Name:_____

CCID:_____

Object Oriented Analysis: Potential Classes and Methods [2 marks]

Read the following paragraph and pull out potential **nouns** that may lead to classes and **verbs** that may lead to relationships and methods according to Object Oriented Analysis.

I want a system that automates this process that I follow: Whenever I make a git commit, I take a screenshot of my screen, and I take a photo of myself. These go into a branch of the repository I am working on called commit-snapshots. I name each photo and screenshot the same name as the git commit but with the appropriate image file extension. I want this process to be automated. Furthermore, I want it to pop up a preview and ask me if I want to commit both or one or none of the screenshots and photos that it took for that commit. For privacy reasons I might not want either.

List the potential Classes [e.g. nouns]:

List the potential Actions/Methods/Relationships [e.g. verbs]:

Name:_____

CCID:_____

UML: **Composition** or **Aggregation**? [3 marks]

Convert this Java code to a **UML class diagram**. This Java code is meant to represent a paint program with an assortment of brushes. Draw a well-designed UML class diagram to represent this information. Provide the basic abstractions, attributes, methods, relationships, multiplicities, and navigabilities as appropriate.

```java
public interface Canvas { ... }
public interface PaintTool {
    public void dragStart(Pointer e,
        Canvas c);
    public void dragEnd(Pointer e,
        Canvas c); }
class BitmapBrush extends Brush {
    Collection<Bitmap> brushBmps;
    ... }
class Brush implements PaintTool {
    Collection<Shape> brushShapes;
    ... }

class Bitmap { ... }
class Pencil implements PaintTool {
    Shape pencilTip;  ... }
abstract class Shape { ... }
class FatStroke extends Shape {...}
class HardLead extends Shape {...}
class FineTip extends Shape {...}
class RandomShape extends Shape{
    List<Shape> possibleShapes;
    ... }
public interface Pointer { ... }
```

Name:_____

CCID:_____

Use Cases and Use Case Diagram [2 marks total]

What are **three** primary use cases of the following situation:

Background:

A group of artists has formed a collective and they wish to contribute content to each other's projects, but for rights reasons (music societies like SOCAN) they must maintain track of all the rights on the content they produce.

Description:

I want to post my work/art/media in the form of audio, video, or images. I want to indicate if this work may be included in other works. I can make new works that aggregate other works. When I download another artists work to be included my work, the system keeps track of my download and will help me attribute that artist when I upload the derivative work I made that includes their work. Every work can be browsed, and the rights (the authors) of each work can be browsed and maintained. This means if I compose a new work out of 100 downloaded works, that all of the rights information will be tracked and all the artists involved will be credited in my new work.

Use case 1:_____

Use case 2:_____

Use case 3:_____

Now complete this **UML use case diagram**, including boundary, actors, use case bubbles and relationships between actors and use case.

CMPUT 301 Fall 2013 Midterm

Name:_____

CCID:_____

UML Sequence Diagrams: [3 marks]

Convert this use case into a **sequence diagram,** remember to include all the actors, the components, the lifelines and use good names for the methods. You can use the back of the page if you need space.

Use Case: 3D Printing
1. **I** initiate a conversation with the store **clerk**, and request print a 3D object that is to be chemical polished (this smoothes the object out).
2. **I** provide the **clerk** with a **USB Keydrive** containing **1 3D object file** that models the object I want printed.
3. The **clerk** reads the **USB keydrive** and sends the file to the **3D rights database.**
4. The **clerk** tells me that no rights holders have made an intellectual property claim on my object and thus they can print it.
5. The **clerk** prints my **3D object** using the **3D printer.**
6. The **clerk** gives the **3D object** to the **finisher clerk**.
7. The **finisher clerk** inserts the **3D object** into the chemical polisher.
8. The first **clerk** rings up my order on the **Point of Sale Device** and provides me with the total **cost**.
9. I pay the **clerk**
10. The **finisher clerk** takes the **3D object** from the polisher and hands it to **me**.

Name:_____

CCID:_____

UML: **Assignment 1 again**? But with **MVC**? Ah man... [3 marks] Page 1/2

Convert Assignment 1 to a **UML class diagram** of the **DESIGN** of the system. You **must** use the **Model View Controller** pattern in your design. It should be obvious how you save entries. Below is the unchanged description of Assignment 1.

Assignment 1 Problem Description

You are to design and implement a simple, attractive, and easy-to-use note taking application that can provide statistics about log entries per day and statistics about word counts in the notes. A log entry contains at least the following information:

- date (in yyyy-mm-dd format) (should be automatic, but is editable)
- subject (textual, e.g., Lunch)
- description (textual, e.g., Eating some craisins, Lunch at Burrito Libre)

This is a note-taking application meant for fast note taking. It is assumed that the user will be writing more notes than reading them.

The application allows the user to:

- view the log entries (most recently added appearing first)
- add a new entry (appends to the log)
- select and delete an existing entry
- select and edit an existing entry
- see the total number of characters typed for all entries.
- see the total number of words typed for all entries.
- see the total number of log entries created.
- see a list of the top 100 most common words
- see a word cloud or a word histogram of common words
- always save and load the log automatically for the user

Naturally, the statistics should be updated if values in the entries change.

Keep the activities/screens simple. Continued on the next page...

Name:_____

CCID:_____

UML: Assignment 1 again? [3 marks] continued... Page 2/2 (provide your solution on this page) MVC UML Class Diagram

Name:_____

CCID:_____

Software Engineering: Software Development Processes [2 marks]
Keep the responses short. A long response that is not on topic is dangerous.

How do software processes enable you to **reflect** or **self-evalute** your software development progress? [1 mark]

We talked about courage, and how agile methodologies used methods to improve the courage of programmers. **Explain** how **git** gives programmers **courage** with respect to agile methodologies. [1 mark]