

JAVA

기본 프로그래밍 02

Objective

Condition

- ▶ if ... else

- ▶ switch

Loop

- ▶ for

- ▶ while

Condition(Cont'd)

if ... else

- ▶ A "if statement" is used to specify a block of code

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     int i, j;  
10    i = 3;  
11    j = 5;  
12  
13    if (i > j) {  
14        System.out.println("i is greater than j");  
15    } else {  
16        System.out.println("j is greater than i or j and i are the same");  
17    }  
18 }  
19 }
```

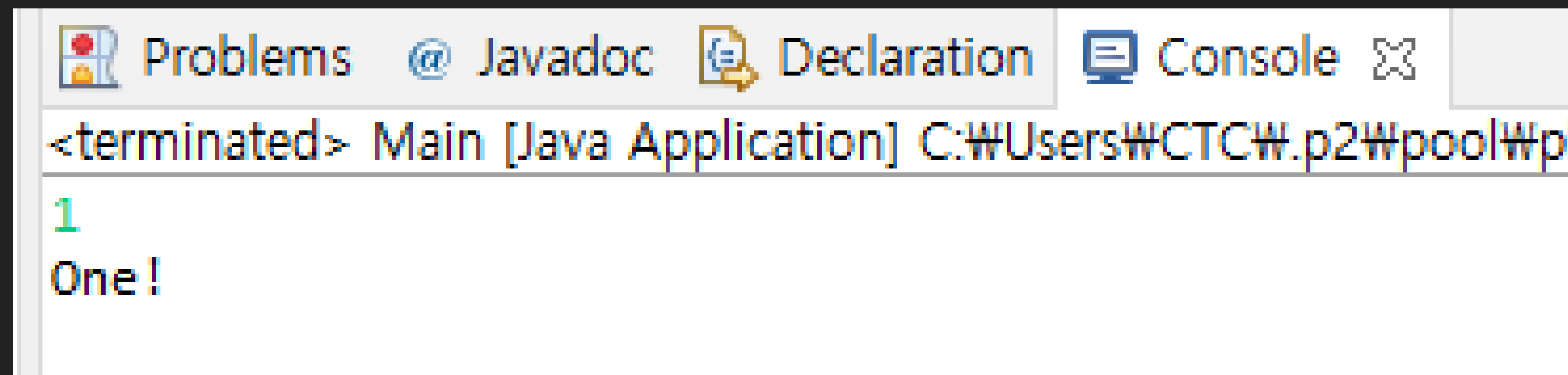
Problems @ Javadoc Declaration Console

<terminated> Main [Java Application] C:\Users\CTC\p2\pool\pl
j is greater than i or j and i are the same

P1

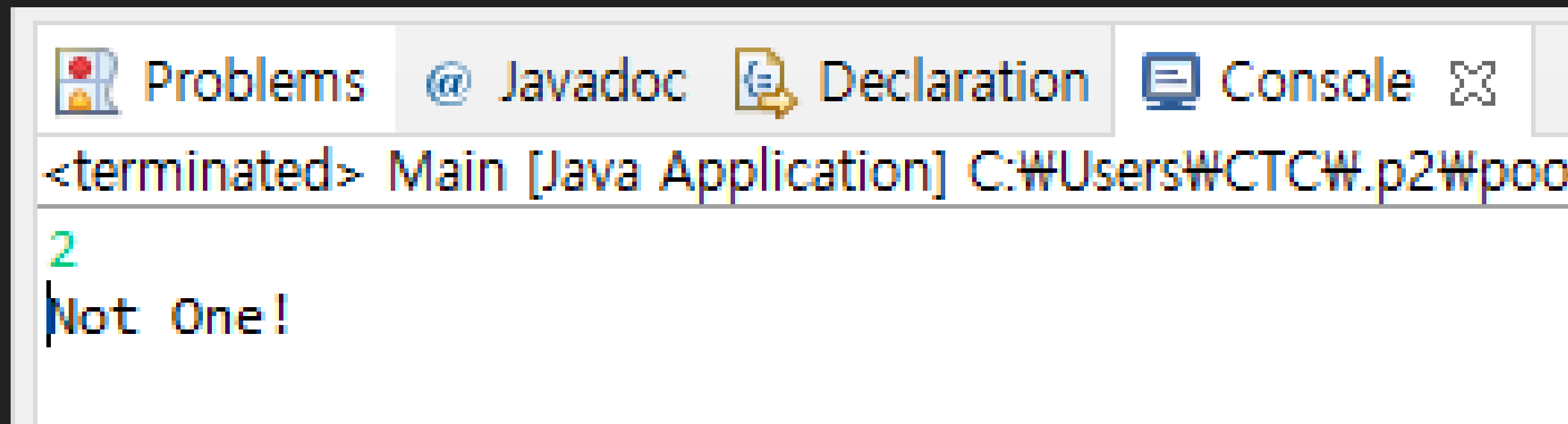
Compose a program that distinguishes the input number

- ▶ User inputs a number
- ▶ Print "One!" if the input number is 1,
Otherwise, print "Not One!"



The screenshot shows an IDE window with tabs for Problems, Javadoc, Declaration, and Console. The Console tab is active, displaying the output of a Java application. The text reads: "<terminated> Main [Java Application] C:\Users\CTC#.p2\pool\p" followed by a green "1" on a new line and "One!" on the next line.

```
<terminated> Main [Java Application] C:\Users\CTC#.p2\pool\p
1
One!
```



The screenshot shows the same IDE window with the Console tab active. The text reads: "<terminated> Main [Java Application] C:\Users\CTC#.p2\poo" followed by a green "2" on a new line and "Not One!" on the next line.

```
<terminated> Main [Java Application] C:\Users\CTC#.p2\poo
2
Not One!
```

Condition(Cont'd)

if ... else if ... else

- You can use "if statements" to specify a block of code

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     int n;  
10    n = scanner.nextInt();  
11    if (n == 1) {  
12        System.out.println("One");  
13    } else if (n == 2) {  
14        System.out.println("Two");  
15    } else if (n == 3) {  
16        System.out.println("Three");  
17    } else {  
18        System.out.println("Except 1, 2, 3");  
19    }  
20  
21 }
```

Problems @ Javadoc Declaration Console

<terminated> Main [Java Application] C:\Users\CTC#.p2#p

2
Two

Problems @ Javadoc Declaration Console

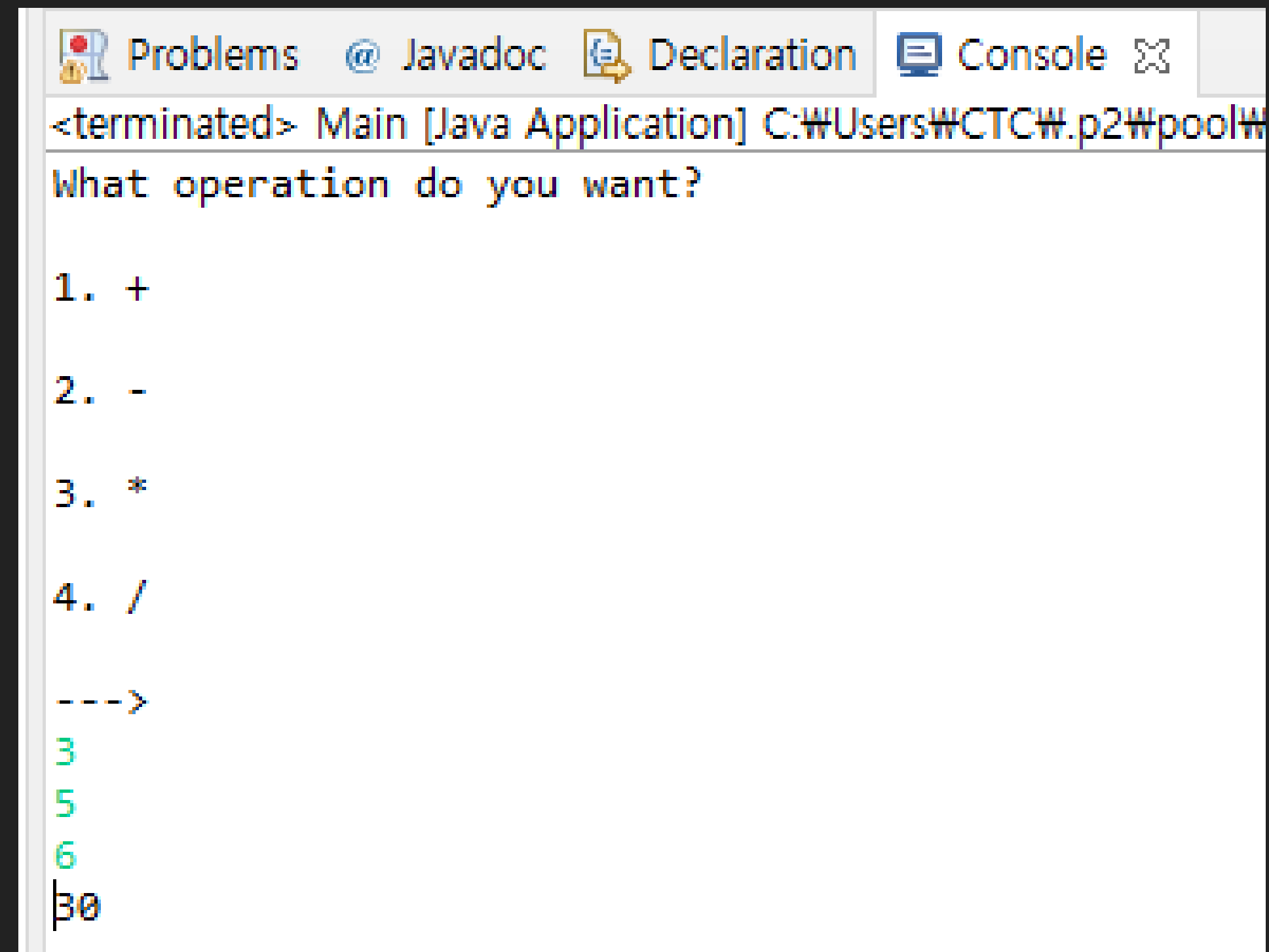
<terminated> Main [Java Application] C:\Users\CTC#.p2#pool

33
Except 1, 2, 3

P2

Calculator

- ▶ User inputs an operation number(1 : +, 2 : -, 3 : *, 4 : /)
- ▶ User inputs the two numbers
- ▶ Print the calculated result



```
Problems  @ Javadoc  Declaration  Console  ⌵
<terminated> Main [Java Application] C:\Users\CTC\p2\pool\
What operation do you want?

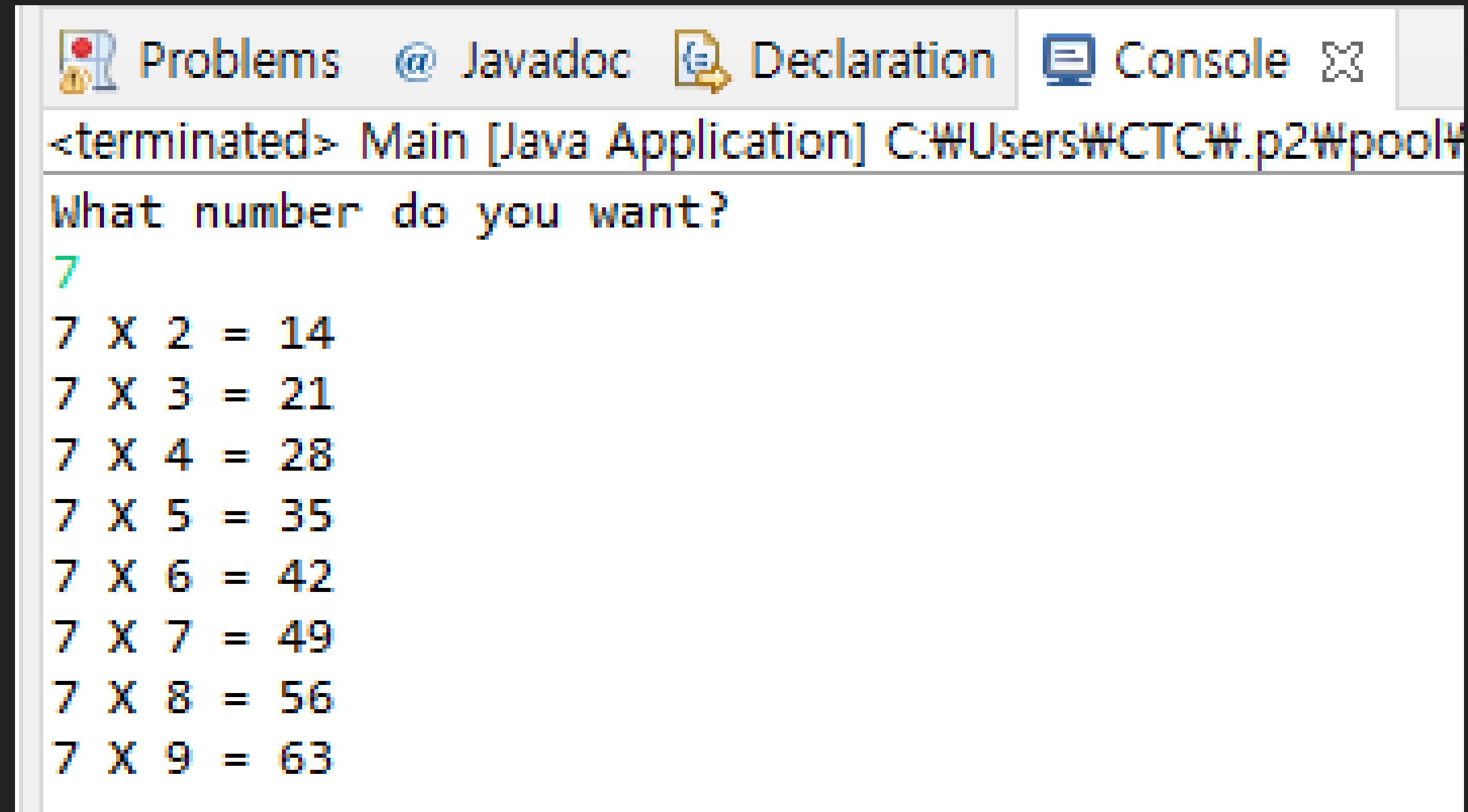
1. +
2. -
3. *
4. /

--->
3
5
6
30
```

P3

Multiplication Table

- ▶ User inputs a number N from 2 to 9
- ▶ Print the N times table



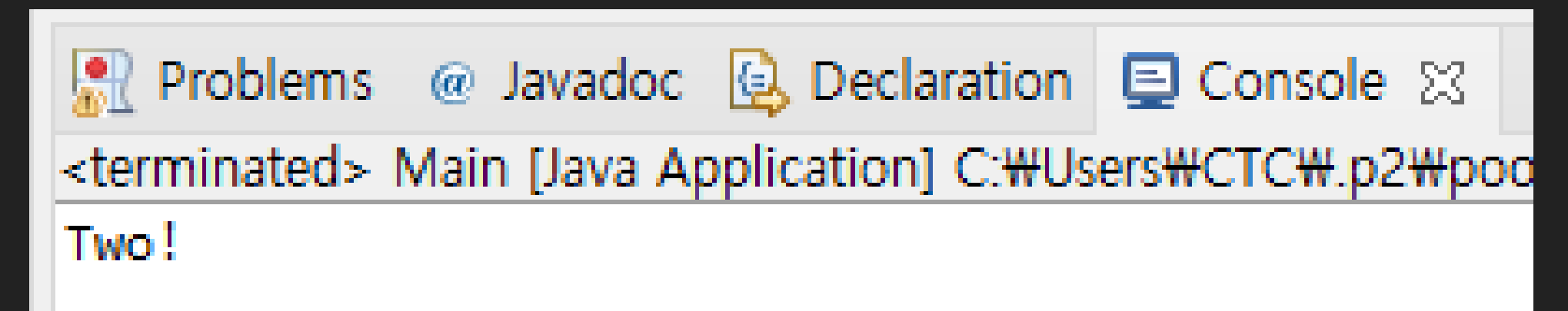
```
Problems  @ Javadoc  Declaration  Console  ⌵  
<terminated> Main [Java Application] C:\Users\CTCW.p2\pool#  
What number do you want?  
7  
7 X 2 = 14  
7 X 3 = 21  
7 X 4 = 28  
7 X 5 = 35  
7 X 6 = 42  
7 X 7 = 49  
7 X 8 = 56  
7 X 9 = 63
```

Condition

switch

- ▶ A “switch” statement is used to select one of the code blocks to be executed
- ▶ The “default” keyword is option and executed when there’s no matched case

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     int n;  
10    n = 2;  
11    switch (n) {  
12        case 1:  
13            System.out.println("One!");  
14            break;  
15        case 2:  
16            System.out.println("Two!");  
17            break;  
18        default:  
19            System.out.println("Except 1, 2");  
20            break;  
21    }  
22 }
```

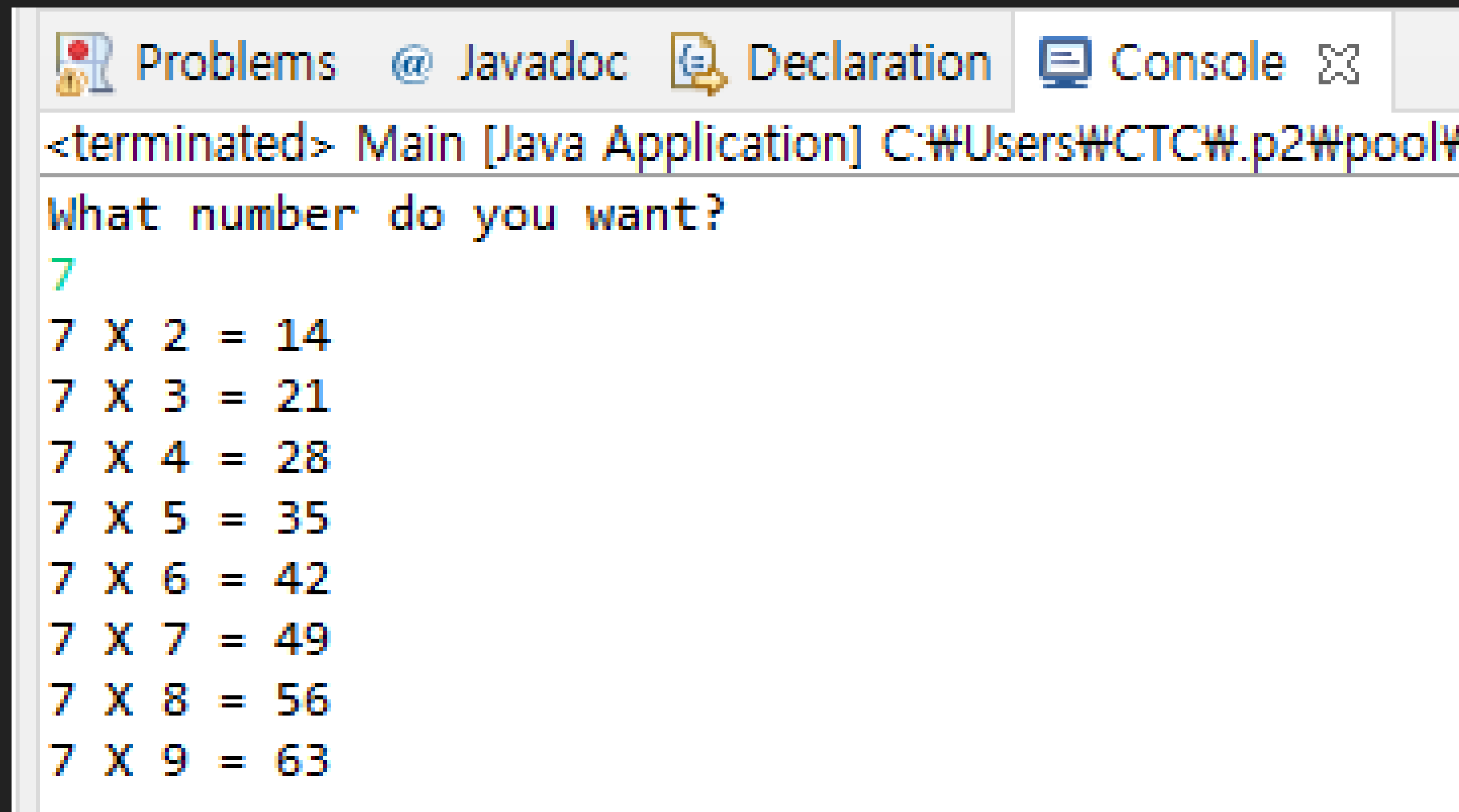


The screenshot shows the IDE's console window with tabs for Problems, Javadoc, Declaration, and Console. The Console tab is active, displaying the output of the program. The first line shows "<terminated> Main [Java Application] C:\#Users\#CTC#\p2\poo" and the second line shows "Two!".

P4

Multiplication Table

- ▶ User inputs a number N from 2 to 9
- ▶ Print the N times table
- ▶ In order to compose a condition statement, use the "switch" statement



```
Problems  @ Javadoc  Declaration  Console  X
<terminated> Main [Java Application] C:\Users\CTC\p2\pool\
What number do you want?
7
7 X 2 = 14
7 X 3 = 21
7 X 4 = 28
7 X 5 = 35
7 X 6 = 42
7 X 7 = 49
7 X 8 = 56
7 X 9 = 63
```

Condition+

String equals()

- Compare the two strings to find out if they are equal

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     String text = "hello?";  
10    if (text.equals("hello") == true) {  
11        System.out.println("It's hello");  
12    } else {  
13        System.out.println("It's not hello");  
14    }  
15  
16 }
```

Problems @ Javadoc Declaration Console

<terminated> Main [Java Application] C:\Users\WCTC\p2\pos
It's not hello

Q1* : Why aren't they equal to each other?

Condition+

String contains()

- Check if a string contains the specific set of characters

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     String text = "hello?";  
10    if (text.contains("hello") == true) {  
11        System.out.println("It's hello");  
12    } else {  
13        System.out.println("It's not hello");  
14    }  
15  
16 }
```

Problems @ Javadoc Declaration Console

<terminated> Main [Java Application] C:\Users\CTC\p2\po
It's hello

P5

Word Containing Program

- ▶ User inputs a sentence
- ▶ Print if the word, "car" is included or not

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     String text;  
10    text = scanner.nextLine();  
11  
12    if (text.contains("car") == true) {  
13        System.out.println("car is included in the input string.");  
14    } else {  
15        System.out.println("car is not included in the input string.");  
16    }  
17  
18    System.out.println(text);  
19  
20 }
```

Problems @ Javadoc Declaration Console

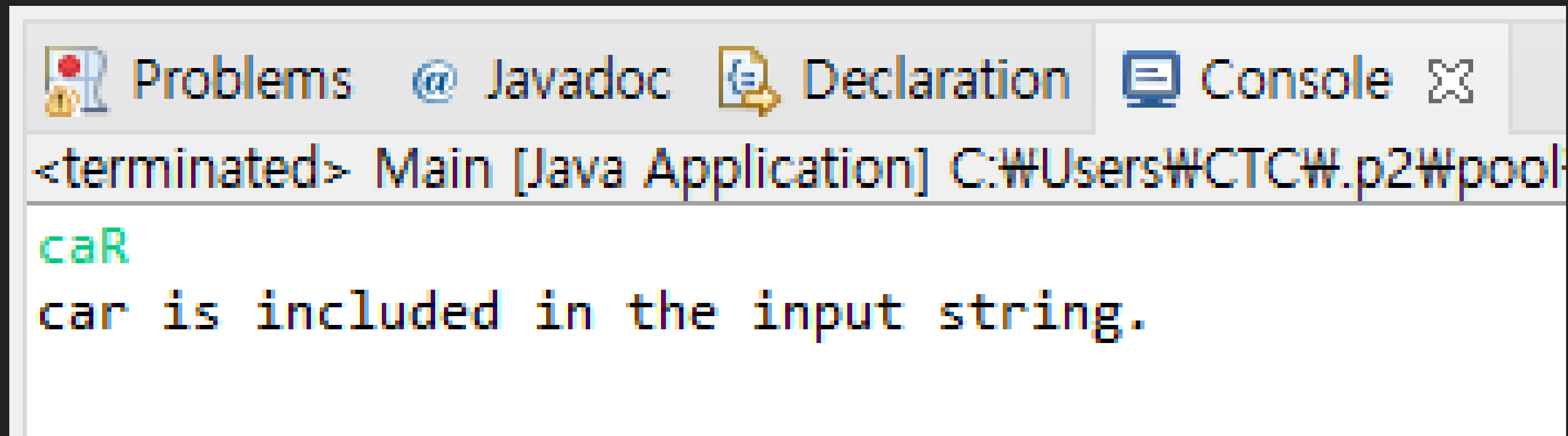
<terminated> Main [Java Application] C:\Users\CTC#.p2\pool

```
my car is very good  
car is included in the input string.  
my car is very good  
|
```

P6

Word Containing Program II

- ▶ User inputs a sentence
- ▶ Print if the word, "car" is included or not, regardless of upper case or lower case



The screenshot shows an IDE console window with the following tabs: Problems, Javadoc, Declaration, and Console. The Console tab is active, displaying the output of a Java application. The output consists of two lines: the first line is the input string "caR" in green text, and the second line is the message "car is included in the input string." in black text.

```
<terminated> Main [Java Application] C:\Users\CTCW.p2\pool\
caR
car is included in the input string.
```

Loop(Cont'd)

for

- A “for” loop is used to execute a set of code repeatedly

```
7 public static void main(String[] args) {  
8     int i = 0;  
9     for (i = 2; i < 10; i++) {  
10        System.out.println(3 + "X" + i + " = " + (3 * i));  
11    }  
12 }
```

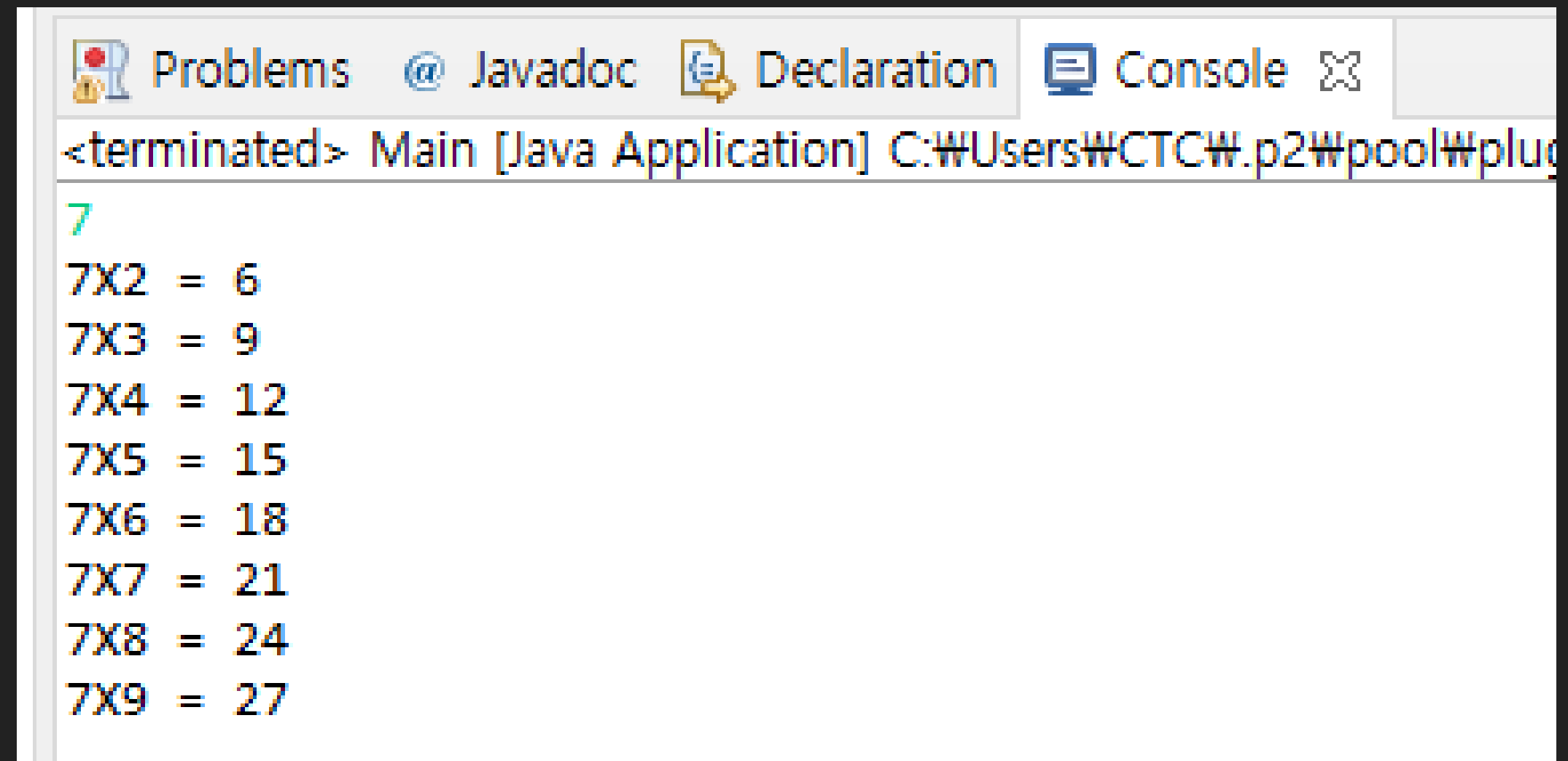
Problems @ Javadoc Declaration Console

<terminated> Main [Java Application] C:\Users\CTC\p2\po

```
3X2 = 6  
3X3 = 9  
3X4 = 12  
3X5 = 15  
3X6 = 18  
3X7 = 21  
3X8 = 24  
3X9 = 27
```

Multiplication Table II

- ▶ User inputs a number N from 2 to 9
- ▶ Print the N times table
- ▶ Use an "if" or "switch" statement
- ▶ Use a "for" loop



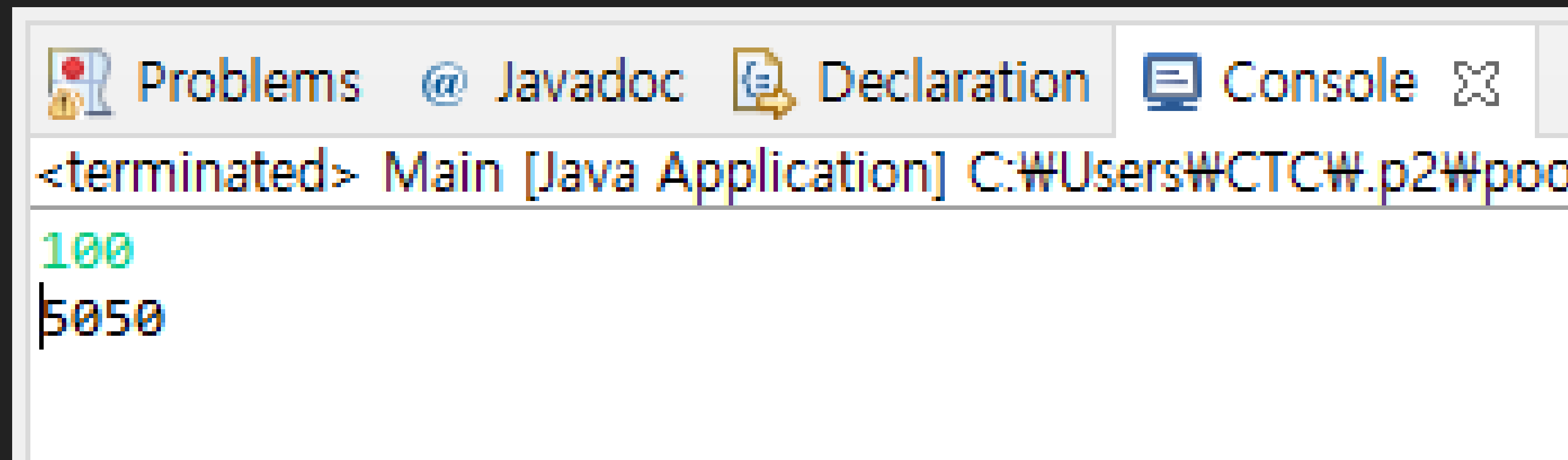
The screenshot shows a Java IDE window with the 'Console' tab selected. The console output displays the number 7 followed by its multiplication table from 2 to 9. The text in the console is as follows:

```
<terminated> Main [Java Application] C:\Users\CTC\p2\pool\plu  
7  
7X2 = 6  
7X3 = 9  
7X4 = 12  
7X5 = 15  
7X6 = 18  
7X7 = 21  
7X8 = 24  
7X9 = 27
```

P8

Arithmetic Progression

- ▶ User inputs a number N
- ▶ The program adds 1 to N
- ▶ Print the summation

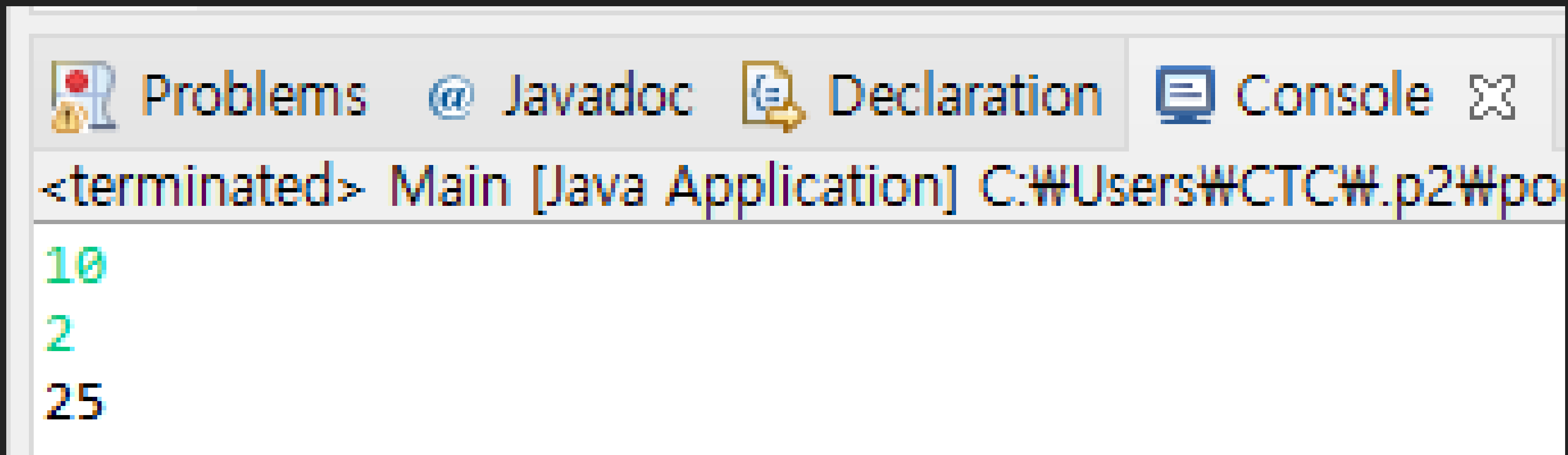


The screenshot shows an IDE console window with the following tabs: Problems, Javadoc, Declaration, and Console. The Console tab is active, displaying the output of a Java application. The output consists of two lines: the first line is the string "<terminated> Main [Java Application] C:\Users\CTC\p2\pool" and the second line is the number "100". Below the number "100", there is a vertical cursor and the number "5050", which appears to be the result of a calculation (100 * 101 / 2).

```
<terminated> Main [Java Application] C:\Users\CTC\p2\pool  
100  
|5050
```


Arithmetic Progression II

- ▶ User inputs the two number N and M
- ▶ The program adds 1 to N by M(ex : 10, 2, $1 + 3 + 5 + 7 + 9 = 25$)
- ▶ Print the summation



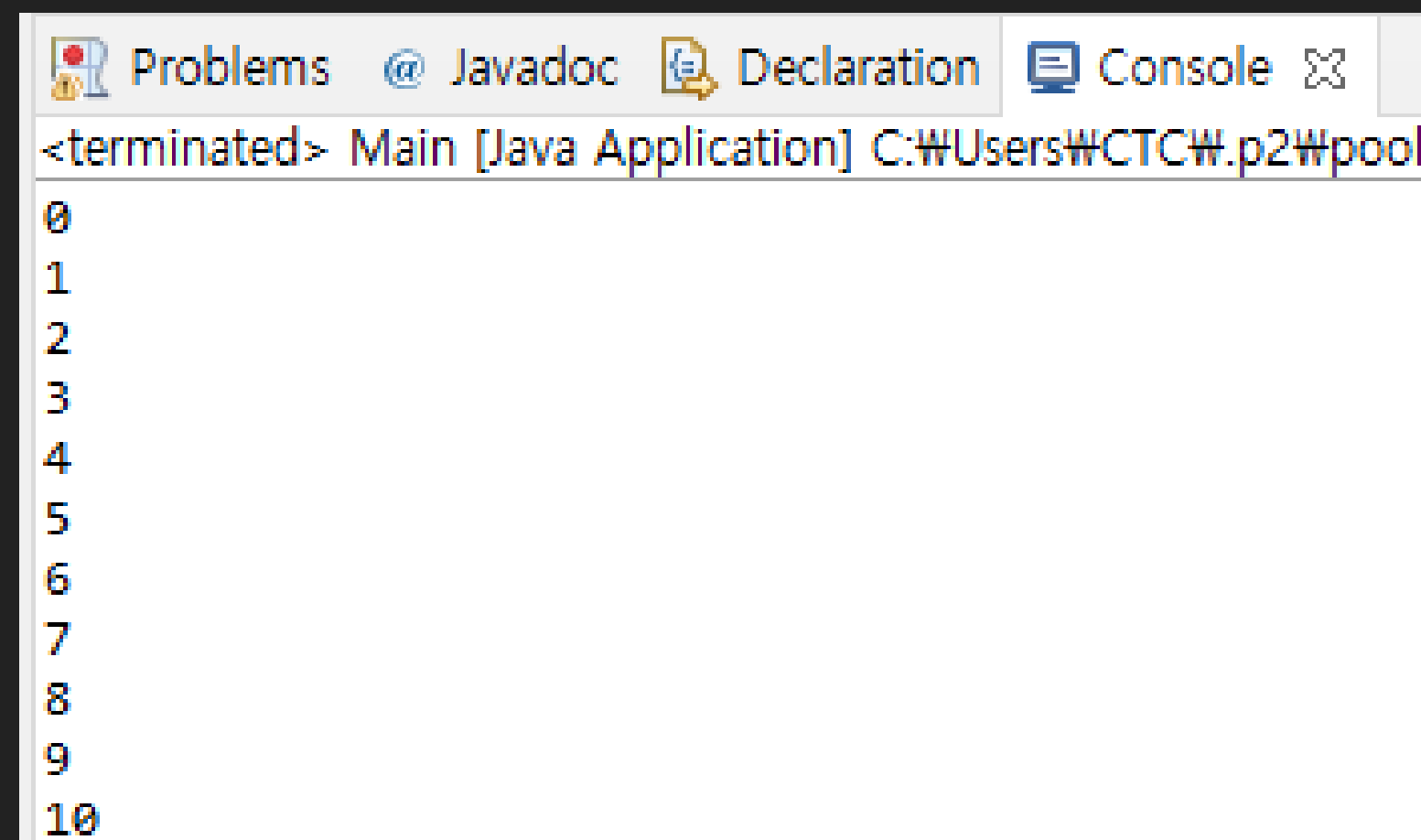
```
<terminated> Main [Java Application] C:\Users\CTC\p2\po  
10  
2  
25
```

Loop(Cont'd)

while

- ▶ An “while” loop is used to execute a set of code repeatedly while satisfying the conditions

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     int i = 0;  
10    while (i <= 10) {  
11        System.out.println(i);  
12        i++;  
13    }  
14 }
```



The screenshot shows an IDE window with tabs for Problems, Javadoc, Declaration, and Console. The Console tab is active, displaying the output of the Java application. The output consists of the numbers 0 through 10, each on a new line, indicating that the while loop executed successfully for the range i = 0 to i = 10.

```
<terminated> Main [Java Application] C:\Users\CTC\p2\pool  
0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```

P9 : Check the result with “while(true)” statement

Loop(Cont'd)

while

- ▶ An “while” loop is used to execute a set of code repeatedly while satisfying the conditions

```
7 public static void main(String[] args) {  
8     Scanner scanner = new Scanner(System.in);  
9     int i = 0;  
10    while (true) {  
11        System.out.println(i);  
12        i++;  
13        if (i > 3) {  
14            break;  
15        }  
16    }  
17 }
```

Problems @ Javadoc Declaration Console

<terminated> Main [Java Application] C:\Users\CTC\p2\pc

0
1
2
3

do ... while

```
7 public static void main(String[] args) {
8     Scanner scanner = new Scanner(System.in);
9     int i = 0;
10    do {
11        System.out.println(i);
12        i++;
13    } while (i <= 0);
14 }
```

Problems Javadoc Declaration Console

<terminated> Main [Java Application] C:\Users\CTC\p2\p

0

P10, P11

Multiplication Table III

- ▶ Use an “if” statement
- ▶ Use a double “for” loop
- ▶ Print 2 to 9 times table

Multiplication Table IV

- ▶ Use an “switch” statement
- ▶ Use a double “while” loop
- ▶ Print 2 to 9 times table

P12

Draw a Right Triangle

- User inputs a number, N
- Print an N height of the right triangle with “*”
- Use a “for” loop

5

*

**

P13

Draw an Equilateral Triangle

- ▶ User inputs a number, N
- ▶ Print an N height of the equilateral triangle with “*”
- ▶ Use a “for” loop

5

```
    *
   ***
  *****
 *****
*****
```

P14

Draw an Inverted Equilateral Triangle

- User inputs a number, N
- Print an N height of the inverted equilateral triangle with “*”
- Use a “for” or “while” loop

5

```
*****
```

```
*****
```

```
*****
```

```
***
```

```
*
```


P15

Find the Factors of N

- User inputs a number, N
- Print the factors of N

10

1

2

5

P16

Find the LCM(Least Common Multiple)

- User inputs the two numbers, N and M
- Print the LCM

5
7

35

P17

Find the GCD(Greatest Common Divisor)

- User inputs the two numbers, N and M
- Print the GCD

24

18

6

P18

Find the Prime Numbers

- ▶ User inputs a numbers, N
- ▶ Print the prime number to N

11

2

3

5

7

11