# Hands-on Experiment # 7 : Worksheet

Section\_\_\_\_\_\_2\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_15/3/2018\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

No more than 3 students per one submission of this worksheet.

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## Part A: Loop Writing Practice

In *MathPowLoop.java*, write Java statements using “loops” to calculate result2 so that its value is similar to result1 (which is calculated from *Math.pow()* ) for every double a and int b.

No methods in the *Math* class is allowed.

List your code here.

import java.util.Scanner;

public class MathPowLoop{

public static void main(String [] args){

Scanner sc = new Scanner(System.in);

System.out.print("a=");

double a = sc.nextDouble();

System.out.print("b=");

int b = sc.nextInt();

double result1 = Math.pow(a,b);

double result2=1;

if (b<0)

{

b=-b;

for (int i=0;i<b;i++)

{

result2=result2\*a;

}

result2=1/result2;

}

else

{

for (int i=0;i<b;i++)

{

result2=result2\*a;

}

}

System.out.println("Math.pow("+a+","+b+") = "+result1);

System.out.println("Your loop a^b = "+result2);

}

}

Test your code with the following test data set.

|  |  |  |  |
| --- | --- | --- | --- |
| a | b | Math.pow(a,b) | Your code |
| 2.0 | 8 | 256.0 | 256.0 |
| 2.5 | 3 | 15.625 | 15.625 |
| -2.0 | 8 | 256.0 | 256.0 |
| 1.0 | 1 | 1.0 | 1.0 |
| 1.0 | 0 | 1.0 | 1.0 |
| 2.0 | 30 | 1.073741824E9 | 1.073741824E9 |
| -2.0 | 30 | 1.073741824E9 | 1.073741824E9 |
| 2.0 | -1 | 0.5 | 0.5 |
| 2.0 | -4 | 0.0625 | 0.0625 |

## Part B: Text File Processing

The file *score.csv* contains scores from the midterm examination of a programming course, which has 5 questions (Q1-Q5). The file is in the “Comma-separated Value” format (<http://en.wikipedia.org/wiki/Comma-separated_values>) with the first line being the header labels describing the order of data on the other lines.

* Read <http://docs.oracle.com/javase/7/docs/api/java/util/Scanner.html> to learn how to read a text file using an instance of the Scanner class.
* Open the file in a spreadsheet application (such as MS Excel). If you do not have any spreadsheet application on your machine, try using Google Spreadsheet.
  + Use the application to find the average score, the maximum score, and the minimum score of each question (Q1-Q5).
  + Find the average of the total score and its corresponding standard deviation.
* Fill the results in the following table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| From Spreadsheet | Average | Standard Deviation | Max | Min |
| Q1 |  |  |  |  |
| Q2 |  |  |  |  |
| Q3 |  |  |  |  |
| Q4 |  |  |  |  |
| Q5 |  |  |  |  |
| Total |  |  |  |  |

* Write a Java program to:
  + Compute the average score, the maximum score, and the minimum score of each question (Q1-Q5).
  + Compute the average of the total score and its corresponding standard deviation.
* Fill the results in the following table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| From Your Java App | Average | Standard Deviation | Max | Min |
| Q1 |  |  |  |  |
| Q2 |  |  |  |  |
| Q3 |  |  |  |  |
| Q4 |  |  |  |  |
| Q5 |  |  |  |  |
| Total |  |  |  |  |

List your code here.

Submit this worksheet (by only one member of the group) via <http://www.myCourseVille.com> (Assignments > Hands-on Experiment # 7) before noon of the day after your lecture.