



EUROPEAN UNIVERSITY OF BANGLADESH

Dept. of CSE (Reg)

Assignment No: 01

Assignment Name: Abstraction, Keywords(Static, Super) exercises

Course Name: Object Oriented Programming Sessional

Course code: CSE-212

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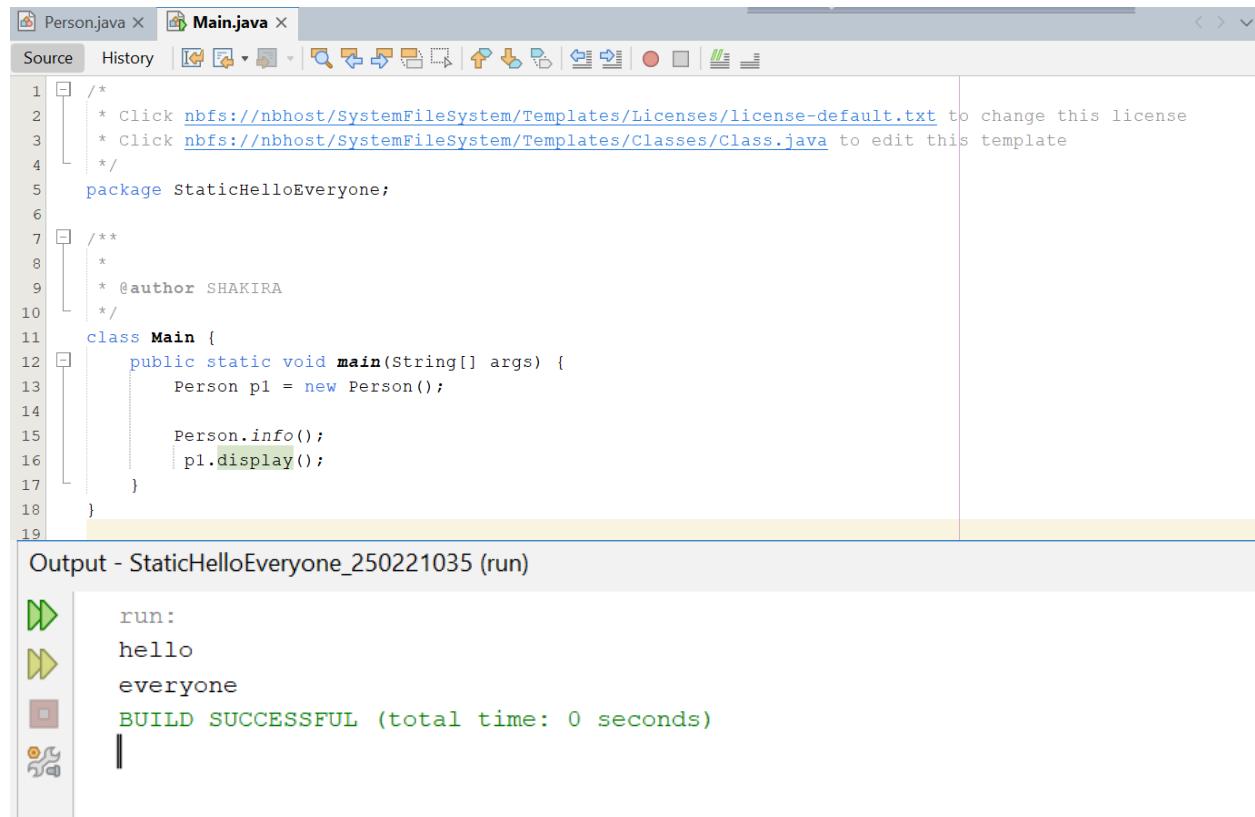
Date of submission : 19. 11. 2025

Marks:

Sign:

1. STATIC HELLO EVERYONE Program

```
class Person {  
    static void info() {  
        System.out.println("hello");    }  
  
    void info2() {  
        System.out.println("everyone");    }  
}  
  
class Main {  
    public static void main(String[] args) {  
        Person p1 = new Person();  
  
        Person.info();  
        p1.info2();  
    }  
}
```

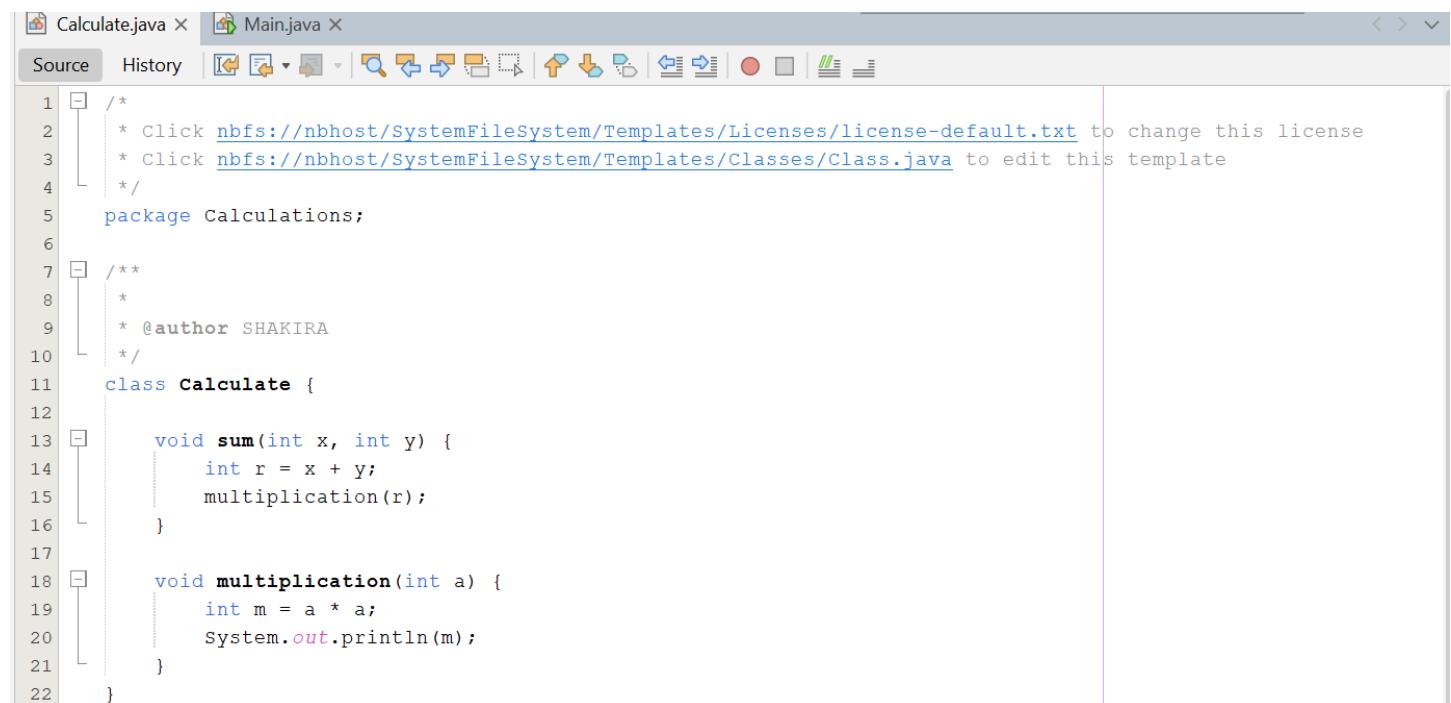


The screenshot shows the NetBeans IDE interface. At the top, there are two tabs: "Person.java X" and "Main.java X". The "Main.java X" tab is active, showing the Java code for the "Main" class. The code includes imports, package declarations, class definitions, and method implementations. Below the code editor is a "Output" window titled "Output - StaticHelloEveryone_250221035 (run)". The output window displays the program's execution results, including the printed messages "hello" and "everyone", and a successful build message.

```
/*  
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license  
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template  
 */  
package StaticHelloEveryone;  
  
/**  
 * @author SHAKIRA  
 */  
class Main {  
    public static void main(String[] args) {  
        Person p1 = new Person();  
  
        Person.info();  
        p1.info2();  
    }  
}  
  
Output - StaticHelloEveryone_250221035 (run)  
run:  
hello  
everyone  
BUILD SUCCESSFUL (total time: 0 seconds)
```

2. Calculations Program

```
class Calculate {  
  
    void sum(int x, int y) {  
        int r = x + y;  
        multiplication(r);  
    }  
  
    void multiplication(int a) {  
        int m = a * a;  
        System.out.println(m);  
    }  
}  
  
class Main {  
    public static void main(String[] args) {  
        Calculate c = new Calculate();  
  
        c.sum(10, 20);  
    }  
}
```



```
Calculate.java X Main.java X  
Source History |  |           |   
```

1 */
2 * Click <nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt> to change this license
3 * Click <nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java> to edit this template
4 */
5 package Calculations;
6
7 /**
8 *
9 * @author SHAKIRA
10 */
11 class Calculate {
12
13 void sum(int x, int y) {
14 int r = x + y;
15 multiplication(r);
16 }
17
18 void multiplication(int a) {
19 int m = a * a;
20 System.out.println(m);
21 }
22 }

Calculate.java X Main.java X

Source History

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Calculations;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class Main {
12     public static void main(String[] args) {
13         Calculate c = new Calculate();
14
15         c.sum(10, 20);
16     }
17 }
```

Output - Calculations_250221035 (run) X

run:
900
BUILD SUCCESSFUL (total time: 0 seconds)

3. STATIC BLOCK Program

```
class StaticBlock {
    static int x;
    static double b;

    static{
        x=10;
        b=20.2;
    }

    static void display(){
        System.out.println(x+b);
        System.out.println(x++, "+b");
    }
}

class Main {
    public static void main(String[]args) {

        StaticBlock.display();
        System.out.println(StaticBlock.x);
        System.out.println(StaticBlock.b);
    }
}
```

StaticBlock.java X Main.java X

Source History |

```
1 /*
2  * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3  * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4  */
5 package staticBlock;
6
7 /**
8 *
9 * @author SHAKIRA
10 */
11 class StaticBlock {
12     static int x;
13     static double b;
14
15     static{
16         x=10;
17         b=20.2;
18     }
19     static void display(){
20         System.out.println(x+b);
21         System.out.println(x+" "+b);
22     }
23 }
```

StaticBlock.java X Main.java X

Source History |

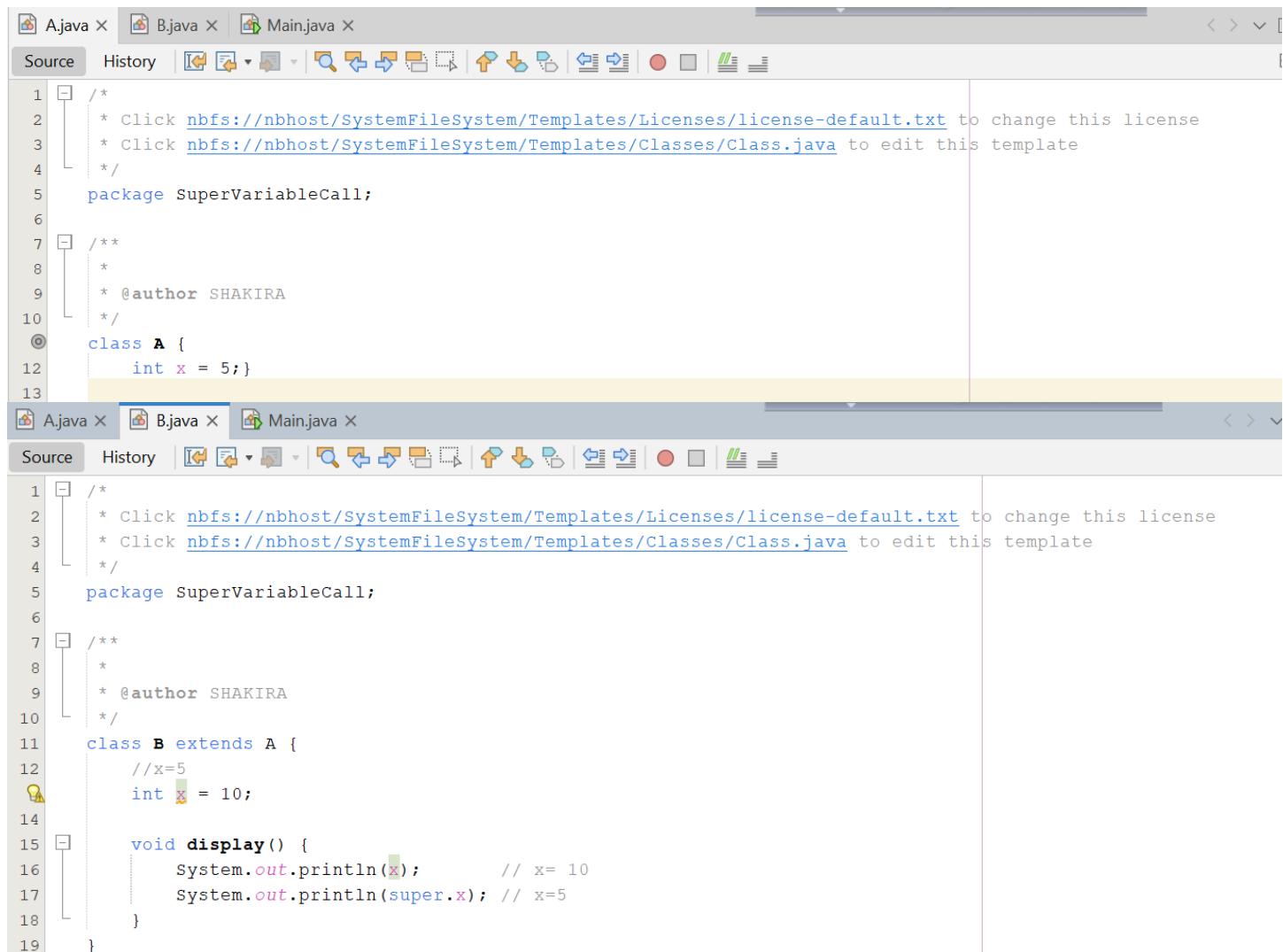
```
1 /*
2  * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3  * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4  */
5 package StaticBlock;
6
7 /**
8 *
9 * @author SHAKIRA
10 */
11 class Main {
12     public static void main(String[]args) {
13
14         StaticBlock.display();
15         System.out.println(StaticBlock.x);
16         System.out.println(StaticBlock.b);
17     }
18 }
```

Output - StaticBlock_250221035 (run) X

run:
30.2
10, 20.2
10
20.2
BUILD SUCCESSFUL (total time: 0 seconds)

4. SUPER KEYWORD VARIABLE CALL Program

```
class A {  
    int x = 5;}  
  
class B extends A {  
    int x = 10;  
  
    void display() {  
        System.out.println(x);      // prints B's x  
        System.out.println(super.x); // prints A's x  
    }  
}  
  
class Main {  
    public static void main(String[] args) {  
        B b = new B();  
        b.display();    }  
}
```



The screenshot displays two Java code editors side-by-side. The top editor contains the code for class A, which has a single instance variable x of type int initialized to 5. The bottom editor contains the code for class B, which extends class A. In class B, the instance variable x is redeclared with a value of 10. It also contains a display() method that prints the values of both x (10) and super.x (5). Both editors have tabs for A.java, B.java, and Main.java, and toolbars with various icons.

```
1  /*  
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license  
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template  
4   */  
5  package SuperVariableCall;  
6  
7  /**  
8   *  
9   * @author SHAKIRA  
*/  
10 class A {  
11     int x = 5;}  
12  
13  
1  /*  
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license  
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template  
4   */  
5  package SuperVariableCall;  
6  
7  /**  
8   *  
9   * @author SHAKIRA  
*/  
10 class B extends A {  
11     //x=5  
12     int x = 10;  
13  
14     void display() {  
15         System.out.println(x);      // x= 10  
16         System.out.println(super.x); // x=5  
17     }  
18 }  
19 }
```

A.java X B.java X Main.java X

Source History | | | | | | | | | | | | | | |

```

1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package SuperVariableCall;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class Main {
12     public static void main(String[] args) {
13         B b = new B();
14         b.display();
15     }
16 }
```

Output - SuperVariableCall_250221035 (run)

```

run:
10
5
BUILD SUCCESSFUL (total time: 0 seconds)
|
```

5. SUPER KEYWORD METHOD CALL Program

```

class A {
    int x = 20;

    void info() {
        System.out.println("A");
    }
}

class B extends A {
    int x = 10;

    void display() {
        System.out.println(super.x); // 20
        super.info(); // "A"
    }
}

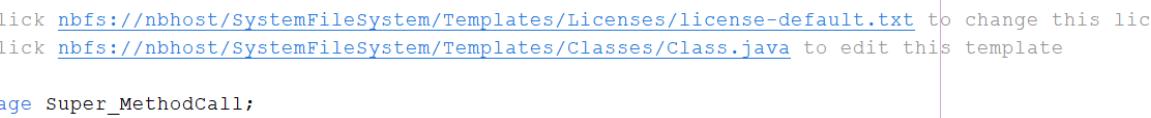
class Main {
    public static void main(String[] args) {
        B b = new B();
        b.display();
    }
}
```

The screenshot shows the NetBeans IDE interface with three tabs at the top: "A.java X", "B.java X", and "Main.java X". The "Source" tab is selected. Below it is a toolbar with various icons. The main editor area displays the following Java code:

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Super_MethodCall;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class A {
12     int x = 20;
13
14     void info() {
15         System.out.println("A");
16     }
17 }
```

The screenshot shows a Java IDE interface with multiple tabs at the top: A.java X, B.java X, and Main.java X. The main window displays the source code for class B.java. The code includes a license notice, package declaration, author annotation, class definition, and a method named display(). A yellow warning icon is present on line 11. The code is as follows:

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Super_MethodCall;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class B extends A {
12     int x = 10;
13
14     void display() {
15         System.out.println(super.x); // 20
16         super.info(); // "A"
17     }
18 }
```



The screenshot shows the NetBeans IDE interface with the 'Source' tab selected. The code editor displays a Java file named Main.java. The code includes a package declaration, a class definition, and a main method. A license comment at the top of the file indicates it can be edited or changed. The code uses standard Java syntax with annotations like @author.

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Super_MethodCall;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class Main {
12     public static void main(String[] args) {
13         B b = new B();
14         b.display();
15     }
16 }
```

Output - SuperMethodCall_250221035 (run)

```
run:  
20  
A  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

6. SUPER KEYWORD CONSTRUCTOR CALL Program

```
class A {  
    A() {  
        System.out.println("A");  
    }  
}  
  
class B extends A {  
    int x = 10;  
  
    B() {  
        super(); // Calling A's constructor  
        System.out.println("B");  
    }  
  
    void display() {  
        System.out.println("Display method in B");  
    }  
}  
  
class Main {  
    public static void main(String[] args) {  
        B b = new B();  
        b.display();  
    }  
}
```

The screenshot shows a Java IDE interface with three tabs at the top: A.java X, B.java X, and Main.java X. The Main.java tab is active. The code editor displays the following Java code:

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Super_ConstructorCall;
6
7  /**
8   * 
9   * @author SHAKIRA
10  */
11 class A {
12     A() { // Parent
13         System.out.println("A");
14     }
15 }
```

The screenshot shows the NetBeans IDE interface with three tabs at the top: A.java X, B.java X, and Main.java X. The B.java tab is active, displaying the following Java code:

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Super_ConstructorCall;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class B extends A {
12     int x = 10;
13
14     B() { // Child
15         super(); // Calling A's constructor
16         System.out.println("B");
17     }
18
19     void display() {
20         System.out.println("Display method in B");
21     }
22 }
```

The code illustrates the use of the super() constructor call in the child class B to invoke the constructor of its parent class A. The IDE highlights the license comment and the super() call with blue underlines.



A screenshot of a Java IDE interface. The top bar shows tabs for "A.java X", "B.java X", and "Main.java X". Below the tabs is a toolbar with icons for file operations like new, open, save, and search. The main window displays the following Java code:

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Super_ConstructorCall;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class Main {
12     public static void main(String[] args) {
13         B b = new B();
14         b.display();
15     }
16 }
```

Output - Super_ConstructorCall_250221035 (run)

```
▶ run:  
A  
B  
Display method in B  
BUILD SUCCESSFUL (total time: 0 seconds)
```

7. Vehicle and Car Example Program

```
class Vehicle {  
    String color;  
    double weight;  
  
    Vehicle(String color, double weight) {  
        this.color = color;  
        this.weight = weight;  
    }  
  
    void attribute() {  
        System.out.println("Color: " + color);  
        System.out.println("Weight: " + weight);  
    }  
}  
  
class Car extends Vehicle {  
    int gear;  
  
    Car(String color, double weight, int g) {  
        super(color, weight); // calling Vehicle constructor  
        gear = g;  
    }  
  
    void carInfo() {  
        super.attribute(); // calling Vehicle method  
        System.out.println("Car gear is = " + gear);  
    }  
}  
  
class Main {  
    public static void main(String[] args) {  
        Car c1 = new Car("Red", 1500, 5);  
        c1.carInfo();  
    }  
}
```

Vehicle.java X Car.java X Main.java X

Source History | | |

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Vehicle_car;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class Vehicle {
12     String color;
13     double weight;
14
15     Vehicle(String color, double weight) {
16         this.color = color;
17         this.weight = weight;
18     }
19
20     void attribute() {
21         System.out.println("Color: " + color);
22         System.out.println("Weight: " + weight);
23     }
24 }
```

Vehicle.java X Car.java X Main.java X

Source History | | |

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Vehicle_car;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 public class Car extends Vehicle {
12     int gear;
13
14     Car(String color, double weight, int g) {
15         super(color, weight); // calling Vehicle constructor
16         gear = g;
17     }
18
19     void carInfo() {
20         super.attribute(); // calling Vehicle method
21         System.out.println("Car gear is = " + gear);
22     }
23 }
```

```
Vehicle.java X Car.java X Main.java X
Source History < > v [ ]
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package Vehicle_car;
6
7  /**
8   *
9   * @author SHAKIRA
10  */
11 class Main {
12     public static void main(String[] args) {
13         Car c1 = new Car("Red", 1500, 5);
14         c1.carInfo();
15     }
16 }
17 }
```

Output - Vehicle_250221035 (run)

```
run:
Color: Red
Weight: 1500.0
Car gear is = 5
BUILD SUCCESSFUL (total time: 0 seconds)
```