ECE 325 Course Assignment 3: Playing your band's first gig/show!

Great news: you just signed a deal for your band's first show! It is not in an ideal location, as it will be in a zoo, but you figure it is better than nothing (musicians have to eat, too!). The zoo is participating in a program that tries to keep the animals happier by making them dance to live neoclassical jazzhopmetal music, which is right up your alley. Any interested person can take on the role of dance therapist to be involved in the program. In the zoo, one of the animal handlers took on the role for now. There are some safety requirements for the dancing program:

- To make sure that all animals participate in the therapy program, an animal should only get fed after they danced to the music.
- An animal should be fed only once; if it eats twice, it gets a belly ache.
- An animal should not dance after it was fed as it will vomit all over the place.

Since there is only one animal handler in the zoo, they have to randomly select an animal to feed or invite to dance. Since the animals tend to be a bit shy, there is only a 50% chance they will start dancing when invited. ** mention that animals don't really care whether they get a belly ache or vomit, so the animal handler should check for this **

Other than that, the therapy program is pretty straightforward. The zoo director is a bit nervous about whether all animals get fed in the program. You offer to help them out by writing a program that simulates the show and demonstrates that all animals get fed as long as you keep playing long enough.

1) Finish the provided classes as indicated.

2) To implement the above safety requirements, you choose to use exceptions. There are lots of other ways to do it, but for this application, you decide to really stick to exceptions. For this application you implement two new exceptions: AlreadyFedException and DidNotDanceException. You can put them in the same package as the rest of the application. When one of the safety requirements is violated, make sure that your program throws the appropriate exception(s) and prints one or more of the following messages:

```
*name* did not dance yet!
*name* already ate and may get a belly ache!
*name* already ate and is about to vomit!
```

Answer the following questions:

3) Why are the exceptions thrown by the ZooAnimalHandler class and not somewhere else? Use the concept of responsibility to explain your answer.

4) Why we cannot define a private abstract method? Explain your answer.

5) What does it mean that ZooAnimalHandler implements two interfaces? How can we interpret this in natural language?

6) You may have noticed that when implementing the methods that throw an exception in the interfaces, your implementation does not necessarily have to throw an exception. Explain why not.

Hints

Be as specific as you can when handling exceptions (so make sure to use the appropriate subclasses of Exception).

Rubric

(20 points total)

2 points: code cleanliness/quality

10 points: implementation

8 points: questions (2 points each)

Please submit:

1) A zip file containing your code and a PDF with the answers to the questions above.
Name the file 'FirstName_ID_course_asg3.zip' and keep the exact same file structure as the zip that was provided for the assignment. So, for example:
Filename: Cor-Paul_1234567_course_asg3.zip

```
|------- solution.pdf
|------- songs.txt
|------- src
|        |------- ece325
|        |        |------- lec
|        |        |        |------- assignment3
|        |        |        |        |------- *.java
```

2) A screencast/movie that shows the following steps:

- Open your eClass with your name shown
- Open your IDE
- Show your code briefly
- Execute your code and demonstrate that your class works correctly.

Please submit the screencast as a **separate** file to eClass.

Please do not modify any of the names/methods we've defined in the provided *.java files unless explicitly specified that you are allowed to do so.