Put both java programs and the Answers document in one folder named HW3 and zip. Submit only the zipped folder.

Problem 1-Give answers. Submit a file called: Answers.doc

Given the following variables, find methods that answer the following questions. Make sure each answer is a line of code that would actually run.

Example: Find a method in the String class that checks the length of s1.
Answer: int length=s1.length(); //this answer is a line of code that would actually run

***Note:** You may name the variable that holds your return value (in the example I named it *length*) anything you like.

String s1="seashells"
String s2="basketball"

int n=3;
int n1=4;

char letter='f';
char c1='d';

1) Find a method in the String class that checks if the last letter of *s1* is *s*.
2) Find a method in the String class that checks if the first letter of *s2* is *b*.
3) Find a method in the String class that converts *s2* into an array of chars.
4) Find a method in the Character class that converts variable *letter* into an uppercase letter.
5) Find a method in the Character class that tells us if *c1* is uppercase or not.
6) Find a method in the Math class that tells us which is larger: *n* or *n1.*
7) Find a method in the Math class that tells us which is smaller: *n* or *n1.*

Problem 2-Give answers. Submit a file called: Answers.doc (same file as problem 1)

Write for each letter (a-c) "Yes, the if statement will execute" or "No, the if statement will not execute" depending on the variables given. If the statement does not execute, explain why. Use the same Answers document used in problem 1.

```
while((num1==num3 ||
num2==num3)&&(first.equals(second)||first.equals(third))||(first.equals(third)&&num3==nu
m1))
```

```
{
        System.out.println("hello");
        break;
}
```

a)
```
int num1=3;
    int num2=4;
    int num3=5;

    String first="moon";
    String second="sun";
    String third="moon";
```
---

b)
```
int num1=3;
      int num2=4;
    int num3=5;

    String first="dog";
    String second="sun";
    String third="moon";
```
---

c)
```
 int num1=3;
    int num2=3;
    int num3=3;

    String first="cat";
    String second="cat";
    String third="moon";
```

Problem 3-Write a program. Submit a file called: ChangeTense.java

Create a program that allows users to enter a sentence in either past or present or tense and get back the other tense. They should also include today for present tense and yesterday for past tense.

For example, if a user enters: **I eat today.**
They should get back: **I ate yesterday.**

Make sure ALL the following inputs are accounted for (meaning if any of these inputs are used, the program is expected to work correctly):

I eat today. -> I ate yesterday.

I walk today. -> I walked yesterday.
She flies today. -> She flew yesterday.
He dances today. -> He danced yesterday.
We cook today. -> We cooked yesterday.
They bake today. -> They baked yesterday.
You speak today. -> You spoke yesterday.
It shakes today. -> It shook yesterday.
He leaves today. -> He left yesterday.

Additionally, if a verb follows the standard past tense rule (meaning it ends with *–ed*), it should also work for this program. For example, the verb *brush* in past tense is *brushed* and so if someone enters a sentence using this word, the program should work correctly even though it is not included in the list above. A verb like *fall* however does not end in *–ed* (the past tense would be *fell*) and so does not need to be accounted for in this program.

Example run:

Please enter a sentence or q to quit:
She ate yesterday.
Present tense is: She eats today.

Please enter a sentence or q to quit:
I walk today.
Past tense is: I walked yesterday.

Please enter a sentence or q to quit:
q
BYE!

Problem 4-Write a program. Submit a file called: CompanyGifts.java

ABC construction wants to start sending customers gifts for their birthdays. ABC wants to create a program that allows up to 7 customers to enter their information (full names and birthdays) and also allows the manager to log in with her ID (ABC 132). If the ID is not accurate, the program should continue prompting the user for the correct ID. When the manager logs in, she has the option to print to screen a report that shows all customers with their birthdays.

If no customer information has been entered and the manager attempts to print out information, say *Sorry, no customers have entered any information yet.*

If more than 7 customers try to enter information, say *Sorry, no more customers.*

The program should be able to handle both capital and lowercase inputs.

Say *exit* to exit the program-do not mention this on the main menu.

Example run:

***
Enter the word “customer” if you are a customer
or your ID if you are the manager.
ABC 132
***
Hello manager. What would you like to do?
Print to screen or exit?
***
Print to screen
***
Sorry, no customers have entered any information yet.
***
Hello manager. What would you like to do?
Print to screen or exit?
***
exit
***
Enter the word “customer” if you are a customer
or your ID if you are the manager.
customer
***
Hello customer. Please enter you name (first and last)
followed by your birthday (MM/DD/YYYY):
***
Hans Klarik 01/13/1985
Thank you Hans!
***
Enter the word “customer” if you are a customer
or your ID if you are the manager.
ABC 132
***
Hello manager. What would you like to do?
Print to screen or exit?
***
print to screen
***
CUSTOMERS

BIRTHDAY: 01/13/1985 NAME: Klarik, Hans

***
Hello manager. What would you like to do?
Print to screen or exit?
***

exit
***
Enter the word “customer” if you are a customer
or your ID if you are the manager.
exit
Bye!
***