ONETUTOR

Programmieren 3

Kevin Kosinski, Ron Wagner, Paul Hentgen

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OneTutor

What is OneTutor

OneTutor is a learning software for pupils and students. When registered, you have the possibility to access one of many courses. Tutors or professors can add or remove courses. Every course has a license key. The tutors/professors need to hand their students this license key. The courses can be edited by the tutors/professors by uploading or deleting material (worksheets, lecture notes…), as well as multiple-choice or cloze exercises. For the exercises the tutor/professor can upload a sample solution. That way the exercises are automatically checked and evaluated.

Structure

The platform represents OneTutor. The platform keeps track of all the members. There are administrators for the platform that can create institutions. Inside the platform many institutions can be created. Each institution has administrators that can create or delete courses. Courses can be entered by members with the correct license key. Courses also have an administrator. This administrator can edit the course and its contents.

How does OneTutor work

Registration/Login

On registration, the user is required to enter the first name, last name and an e-mail address. If the e-mail address is not already in use, a new member, with an according ID, is created.

On login, the entered e-mail address is checked. If it matches an e-mail address of an existing member, the login will be successful.

Create and edit courses

On creation, it is first checked, if the user trying to create a course is an administrator of the according institution. If that is the case a new course with the given title and a new ID, as well as a randomly generated license key is created.

All expansions and edits can only be done by an administrator. This is checked on every edit or expansion of the course. When adding an exercise and the according solution you can differentiate between a cloze and a multiple-choice exercise.

On uploading a new material, the desired file is being read from the home directory. The file will then be converted and copied into a new file on the server. The file does not need to be a .txt file.

Logging in to a course

When a user is trying to log into a course, his entered license key is compared with the one that is assigned to the course. If they match the user is allowed access to the course.

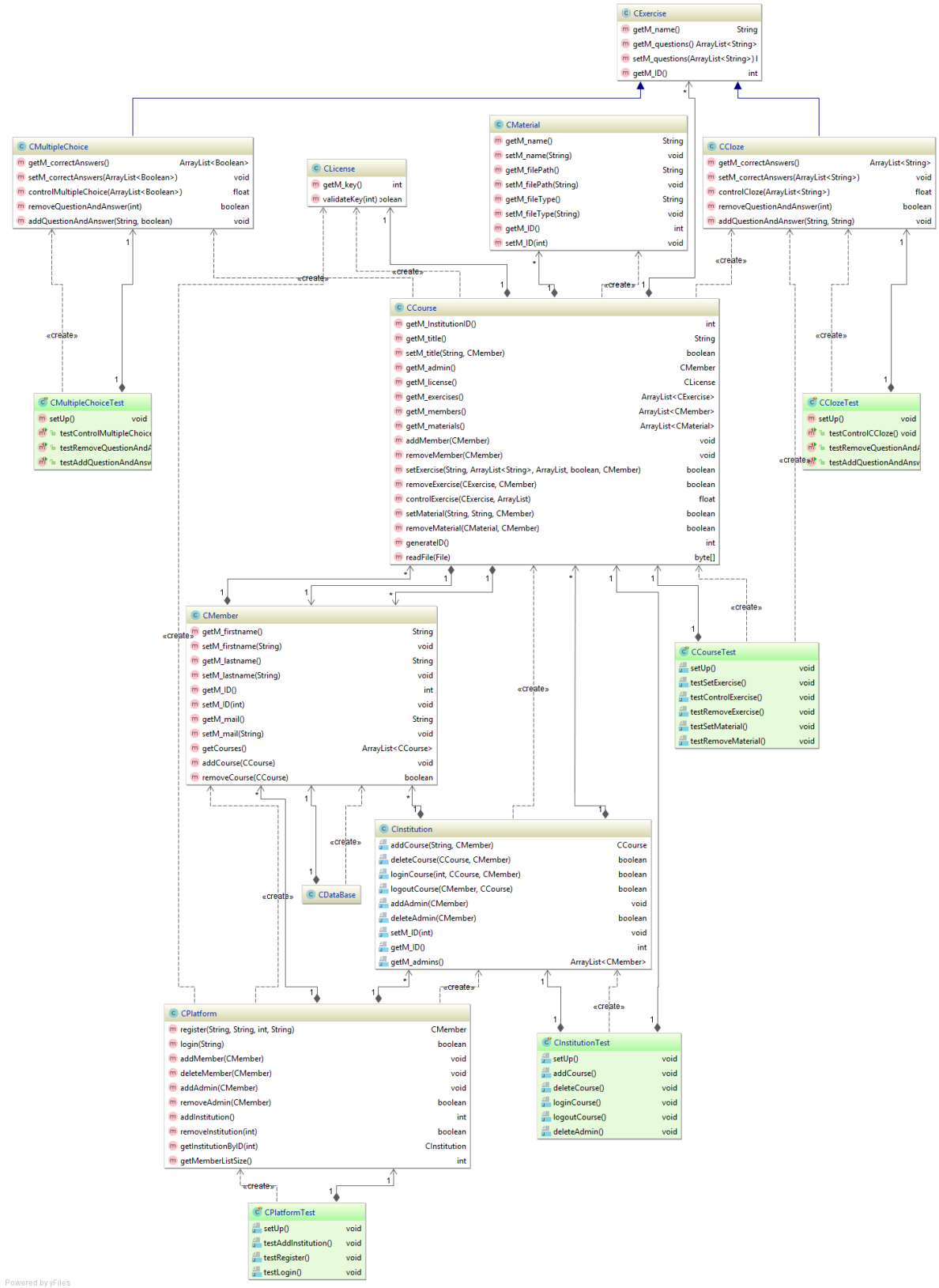
Evaluating exercises

When an exercise is submitted, every task solved by the user is compared with the solution the tutor/professor submitted. For each matching solution, the student is granted a point. In the end the points the student reached are compared with maximum possible amount of points to reach. The student then gets his result as a percentage.

Known issues

When executing the class CMultipleChoiceTest, the test testControlMultipleChoice() will most likely fail. If you execute the test testControlMultipleChoice() on its own though, it will finish successfully.

UML-diagram


CExercise
getM_name() String
getM_questions() ArrayList<String>
setM_questions(ArrayList<String>) l
getM_ID() int
CMaterial
getM_name() String
setM_name(String) void
getM_filePath() String
setM_filePath(String) void
getM_fileType() String
setM_fileType(String) void
getM_ID() int
setM_ID(int) void
CMultipleChoice
getM_correctAnswers() ArrayList<Boolean>
setM_correctAnswers(ArrayList<Boolean>) void
controlMultipleChoice(ArrayList<Boolean>) float
removeQuestionAndAnswer(int) boolean
addQuestionAndAnswer(String, boolean) void
CLicense
getM_key() int
validateKey(int) oolean
CCloze
getM_correctAnswers() ArrayList<String>
setM_correctAnswers(ArrayList<String>) void
controlCloze(ArrayList<String>) float
removeQuestionAndAnswer(int) boolean
addQuestionAndAnswer(String, String) void
CCourse
getM_InstitutionID() int
getM_title() String
setM_title(String, CMember) boolean
getM_admin() CMember
getM_license() CLicense
getM_exercises() ArrayList<CExercise>
getM_members() ArrayList<CMember>
getM_materials() ArrayList<CMaterial>
addMember(CMember) void
removeMember(CMember) void
setExercise(String, ArrayList<String>, ArrayList, boolean, CMember) boolean
removeExercise(CExercise, CMember) boolean
controlExercise(CExercise, ArrayList) float
setMaterial(String, String, CMember) boolean
removeMaterial(CMaterial, CMember) boolean
generateID() int
readFile(File) byte[]
CMultipleChoiceTest
setUp() void
testControlMultipleChoice
testRemoveQuestionAndA
testAddQuestionAndAnsw
CClozeTest
setUp() void
testControlCCloze() void
testRemoveQuestionAndA
testAddQuestionAndAnsv
CMember
getM_firstname() String
setM_firstname(String) void
getM_lastname() String
setM_lastname(String) void
getM_ID() int
setM_ID(int) void
getM_mail() String
setM_mail(String) void
getCourses() ArrayList<CCourse>
addCourse(CCourse) void
removeCourse(CCourse) boolean
CCourseTest
setUp() void
testSetExercise() void
testControlExercise() void
testRemoveExercise() void
testSetMaterial() void
testRemoveMaterial() void
CInstitution
addCourse(String, CMember) CCourse
deleteCourse(CCourse, CMember) boolean
loginCourse(int, CCourse, CMember) boolean
logoutCourse(CMember, CCourse) boolean
addAdmin(CMember) void
deleteAdmin(CMember) boolean
setM_ID(int) void
getM_ID() int
getM_admins() ArrayList<CMember>
CDataBase
CPlatform
register(String, String, int, String) CMember
login(String) boolean
addMember(CMember) void
deleteMember(CMember) void
addAdmin(CMember) void
removeAdmin(CMember) boolean
addInstitution() int
removeInstitution(int) boolean
getInstitutionByID(int) CInstitution
getMemberListSize() int
CInstitutionTest
setUp() void
addCourse() void
deleteCourse() void
loginCourse() void
logoutCourse() void
deleteAdmin() void
CPlatformTest
setUp() void
testAddInstitution() void
testRegister() void
testLogin() void
«create»
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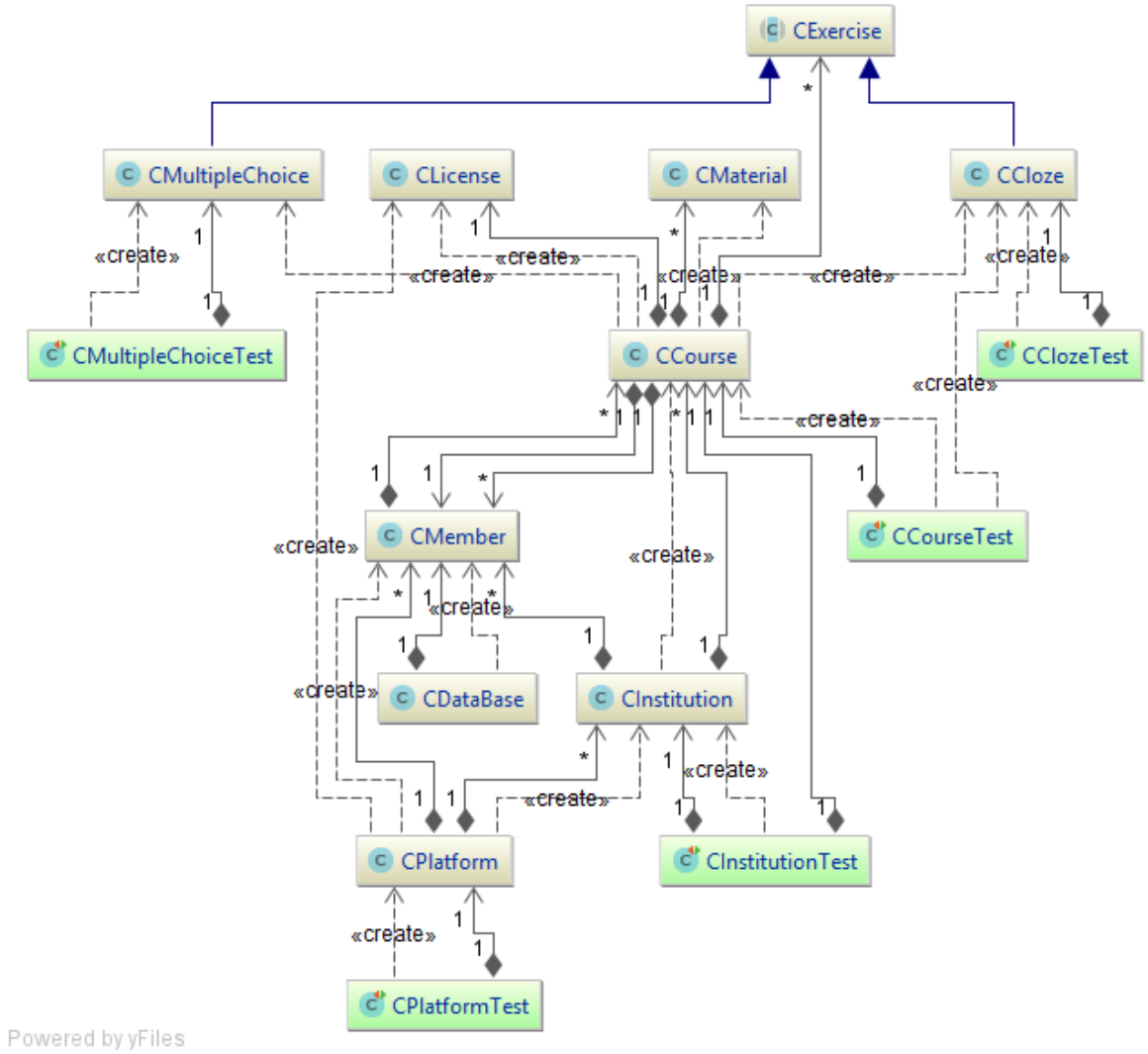
CExercise
CMultipleChoice
CLicense
CMaterial
CCloze
CMultipleChoiceTest
CCourse
CClozeTest
CMember
CCourseTest
CDataBase
CInstitution
CPlatform
CInstitutionTest
CPlatformTest
«create»
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