Pre-Lab Exercise 02 Solution

**Revised by DHaley, 16 Sep 2023**

Task 1 – Syntax and Logic Error

## Program One

The following table summaries the coding errors and their corrections

|  |  |  |  |
| --- | --- | --- | --- |
| **Coding Error** | **Comment** | | **Corrected Code** |
| import java.Scanner; | Must include complete import name | import java.util.Scanner; | |
| int num | Missing semi-colon | int num; | |
| Scanner input = Scanner(in); | **new** operator missing  Must use **System.in** as the argument | Scanner input = new Scanner(System.in) | |
| Missing line of code | There is no user prompt to enter num | System.out.print("Please enter a number: "); | |
| num = input.int() | Incorrect syntax | num = input.nextInt(); | |
| public class Output | This is a logic error. Class name reflects that the class is to output a value, but program has no output, so a line of code to output num must be included | System.out.println("The input number is: " + num); | |

Here is the corrected code:

import java.util.Scanner;

public class Output {

public static void main(String[] args) {

int num;

Scanner input = new Scanner(System.in);

System.out.print("Please enter a number: ");

num = input.nextInt();

System.out.println("The input number is: " + num);

}

}

## Program Two

The following line of code is in error for the following reasons:

Scanner.nextInt(num1);

1. Scanner is not the instantiated object so it cannot use method **nextInt()**
2. Since **input** is the instantiated object, **input**  uses the method **nextInt()**  to obtain the integer value
3. The integer value must be assigned to a variable, **num1**  in this case

Here is the corrected line of code:

num1 = input.nextInt();

Here is the corrected program:

import java.util.Scanner;

public class Display {

public static void main(String[] args) {

int num1;

Scanner input = new Scanner(System.*in*);

System.*out*.println("Enter first integer: ");

num1 = input.nextInt();

System.*out*.println(num1);

}

}

Task Two – Java Program

See RectangleProgram.java

Task Three – Java Program

| Input | Expected Output | Actual Output | Description |
| --- | --- | --- | --- |
| 10  6  8  4 | Enter the length of the large box:  Enter the width of the large box:  Enter the length of the small box:  Enter the width of the small box:  The area remaining is 28 square units | Enter the length of the large box:  Enter the width of the large box:  Enter the length of the small box:  Enter the width of the small box:  The area remaining is 28 square units | Testing the method's main logic, it should ask for two inputs, and then output the area remaining. |
| 11  5  7  2 | Enter the length of the large box:  Enter the width of the large box:  Enter the length of the small box:  Enter the width of the small box:  The area remaining is 41 square units | Enter the length of the large box:  Enter the width of the large box:  Enter the length of the small box:  Enter the width of the small box:  The area remaining is 41 square units | Testing the method's main logic, it should ask for two inputs, and then output the area remaining. |
| 5  2  4  1 | Enter the length of the large box:  Enter the width of the large box:  Enter the length of the small box:  Enter the width of the small box:  The area remaining is 6 square units | Enter the length of the large box:  Enter the width of the large box:  Enter the length of the small box:  Enter the width of the small box:  The area remaining is 6 square units | Testing the method's main logic, it should ask for two inputs, and then output the area remaining. |

Task Four – Debugging

A screenshot of a computer

Description automatically generated

Note that the input value of 42 was input on the line below the “Enter first integer” prompt. That is because “println()” was used instead of print().