A serious problem concerning the directories management.

1. Introduction

Assume we have the following logic for managing the directories and materials inside the system.

# Original Management techniques

## Courses

### Features

1. Add Material, any instructor can add materials to the course.

. Update Material, any instructor can update any material in the course.

. Delete Material, any instructor can delete any material from the course.

. Add Directory, any instructor can add a directory to the course.

. Rename Directory (Update Directory), any instructor can rename any directory in the course.

. Delete Directory, any instructor can delete any directory in the course.

### Rules

. The instructor must be registered in the course.

. There is no ownership for the material or the directory.

. Deleting the directory will delete any internal directories or materials.

. The concern of an instructor deletes or changes a material or directory that another instructor added is not of the system concerns, the system does not care about it, and the system assumes the organization between the instructors in the same course.

## Course Groups and Course Group Tasks

### Features

. Add Material, any member can add a material.

. Update Material, only the owner of the material can update that material.

. Delete Material, the owner of the material and the owner of the group can delete that material.

. Add Directory, any member in the group can add a new directory.

. Rename Directory (Update Directory), any member in the group can rename the directory.

. Delete the directory, any member in the group can delete that directory.

### Rules

. The user must be a member of the group.

. The materials follow ownership concept, while the directories do not.

. Deleting a directory will delete any internal directories and materials.

# Problem

Assume that person 1 came and create a directory called dir1 in the course group or course group’s task, then he (or someone else) added materials and directories to that directory.

Assume that person 2 came and delete directory dir1, then following the current rules, he will delete the materials and directories in dir1 although he does not own them.

# Solutions

## Solution 1, Mounir Sabry

Keeps the same rules and features.

### Pros

#### Makes the implementation a bit unified.

#### A bit easy to implement.

### Cons

#### Contradict the material ownership concept.

## Solution 2, Mounir Sabry, Omar Hassan

Remove the ownership concept from the materials, the course group and course group task will follow the same and features as the normal courses.

### Pros

#### Makes the process of managing the materials completely unified regardless of the location of the materials.

#### Makes the implementation a bit easier.

### Cons

#### Assumes the organization between the group members, which not always the case, one member can delete or change all the materials in the group without permission.

## Solution 3, Karim Fathy

Reject deleting the directory if the directory contains any materials that does not belong to that member unless the member is the owner of the group.

### Pros

#### Very reasonable solution.

#### Keeps the ownership of the materials protected.

#### Prevent any member who is not the owner of the material or the group from deleting the material.

### Cons

#### Computation expensive.

#### Difficult to implement.

## Solution , Mina Botros

"Abandon the ship", "The hand that hurts you, do not heal it instead cut it" Mina Botros 08/02/2021, Remove the directory concept (tree structure) from the system.

### Pros

#### Eliminates the problem of directory management.

#### The easiest to implement.

### Cons

#### Will make the website looks like the old e-com, the same problems.

#### The last resort solution.

## Solution , Mina Botros

Drop the directory structure (tree structure) from course group and course group task and instead use flat structure, the members can only have materials inside course group and course group tasks.

### Pros

#### Easy to implement.

#### Eliminate the problem completely.

### Cons

#### Remove the unified logic for managing the materials in the system.

#### Makes the website experience a bit harder, inside of having the materials organized, the materials will be on one directory.

## Solution , Mina Botros

Remove the delete ability completely once a material or directory is added it cannot be removed.

### Pros

#### Eliminates the problem from its roots.

#### Easy to implement.

### Cons

#### Does not make sense.

#### If for some argent reason the user must delete the material/directory, then the user will have to contact the system admin to delete the material/directory manually.