

Name: \_\_\_\_\_ Date: 5/10/2022

## Squares and Powers

This program will print out the number, its squares ( $number^2$ ) and powers of a number\*.

Work through the test from the beginning. Your program should build and grow – do not start new program for each point. You may use any resources that **you have created** for this test. **Do not use** Math.pow(). Using the Internet is not allowed and will get you a failing grade.

Instructions	Program Display
1. Output your name on the screen.	Juan Cortez
2. Input a number	Enter a number: <u>4</u>
3. Outputs all the values 1, 2, 3 etc. up to the input number.	Enter a number: <u>4</u> 1 2 3 4
4. Outputs the numbers and their squares correctly for all values up to the input number.	1 1 2 4 3 9 4 16
5. Outputs the number, squares and powers of all values up to the input number.	1 1 4 2 4 16 3 9 64 4 16 256
6. Output and error message and do nothing/end the program^ if the number input is $\geq 10$ .	Enter a number less than 10: <u>11</u> >>> Error - invalid input
7. Output and error message and do nothing/end the program^ if the number input is $<1$ or $\geq 10$ .	Enter a positive number less than 10: <u>0</u> >>> Error - invalid input
8. <i>Only</i> accepts inputs of a number from 1 to 9. Repeats until a good number is entered.	Enter a positive number less than 10: <u>-1</u> >>> Error please enter again Enter a positive number less than 10: <u>10</u> >>> Error please enter again Enter a positive number less than 10:
9. The squares are aligned as shown. Write your own code. Do not use libraries or Java built-in methods.	Enter a positive number less than 10: <u>5</u> 1 1 5 2 4 25 3 9 125 4 16 625 5 25 3125
10. Align all the answers, including the powers of $n$ . Write your own code. Do not use libraries or Java built-in methods.	Enter a positive number less than 10: <u>9</u> 1 1 9 2 4 81 3 9 729 4 16 6561 5 25 59049 6 36 531441 7 49 4782969 8 64 43046721 9 81 387420489

In a nutshell:                      Column #1:  $1..n$     Column #2:  $n^2$                       Column #3:  $n^{\text{Column\#1}}$

\*powers of a number ( $n$ ) =  $n^1, n^2, n^3, n^4, n^5, n^6, \dots, n^n$

^ You may want to use System.exit(1);