

WEEK 8

Question 1: Create a class FRUIT which has data members colour, taste and price. Also create a method display() which will print values of FRUIT object. Create three objects of FRUIT class and call their display() methods.

Solution:

Fruit.java

```

1 package com.fruit;
2 public class Fruit {
3     private String color;
4     private String taste;
5     private double price;
6
7     public String getColor() { return color; }
8     public void setColor(String color) { this.color = color; }
9     public String getTaste() { return taste; }
10    public void setTaste(String taste) { this.taste = taste; }
11    public double getPrice() { return price; }
12    public void setPrice(double price) { this.price = price; }
13
14    public void display(){
15        System.out.println("Color: " + color);
16        System.out.println("Taste: " + taste);
17        System.out.println("Price: " + price + "\n");
18    }
19 }
```

Main.java

```

1 package com.fruit;
2 public class Main {
Run main | Debug main | Run | Debug
3     public static void main(String[] args) {
4         Fruit mango = new Fruit();
5         mango.setColor(color:"Yellow");
6         mango.setTaste(taste:"Sweet");
7         mango.setPrice(price:50.0);
8         Fruit apple = new Fruit();
9         apple.setColor(color:"Red");
10        apple.setTaste(taste:"Sweet");
11        apple.setPrice(price:100.0);
12        Fruit grapes = new Fruit();
13        grapes.setColor(color:"Green");
14        grapes.setTaste(taste:"Sour");
15        grapes.setPrice(price:60.0);
16        System.out.println(x:"Mango Details:");
17        mango.display();
18        System.out.println(x:"Apple Details:");
19        apple.display();
20        System.out.println(x:"Grapes Details:");
21        grapes.display();
22    }
23 }
```

Output:

```

PS D:\Uni Material\LAB\sem 3\Week 8\Que1\src\main\java\com\fruit> javac Main.java Fruit.java
PS D:\Uni Material\LAB\sem 3\Week 8\Que1\src\main\java\com\fruit> java Main.java
Mango Details:
Color: Yellow
Taste: Sweet
Price: 50.0

Apple Details:
Color: Red
Taste: Sweet
Price: 100.0

Grapes Details:
Color: Green
Taste: Sour
Price: 60.0

```

Question 2: Create a class FRUIT which has data members color, taste and price. It has a method setDetails() which will set the values of color, taste and price. Also create a method display() which will print values of FRUIT object.

Solution:

Fruit.java

```

1  package com.fruitseller;
2  public class Fruit {
3      private String color;
4      private String taste;
5      private double price;
6
7      public void setDetails(String color, String taste, double price) {
8          this.color = color;
9          this.taste = taste;
10         this.price = price;
11     }
12     public void display(){
13         System.out.println("Color: " + color);
14         System.out.println("Taste: " + taste);
15         System.out.println("Price: " + price + "\n");
16     }
17 }

```

Main.java

```
1 package com.fruitseller;
2 public class Main {
3     public static void main(String[] args) {
4         Fruit mango = new Fruit();
5         mango.setDetails(color:"Yellow", taste:"Sweet", price:50.0);
6         Fruit apple = new Fruit();
7         apple.setDetails(color:"Red", taste:"Sweet", price:100.0);
8         Fruit grapes = new Fruit();
9         grapes.setDetails(color:"Green", taste:"Sour", price:60.0);
10        System.out.println(x:"Mango Details:");
11        mango.display();
12        System.out.println(x:"Apple Details:");
13        apple.display();
14        System.out.println(x:"Grapes Details:");
15        grapes.display();
16    }
17 }
```

Output:

```
PS D:\Uni Material\LAB\sem 3\Week 8\Que2\src\main\java\com\fruitseller> javac Fruit.java Main.java
PS D:\Uni Material\LAB\sem 3\Week 8\Que2\src\main\java\com\fruitseller> java Main.java
Mango Details:
Color: Yellow
Taste: Sweet
Price: 50.0

Apple Details:
Color: Red
Taste: Sweet
Price: 100.0

Grapes Details:
Color: Green
Taste: Sour
Price: 60.0
```

Question 3: In previous question, set the values of using color, taste and price using Constructor.

Solution:

Fruit.java

```

1 package com.fruit;
2 public class Fruit {
3     private String color;
4     private String taste;
5     private double price;
6     Fruit (String color, String taste, double price) {
7         this.color = color;
8         this.taste = taste;
9         this.price = price;
10    }
11    public void display(){
12        System.out.println("Color: " + color);
13        System.out.println("Taste: " + taste);
14        System.out.println("Price: " + price + "\n");
15    }
16 }
```

Main.java

```

1 package com.fruit;
2 public class Main {
Run main | Debug main | Run | Debug
3     public static void main(String[] args) {
4         Fruit mango = new Fruit(color:"Yellow", taste:"Sweet", price:50.0);
5         Fruit apple = new Fruit(color:"Red", taste:"Sweet", price:100.0);
6         Fruit grapes = new Fruit(color:"Green", taste:"Sour", price:60.0);
7         System.out.println(x:"Mango Details:");
8         mango.display();
9         System.out.println(x:"Apple Details:");
10        apple.display();
11        System.out.println(x:"Grapes Details:");
12        grapes.display();
13    }
14 }
```

Output:

```

PS D:\Uni Material\LAB\sem 3\Week 8\Que3\src\main\java\com\fruit> javac Main.java Fruit.java
PS D:\Uni Material\LAB\sem 3\Week 8\Que3\src\main\java\com\fruit> java Main.java
Mango Details:
Color: Yellow
Taste: Sweet
Price: 50.0

Apple Details:
Color: Red
Taste: Sweet
Price: 100.0

Grapes Details:
Color: Green
Taste: Sour
Price: 60.0
```

Question 4: Add one-argument constructor and two-argument constructor in addition to default constructor in FRUIT class.

Solution:

Fruit.java

```

1  package com.fruit;
2  public class Fruit {
3      private String color;
4      private String taste;
5      private double price;
6      Fruit (String color) { this.color = color; }
7      Fruit (String color, String taste) {
8          this.color = color;
9          this.taste = taste;
10     }
11     Fruit (String color, String taste, double price) {
12         this.color = color;
13         this.taste = taste;
14         this.price = price;
15     }
16     public String getColor() { return color; }
17     public void setColor(String color) { this.color = color; }
18     public String getTaste() { return taste; }
19     public void setTaste(String taste) { this.taste = taste; }
20     public double getPrice() { return price; }
21     public void setPrice(double price) { this.price = price; }
22     public void display(){
23         System.out.println("Color: " + color);
24         System.out.println("Taste: " + taste);
25         System.out.println("Price: " + price + "\n");
26     }
27 }
```

Main.java

```

1  package com.fruit;
2  public class Main {
3      public static void main(String[] args) {
4          Fruit mango = new Fruit(color:"Yellow", taste:"Sweet", price:50.0);
5          Fruit apple = new Fruit(color:"Red", taste:"Sweet");
6          apple.setPrice(price:102);
7          Fruit grapes = new Fruit(color:"Green");
8          grapes.setTaste(taste:"Sour");
9          grapes.setPrice(price:65);
10         System.out.println(x:"Mango Details:");
11         mango.display();
12         System.out.println(x:"Apple Details:");
13         apple.display();
14         System.out.println(x:"Grapes Details:");
15         grapes.display();
16     }
17 }
```

Output:

```

PS D:\Uni Material\LAB\sem 3\Week 8\Que4\src\main\java\com\fruit> javac Fruit.java Main.java
PS D:\Uni Material\LAB\sem 3\Week 8\Que4\src\main\java\com\fruit> java Main.java
Mango Details:
Color: Yellow
Taste: Sweet
Price: 50.0

Apple Details:
Color: Red
Taste: Sweet
Price: 102.0

Grapes Details:
Color: Green
Taste: Sour
Price: 65.0

```

Question 5: Use the concept of constructor-chaining in the previous question using this().

Solution:

Fruit.java

```

1 package com.fruit;
2 public class Fruit {
3
4     private String color;
5     private String taste;
6     private double price;
7
8     Fruit (String color) { this.color = color; }
9     Fruit (String color, String taste) {
10         this(color);
11         this.taste = taste;
12     }
13     Fruit (String color, String taste, double price) {
14         this(color, taste);
15         this.price = price;
16     }
17     public String getColor() { return color; }
18     public void setColor(String color) { this.color = color; }
19
20     public String getTaste() { return taste; }
21     public void setTaste(String taste) { this.taste = taste; }
22
23     public double getPrice() { return price; }
24     public void setPrice(double price) { this.price = price; }
25
26     public void display(){
27         System.out.println("Color: " + color);
28         System.out.println("Taste: " + taste);
29         System.out.println("Price: " + price + "\n");
30     }
31 }

```

```
1 package com.fruit;
2
3 public class Main {
4     Run main | Debug main | Run | Debug
5     public static void main(String[] args) {
6         Fruit mango = new Fruit(color:"Yellow", taste:"Sweet", price:50.0);
7         Fruit apple = new Fruit(color:"Red", taste:"Sweet");
8         apple.setPrice(price:102);
9         Fruit grapes = new Fruit(color:"Green");
10        grapes.setTaste(taste:"Sour");
11        grapes.setPrice(price:65);
12
13        System.out.println(x:"Mango Details:");
14        mango.display();
15
16        System.out.println(x:"Apple Details:");
17        apple.display();
18
19        System.out.println(x:"Grapes Details:");
20        grapes.display();
21    }
22 }
```

Output:

```
PS D:\Uni Material\LAB\sem 3\Week 8\Que5\src\main\java\com\fruit> javac Main.java Fruit.java
PS D:\Uni Material\LAB\sem 3\Week 8\Que5\src\main\java\com\fruit> java Main.java
Mango Details:
Color: Yellow
Taste: Sweet
Price: 50.0

Apple Details:
Color: Red
Taste: Sweet
Price: 102.0

Grapes Details:
Color: Green
Taste: Sour
Price: 65.0
```

Optional

Question 6: Create a class CAR with the following details:

Data members: model, color, price.

Member methods:

- setDetails() – to set values of all data members using setters.
- getDetails() – to get values of all data members using getters.
- display() – to print all details of the car.

Requirements:

- Implement default constructor to initialize default values.
- Implement a parameterized constructor (with one argument) to set only model.
- Implement another parameterized constructor (with two arguments) to set model and color.
- Use constructor chaining to reduce code redundancy.
- Create three objects of CAR class using:
 - Default constructor
 - One-argument constructor
 - Two-argument constructor
- Set price for each object using the setDetails() method.
- Call the display() method for each object.

Solution:

Main.java

```

1 package com.car;
2
3 public class Main {
4     public static void main(String[] args) {
5
6         CAR car1 = new CAR();
7         car1.setPrice(500000);
8         car1.display();
9
10        CAR car2 = new CAR("Tesla Model 3");
11        car2.setPrice(15000000);
12        car2.display();
13
14        CAR car3 = new CAR("BMW X5", "Black");
15        car3.setPrice(10000000);
16        car3.display();
17    }
18 }
```

```
1 package com.car;
2 public class CAR {
3     private String model;
4     private String color;
5     private double price;
6     public CAR() {
7         this(model:"Unknown", color:"White", price:0.0);
8     }
9     public CAR(String model) {
10        this(model, color:"White", price:0.0);
11    }
12    public CAR(String model, String color) {
13        this(model, color, price:0.0);
14    }
15    public CAR(String model, String color, double price) {
16        this.model = model;
17        this.color = color;
18        this.price = price;
19    }
20    public void setModel(String model) { this.model = model; }
21    public void setColor(String color) { this.color = color; }
22    public void setPrice(double price) { this.price = price; }
23    public String getModel() { return model; }
24    public String getColor() { return color; }
25    public double getPrice() { return price; }
26    public void setDetails(String model, String color, double price) {
27        this.model = model;
28        this.color = color;
29        this.price = price;
30    }
31    public String getDetails() {
32        return "Model: " + model + ", Color: " + color + ", Price: " + price;
33    }
34    public void display() {
35        System.out.println("Model: " + model);
36        System.out.println("Color: " + color);
37        System.out.println("Price: " + price);
38        System.out.println();
39    }
40 }
```

Output:

```
PS D:\Uni Material\LAB\sem 3\Week 8\Ques6\src\main\java\com\car> javac CAR.java Main.java
PS D:\Uni Material\LAB\sem 3\Week 8\Ques6\src\main\java\com\car> java Main.java
```

Model: Unknown

Color: White

Price: 500000.0

Model: Tesla Model 3

Color: White

Price: 1.5E7

Model: BMW X5

Color: Black

Price: 1.0E7

