1. (30pt) Create a Hello World java application in your computer, either using eclipse or using your own IDE.

   a. Package name must be package*YourLastName*
   b. Class name must be Class*YourFirstName*
   c. The output must be "Hello World from *YourFirstName YourLastName*."
   d. First name and last name must come from two variables. You can directly assign values to these variables in your program. There is no need to input them interactively.

2. (10pt) Use the following code to answer the three parts of the problem below:

```
String s1 = "ABC";
String s2 = "DEF";
int z;
if (s1.compareTo(s2) > 0 ) {
    z = 5;
} else {
    if (s1.compareToIgnoreCase(s2) > 0 ) {
        z = 6;
    } else {
        Z = 7;
    }
}
```

   a. What would be the value of z for initializations of s1="ABC" , s2= "DEF" as shown
   b. What would be the value of z for initializations of s1="ABC " , s2= "ABC" as the first two lines
   c. What would be the value of z for initializations of s1="ABC" , s2= "abc" as the first two lines

For the rest of the questions, assume your solution would be inserted into the main method of the following java program:

```
import java.util.Scanner; // Needed for the Scanner class

public class Division
{
    public static void main(String[] args)
    {
        // Create a Scanner object for keyboard input.
        Scanner keyboard = new Scanner(System.in);

        // your answer

    }
}
```

Try to write down your logic as comments as clear as possible.

3. (15pt) Write a program to accept two values from users: pet type (dog or cat) and size (large, small). Use if … else if … else statement to print out the following:

Pet Type	Pet Size	Comment
Dog	Large	Large dogs are strong!
Dog	Small	Small dogs are cute!
Cat	Both large and small	Cats are smart!

You must use logical operator (logical AND) for the two conditions involving dog, and use else statement to handle inputs that are not in this table.

4. (15pt) Write code to accept a grade from user. The grade is a one-character string (A, B, C) or a character followed by a +/- sign. Your program then need to use a **switch** statement to output a comment. Your code should be efficient and NOT use if/then. The table shows the only test scores possible. If the user enters some character that is not in the table, print out "No such grade!".

Your code must be able to handle different cases, for example, both A and a must be accepted as correct input. There should be as few output statements as possible, which means you should try to combine logic as much as possible.

Grade	Comment
A, A-	Great job!
B+, B, B-	Nice try!
C	There are rooms for improvement!
F	You should work harder!

USE A SWITCH STATEMENT

5. (15pt) You have the following code to get a number between 10-100 from user. However, you realize that users keep on typing in wrong numbers (such as 0, 1, and/or -1). Please write a code block to check if the user input is between 10 and 100. If not, ask user for the number again until the input is correct.

```
number1 = keyboard.nextDouble();
// Add your input validation code below
```

6. (15pt) For integer 2 to 10, display their square number one in each row. For even number, also display their cube number. Numbers in the same row are separated by tab key. The result should look like this:

```
2    4    8
3    9
4    16   64
5    25
6    36   216
. . .
```

Hint: to check whether number a is even or not, test if (a%2==0) is true.

Also, explain why you choose the loop statement you use out of all three (while, do … while, for) ***in this question as well as the question above***.