Programming Question/Projects (Chapter 4)

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Questions:**

1. The values passed to a method when it is called are
   1. Formal parameters
   2. Actual parameters
   3. Primitive values
   4. Objects
   5. Return values answer:\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Consider the following code. What is returned by the call cube(2)?

int addition(int y)

{

y=5;

return y\*y\*y; answer:\_\_\_\_\_\_\_\_\_\_\_\_\_

}

1. Consider the following method. What is missing?

double doIt(double x)

{

while (x>0)

x=x-3;

}

1. A declaration of the variable x
2. A return statement
3. A body
4. A name
5. A parameter answer:\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Write a method header for a method named switchIt that takes a double parameter and returns a boolean value.
7. Write a method header for a method named printStrings that takes three integers as parameters and doesn’t return anything.
8. Write the body of the method for the following header. The method should return a welcome message that includes the user’s name and visitor number. For example, if the parameters were “Bob” and 8, the returned string would be “Welcome Bob! You are visitor number 8.”

String welcomeMessage(String name, int visitorNum)

1. Write a method called dab that prints the string “Dab It!” several times on separate lines. The method should accept an integer parameter that tells it how many times the string is printed. Print an error message if the parameter is less than 1.
2. Write a method called maxOfTwo that accepts two integer parameters from the user and returns the larger of the two.
3. Write a method called countLetters that accepts a String parameter and a char parameter. It returns the number of times the char entered is found in the string.
4. Write a method called backwards that accepts a String parameter and returns a string made up of the characters of the parameter in reverse order. So for example, if the method receives the String “hello” it would return “olleh”.
5. Suppose *Employee* is a class containing a void method named *readInput*, and *dilbert* is an object of the class *Employee* that was named and created by the following assignment statement:

Employee dilbert = new Employee();

Write an invocation of the method readInput using the dilbert as the receiving

object. The method readInput needs no information in parenthesis.

1. Give the complete definition of a class called Person that has two instance variables, one for the person’s name and the other for the person’s age. Include accessor methods and mutator methods for each instance variable. Also, include a method that sets both the name and age of a person. There are no other methods.

**Problems:**

1. Write a program that computes your initials from your full name and displays them in all capital letters.
2. Given three ints, a b c, one of them is small, one is medium and one is large. Return true if the three values are evenly spaced, so the difference between small and medium is the same as the difference between medium and large.

evenlySpaced(2, 4, 6) → true  
evenlySpaced(4, 6, 2) → true  
evenlySpaced(4, 6, 3) → false

1. Given 2 int values greater than 0, return whichever value is nearest to 21 without going over. Return 0 if they both go over.

blackjack(19, 21) → 21  
blackjack(21, 19) → 21  
blackjack(19, 22) → 19

1. The number 6 is a truly great number. Given two int values, a and b, return true if either one is 6. Or if their sum or difference is 6. Note: the function Math.abs(num) computes the absolute value of a number.

love6(6, 4) → true  
love6(4, 5) → false  
love6(1, 5) → true

1. Given a day of the week encoded as 0=Sun, 1=Mon, 2=Tue, ...6=Sat, and a boolean indicating if we are on vacation, return a string of the form "7:00" indicating when the alarm clock should ring. Weekdays, the alarm should be "7:00" and on the weekend it should be "10:00". Unless we are on vacation -- then on weekdays it should be "10:00" and weekends it should be "off".

alarmClock(1, false) → "7:00"  
alarmClock(5, false) → "7:00"  
alarmClock(0, false) → "10:00"

1. To translate an English word into a Pig Latin word, place the first letter of the English word at the end of the word and add the letters “**ay**”. Thus the word “**jump**” becomes “**umpjay**”, the word “**the**” becomes “**hetay**”, and the word “**computer**” becomes “**omputercay**”. Create a main method to run an English to Pig Latin translation program. Also create a **StringManipulation** class which has the following properties:

|  |  |
| --- | --- |
| Class | StringManipulation |
| Variables | private englishWord: String  private pigWord: String |
| Methods | public setWord(String newWord):void  public translate (String userWord): void  public getWord (): String |

In the main method, create an object of class type **StringManipulation**. Use the object to collect a word from the user and to translate the word. Then print out the translated word from the main method.