North South University

Department of Electrical and Computer Engineering

CSE327 - Software Engineering

Spring 2021, Final Assessment

Total Marks - 30, Submit by: 11:59pm, 22nd May 2021

Name:	
Student ID:	
Section:	
Date:	

Instructions: All Questions are based on the following case study.

SomeWeirdCompany Inc. is trying to break into the note-taking market by bringing a new offering specially targeted to students. They will allow users to take class notes on their application, which has a mobile version, a web version as well as a version where notes can be added via sending an SMS to a particular number. A user can use their application on multiple devices, and it is expected that the notes will be synchronized in pseudo-real-time.

Students can search for particular classes by searching by the name/code along with the institution and teacher name. Once a class is created, other students can join the class. There is no restriction on who can join the class.

Each student can take his/her individual notes on any of their devices. When taking notes, users can add text, handwriting, images, sound clips, and video clips to the note. They can also undo their actions, with the last action being undone first.

User notes can be private. However, if a user's notes are private they cannot see the notes of others in the same class. If a user makes her/his notes shared, then the user immediately gets access to all other shared notes. Users can rate each note. They can also make an aggregated note by arranging multiple notes in a hierarchy, which can have multiple nested levels. Users can add tags to notes. When a tag is added to an aggregated note, all descendant notes should also be tagged.

Questions:

Q1. What design pattern(s) will you use to solve the problem(s) mentioned in the last paragraph (lines 16 - 21)? (10)

Q2. Using the design pattern(s) from your answer to Q1, draw a high level UML Class Diagram depicting the design of your solution to the problem(s) mentioned in the last paragraph (lines 16 - 21). (10)

Q3. Given the following code snippet: (10)

```
Class VideoClipUploadController {

    /* Video clips of less than 30 seconds are discarded */
    public boolean isVideoClipValid( VideoClip clip ) {

        If ( clip.getDurationInMinutes() < 30 )
        {
            return true;
        }
        return false;
    }
}
```

Write down test cases and their corresponding expected behaviour to thoroughly test the method *isVideoClipValid*. Assume that the behaviour outlined in the comments is correct. You do not need to write the code for any Mock Objects.