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**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

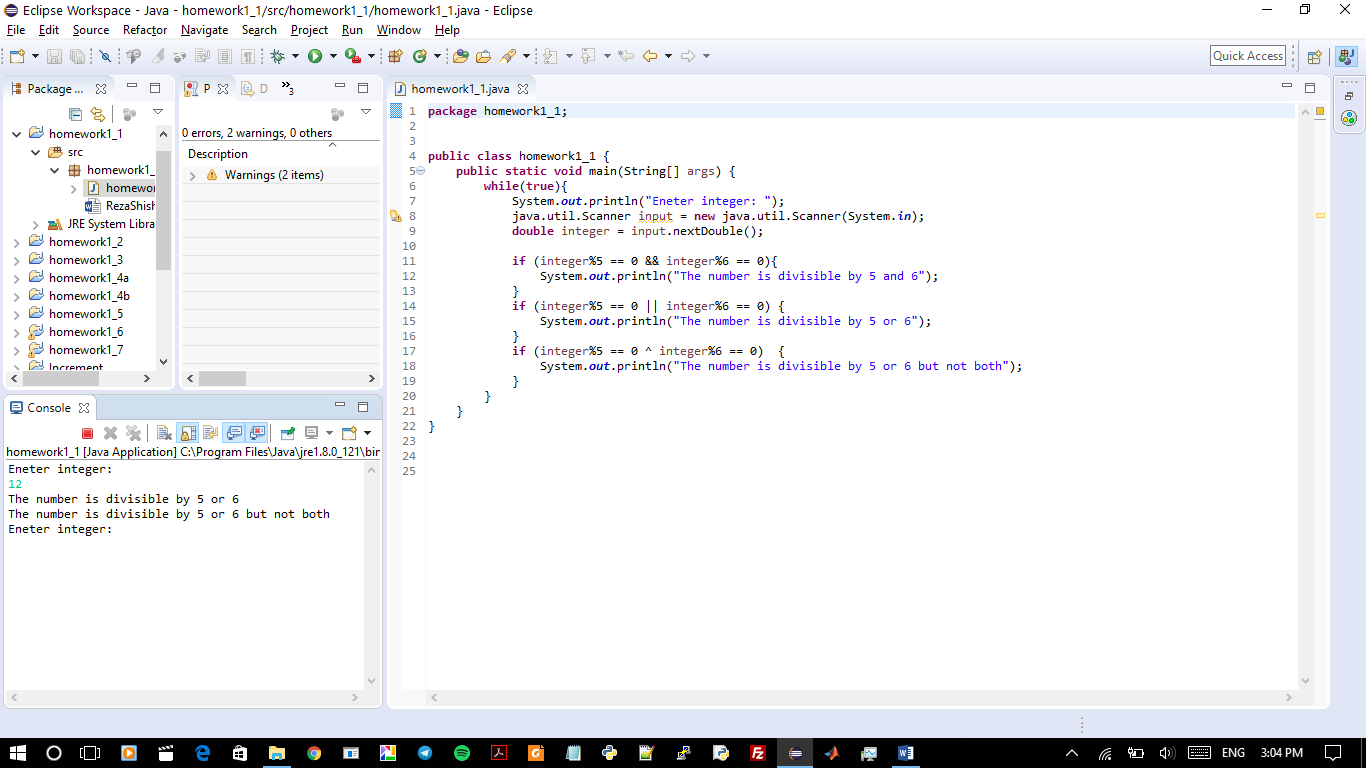
Eneter integer:

12

The number is divisible by 5 or 6

The number is divisible by 5 or 6 but not both

Eneter integer:



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

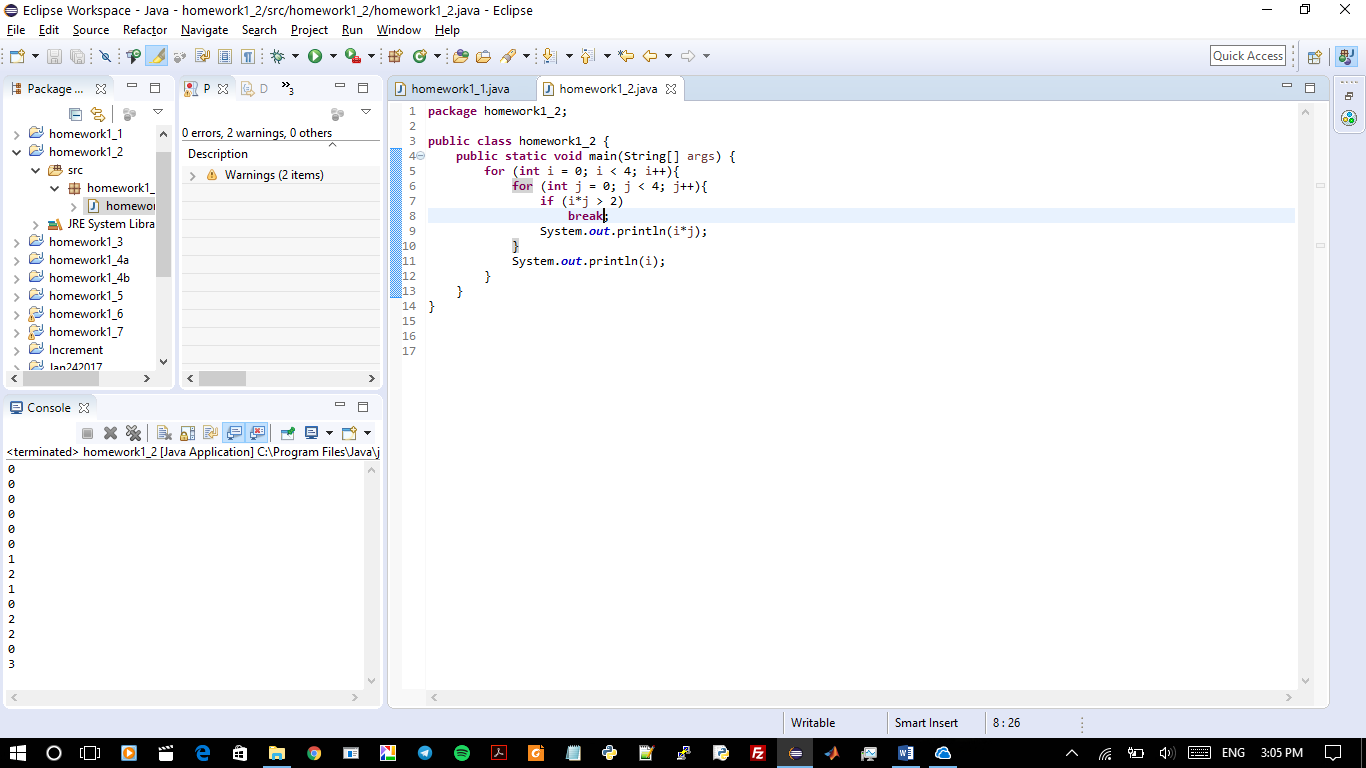
0

2

2

0

3



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

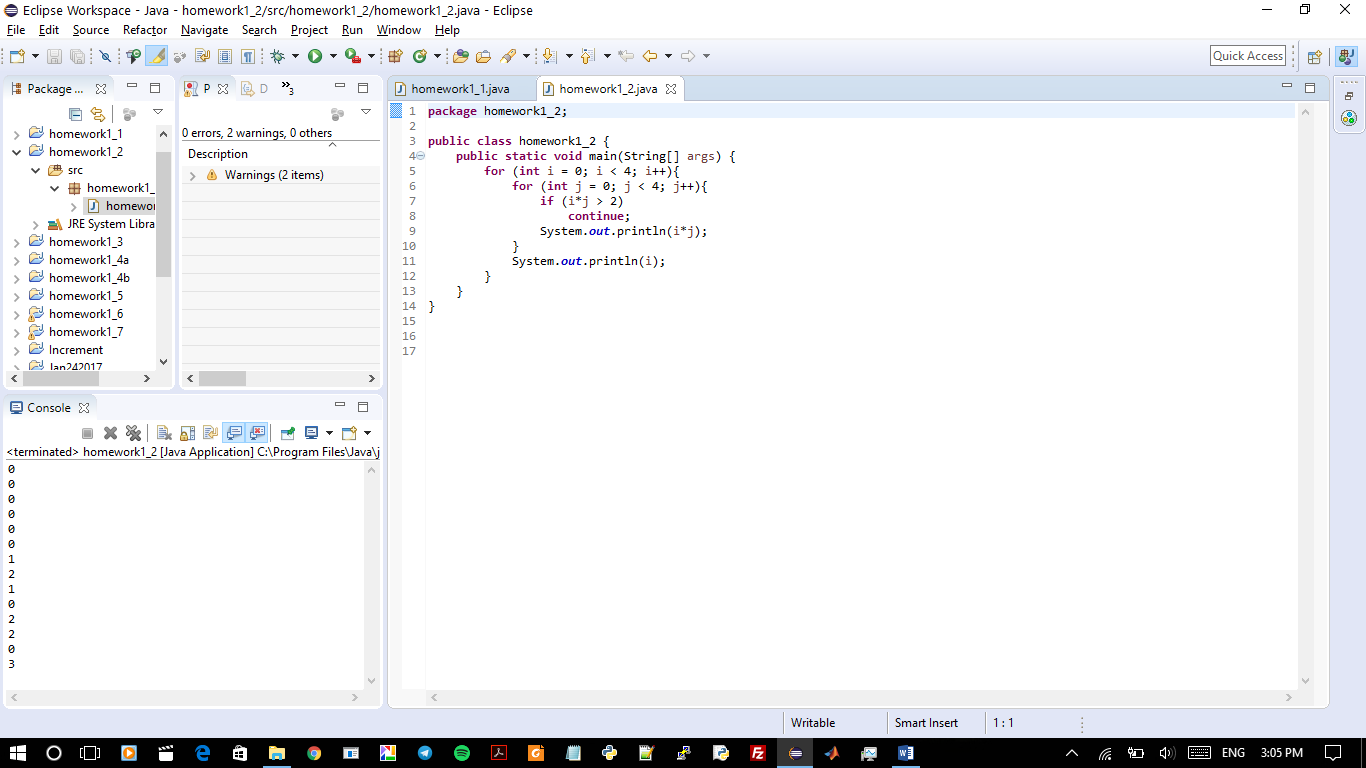
0

2

2

0

3



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:

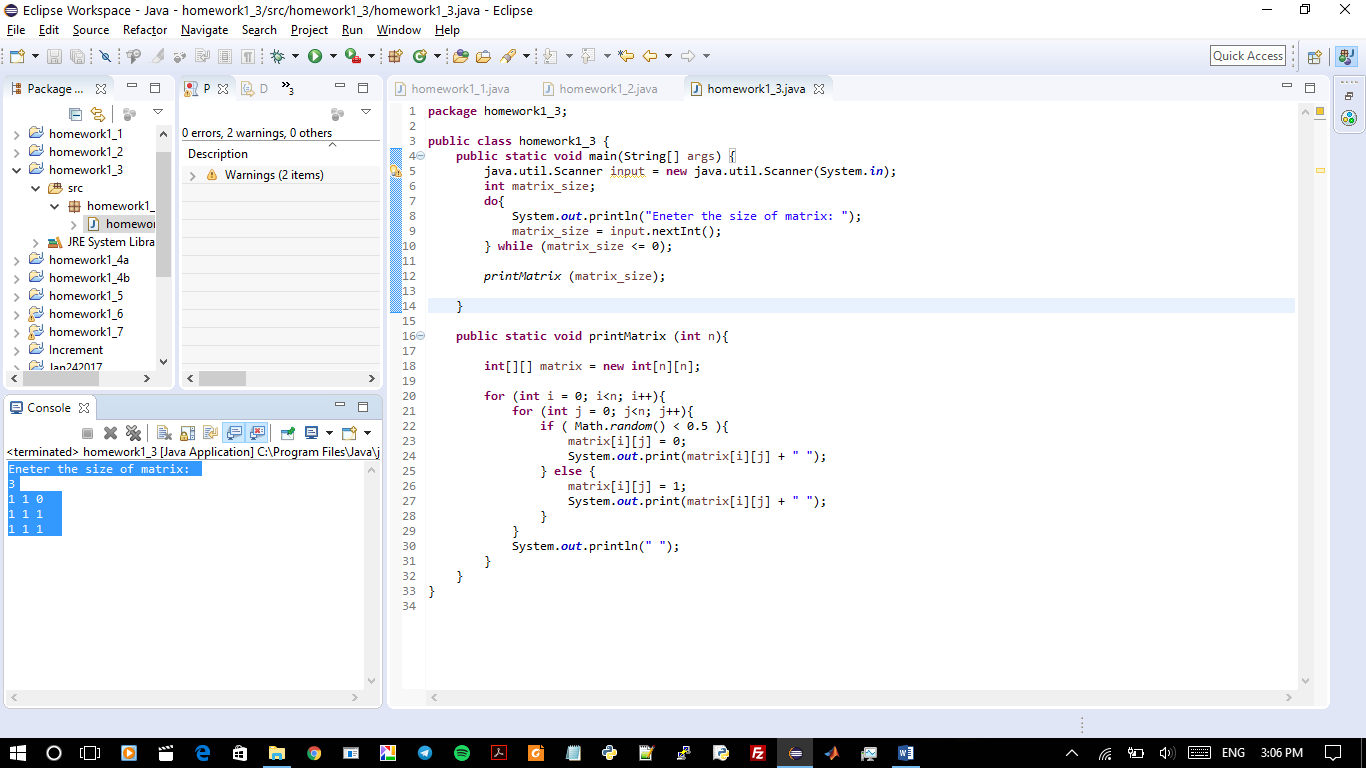
Enter the size of matrix:

3

0 1 1

0 0 0

0 1 0



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;

}

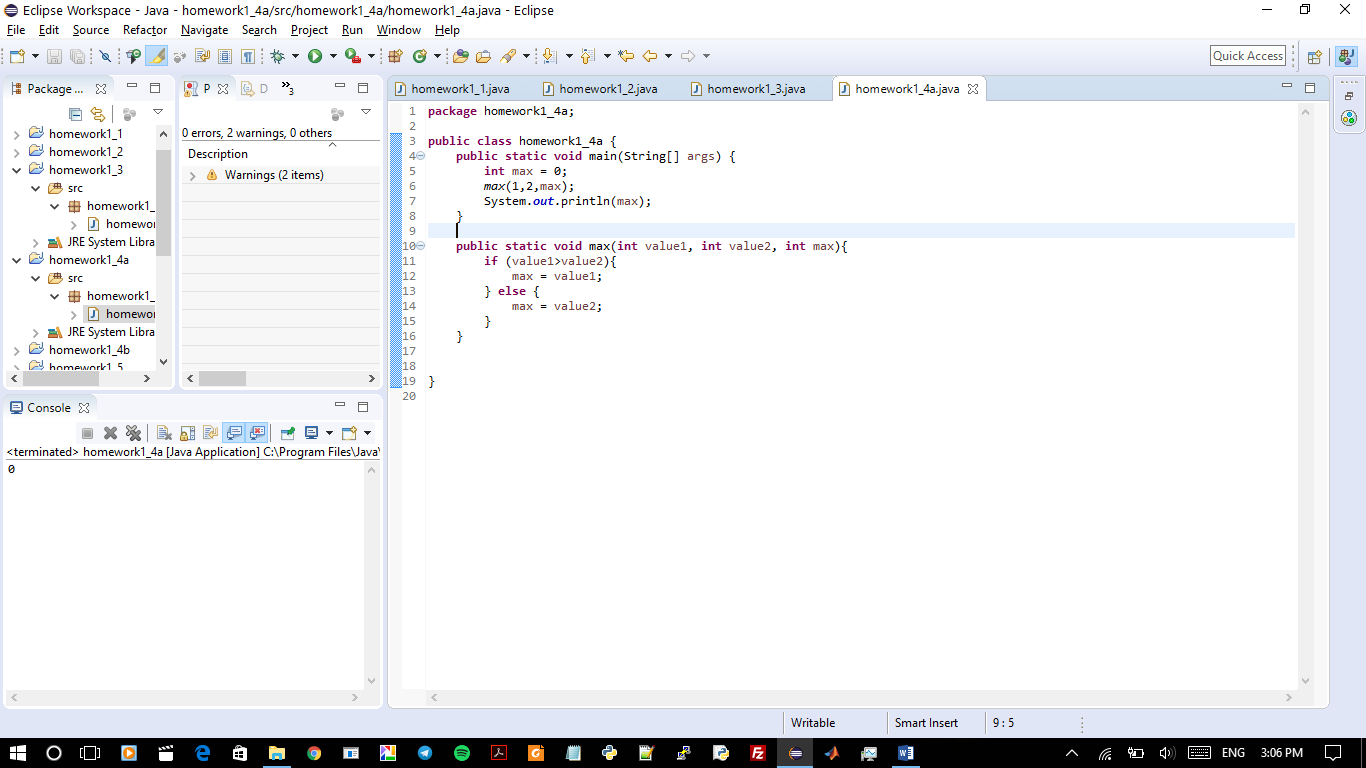
**return** max;

}

}

Output:

2



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

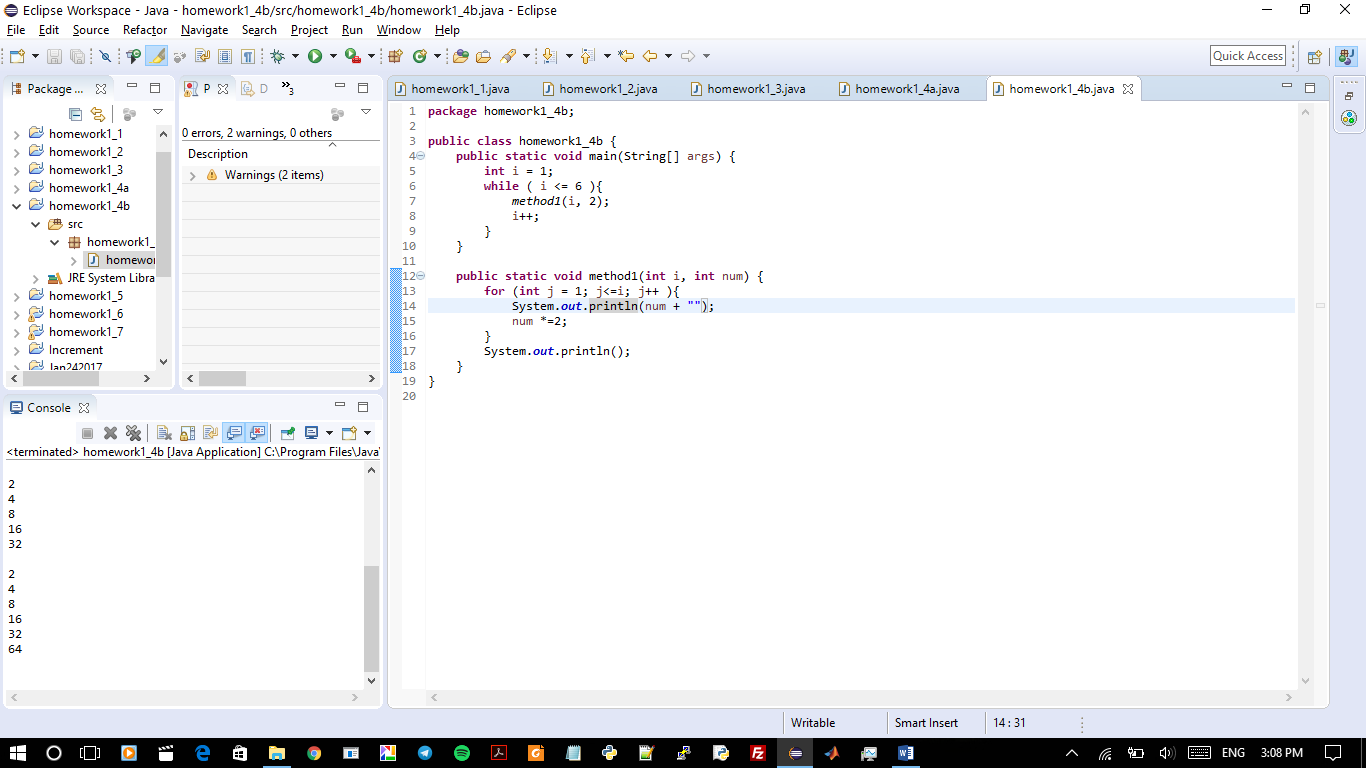
4

8

16

32

64



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;

}

}

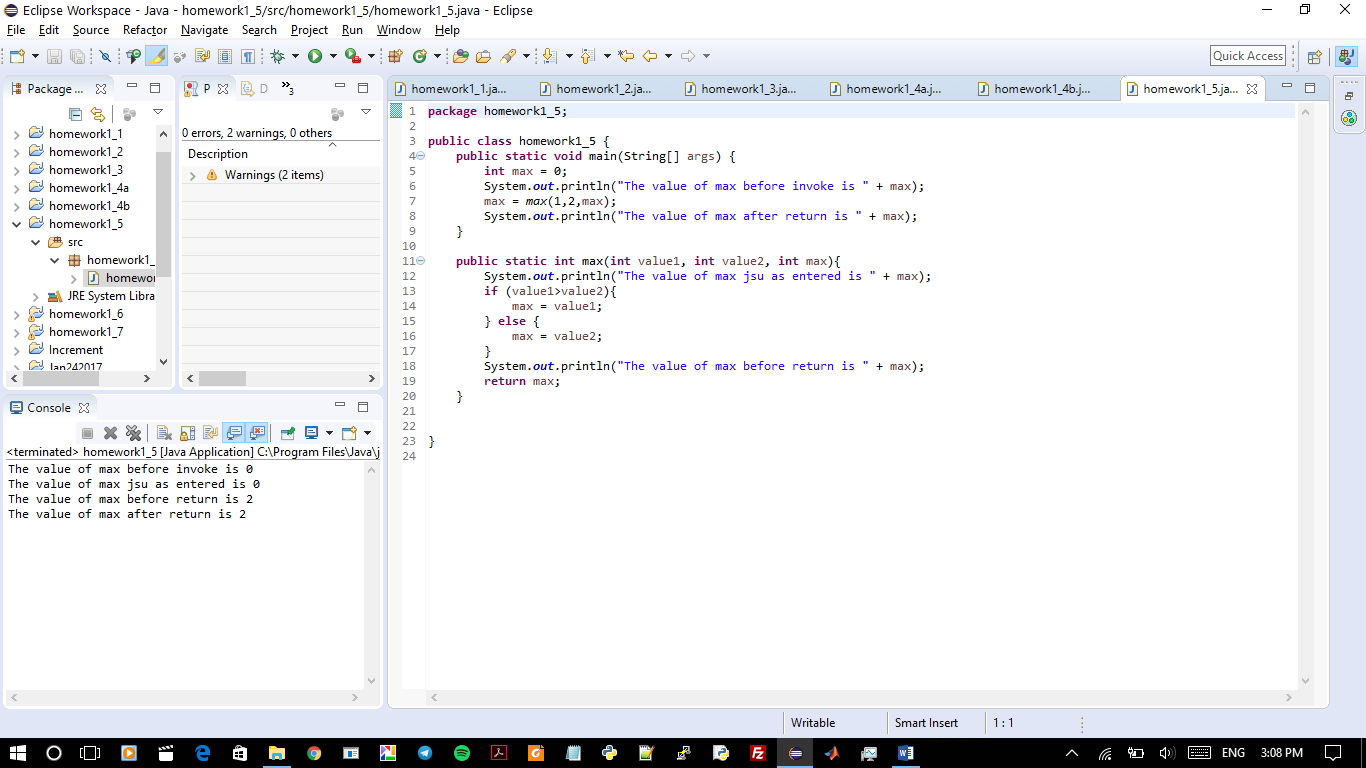
Output:

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



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**;

}

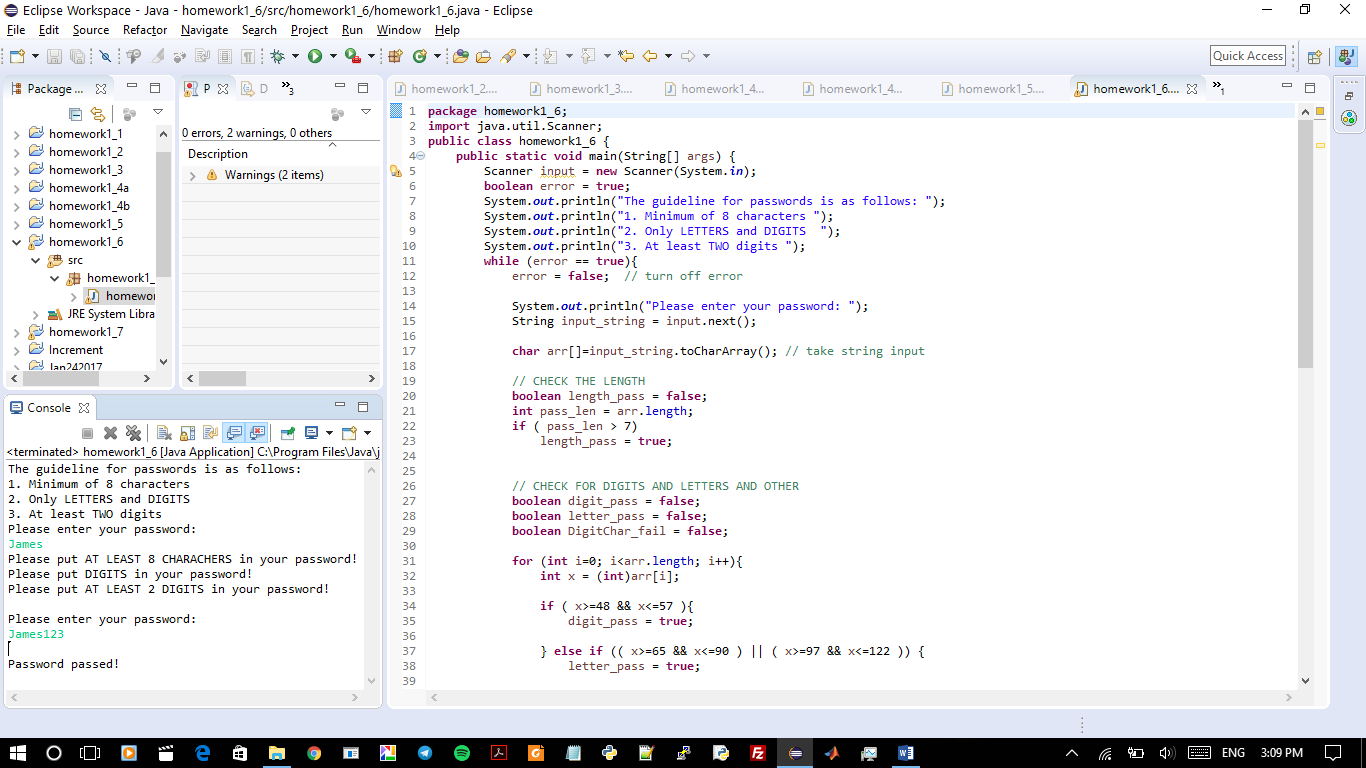
System.***out***.println("");

}

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

}

}



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);

}

}

