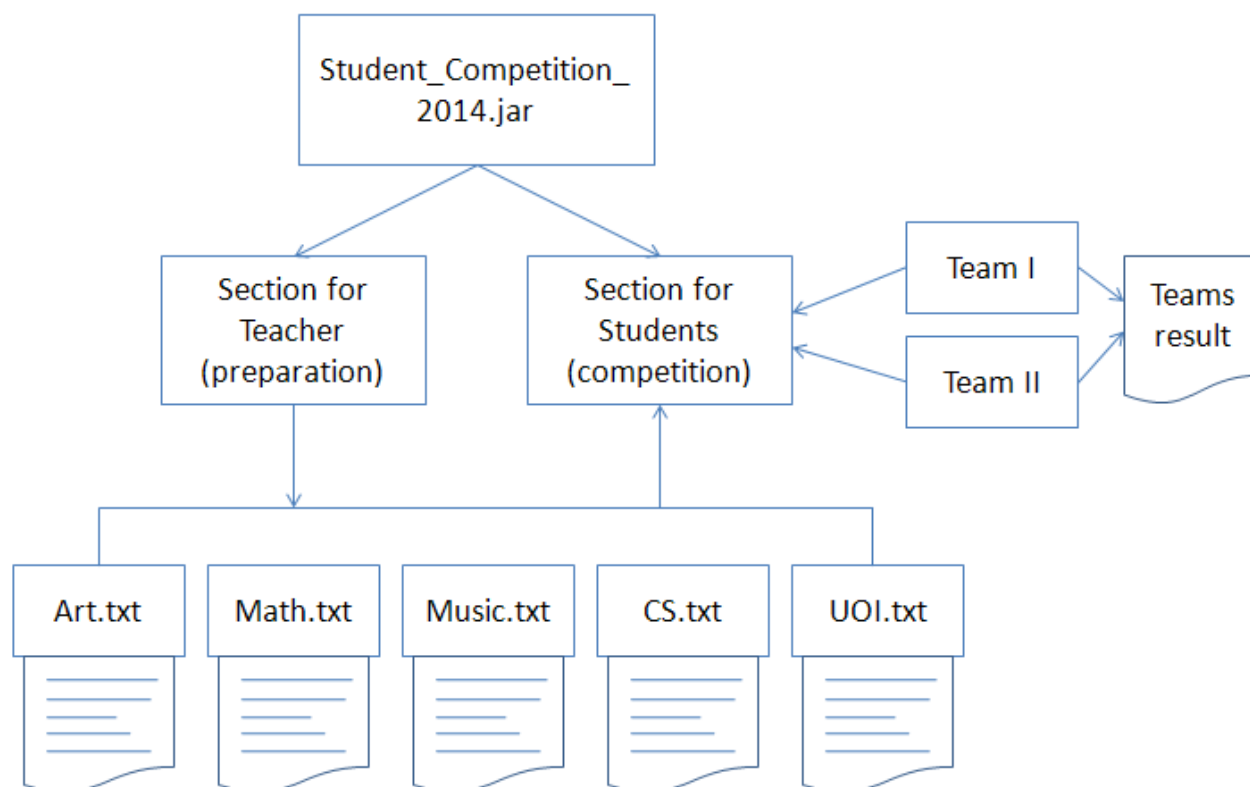


Criterion B: Design

Program basic (initial) structure:



Input data (Teacher)

1. Subject (from five option), Multiple choice Question with 4 answers one of which is true, Value of the question (level of difficulties - option)– how many points equal this question	
Ex: Normal data Subject: Math Question: What is value of x if $2*x+3=17$? Answers: A)5 B) 29 C)-13 D)7 Value: 2 points (2 point question) Correct answer: D	Ex: Abnormal data Subject: Math Question: What is value of x if $2*x+3=17$? Answers: A)5 B) 29 C)-13 Value: 5 points (values are only 1, 2, and 3) Correct answer: K
Limitations for creating questions: <ul style="list-style-type: none"> there should be only text information entered as input data; Teacher can create max 18 questions in each subject: 6 questions with 1 point, 6 questions with 2 points and 6 with 3 points (Ms xx's requirement) 	
2. Teams names, members and competition date	

Date: **22/02/2014**

Team I – “**Aristotle**”; members: **xx, xx, xx, xx, xx**

Team II – “**Euclid**”; members: **xx, xx, xx, xx** No abnormal

data

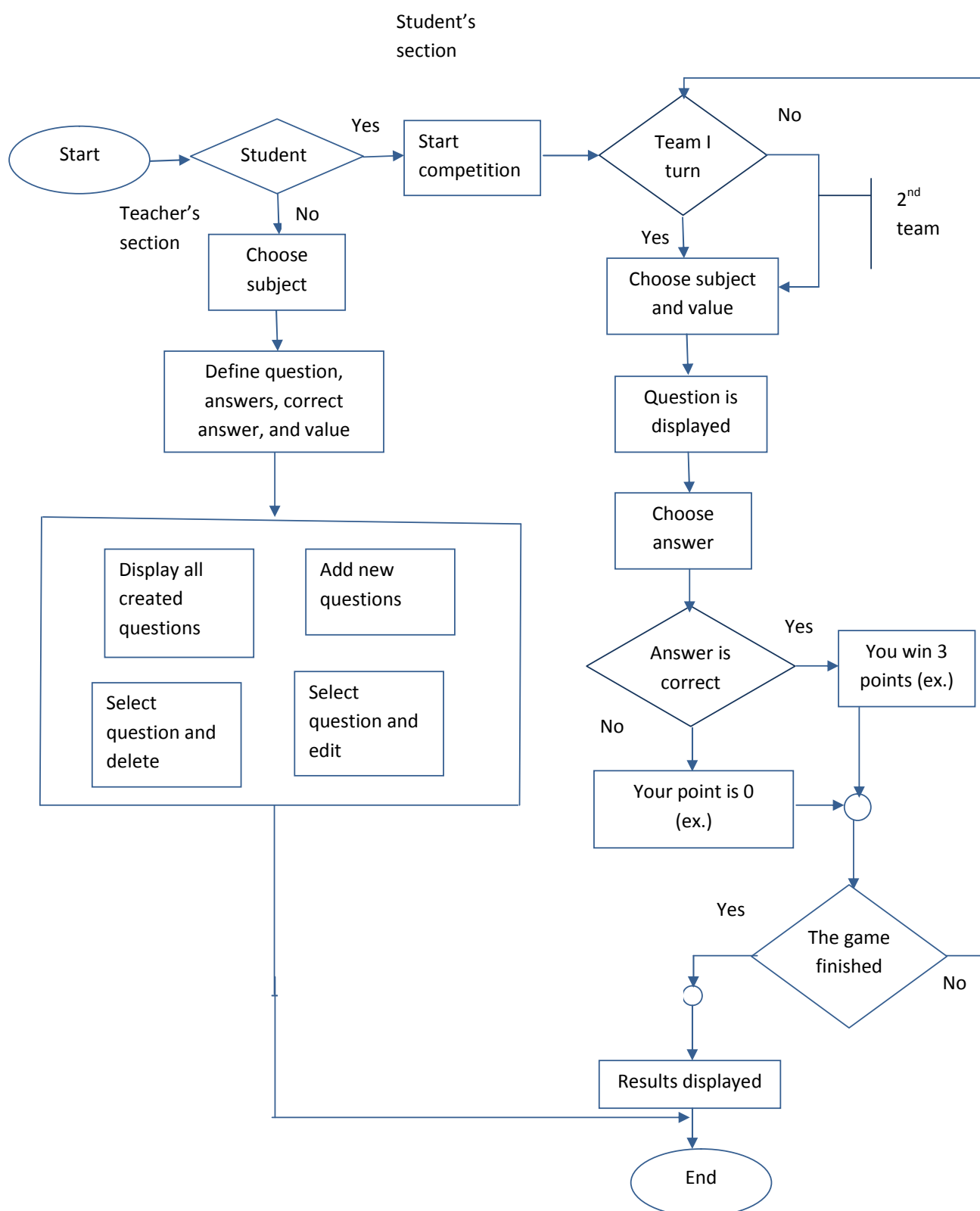
Input data (Students action)

Data – Teams will choose subjects/questions/answers in rotation	
Ex:	
Team I	Team II
Category – subject Math (option)	Category – subject Art
2 point question (option)	3 point question
Answer – D (entered from keyboard)	Answer – B
<p>Comment</p> <p>After the answer will be entered in program, corresponding message will be thrown on the screen. If answer is correct, question points are added to the team (by software), if not – 0 point will be shown</p>	

Output data

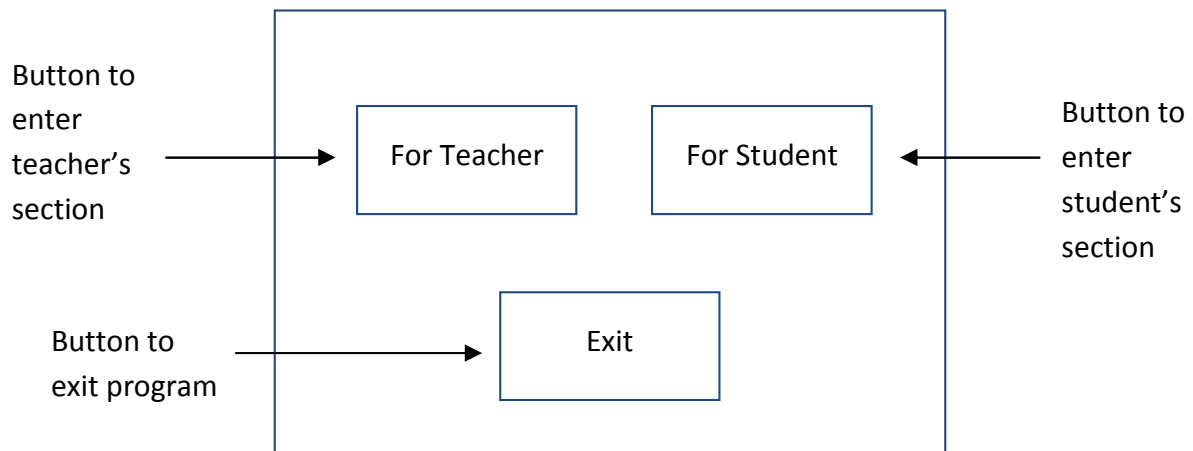
Teacher's section	Student's section
<ol style="list-style-type: none"> Five txt files will be created by software (can be printed): Art.txt, Math.txt, UOI.txt, CS.txt and Music.txt All questions, four possible answers, question values, correct answers will be saved in appropriate txt file as one record (can be printed); 	<ol style="list-style-type: none"> Categories and questions' values will be displayed on the screen for choosing ; Question with four possible answers and values will be displayed; Whether the answer is correct or not will be displayed; If the answer is correct – it's value will be added in “Team score” and shown on the display; Teams' final score will be calculated, displayed and saved in the result file; Teams' description (team members and when the competition took place) will be saved in team txt file. Final results will be shown on the screen.

Process description

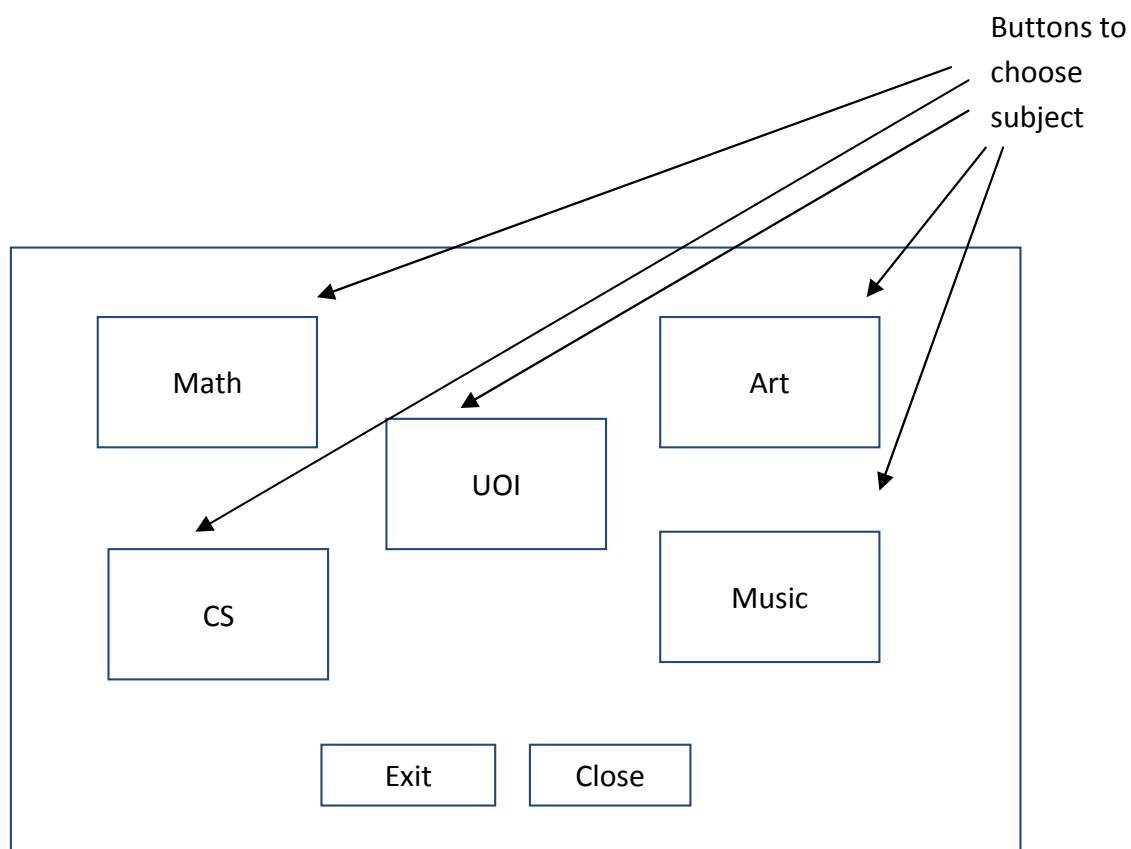


Software Interface

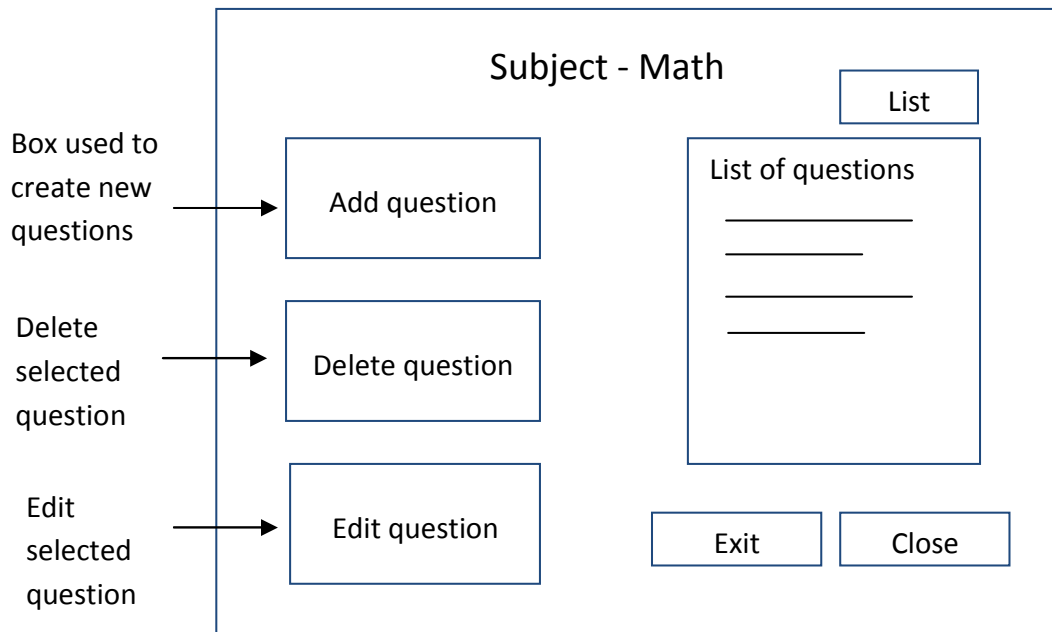
The main window



Teacher's section – class Teacher



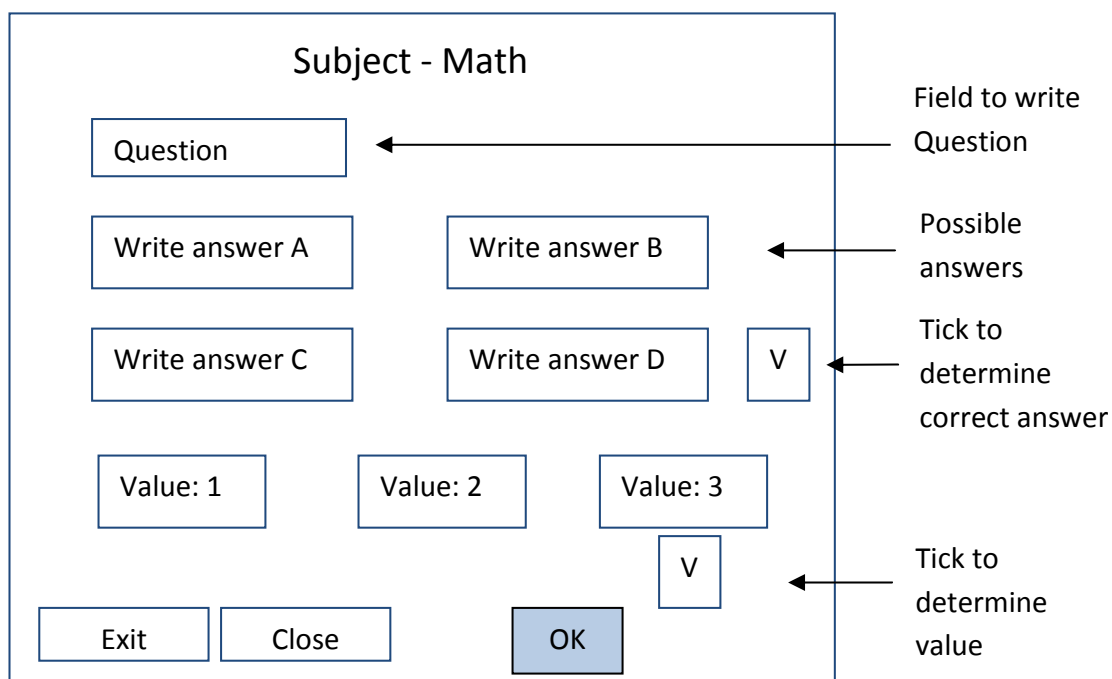
Subject interface – class Subject



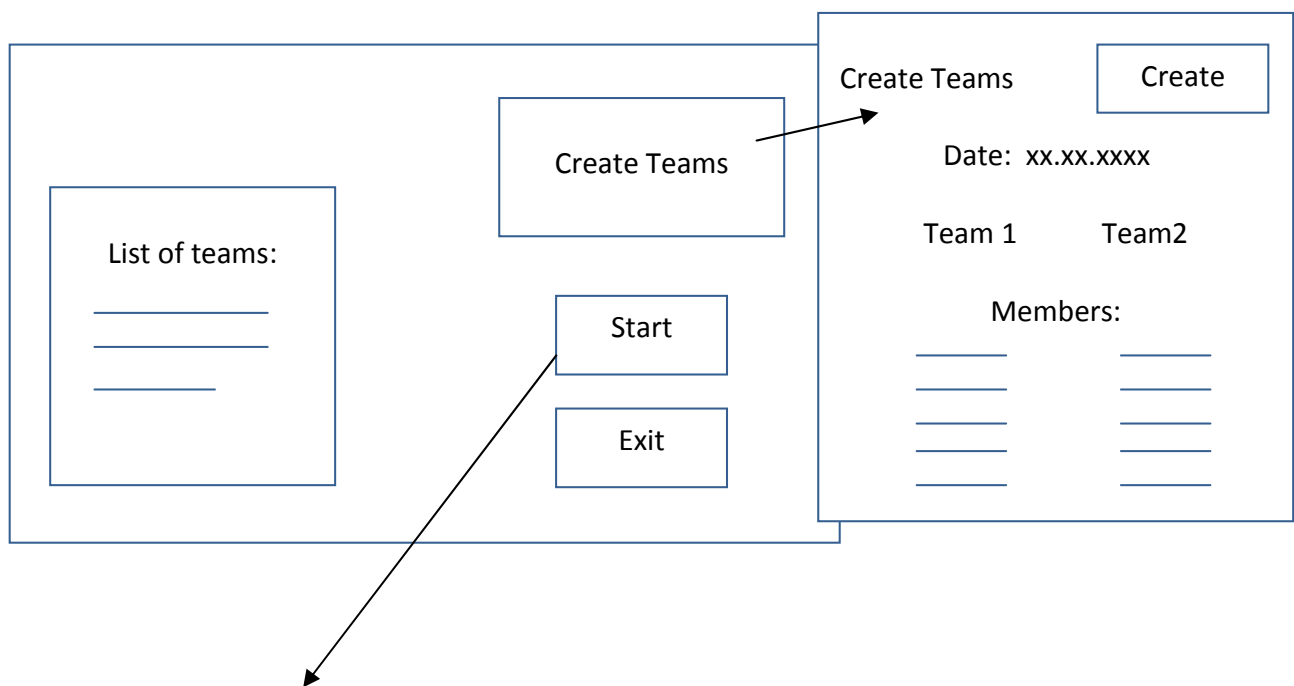
Button Add and Edit Interface – class AddQuestion

Note: this window will be opened when buttons “add question” or “edit question” will be pressed.

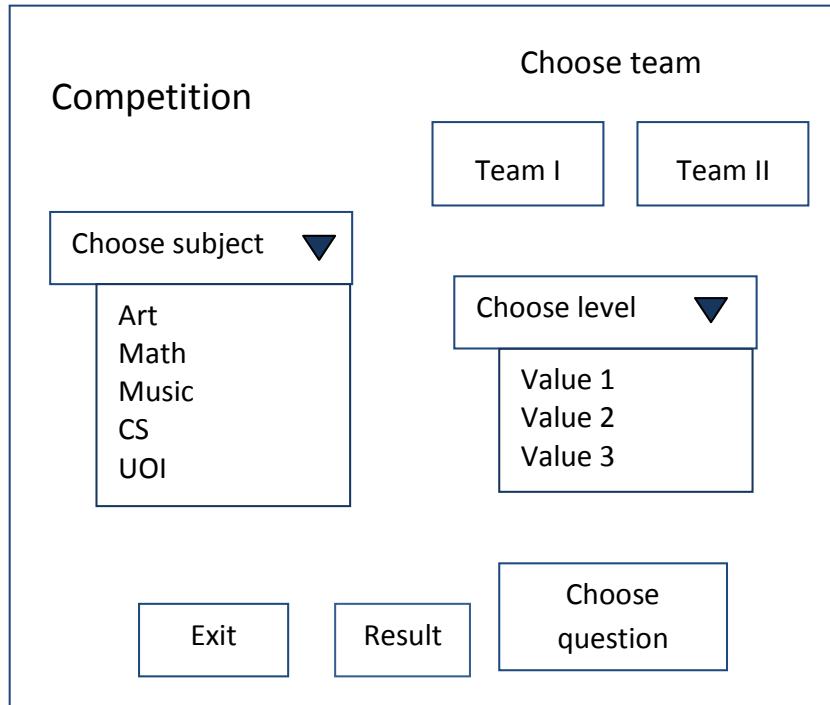
Edit=delete+add



Student's section – class Student



Competition window – class Start



Choose question – class Question

Subject – Math

Value 2

Question 4: What is value of x if $2 \cdot x + 3 = 17$?

Answers: A)5 B) 29 C)-13 D)7

Write correct answer:

Answer window

Team II - Your answer is incorrect;

You have 0 point

Final Results – class Result

Team I – you have 22 points;

Team II – you have 23 points;

The winner is

Team II

Schedule for developing the product

Program will be divided in two sections: Teacher and Student sections; Teacher section is used to create questions for students in five different subjects students learn in PYP.

Students can play a new game or revise old ones.

2 + 3 weeks will be enough to complete both sections;

Teacher's section (2 weeks)	Student's section (3 weeks)
<ul style="list-style-type: none"> ▪ Create an interface ▪ Write code to create five subjects group with 5 txt RandomAccessFiles ▪ Write code to enter and then save questions (save in text file according to subject category) with four possible answers, values and correct answer – one record ▪ Write code for Listview – for teacher to see already created questions ▪ Write code for edit / delete questions - in order to change them in case of mistakes ▪ Write code to prevent teacher from dataentry errors 	<ul style="list-style-type: none"> ▪ Create an interface ▪ Create code to enter and save teams' info – teams' names, members and competition date (team.txt file) ▪ Create result. text file to save teams results (results will be calculated by the software) ▪ Write code to regulate team's turn (order) ▪ Write code to display chosen question with answers to choose correct one. ▪ Write code to define answer is correct or not and give appropriate points to the team ▪ Write code to calculate and display who is the winner and save all results in file

Test plan

Action Test	Way of testing and result
Test if the program runs correctly and main window appears on the screen	Double click on the program icon - StudentCompetition.jar; main window appears
Check if the teacher section works	Click on "For Teacher" button and see whether the window appears with 5 subject buttons
Check if the student section works	Click on "For Student" button and see whether the window appears with List window, create_teams, start and Exit buttons
Check if subject buttons work properly	Click on each button of the subject and check if appropriated window opens with already created questions in List window
Check if add button works properly	Add new question with all data and see if it is added to the list
Check if edit and delete buttons work properly	Select record in List window and click delete – after refresh List, this record should disappeared. Select record in List window and click Edit – Add window should appeared with all data in textfields and after editing data, add this record again. After refreshing List, this record should appear at the end.
Check if all questions/answers/points are saved as one record/one line in appropriate txt file.	Open all files and check the contents.
Check if save teams info (name, members and date) function works	Create new teams with all elements and check – is correctly displayed or not and is correctly saved in team.txt file
Check if game/competition begins correctly	Create teams and begin competition: First team begins: choose subject, question level – question appears on the screen with 4 possible answers. Input correct answer and check result. If answer is correct – information message should be displayed “you win 2 points” – if this question is 2 point question. Now 2 nd teams turn is... check again everything;
During the game check if the results are shown correctly	Play the game, enter correct answer, then incorrect and see if results are displayed properly.
Check if final results are calculated properly and saved in the txt file	Play game, finish it and see the results.

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