Reza Shisheie

Homework #1

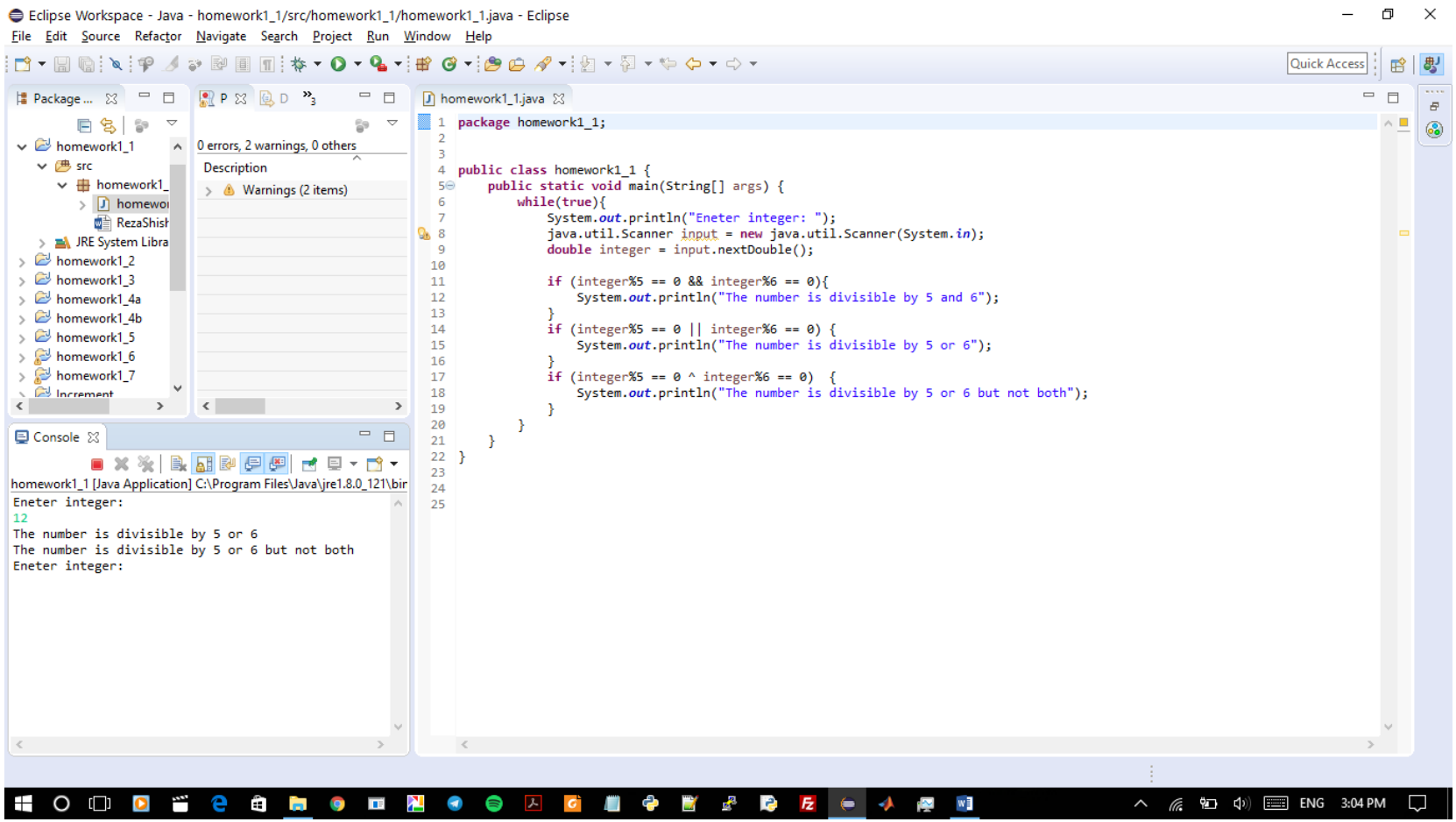
Due: Feb 9th 2017

Question 1:

```
package homework1_1;


public class homework1_1 {
	public static void main(String[] args) {
		while(true){
			System.out.println("Eneter integer: ");
			java.util.Scanner input = new java.util.Scanner(System.in);
			double integer = input.nextDouble();

			if (integer%5 == 0 && integer%6 == 0){
				System.out.println("The number is divisible by 5 and 6");
			}
			if (integer%5 == 0 || integer%6 == 0) {
				System.out.println("The number is divisible by 5 or 6");
			}
			if (integer%5 == 0 ^ integer%6 == 0)  {
				System.out.println("The number is divisible by 5 or 6 but
not both");
			}
		}
	}
}
```

Output

```
Eneter integer:
12
The number is divisible by 5 or 6
The number is divisible by 5 or 6 but not both
Eneter integer:
```

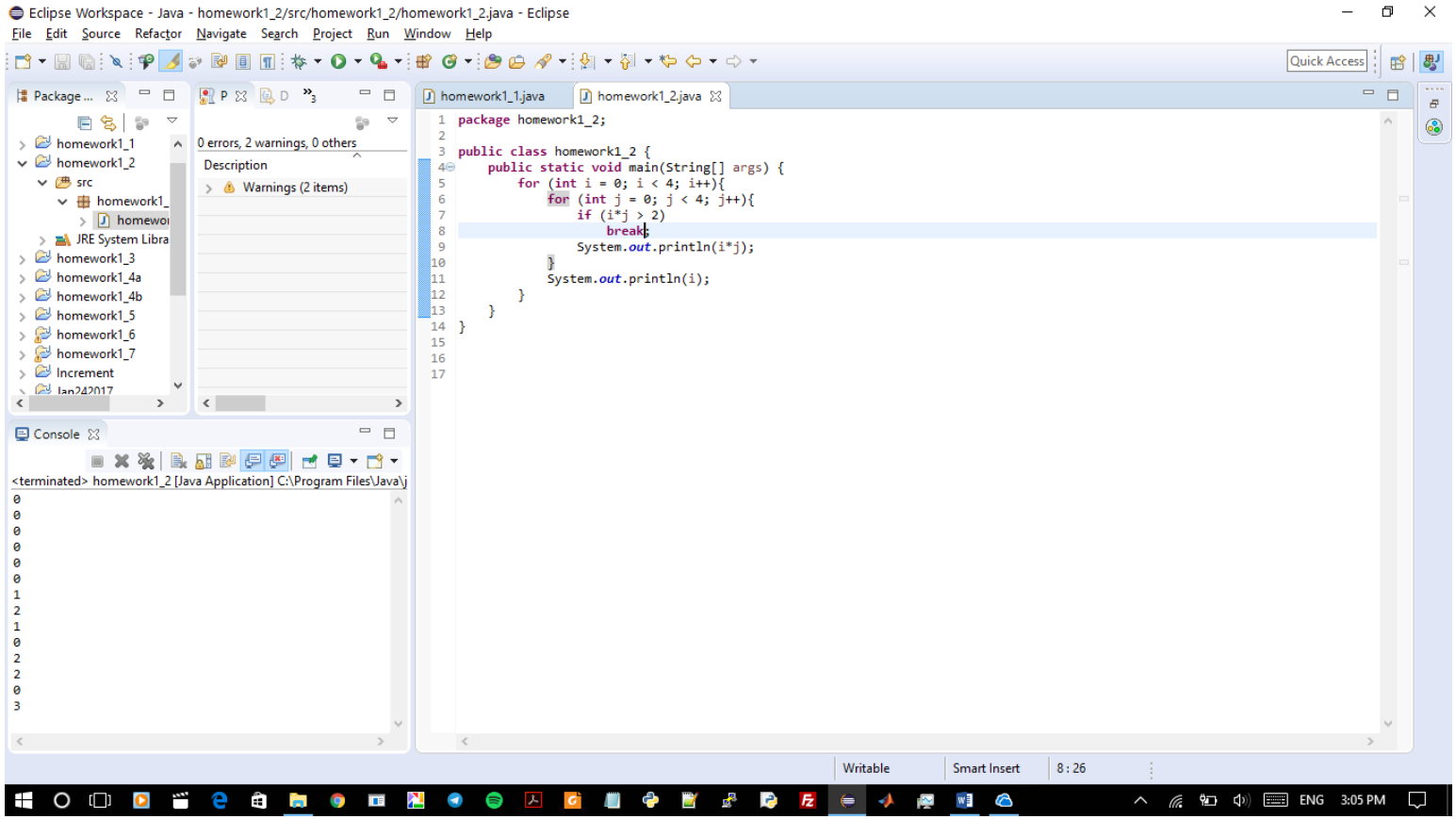

Eclipse Workspace - Java - homework1_1/src/homework1_1/homework1_1.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
src
homework1_
homewo
RezaShish
JRE System Libra
homework1_2
homework1_3
homework1_4a
homework1_4b
homework1_5
homework1_6
homework1_7
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_1.java
1 package homework1_1;
2
3
4 public class homework1_1 {
5 public static void main(String[] args) {
6 while(true){
7 System.out.println("Eneter integer: ");
8 java.util.Scanner input = new java.util.Scanner(System.in);
9 double integer = input.nextDouble();
10
11 if (integer%5 == 0 && integer%6 == 0){
12 System.out.println("The number is divisible by 5 and 6");
13 }
14 if (integer%5 == 0 || integer%6 == 0) {
15 System.out.println("The number is divisible by 5 or 6");
16 }
17 if (integer%5 == 0 ^ integer%6 == 0) {
18 System.out.println("The number is divisible by 5 or 6 but not both");
19 }
20 }
21 }
22 }
23
24
25
Console
homework1_1 [Java Application] C:\Program Files\Java\jre1.8.0_121\bir
Eneter integer:
12
The number is divisible by 5 or 6
The number is divisible by 5 or 6 but not both
Eneter integer:
ENG
3:04 PM

Question 2.a:

```
package homework1_2;

public class homework1_2 {
	public static void main(String[] args) {
		for (int i = 0; i < 4; i++){
			for (int j = 0; j < 4; j++){
				if (i*j > 2)
					break;
				System.out.println(i*j);
			}
			System.out.println(i);
		}
	}
}
```

Output:

```
0
0
0
0
0
0
1
2
1
0
2
2
0
3
```

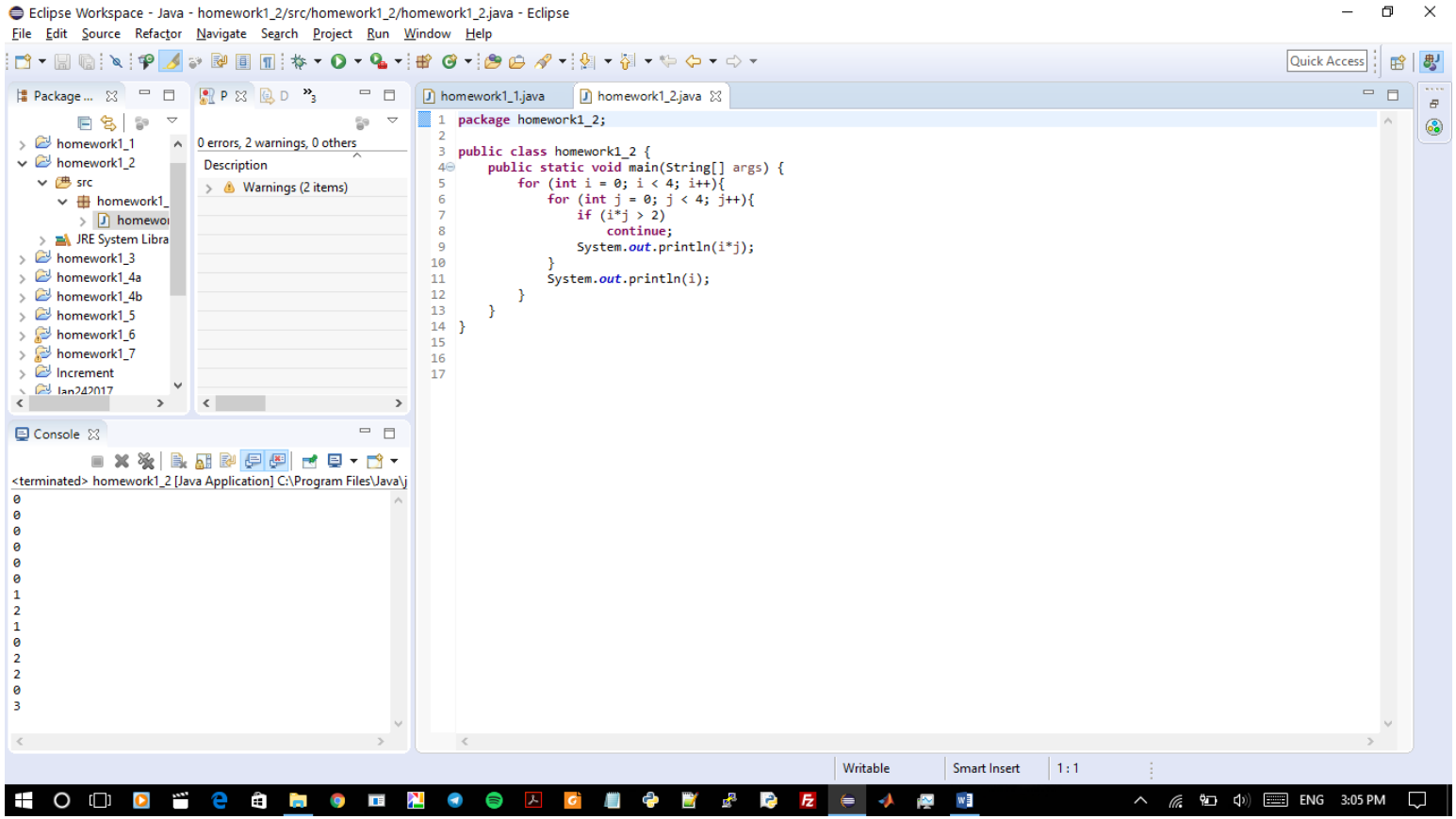

Eclipse Workspace - Java - homework1_2/src/homework1_2/homework1_2.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
src
JRE System Libra
homework1_3
homework1_4a
homework1_4b
homework1_5
homework1_6
homework1_7
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_1.java
homework1_2.java
1 package homework1_2;
3 public class homework1_2 {
4 public static void main(String[] args) {
5 for (int i = 0; i < 4; i++){
6 for (int j = 0; j < 4; j++){
7 if (i*j > 2)
8 break;
9 System.out.println(i*j);
10 }
11 System.out.println(i);
12 }
13 }
14 }
Console
<terminated> homework1_2 [Java Application] C:\Program Files\Java\j
0 0 0 0 0 0 1 2 1 0 2 2 0 3
Writable
Smart Insert
8 : 26
ENG
3:05 PM

Question 2.b:

```
package homework1_2;

public class homework1_2 {
	public static void main(String[] args) {
		for (int i = 0; i < 4; i++){
			for (int j = 0; j < 4; j++){
				if (i*j > 2)
					continue;
				System.out.println(i*j);
			}
			System.out.println(i);
		}
	}
}
```

Output:

```
0
0
0
0
0
0
1
2
1
0
2
2
0
3
```

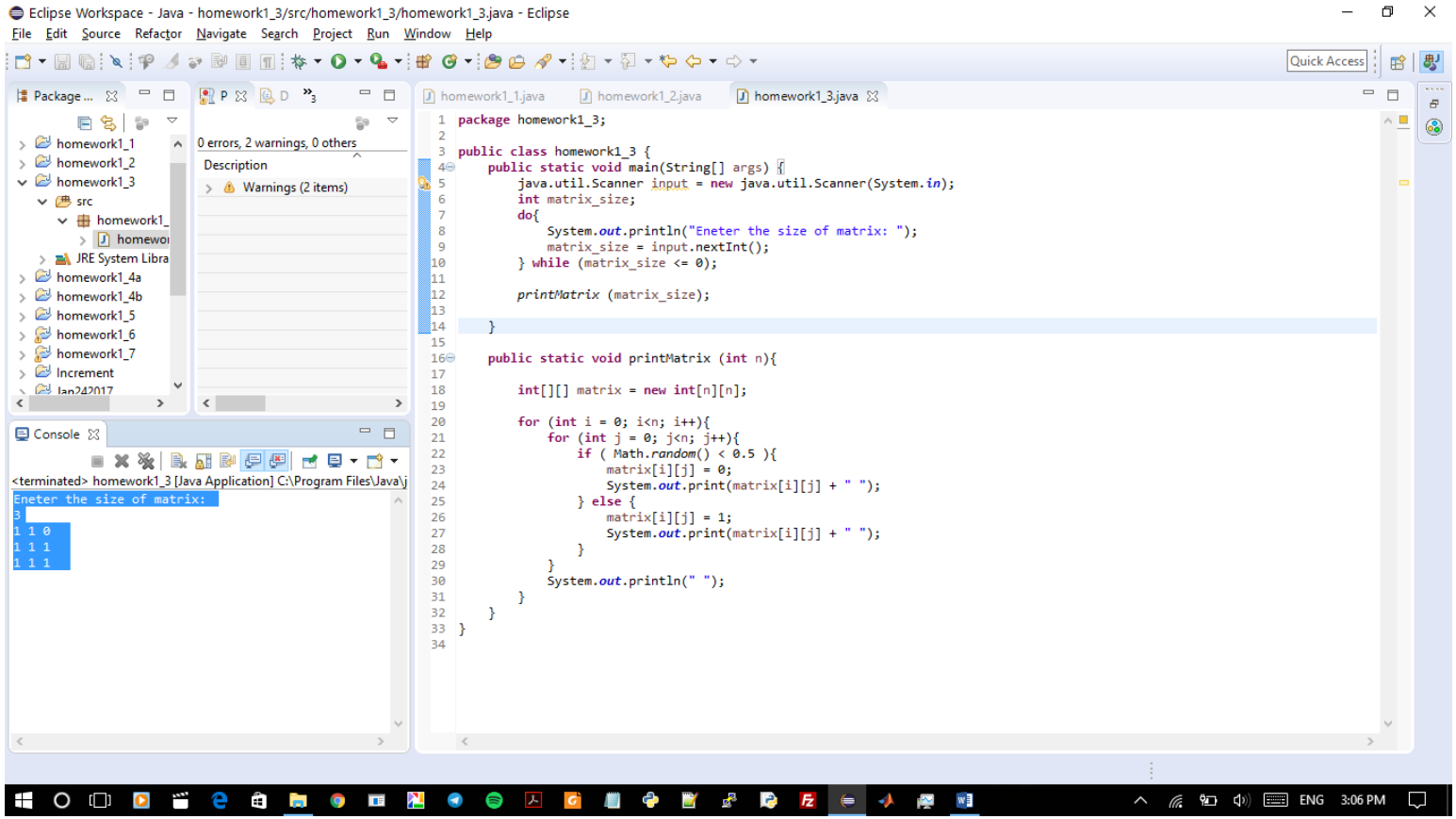

Eclipse Workspace - Java - homework1_2/src/homework1_2/homework1_2.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
src
homework1_
homewo
JRE System Libra
homework1_3
homework1_4a
homework1_4b
homework1_5
homework1_6
homework1_7
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_1.java
homework1_2.java
1 package homework1_2;
2
3 public class homework1_2 {
4 public static void main(String[] args) {
5 for (int i = 0; i < 4; i++){
6 for (int j = 0; j < 4; j++){
7 if (i*j > 2)
8 continue;
9 System.out.println(i*j);
10 }
11 System.out.println(i);
12 }
13 }
14 }
15
16
17
Console
<terminated> homework1_2 [Java Application] C:\Program Files\Java\j
0
0
0
0
0
0
1
2
1
0
2
2
0
3
Writable
Smart Insert
1 : 1
ENG
3:05 PM

Question 3:

```
package homework1_3;

public class homework1_3 {
	public static void main(String[] args) {
		java.util.Scanner input = new java.util.Scanner(System.in);
		int matrix_size;
		do{
			System.out.println("Enter the size of matrix: ");
			matrix_size = input.nextInt();
		} while (matrix_size <= 0);

		printMatrix (matrix_size);

	}

	public static void printMatrix (int n){

		int[][] matrix = new int[n][n];

		for (int i = 0; i<n; i++){
			for (int j = 0; j<n; j++){
				if ( Math.random() < 0.5 ){
					matrix[i][j] = 0;
					System.out.print(matrix[i][j] + " ");
				} else {
					matrix[i][j] = 1;
					System.out.print(matrix[i][j] + " ");
				}
			}
			System.out.println(" ");
		}
	}
}
```

Input and output:

```
Enter the size of matrix:
3
0 1 1
0 0 0
0 1 0
```


Eclipse Workspace - Java - homework1_3/src/homework1_3/homework1_3.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
homework1_3
src
homework1_
JRE System Libra
homework1_4a
homework1_4b
homework1_5
homework1_6
homework1_7
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_1.java
homework1_2.java
homework1_3.java
1 package homework1_3;
2
3 public class homework1_3 {
4 public static void main(String[] args) {
5 java.util.Scanner input = new java.util.Scanner(System.in);
6 int matrix_size;
7 do{
8 System.out.println("Eneter the size of matrix: ");
9 matrix_size = input.nextInt();
10 } while (matrix_size <= 0);
11
12 printMatrix (matrix_size);
13
14 }
15
16 public static void printMatrix (int n){
17
18 int[][] matrix = new int[n][n];
19
20 for (int i = 0; i<n; i++){
21 for (int j = 0; j<n; j++){
22 if (Math.random() < 0.5){
23 matrix[i][j] = 0;
24 System.out.print(matrix[i][j] + " ");
25 } else {
26 matrix[i][j] = 1;
27 System.out.print(matrix[i][j] + " ");
28 }
29 }
30 System.out.println(" ");
31 }
32 }
33 }
34
Console
<terminated> homework1_3 [Java Application] C:\Program Files\Java\j
Eneter the size of matrix:
3
1 1 0
1 1 1
1 1 1
ENG
3:06 PM

Question 4:

This is the question between pass-by-value and pass-by-reference:

When a parameter is passed by reference, the caller and the callee use the same variable for the parameter. If the callee modifies the parameter variable, the effect is visible to the caller's variable.

When a parameter is passed by value, the caller and callee have two independent variables with the same value. If the callee modifies the parameter variable, the effect is not visible to the caller.

Question 4.a:

```
package homework1_4a;

public class homework1_4a {
	public static void main(String[] args) {
		int max = 0;
		max(1,2,max);
		System.out.println(max);
	}

	public static void max(int value1, int value2, int max){
		if (value1>value2){
			max = value1;
		} else {
			max = value2;
		}
	}


}
```

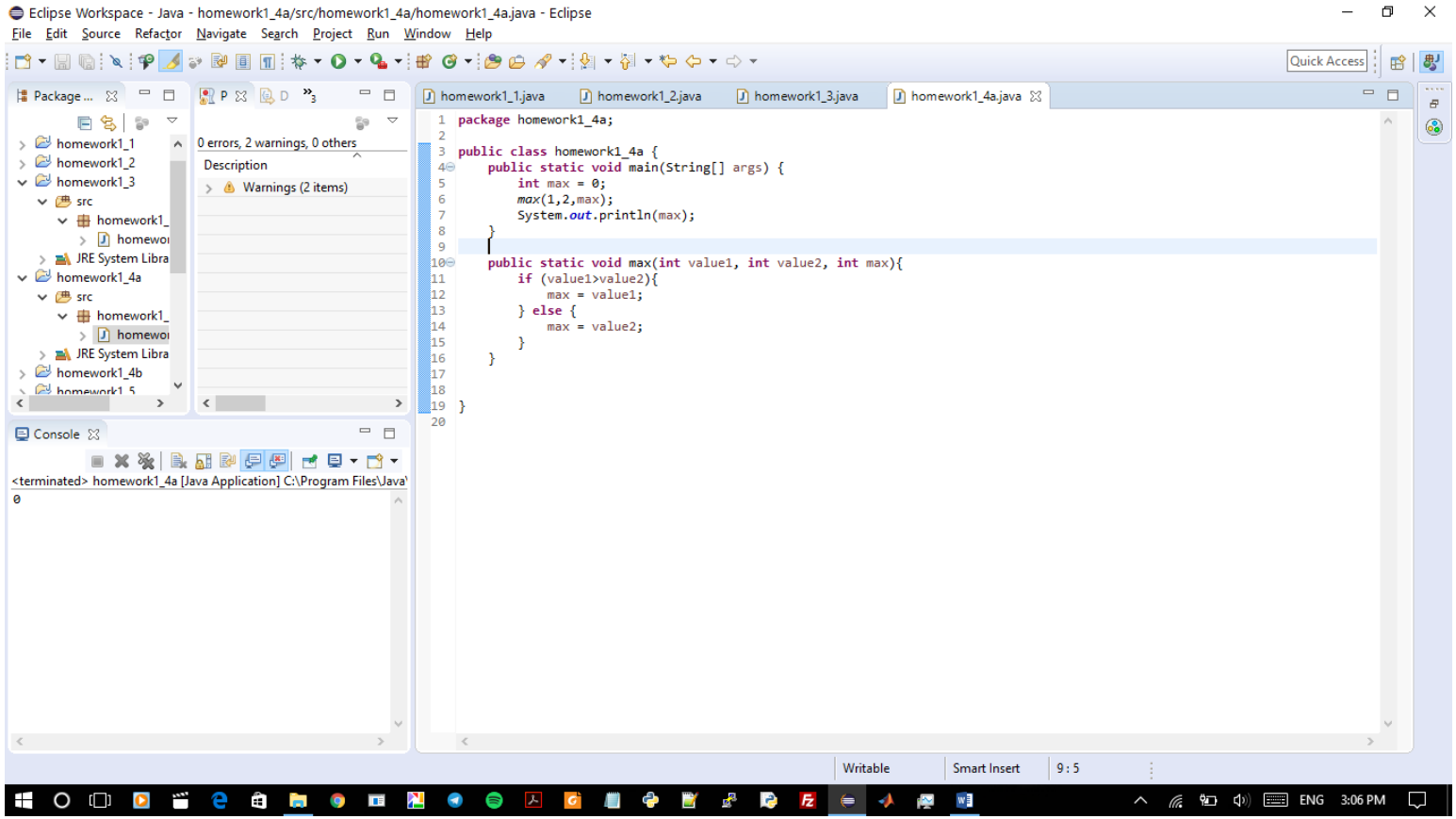
Output = 0

The program can be changed to the following to return the max:

```
package homework1_4a;

public class homework1_4a {
	public static void main(String[] args) {
		int max = 0;
		max = max(1,2,max);
		System.out.println(max);
	}

	public static int  max(int value1, int value2, int max){
		if (value1>value2){
			max = value1;
		} else {
			max = value2;
		}
		return max;
	}
}
```

Output:

2

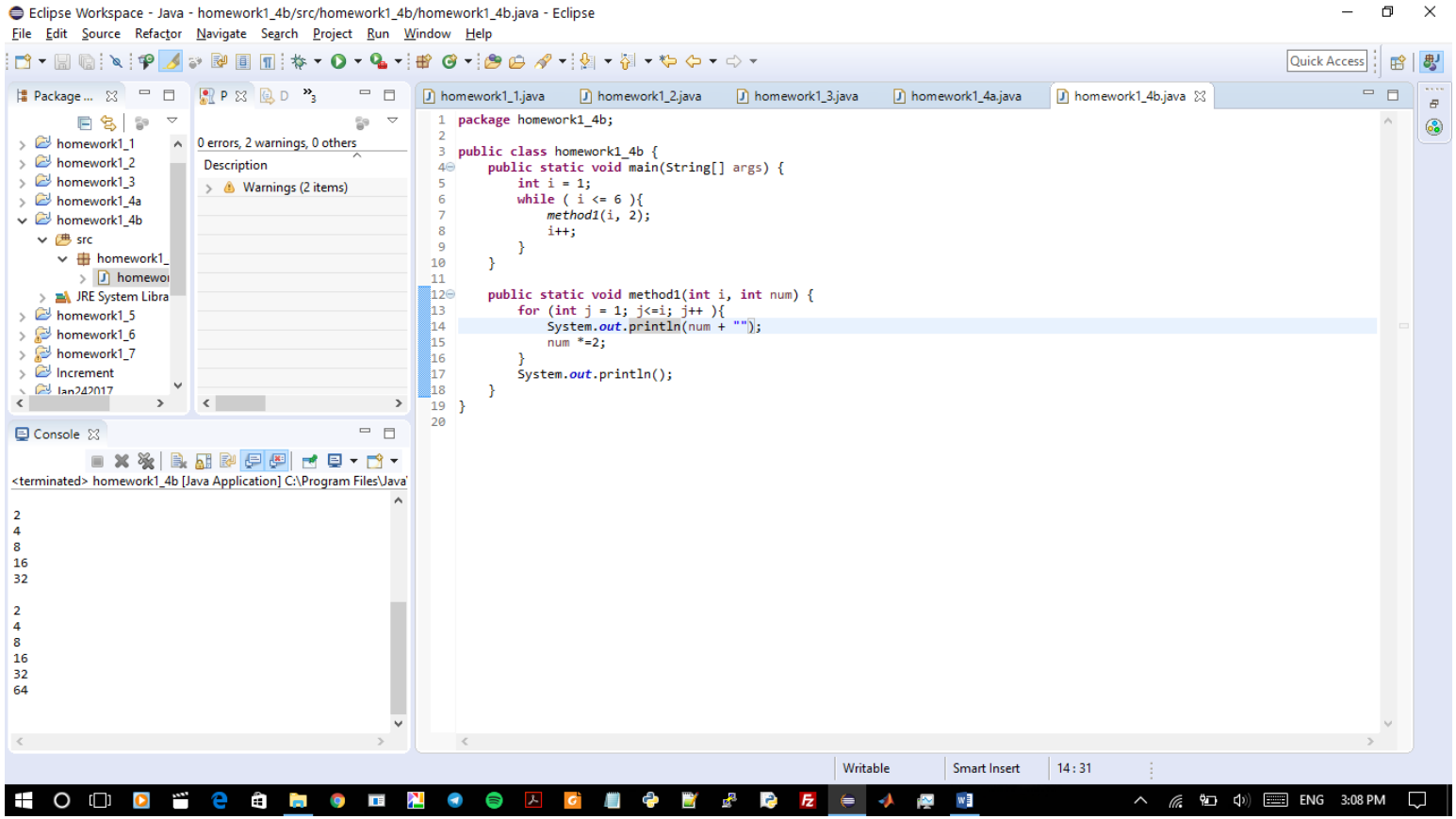

Eclipse Workspace - Java - homework1_4a/src/homework1_4a/homework1_4a.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
homework1_3
src
homework1_
JRE System Libra
homework1_4a
src
homework1_
JRE System Libra
homework1_4b
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
Console
<terminated> homework1_4a [Java Application] C:\Program Files\Java\
0
homework1_1.java
homework1_2.java
homework1_3.java
homework1_4a.java
1 package homework1_4a;
2
3 public class homework1_4a {
4 public static void main(String[] args) {
5 int max = 0;
6 max(1,2,max);
7 System.out.println(max);
8 }
9
10 public static void max(int value1, int value2, int max){
11 if (value1>value2){
12 max = value1;
13 } else {
14 max = value2;
15 }
16 }
17
18
19 }
20
Writable
Smart Insert
9 : 5
ENG
3:06 PM

Question 4.b:

```
package homework1_4b;

public class homework1_4b {
	public static void main(String[] args) {
		int i = 1;
		while ( i <= 6 ){
			method1(i, 2);
			i++;
		}
	}

	public static void method1(int i, int num) {
		for (int j = 1; j<=i; j++ ){
			System.out.println(num + "");
			num *=2;
		}
		System.out.println();
	}
}
```

Output:

```
2

2
4

2
4
8

2
4
8
16

2
4
8
16
32

2
4
8
16
32
64
```

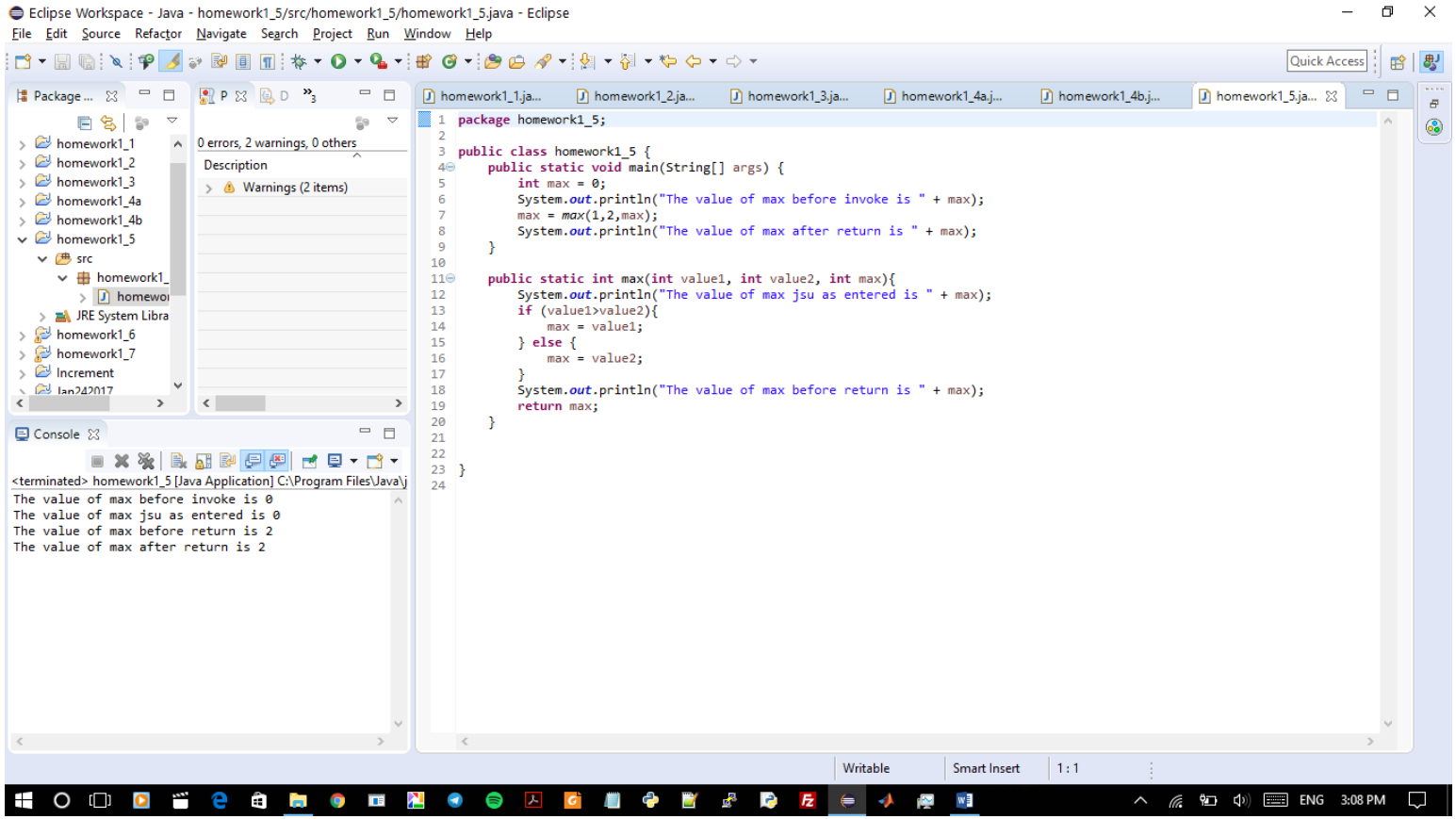

Eclipse Workspace - Java - homework1_4b/src/homework1_4b/homework1_4b.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
homework1_3
homework1_4a
homework1_4b
src
JRE System Libra
homework1_5
homework1_6
homework1_7
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_1.java
homework1_2.java
homework1_3.java
homework1_4a.java
homework1_4b.java
package homework1_4b;
public class homework1_4b {
public static void main(String[] args) {
int i = 1;
while (i <= 6){
method1(i, 2);
i++;
}
}
public static void method1(int i, int num) {
for (int j = 1; j<=i; j++){
System.out.println(num + "");
num *=2;
}
System.out.println();
}
}
Console
<terminated> homework1_4b [Java Application] C:\Program Files\Java
2
4
8
16
32
2
4
8
16
32
64
Writable
Smart Insert
14 : 31
ENG
3:08 PM

Question 5:

```
package homework1_5;

public class homework1_5 {
	public static void main(String[] args) {
		int max = 0;
		System.out.println("The value of max before invoke is " + max);
		max = max(1,2,max);
		System.out.println("The value of max after return is " + max);
	}

	public static int max(int value1, int value2, int max){
		System.out.println("The value of max jsu as entered is " + max);
		if (value1>value2){
			max = value1;
		} else {
			max = value2;
		}
		System.out.println("The value of max before return is " + max);
		return max;
	}


}
```

Output:

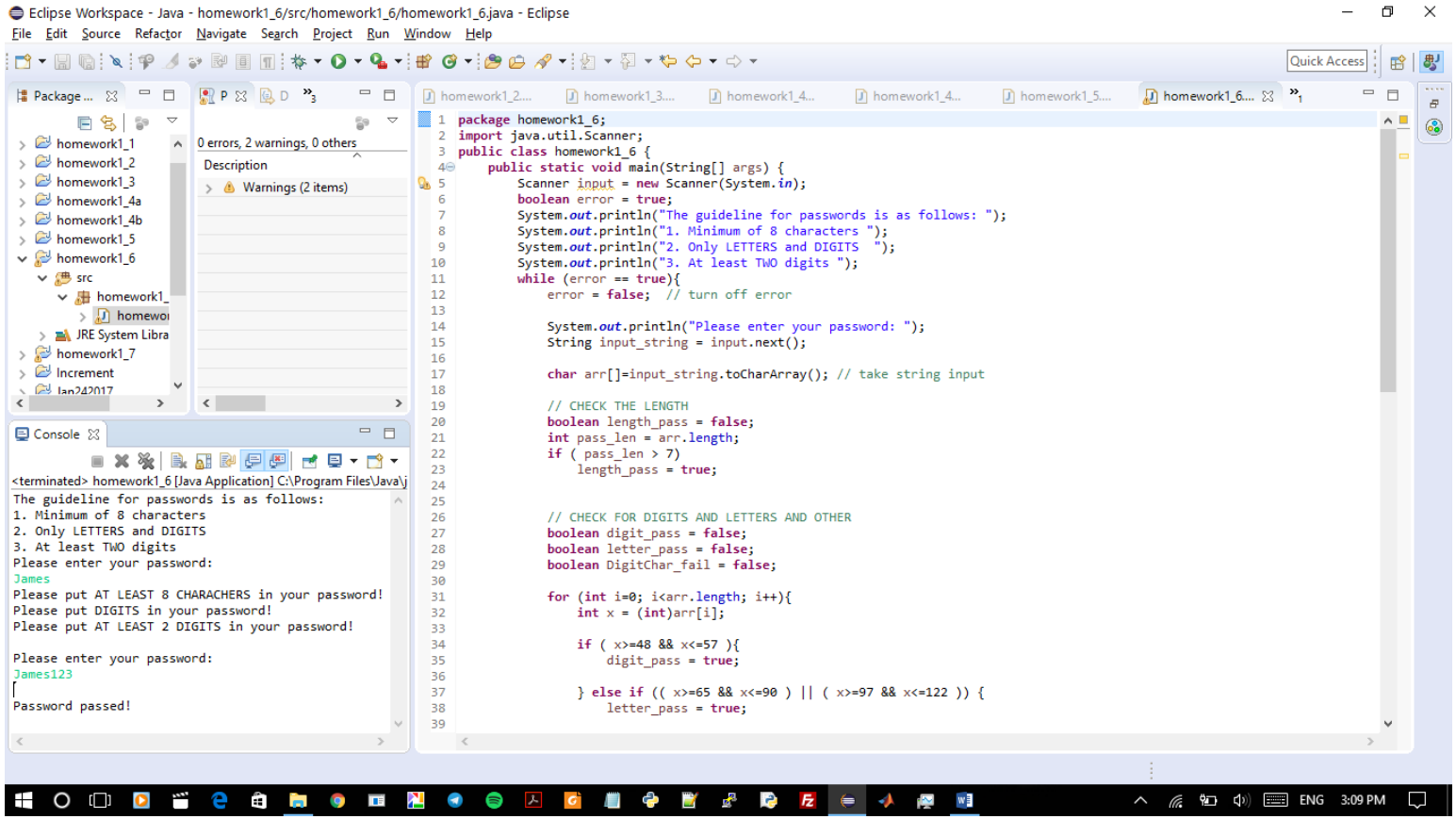
```
The value of max before invoke is 0
The value of max jsu as entered is 0
The value of max before return is 2
The value of max after return is 2
```


Eclipse Workspace - Java - homework1_5/src/homework1_5/homework1_5.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
homework1_3
homework1_4a
homework1_4b
homework1_5
src
JRE System Libra
homework1_6
homework1_7
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_1.ja...
homework1_2.ja...
homework1_3.ja...
homework1_4a.j...
homework1_4b.j...
homework1_5.ja...
1 package homework1_5;
2
3 public class homework1_5 {
4 public static void main(String[] args) {
5 int max = 0;
6 System.out.println("The value of max before invoke is " + max);
7 max = max(1,2,max);
8 System.out.println("The value of max after return is " + max);
9 }
10
11 public static int max(int value1, int value2, int max){
12 System.out.println("The value of max jsu as entered is " + max);
13 if (value1>value2){
14 max = value1;
15 } else {
16 max = value2;
17 }
18 System.out.println("The value of max before return is " + max);
19 return max;
20 }
21
22
23 }
24
Console
<terminated> homework1_5 [Java Application] C:\Program Files\Java\j
The value of max before invoke is 0
The value of max jsu as entered is 0
The value of max before return is 2
The value of max after return is 2
Writable
Smart Insert
1 : 1
ENG
3:08 PM

Question 6:

```
package homework1_6;
import java.util.Scanner;
public class homework1_6 {
	public static void main(String[] args) {
		Scanner input = new Scanner(System.in);
		boolean error = true;
		System.out.println("The guideline for passwords is as follows: ");
		System.out.println("1. Minimum of 8 characters ");
		System.out.println("2. Only LETTERS and DIGITS  ");
		System.out.println("3. At least TWO digits ");
		while (error == true){
			error = false;  // turn off error

			System.out.println("Please enter your password: ");
			String input_string = input.next();

			char arr[]=input_string.toCharArray(); // take string input

			// CHECK THE LENGTH
			boolean length_pass = false;
			int pass_len = arr.length;
			if ( pass_len > 7)
				length_pass = true;


			// CHECK FOR DIGITS AND LETTERS AND OTHER
			boolean digit_pass = false;
			boolean letter_pass = false;
			boolean DigitChar_fail = false;

			for (int i=0; i<arr.length; i++){
				int x = (int)arr[i];

				if ( x>=48 && x<=57 ){
					digit_pass = true;

				} else if (( x>=65 && x<=90 ) || ( x>=97 && x<=122 )) {
					letter_pass = true;

				} else {
					DigitChar_fail = true;
				}
			}

			// CHECK FOR TWO DIGITS
			boolean twoDigit_pass = false;
			int digit_count = 0;
			for (int i=0; i<arr.length; i++){
				int x = (int)arr[i];
				if (x>=48 && x<=57)
```

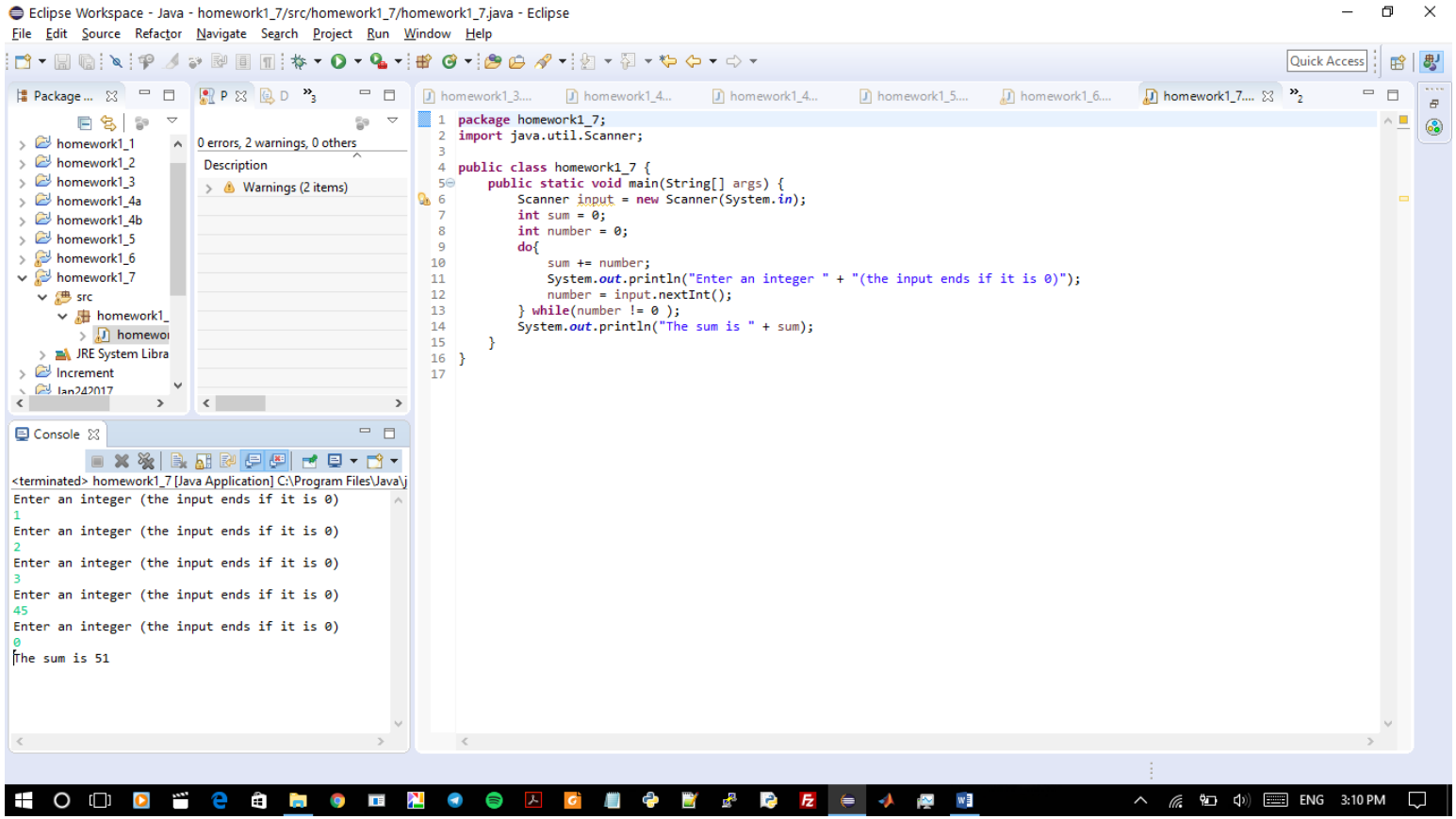
```
                        digit_count++;
                }
                if (digit_count > 1)
                        twoDigit_pass = true;

                // ERRORS

                if (length_pass == false){
                        System.out.println("Please put AT LEAST 8 CHARACHERS in
your password!");
                        error = true;
                }
                if (digit_pass == false){
                        System.out.println("Please put DIGITS in your password!");
                        error = true;
                }
                if (letter_pass == false){
                        System.out.println("Please put LETTERS in your
password!");
                        error = true;
                }
                if (DigitChar_fail == true){
                        System.out.println("Please only put ONLY DIGITS and
LETTERS in your password!");
                        error = true;
                }
                if (twoDigit_pass == false){
                        System.out.println("Please put AT LEAST 2 DIGITS in your
password!");
                        error = true;
                }
                System.out.println("");

        }
        System.out.println("Password passed!");

    }
}
```


Eclipse Workspace - Java - homework1_6/src/homework1_6/homework1_6.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
homework1_3
homework1_4a
homework1_4b
homework1_5
homework1_6
src
JRE System Libra
homework1_7
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_2....
homework1_3....
homework1_4...
homework1_4...
homework1_5....
homework1_6....
1 package homework1_6;
2 import java.util.Scanner;
3 public class homework1_6 {
4 public static void main(String[] args) {
5 Scanner input = new Scanner(System.in);
6 boolean error = true;
7 System.out.println("The guideline for passwords is as follows: ");
8 System.out.println("1. Minimum of 8 characters ");
9 System.out.println("2. Only LETTERS and DIGITS ");
10 System.out.println("3. At least TWO digits ");
11 while (error == true){
12 error = false; // turn off error
13
14 System.out.println("Please enter your password: ");
15 String input_string = input.next();
16
17 char arr[]=input_string.toCharArray(); // take string input
18
19 // CHECK THE LENGTH
20 boolean length_pass = false;
21 int pass_len = arr.length;
22 if (pass_len > 7)
23 length_pass = true;
24
25
26 // CHECK FOR DIGITS AND LETTERS AND OTHER
27 boolean digit_pass = false;
28 boolean letter_pass = false;
29 boolean DigitChar_fail = false;
30
31 for (int i=0; i<arr.length; i++){
32 int x = (int)arr[i];
33
34 if (x>=48 && x<=57){
35 digit_pass = true;
36
37 } else if ((x>=65 && x<=90) || (x>=97 && x<=122)) {
38 letter_pass = true;
39
Console
<terminated> homework1_6 [Java Application] C:\Program Files\Java\j
The guideline for passwords is as follows:
1. Minimum of 8 characters
2. Only LETTERS and DIGITS
3. At least TWO digits
Please enter your password:
James
Please put AT LEAST 8 CHARACHERS in your password!
Please put DIGITS in your password!
Please put AT LEAST 2 DIGITS in your password!
Please enter your password:
James123
Password passed!
ENG
3:09 PM

Question 7:

In the while loop the loop statement only gets executed if the condition is met. However, in the do-while loop the loop statement gets executed in the do loop and then the while checks the condition and if the condition is met it keeps executing the do loop.

```
package homework1_7;
import java.util.Scanner;

public class homework1_7 {
	public static void main(String[] args) {
		Scanner input = new Scanner(System.in);
		int sum = 0;
		int number = 0;
		do{
			sum += number;
			System.out.println("Enter an integer " + "(the input ends if it
is 0)");
			number = input.nextInt();
		} while(number != 0 );
		System.out.println("The sum is " + sum);
	}
}
```


Eclipse Workspace - Java - homework1_7/src/homework1_7/homework1_7.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package ...
homework1_1
homework1_2
homework1_3
homework1_4a
homework1_4b
homework1_5
homework1_6
homework1_7
src
JRE System Libra
Increment
0 errors, 2 warnings, 0 others
Description
Warnings (2 items)
homework1_3....
homework1_4...
homework1_4...
homework1_5....
homework1_6....
homework1_7....
1 package homework1_7;
2 import java.util.Scanner;
3
4 public class homework1_7 {
5 public static void main(String[] args) {
6 Scanner input = new Scanner(System.in);
7 int sum = 0;
8 int number = 0;
9 do{
10 sum += number;
11 System.out.println("Enter an integer " + "(the input ends if it is 0)");
12 number = input.nextInt();
13 } while(number != 0);
14 System.out.println("The sum is " + sum);
15 }
16 }
17
Console
<terminated> homework1_7 [Java Application] C:\Program Files\Java\j
Enter an integer (the input ends if it is 0)
1
Enter an integer (the input ends if it is 0)
2
Enter an integer (the input ends if it is 0)
3
Enter an integer (the input ends if it is 0)
45
Enter an integer (the input ends if it is 0)
0
The sum is 51
ENG
3:10 PM