```java
1  package ex3;
2
3  import java.util.Scanner;
4  import java.util.Arrays;
5
6  /**
7   *
8   * @author vanting
9   */
10 public class APITest {
11
12     public static void main(String[] args) {
13         Scanner scanner = new Scanner(System.in);
14         System.out.print("Enter the number for search: ");
15         int num = scanner.nextInt();
16
17         int[] list = { 4, 2, 11, 10, 7, 45, 60, 59, 50, 66, 79, 70, 69 }; // unsorted
18         Arrays.sort(list);
19         // java.util.Arrays.sort(list);
20         // sorted => {2, 4, 7, 10, 11, 45, 50, 59, 60, 66, 69, 70, 79}
21         System.out.println("Index is " + Arrays.binarySearch(list, num));
22         // System.out.println("Index is " + java.util.Arrays.binarySearch(list, num));
23     }
24     }
25
26 }
27
```

```java
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package ex3;
7
8  /**
9   *
10  * @author Van
11  */
12 public class ConstructorChain {
13     public static void main(String[] args) {
14         A obj = new A();
15         System.out.println(obj.a);
16     }
17 }
18
19 class B {
20
21     int b = 10;
22
23     public B() {
24         b = 20;
25     }
26 }
27
28 class A extends B {
29
30     int a;
31
32     public A() {
33         a = super.b;   // what is the value of a??
34     }
35 }
```

```java
1  package ex3;
2
3  /**
4   *
5   * @author vanting
6   */
7  public class Faculty extends Employee {
8      public static void main(String[] args) {
9          new Faculty();
10     }
11
12     public Faculty() {
13         System.out.println("(4) Faculty's no-arg constructor is invoked");
14     }
15  }
16
17  class Employee extends Person {
18      public Employee() {
19          this("(2) Invoke Employee's overloaded constructor");
20          System.out.println("(3) Employee's no-arg constructor is invoked");
21      }
22
23      public Employee(String s) {
24          System.out.println(s);
25      }
26  }
27
28  class Person {
29      public Person() {
30          System.out.println("(1) Person's no-arg constructor is invoked");
31      }
32  }
33
34
```

```java
1  /*
2   * To change this template, choose Tools | Templates
3   * and open the template in the editor.
4   */
5  package ex3;
6
7  /**
8   *
9   * @author vanting
10  */
11  public class FruitStore {
12
13      public static Fruit[] getSomeFruits() {
14          Fruit[] someFruits = {new Fruit(), new Apple(), new Banana()};
15          return someFruits;
16      }
17  }
18
19  class Fruit {
20      public void color() {
21          System.out.println("**undefined**");
22      }
23  }
24
25  class Apple extends Fruit {
26
27      @Override
28      public void color() {
29          System.out.println("Red");
30      }
31  }
32
33
34  class Banana extends Fruit {
35      @Override
36      public void color() {
37          System.out.println("Yellow");
38      }
39  }
```

```java
1 package ex3;
2
3 public class PolymorphismDemo {
4
5     public static void main(String[] args) {
6         // I know nothing about the types of animals, just poke it!
7         Fruit[] fruits = FruitStore.getSomeFruits();
8         findColor(fruits);
9     }
10
11     public static void findColor(Fruit[] fruits) {
12         for(int i=0; i<fruits.length; i++) {
13             // dynamically bind to the subtype method
14             fruits[i].color();
15         }
16     }
17 }
18
19
20
```