CSE201 Advanced Programming
Lab Assignment 02
Indraprastha Institute of Information Technology, Delhi
16 October 2021
Due Date 11:59 PM 19 October 2021

This assignment is a take-home lab assignment. No extensions whatsoever will be provided. Any submission after the deadline will not be evaluated. If there is any ambiguity or inconsistency in a question, please seek clarification from the teaching staff. Please read the entire text below very carefully before starting its implementation.

Plagiarism: All submitted lab assignments are expected to be the result of your individual effort. You should never misrepresent someone else's work as your own. In case any plagiarism case is detected, it will be dealt with as per IIITD plagiarism policy and without any relaxations:

https://www.iiitd.ac.in/sites/default/files/docs/education/AcademicDishonesty.pdf

Please note that you are not allowed to discuss the lab assignment's design/solution (e.g. classroom page discussions, etc.). Anyone who is found doing this will be treated as a plagiarism case. No excuses!

NOTE: We won't respond to any query because you missed the read the description carefully. We will ONLY respond to valid questions. Make sure you ask all your doubts in advance and not at the last minute.

Topic: Interfaces & Polymorphism

Ever since the arrival of Google Classroom (GC), it has been the go-to Learning Management System (LMS) for IIITD. LMS is the backbone of how teaching is delivered at IIITD. For quite some time now, it has been observed that IIITD should have its very own LMS, and the institute administration has named the project, "BACKPACK". You have been contacted by BYLD, the developer group at IIITD to give your inputs on this project. **They want you to use the knowledge of OOP that you have gathered from Assignment-1 along with interfaces, and polymorphism** to design a robust system that can support multiple roles. The system will be used by **Instructors** (a single course can have multiple instructors like GC) and **Students**.

For now, you are supposed to design a single course page that has users for the roles mentioned above and show BYLD a working command line simulation.

INSTRUCTOR:

1. An instructor can upload and view lecture materials. Lecture material can be of two types:
    a. Lecture Videos: A filename with extension .mp4
    b. Lecture Slides: An array of strings representing the content of the slides
2. An instructor can upload and grade assessments. The assessments can be of two types:
    a. Assignments: Problem Statement describing the assignment
    b. Quizzes: A single question requiring a one-word answer
3. Also while uploading an assignment an instructor will specify the maximum marks possible for that assignment, which will be used when an instructor grades the submissions. For a quiz, the maximum marks are by default 1.
4. An instructor will also be required to close an assessment after which no submissions will be accepted.

STUDENT:

1. A student can view the uploaded lecture material
2. A student should be able to view assessments and upload submissions which will be graded by the instructor. The format of submissions will be as follows:
    a. Assignments: A filename with extension .zip (eg: sample_submission.zip)
    b. Quiz: A one-word solution to the question
3. Students can check if their submission has been graded, and marks received for the same.

COMMON FUNCTIONS:

Discussions in forums are an important part of any active learning environment. To facilitate this everyone should be allowed to add comments in a course discussion forum. Every member of the course both instructors and students should be able to add comments and view other comments. While viewing, comments should be displayed along with the name of the member who added them and the timestamp of the comment. Unlike google classroom where we are allowed to add comments to assessments and lecture materials. BYLD wants you to create a simple discussion forum for the time being where members can add comments and view them.

For simulating this assignment you will be required to create a dummy course with some dummy accounts for both instructor and students. And at any point in time, you should be able to log out of a user and log in as another user. When logged in as an instructor we should be able to use the system from the perspective of an instructor. When we log in as a student we should be able to perform functions required by a student.

Please thoroughly go through the sample run below to understand the program flow. Please refrain from asking questions related to your approaches from the TAs and hope you are able to help BYLD with the following task.

Some repetitive print statements:

INSTRUCTOR MENU	STUDENT MENU
1. Add class material	1. View lecture materials
2. Add assessments	2. View assessments
3. View lecture materials	3. Submit assessment
4. View assessments	4. View grades
5. Grade assessments	5. View comments
6. Close assessment	6. Add comments
7. View comments	7. Logout
8. Add comments	
9. Logout	

In the sample case below, when we say {INSTRUCTOR MENU} and {STUDENT MENU}, consider the above-mentioned statements in place.

Note:

1. .zip and .mp4 file extension must be maintained where required. The input format specified above should not be violated. This means, if a student enters "submission.rar" for an assignment, it is not a valid submission and should not be accepted.
2. Other than that no error handling is required.

Sample Test Case:

Welcome to Backpack
1. Enter as instructor
2. Enter as student
3. Exit
1
Instructors:
0 - I0
1 - I1
Choose id: **0**
Welcome I0
{INSTRUCTOR MENU}
1
1. Add Lecture Slide
2. Add Lecture Video
1
Enter topic of slides: **Slide 1**
Enter number of slides: **2**
Enter content of slides
Content of slide 1: **Content 1**
Content of slide 2: **Content 2**
Welcome I0
{INSTRUCTOR MENU}
1
1. Add Lecture Slide
2. Add Lecture Video
2
Enter topic of video: **Lecture 1**
Enter filename of video: **lecture1.mp4**
Welcome I0
{INSTRUCTOR MENU}
2
1. Add Assignment
2. Add Quiz
1
Enter problem statement: **Assignment 1 problem**
Enter max marks: **5**
Welcome I0
{INSTRUCTOR MENU}
2
1. Add Assignment
2. Add Quiz
2
Enter quiz question: **Name a language which supports OOPS?**
Welcome I0
{INSTRUCTOR MENU}
8
Enter comment: Welcome to the course

Welcome I0
{INSTRUCTOR MENU}
9
Welcome to Backpack
1. Enter as instructor
2. Enter as student
3. Exit
2
Students:
0 - S0
1 - S1
2 - S2
Choose id: **0**
Welcome S0
{STUDENT MENU}
1
Title: Slide 1
Slide 1: Content 1
Slide 2: Content 2
Number of slides: 2
Date of upload: Thu Oct 14 23:25:25 IST 2021
Uploaded by: I0

Title of video: Lecture 1
Video file: lecture1.mp4
Date of upload: Thu Oct 14 23:25:39 IST 2021
Uploaded by: I0
Welcome S0
{STUDENT MENU}
2
ID: 0 Assignment: Assignment 1 problem Max Marks: 5

ID: 1 Question: Name a language which supports OOPS?

Welcome S0
{STUDENT MENU}
3
Pending assessments
ID: 0 Assignment: Assignment 1 problem Max Marks: 5
ID: 1 Question: Name a language which supports OOPS?
Enter ID of assessment: **0**
Enter filename of assignment: **assign1_s0.zip**
Welcome S0
{STUDENT MENU}
4
Graded submissions

Ungraded submissions
Submission: assign1_s0.zip

Welcome S0

{STUDENT MENU}

7

Welcome to Backpack

1. Enter as instructor

2. Enter as student

3. Exit

2

Students:

0 - S0

1 - S1

2 - S2

Choose id: **1**

Welcome S1

{STUDENT MENU}

3

Pending assessments

ID: 0 Assignment: Assignment 1 problem Max Marks: 5

ID: 1 Question: Name a language which supports OOPS?

Enter ID of assessment: **0**

Enter filename of assignment: **assign1_s1.zip**

Welcome S1

{STUDENT MENU}

3

Pending assessments

ID: 0 Question: Name a language which supports OOPS?

Enter ID of assessment: **0**

Name a language which supports OOPS? **JAVA**

Welcome S1

{STUDENT MENU}

7

Welcome to Backpack

1. Enter as instructor

2. Enter as student

3. Exit

1

Instructors:

0 - I0

1 - I1

Choose id: **1**

Welcome I1

{INSTRUCTOR MENU}

5

List of assessments

ID: 0 Assignment: Assignment 1 problem Max Marks: 5

ID: 1 Question: Name a language which supports OOPS?

Enter ID of assessment to view submissions: **0**
Choose ID from these ungraded submissions
0. S0
1. S1
0
Submission:
Submission: assign1_s0.zip

Max Marks: 5
Marks scored: **5**
Welcome I1
{INSTRUCTOR MENU}
6
List of Open Assignments:
ID: 0 Assignment: Assignment 1 problem Max Marks: 5

ID: 1 Question: Name a language which supports OOPS?

Enter id of assignment to close: **1**
Welcome I1
{INSTRUCTOR MENU}
9
Welcome to Backpack
1. Enter as instructor
2. Enter as student
3. Exit
2
Students:
0 - S0
1 - S1
2 - S2
Choose id: **0**
Welcome S0
{STUDENT MENU}
3
No pending assessments
Welcome S0
{STUDENT MENU}
4
Graded submissions
Submission: assign1_s0.zip
Marks scored: 5
Graded by: I1

Ungraded submissions
Welcome S0
{STUDENT MENU}
6

Enter comment: **Hello I am a student**
Welcome S0
{STUDENT MENU}
5
Welcome to the course - I0
Thu Oct 14 23:26:26 IST 2021

Hello I am a student - S0
Thu Oct 14 23:32:47 IST 2021

Welcome S0
{STUDENT MENU}
7
Welcome to Backpack
1. Enter as instructor
2. Enter as student
3. Exit
3

{End of Test Case}