Lab 2

Name:_________________________ Checked: ______

Objectives:

• Learn about keyboard input to Java programs using the Scanner class.
• Practice using variables and assignment
• Experiment with simple arithmetic using the jGrasp Interactions pane
• Practice writing algorithms in pseudocode and considering alternative solutions

Preparation: Use variables to output a personalized message

1) Implement a Java program named PetName.java that simply prints the word “Hello.” Test it to ensure it works before proceeding.

2) Add some variable declarations, right at the beginning of the main method (i.e., before you print anything):

```java
String name = "Daphne";
String petName = "Luca”;
int age = 18;
```

Substitute your name, age, and pet name. If you don’t have a pet, maybe try one of these:
http://www.medievalists.net/2013/06/23/medieval-pet-names/

3) Modify your program to print the message below, incorporating the variables in your printing statements. Test your program to ensure it works correctly.

```java
Hello, my name is Daphne and I am 18 years old. I’m enjoying my time at Villanova, though I miss my pet Luca very much!
```

4) Check your program for style and comments. If necessary, fix indentation or add some blank lines to make it more readable.

5) Submit PetName.java through blackboard under the assignment “Lab 2 Prep”
Part A: Input using Scanner

1) Check your work for preparation with your partner. Test PetName and compare your code.

*Verify that the code works as stated, is well formatted and includes appropriate comments. If necessary, help your partner improve their code to make it more readable, then sign each other’s worksheet.*

Classmate signature: __________________________

2) Now improve PetName.java so that it obtains the values of the variables name, petName, and age as input from the keyboard. Do this by inserting the appropriate code to use a Scanner to input value.

```
Please enter name: Anne
Please enter pet name: Purkoy 
Please enter age: 21 

Hello, my name is Anne and I am 21 years old. I'm enjoying my time at Villanova, though I miss my pet Purkoy very much!
```

*Hints:*
  - Remember that you also need to add code for the prompt (i.e., you need to print the request for input, such as “Please enter name:”, etc), before you obtain the actual input.
  - Use `scan.next()` to input names, Use `scan.nextInt()` to input numbers

3) Add some more code to do a computation using the variable age, for example, computing and printing the person’s age in dog years.

4) Check your work with your classmate.

  - Test each other's programs to ensure they work well. Be sure to test with different inputs for the name, pet name, age.
  - Test the programs with “bad” inputs, for example, entering the name instead of the age, or not entering anything at all (hitting enter). Note that this has a different effect depending whether you are entering an integer or a String.
  - Experiment with using `scan.nextLine()` to input the name and/or petName. Note that you can now use both first and last names
  - Test the programs again and note differences with “bad” inputs
  - Summarize your findings in the next page
What happens if you enter a full name instead of just the first name? __________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

What happens if you enter the name instead of age or vice versa? __________________________
_________________________________________________________________________________
_________________________________________________________________________________
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Additional Observations __________________________
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Classmate signature: ________________________________________
Part B: Use the jGrasp Interactions pane to test some code snippets

Open jGrasp and click on Interactions tab (lower part of window).
You can type in expressions, for example (works like calculator):

\[
\begin{align*}
4 + 3 & \quad \text{________} \\
3.1 \times 0.2e-4 & \quad \text{________}
\end{align*}
\]

... or Java statements such as variable declarations, assignment statements, and other simple Java code snippets.

```java
int a = 1
double b = 3.4
int c = 5; // Note: semicolon is optional here
a = c
c = 2
```

\[\text{You can type any expression to get its value; type variable names to get their values:}\]

\[
a \quad \text{________} \quad b \quad \text{________} \quad c \quad \text{________}
\]

Try some more expressions and note what you get:

\[
\begin{align*}
14 / 3 & \quad \text{________} \quad 14 \% 3 & \quad \text{________} \\
143 / 60 & \quad \text{________} \quad 143 \% 60 & \quad \text{________} \\
8 / 12 & \quad \text{________} \quad 8 \% 12 & \quad \text{________}
\end{align*}
\]

```java
String word, sentence;
word = "fish"; // Note: semicolon is optional here
1 + word
1 + 1 + word
word + 1 + 1
sentence = word + word
sentence = sentence + sentence
sentence = sentence + sentence
```

(repeat this a few times to see what happens)

You can also experiment with Math:

```java
Math.sqrt(2) \quad \text{________} \quad Math.round(2.83) \quad \text{________} \quad Math.PI \quad \text{________}
```

```java
double phi = Math.PI / 3
phi \quad \text{________} \quad Math.sin(phi) \quad \text{________}
```

Notes about other things you tried: ____________________________

Check & discuss your work with a classmate.

Classmate signature: ____________________________
Lab 2 Comments  Name:_________________________ Checked: ______

Comments on this lab, please:

What was the most valuable thing you learned in this lab?

What did you like best about this lab?

Was there any particular problem?

Do you have any suggestions for improving this lab as an effective learning experience?