



SCANNER AS PARAMETER

zyBook 4.11

SCANNER AS PARAMETER

- You should only have **one Scanner** for console input.
- If you need to use console Scanner in multiple methods, it should be passed as a parameter.
- Parameter is passed by reference.

```
/**
 * Returns department from input scanner. Department will be in all uppercase letters.
 * @param input input scanner
 * @return department (in all uppercase letters)
 * @throws IllegalArgumentException if department is all whitespace or empty
 */
public static String getDepartment(Scanner input) {
    // Read in department name with leading and trailing spaces removed
    String department = input.nextLine().trim();
    if (department.equals("")) { // No department given
        throw new IllegalArgumentException("No department given.");
    }
    return department.toUpperCase();
}

/**
 * Returns unity ID from input scanner. ID will be in all lowercase letters.
 * @param input input scanner
 * @return unity ID (in all lowercase letters)
 */
public static String getUnityID(Scanner input) {
    String id = input.next();
    return id.toLowerCase();
}

/**
 * Returns campus box from input scanner.
 * @param in input scanner
 * @return campus box
 * @throws IllegalArgumentException if campus box is non-positive
 */
public static int getCampusBox(Scanner in) {
    int box = in.nextInt();
    if (box <= 0) { // invalid box
        throw new IllegalArgumentException("Invalid Box.");
    }
    return box;
}
```



```

1 import java.util.Scanner;
2
3 /**
4  * Reads information about user and outputs to console
5  * @author Jessica Young Schmidt
6  */
7 public class UserInfo {
8     /**
9      * Starts the program.
10     * @param args command line arguments
11     */
12     public static void main(String[] args) {
13         Scanner in = new Scanner(System.in);
14
15         System.out.print("Enter department: ");
16         String department = getDepartment(in);
17
18         // Single token
19         System.out.print("Enter UnityID: ");
20         String unityID = getUnityID(in);
21
22         System.out.print("Enter campus box number: ");
23         int box = getCampusBox(in);
24
25         System.out.println(unityID + " (" + department + ") [" + box + "]");
26     }
27
28     /**
29     * Returns department from input scanner. Department will be in all uppercase
30     * letters.
31     * @param input input scanner
32     * @return department (in all uppercase letters)
33     * @throws IllegalArgumentException if department is all whitespace or empty
34     */
35     public static String getDepartment(Scanner input) {
36         // Read in department name with leading and trailing spaces removed
37         String department = input.nextLine().trim();
38         if (department.equals("")) { // No department given
39             throw new IllegalArgumentException("No department given.");
40         }
41         return department.toUpperCase();
42     }
43
44     /**
45     * Returns unity ID from input scanner. ID will be in all lowercase letters.
46     * @param input input scanner
47     * @return unity ID (in all lowercase letters)
48     */
49     public static String getUnityID(Scanner input) {
50         String id = input.next();
51         return id.toLowerCase();
52     }
53
54     /**
55     * Returns campus box from input scanner.
56     * @param in input scanner
57     * @return campus box
58     * @throws IllegalArgumentException if campus box is non-positive
59     */
60     public static int getCampusBox(Scanner in) {
61         int box = in.nextInt();
62         if (box <= 0) { // invalid box
63             throw new IllegalArgumentException("Invalid Box.");
64         }
65         return box;
66     }
67 }

```

```
$ javac -d bin -cp bin src/UserInfo.java
```

```

$ java -cp bin UserInfo
Enter department: computer Science
Enter UnityID: JDYoung2
Enter campus box number: 8206
jdyoung2 (COMPUTER SCIENCE) [8206]

```

```

$ java -cp bin UserInfo
Enter department:
Exception in thread "main"
java.lang.IllegalArgumentException: No department given.
    at UserInfo.getDepartment(UserInfo.java:39)
    at UserInfo.main(UserInfo.java:16)

```

```

$ java -cp bin UserInfo
Enter department: computer science
Enter UnityID: jdyoung2
Enter campus box number: 0
Exception in thread "main"
java.lang.IllegalArgumentException: Invalid Box.
    at UserInfo.getCampusBox(UserInfo.java:63)
    at UserInfo.main(UserInfo.java:23)

```