PS3

- Don't wait till the last moment.

Q1

You operate several hot dog stands distributed throughout town. Definite a class named HotDogStand that has a member variable for the hot dog stand's ID number and a member variable for how many hot dogs the stand has sold that day. Create a constructor that allows a user of the class to initialize both values.

Also create a method named "JustSold" that increments the number of hot dogs the stand has sold by one. The idea is that this method will be invoked each time the stand sells a hot dog so that we can track the total number of hot dogs sold by the stand. Add another method that returns the number of hot dogs sold.

Finally, add a static variable that tracks the total number of hotdogs sold by all hot dog stands and a static method that returns the value in this variable.

Write a main method to test your class with at least three hot dog stands that each sell a variety of hot dogs.

CodeMate Hint: Recall that static variables must be initialized outside of the class definition.

Q2

In an ancient land, the beautiful princess Eve had many suitors. She decided on the following procedure to determine which suitor she would marry. First, all of the suitors would be lined up one after the other and assigned numbers. The first suitor would be number 1, the second number 2, and so on up to the last suitor, number n. Starting at the first suitor she would then count three suitors down the line (because of the three letters in her name) and the third suitor would be eliminated from winning her hand and removed from the line. Eve would then continue, counting three more suitors, and eliminating every third suitor. When she reached the end of the line she would continue counting from the beginning.

For example, if there were 6 suitors then the elimination process would proceed as follows:

```
123456  initial list of suitors, start counting from 1
12456   suitor 3 eliminated, continue counting from 4
1245    suitor 6 eliminated, continue counting from 1
125 suitor 4 eliminated, continue counting from 5
15  suitor 2 eliminated, continue counting from 5
1   suitor 5 eliminated, 1 is the lucky winner
```

Write a program that uses a vector to determine which position you should stand in to marry the princess if there are n suitors. You will find the following method from the Vector class useful:

```
v.erase(iter);
// Removes element at position iter
```

For example, to use this method to erase the 4th element from the beginning of a vector variable named theVector use:

```
theVector.erase(theVector.begin() + 3);
```

The number 3 is used since the first element in the vector is at index position 0.

CodeMate Hint: Use a vector of size n and a loop that continues to eliminate the next suitor until the size of the vector includes only one element.

Turn In

- Make and submit a zip file(`<your_full_name>_PS3.zip`) which includes the following:
  - Source code of `Q1`: `q1.cpp`
  - Source code of `Q2`: `q2.cpp`
  - Run `Q1` and `Q2` and attach screenshots(in `jpg` format, not exceeding `300kb` each) which show that your programs are running.
  - At least `1` screenshot for each question.