## Mathematics Computer Science – 812/2

A school teacher needs to register its students in a sport competition. Each student can participate in one of the following <u>sports</u>: tennis, football or basketball. To be able to register in this competition, each student needs to input their current score (integer, between 0 and 100) and their year of birth (four-digit integer).

- 1. Display how many students want to participate in each sport (1p). Example: tennis: 4, football: 1, basketball: 3
- 2. Display the list of items, showing their sport, score and year of birth (0.5p). Example: tennis 23 2000, basketball 72 2005, football 44 2008, tennis 82 2004
- 3. Add a new student. If the sport is not among the ones already in the given list, the score is not a positive number and smaller than 100 or the year birth is higher than the current year, the item should not be added and a message should be displayed (2p only if exceptions are used / 1p if there are no exceptions).

Function definition: addItem(newItem: SportStudent)

- 4. Increase the score of every student registered for a given sport with their age. Only the year should be considered. The maximum score is 100. At the end of the operation, the students which were affected and their current score should be shown on the screen (2p).
  - Function definition: *increaseScore(sport: string)* -> return list of affected items
- 5. Delete all items which have a given sport and a given birth year (2p). Function definition: *deleteItems(sport: string, year: number)*

## Other requirements:

- The initial list should contain at least 4 elements when the application starts (0.5p).
- The application should pass the given tests on the repository class (1p).
- The application should be layered (only 50% of final grade will be received otherwise).
- The object class (domain) should implement getters, setters, string representation function, equality function.
- The application should have a small menu to present the functionalities.
- Style documentation, clarity of code.
- Class names: **SportStudent (sport, score, year)** and **SportCompetition()**.