CSE461 – Software Engineering
Mid-Semester PART B - Spring 2022

This is a Open Book exam. You may refer to your notes/text. You may not consult with your classmates or others or copy from any other source. If the design is found to be plagiarized, you will get a "0" for the exam and and "F" for the course !!!

Time available for Part B is 60 min.

Credit is given for what you write, not what you are thinking. Partial credit will be given based on content, not quantity. Clearly state your assumptions (if any).   **Good Luck!**

The Software Project Submission and Review System (SoftProj) (22 points)

SoftProj is a system that allows students in software classes to submit their software development artifacts (e.g., models, requirements and design documents, test cases, code) for review by other students. The following are the types of artifacts that a student can submit for review: Requirements document, design document, UML models, code, and entire projects. The first time that an artifact from a student is submitted, the lecturer assigns the artifacts to other students (exactly two) for review. The student may or may not be able to review the artifact depending on their current review status. For example, If student X is currently reviewing student Y's artifacts, he/she cannot be assigned to review another student's artifacts. A reviewer cannot be assigned his/her own artifact. A reviewer uses a standard document provided by the system to review and rate the artifact. The reviewer may add additional review details to the standard document as they deem necessary. Once the students review an artifact, the lecturer looks over the reviews and rates the artifact, and the reviewers. The system then informs the submitter of the review results.

A submitter may submit a group of related artifacts (e.g., they may submit requirements and design document, or an entire project). In these cases, the lecturer may assign a team to each artifact in the group or a group of related artifacts. A review that cuts across the artifacts in the group is also needed. This is facilitated by making all the artifacts in the group available to all the reviewers and having the reviewers share their draft reviews.

Roles

SoftProj must support the following roles:

- Submitter (student): A submitter is allowed to submit artifacts. A submitter has access only to the artifacts created by his/her team.
- Lecturer: A lecturer assigns students to review the submitted artifacts.. The lecturer should be able to see the status of all artifacts under review, and the results of reviews for all previously reviewed artifacts.
- Reviewer: A student that is allocated to review an artifact or a group of artifacts. A reviewer reviews assigned artifacts and submits the review.

Artifact Submission

Artifacts must be submitted as PDF or Microsoft Word files. In future many different file formats may be added. For example, rational rose, Visio, Omondo files may be allowed.

Notifications

The system must be update dynamically with the review status. The following notifications need to be made from within the system.

- Notify the lecturer when a new artifact has been submitted and needs to be assigned to a reviewer.
- Notify a team that an artifact has been assigned to him/her.
- Notify a lecturer that all reviews have been entered.
- Notify submitter of review results.

Questions:
   a) **(10 points)**
Describe each usage of a design pattern in the design you created. Your description of the role for each participant should not be the generic role specified in the GoF text for a pattern participant. Describe the role in the context of this application. It should be clear to the reader that 1) the class is indeed playing the specified role in the pattern, and 2) the role addresses a feature, requirement, or need stated in the system description. Identify anyplace where you needed to stretch the standard pattern to fit this application. You may use the template table as many times as you need.
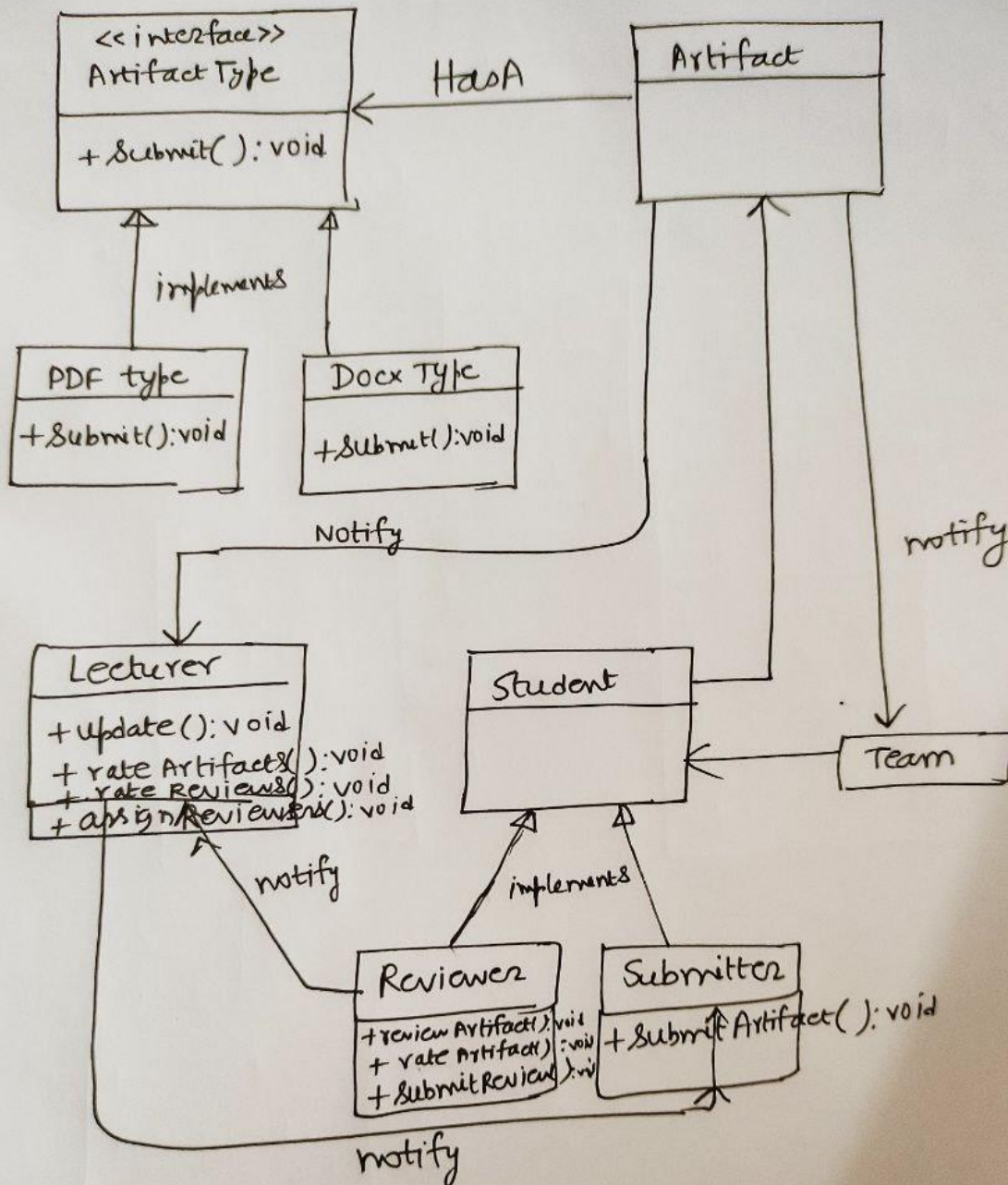
Generic GoF Pattern Name: Observer		
Participants (context specific): Reviewer, Submitter		
Class	**Participant**	**Role of participant**
Lecturer		**Rate artifacts, assign reviewers, rate reviewers**
Student	**Reviewer**	**Review other student's artifacts**
Student	**Submitter**	**Submit Artifact of own**

   b) **(12 points)**
Provide UML class diagram that visualizes your design along with a short description that highlights the important aspects of the structure. You should focus on the positives and negatives of your design. Specify the relationships among the classes (inheritance, association, aggregation, composition, cardinality, navigability, and stereotype labels). You do not need to specify instance data in the class diagrams.

The diagram is given below.