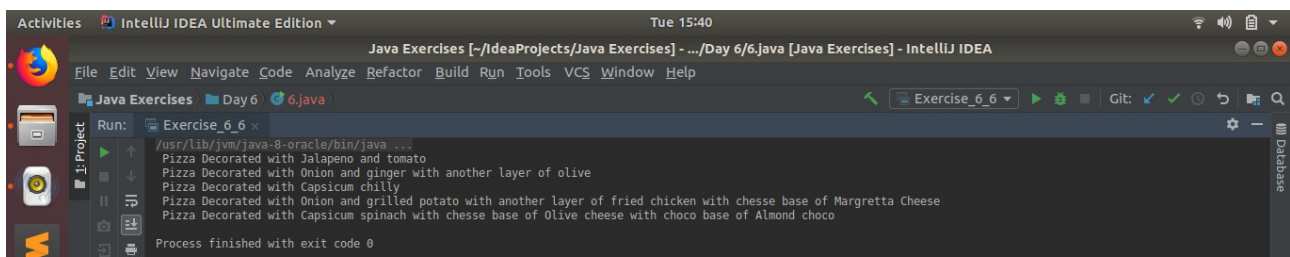
Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/6.java [Java Exercises] - IntelliJ IDEA

```
56  
57  
58 class capsicum implements pizza{  
59     String extra_layer;  
60  
61     capsicum(String extra_layer) { this.extra_layer = extra_layer; }  
62  
63  
64  
65  
66     @Override  
67     public String info() { return (" Pizza Decorated with Capsicum "+extra_layer);};  
68  
69  
70     public String getExtra_layer() { return extra_layer; }  
71  
72  
73     public void setExtra_layer(String extra_layer) { this.extra_layer = extra_layer; }  
74 }  
75  
76  
77  
78 class cheeseBasePizza implements pizza{  
79     pizza pizzas;  
80     String cheesyBase;  
81  
82     cheeseBasePizza(pizza pizzas,String cheesyBase){  
83         this.pizzas = pizzas;  
84         this.cheesyBase = cheesyBase;  
85     }  
86  
87  
88  
89     @Override  
90     public String info() { return pizzas.info()+" with chesse base of "+cheesyBase; }  
91  
92  
93     public pizza getPizzas() { return pizzas; }  
94  
95     public void setPizzas(pizza pizzas) { this.pizzas = pizzas; }  
96  
97     public String getCheesyBase() { return cheesyBase; }  
98  
99     public void setCheesyBase(String cheesyBase) { this.cheesyBase = cheesyBase; }  
100 }  
101  
102  
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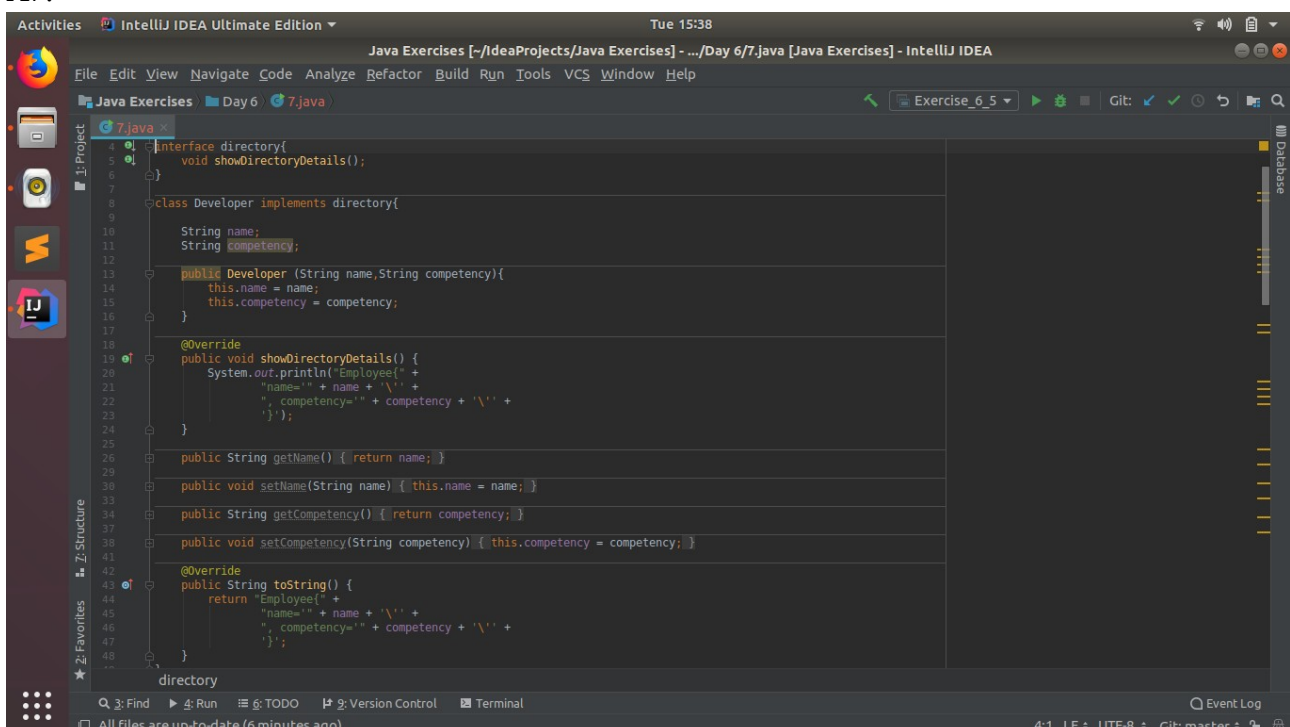
```
120
121
122 @Override
123 public String info() { return pizzas.info() + " with choco base of " + chocoBase; }
124
125 public Pizza getPizzas() { return pizzas; }
126
127 public void setPizzas(Pizza pizzas) { this.pizzas = pizzas; }
128
129 public String getChocoBase() { return chocoBase; }
130
131 public void setChocoBase(String chocoBase) { this.chocoBase = chocoBase; }
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142
143 class Exercise_6_5 {
144     public static void main(String[] args) {
145         jalapeno j = new jalapeno( extra_layer: "tomato");
146         onion o = new onion( extra_layer: "ginger", extra_layer2: "olive");
147         capsicum c = new capsicum( extra_layer: "chilly");
148         System.out.println(j.info());
149         System.out.println(o.info());
150         System.out.println(c.info());
151         cheeseBasePizza cz = new cheeseBasePizza(new onion(
152             extra_layer: "grilled potato", extra_layer2: "fried chicken"),
153             cheesyBase: "Margaretta Cheese");
154         System.out.println(cz.info());
155         chocolateBasePizza ch = new chocolateBasePizza(
156             new cheeseBasePizza(
157                 extra_layer: "spinach", cheesyBase: "Olive Cheese"), chocoBase: "Almond choco");
158         System.out.println(ch.info());
159     }
160
161 }
```



```
Run: Exercise_6_5 x
/usr/lib/jvm/java-8-oracle/bin/java ...
Pizza Decorated with Jalapeno and tomato
Pizza Decorated with Onion and ginger with another layer of olive
Pizza Decorated with Capsicum chilly
Pizza Decorated with Onion and grilled potato with another layer of fried chicken with chesse base of Margaretta Cheese
Pizza Decorated with Capsicum spinach with chesse base of Olive cheese with choco base of Almond choco
Process finished with exit code 0
```

Q7. Implement Composite Design Pattern to maintain the directories of employees on the basis of departments.

A7.



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3 interface directory {
4     void showDirectoryDetails();
5 }
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IntelliJ IDEA Ultimate Edition Tue 15:39

Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/7.java [Java Exercises] - IntelliJ IDEA

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Java Exercises Day 6 7.java Exercise\_6\_5 Git: master

```
51 class Manager implements directory{
52     String name;
53     String type;
54
55     public Manager(String name,String type){
56         this.name = name;
57         this.type = type;
58     }
59
60
61     @Override
62     public void showDirectoryDetails() {
63         System.out.println("Manager{" +
64             "name='" + name + '\'' +
65             ", type='" + type + '\'' +
66             '}'');
67     }
68
69     public String getName() { return name; }
70
71     public void setName(String name) { this.name = name; }
72
73     public String getType() { return type; }
74
75     public void setType(String type) { this.type = type; }
76
77     @Override
78     public String toString() {
79         return "Manager{" +
80             "name='" + name + '\'' +
81             ", type='" + type + '\'' +
82             '}'';
83     }
84 }
85
86 class developerDirectory implements directory{
87     List<directory> d = new ArrayList<>();
88
89     @Override
90     public void showDirectoryDetails() {
91         System.out.println("Developer Directory ");
92         d.forEach(e-> e.showDirectoryDetails());
93     }
94 }
95
96 class managerDirectory implements directory{
97     List<directory> d = new ArrayList<>();
98
99     @Override
100     public void showDirectoryDetails() {
101         System.out.println("Manager Directory ");
102         d.forEach(e-> e.showDirectoryDetails());
103     }
104 }
105
106 class companyDirectory implements directory{
107     List<directory> d = new ArrayList<>();
108
109     @Override
110     public void showDirectoryDetails() {
111         System.out.println("Company Directory ");
112         d.forEach(e-> e.showDirectoryDetails());
113     }
114 }
```

Run: Exercise 6 7 x

4:1 LF UTF-8 Git: master

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Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/7.java [Java Exercises] - IntelliJ IDEA

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Java Exercises Day 6 7.java Exercise\_6\_7 Git: master

```
92 }
93
94 class developerDirectory implements directory{
95     List<directory> d = new ArrayList<>();
96
97     @Override
98     public void showDirectoryDetails() {
99         System.out.println("Developer Directory ");
100         d.forEach(e-> e.showDirectoryDetails());
101     }
102 }
103
104 class managerDirectory implements directory{
105     List<directory> d = new ArrayList<>();
106
107     @Override
108     public void showDirectoryDetails() {
109         System.out.println("Manager Directory ");
110         d.forEach(e-> e.showDirectoryDetails());
111     }
112 }
113
114 class companyDirectory implements directory{
115     List<directory> d = new ArrayList<>();
116
117     @Override
118     public void showDirectoryDetails() {
119         System.out.println("Company Directory ");
120         d.forEach(e-> e.showDirectoryDetails());
121     }
122 }
```

```
123 class Exercise 6 7 {
124     public static void main(String[] args) {
125         Developer dev1 = new Developer( "Parth", competency: "BigData");
126         Developer dev2 = new Developer( "Ajmal", competency: "Devops");
127         Manager man1 = new Manager( "Sapdi", type: "Technical");
128     }
129 }
```

Run: Exercise 6 7 x

Compilation completed successfully in 1 s 255 ms (2 minutes ago)

11:1 LF UTF-8 Git: master

```

110 }
111
112 class companyDirectory implements directory{
113     List<directory> d = new ArrayList<>();
114
115     @Override
116     public void showDirectoryDetails() {
117         System.out.println(" Company Directory ");
118         d.forEach(e->e.showDirectoryDetails());
119     }
120
121 class Exercise 6.7 {
122     public static void main(String[] args) {
123
124         Developer dev1 = new Developer( name: "Parth", competency: "BigData");
125         Developer dev2 = new Developer( name: "Ajmal", competency: "Devops");
126
127         Manager man1 = new Manager( name: "Sapdi", type: "Technical");
128         Manager man2 = new Manager( name: "Sanhok", type: "Admin");
129
130         developerDirectory devDir = new developerDirectory();
131         devDir.d.add(dev1);
132         devDir.d.add(dev2);
133
134         managerDirectory manDir = new managerDirectory();
135         manDir.d.add(man1);
136         manDir.d.add(man2);
137
138         companyDirectory comDir = new companyDirectory();
139         comDir.d.add(devDir);
140         comDir.d.add(manDir);
141
142         comDir.showDirectoryDetails();
143     }
144 }
145
146 Exercise_6_7 > main()

```

```

Run: Exercise_6_7 x
/usr/lib/jvm/java-8-oracle/bin/java ...
Company Directory
Developer Directory
Employee{name='Parth', competency='BigData'}
Employee{name='Ajmal', competency='Devops'}
Manager Directory
Manager{name='Sapdi', type='Technical'}
Manager{name='Sanhok', type='Admin'}
Process finished with exit code 0

```

Q8. Implement proxy design for accessing Record of a student and allow the access only to Admin.

A8.

```

1 class student{
2     private String name;
3
4     student(String name) { this.name = name; }
5
6     public String getName() { return name; }
7
8     public void setName(String name) { this.name = name; }
9 }
10
11 interface Details{
12     void details();
13 }
14
15 class person implements Details{
16     student student;
17
18     public person(student student) { this.student = student; }
19
20     @Override
21     public void details() { System.out.println(" Details of Student Accessed "); }
22 }
23
24 class student_details_proxy extends person{
25
26     public student_details_proxy(student student) { super(student); }
27
28     @Override
29     public void details() {
30         if(student.getName() == "Admin"){
31             super.details();
32         }
33         else{
34             System.out.println(" Access Denied ");
35         }
36     }
37 }
38
39 Exercise_6_8

```

Activities IntelliJ IDEA Ultimate Edition Tue 15:41

Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/8.java [Java Exercises] - IntelliJ IDEA

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Java Exercises Day 6 8.java Exercise\_6\_6 Git: master

```
22 public void details() { System.out.println("Details of Student Accessed "); }
23
24
25
26 class student_details_proxy extends person{
27
28     public student_details_proxy(student student) { super(student); }
29
30
31
32
33
34
35
36
37
38
39
40
41 @Override
42 public void details() {
43     if(student.getName() == "Admin"){
44         super.details();
45     }
46     else{
47         System.out.println(" Access Denied ");
48     }
49 }
50
51
52
53 class Exercise_6_8 {
54     public static void main(String[] args) {
55         student s = new student( name: "Admin");
56         person p = new student_details_proxy(s);
57         p.details();
58
59         student s2 = new student( name: "Karan");
60         person p2 = new student_details_proxy(s2);
61         p2.details();
62
63         person p3 = new person(s2);
64         p3.details();
65     }
66 }
```

Exercise\_6\_8

Find TODO Version Control Terminal Event Log

All files are up-to-date (a minute ago) 51:20 LF UTF-8 Git: master

Activities IntelliJ IDEA Ultimate Edition Tue 15:41

Java Exercises [~/IdeaProjects/Java Exercises] - .../Day 6/8.java [Java Exercises] - IntelliJ IDEA

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

Java Exercises Day 6 8.java Exercise\_6\_8 Git: master

Run: Exercise\_6\_8

```
/usr/lib/jvm/java-8-oracle/bin/java ...
Details of Student Accessed
Access Denied
Details of Student Accessed
Process finished with exit code 0
```