Name _____ Period_____

1. The `GradBookStats` class is intended to compute basic statistics associated with different assignments in a gradebook. Below is a portion of a gradebook.

	Exam 1	Exam 2	Exam 3	Lab 1	Lab 2	Lab 3	Project 1	The number of assignments continues.
Bart	5	1	3	1	2	3	3	
Homer	4	4	4	4	4	4	4	
Wilma	4	5	2	5	3	4	4	
Averages	4.33	3.33	3.0	3.33	3.0	3.66	3.66	

The grade book above can be visualized as a series of parallel arrays as follows,

```
String assignments[] = {"Exam 1","Exam 2","Exam 3","Lab 1","Lab 2","Lab
3","Project 1", …};
int Bart[] = {5,1,3,1,2,3,3, …};
int Homer[] = {4,4,4,4,4,4,4, …};
int Wilma[] = {4,5,2,5,3,4,4, …};
/* averages array implementation not shown */
```

(a) In the space below write code that could be used to calculate the average of each assignment, then store the resulting average in a new array called `averages`. Each index in `averages` should map to the appropriate assignment. The number of assignments is not known; therefore, `averages` should be initialized in terms of the length of the `assignments` array. You must also be mindful that the number of digits to the right of the decimal should not exceed 2. For example, the Exam 1 average should be reported as 4.33, not 4.333333333333333

```
public class GradeBookStats{
     public static void main{









     }
}
```

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(b) The mode of a data set refers to the value that occurs most often. The mode for each assignment is shown below.

	Exam 1	Exam 2	Exam 3	Lab 1	Lab 2	Lab 3	Project 1	mode
Bart	5	1	3	1	2	3	3	3
Homer	4	4	4	4	4	4	4	4
Wilma	4	5	2	2	3	3	2	2

In the space below write code that could be used to calculate the mode for a given student. Where `student` represents an array of scores received by a student. For example,

```
int student[] = Bart;
```

The score that occurs most often should be assigned to the variable `mode`.

```
public class GradeBookStats{
     public static void main{

     int Bart[] = {5,1,3,1,2,3,3};

     int Homer[] = {4,4,4,4,4,4,4};

     int Wilma[] = {4,5,2,5,3,4,4};

     int student[] = Bart;

     int mode = 0;









     }
}
```

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2. The `Vocab` class, is used to analyze words in terms of their presence in a vocabulary list. For example,

Consider the vocabulary and word lists below which are stored in the arrays `vocabList` and `wordList`, respectively.

```
String vocabList[] = {"time","food","dogs","cats","health","plants","sports"};
String wordList[] = {"dogs","toys","sun","plants","time"};
```

The `Vocab` class does the following,

- Counts the number of words in `wordList` that are not in the `vocabList` and stores this value in `countNotInVocab`
- Creates a new array called `missingVocab` that is the same length as the value of `countNotInVocab`
- Stores the missing vocab in the `missingVocab` array

The following example illustrate the behavior of the Vocab class.

`vocabList`

"time"	"food"	"dogs"	"cats"	"health"	"plants"	"sports"

`wordList`

"dogs"	"toys"	"sun"	"plants"	"time"

`missingVocab`

"toys"	"sun"

(a) Write code that could be used to count the number of words in `wordList` that are not found in `vocabList`. The final value should be stored in the variable `countNotInVocab`.

```
public class Vocab{
     public static void main{
String vocabList[] = {"time","food","dogs","cats","health","plants","sports"};
String wordList[] = {"dogs","toys","sun","plants","time"};
String missingVocab[];
int countNotInVocab = 0;
```

```
        }
}
```

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Score _____/16