# - Experiment 3 -

Create a Java project named Experiment3, and then create classes Exercise1~Exercise5 in the project, and insert your codes into each class you created to implement the following tasks respectively.

1. A palindrome is a left-right symmetrical string, such as "a", "bb", "awa", "toot", "12321", etc. Define a method that can check out whether a string is a palindrome or not. In your main method, call the method you defined to determine whether a string you entered is a palindrome or not, and display the result.

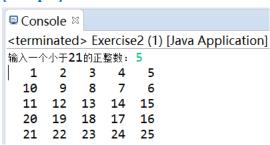
## [Sample]

```
■ Console 図 Exercise 1 (1) [Java Application] 请输入一个字符串: toot toot是回文! 请输入一个字符串: 212 212是回文! 请输入一个字符串: abcba abcba是回文! 请输入一个字符串: abc | abc不是回文! 请输入一个字符串:
```

2. Enter a positive integer n that is <21, output a pattern. Note that your program must use two-dimensional array to accomplish this task. For example: input 4, your program can print the following pattern:

```
1 2 3 4
8 7 6 5
9 10 11 12
16 15 14 13
```

### [Sample]



3. Use an n\*n two-dimensional array to complete the following tasks: Enter a positive integer n that is <21, and output the following patterns:

```
    n=4
    n=5

    0 0 2 5
    0 0 0 2 5

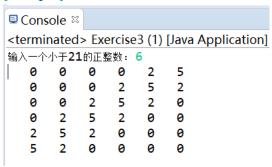
    0 2 5 2
    0 0 2 5 2

    2 5 2 0
    0 2 5 2 0

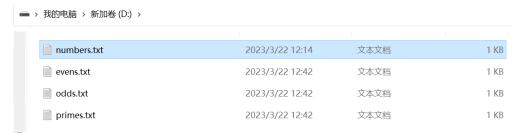
    5 2 0 0
    2 5 2 0 0

    5 2 0 0
    5 2 0 0
```

### [Sample]



4. Given a text file d:\numbers.txt, read in all integers from the file and, output all the even numbers to file d:\evens.txt, all the odd numbers to file d:\odds.txt, and all the prime numbers to file d:\primes.txt.



5. A non-negative integer in the form of 0, 5, 11, 121, 1221, 12321 is called a "palindrome number". Define a method that can determine whether a given positive integer is a "palindrome number" or not. In your main method, enter a positive integer, and then output whether the number is a "palindrome number" or not.

#### [Sample]

```
■ Console 🖾
Exercise5 (1) [Java Application]
请输入一个正整数: ∅
回文数: 0 Yes!
请输入一个正整数: 5
回文数: 5 Yes!
请输入一个正整数: 11
回文数: 11 Yes!
请输入一个正整数: 121
回文数: 121 Yes!
请输入一个正整数: 1221
回文数: 1221 Yes!
请输入一个正整数: 12321
回文数: 12321 Yes!
请输入一个正整数: 123421
回文数: 123421 No!
请输入一个正整数:
```