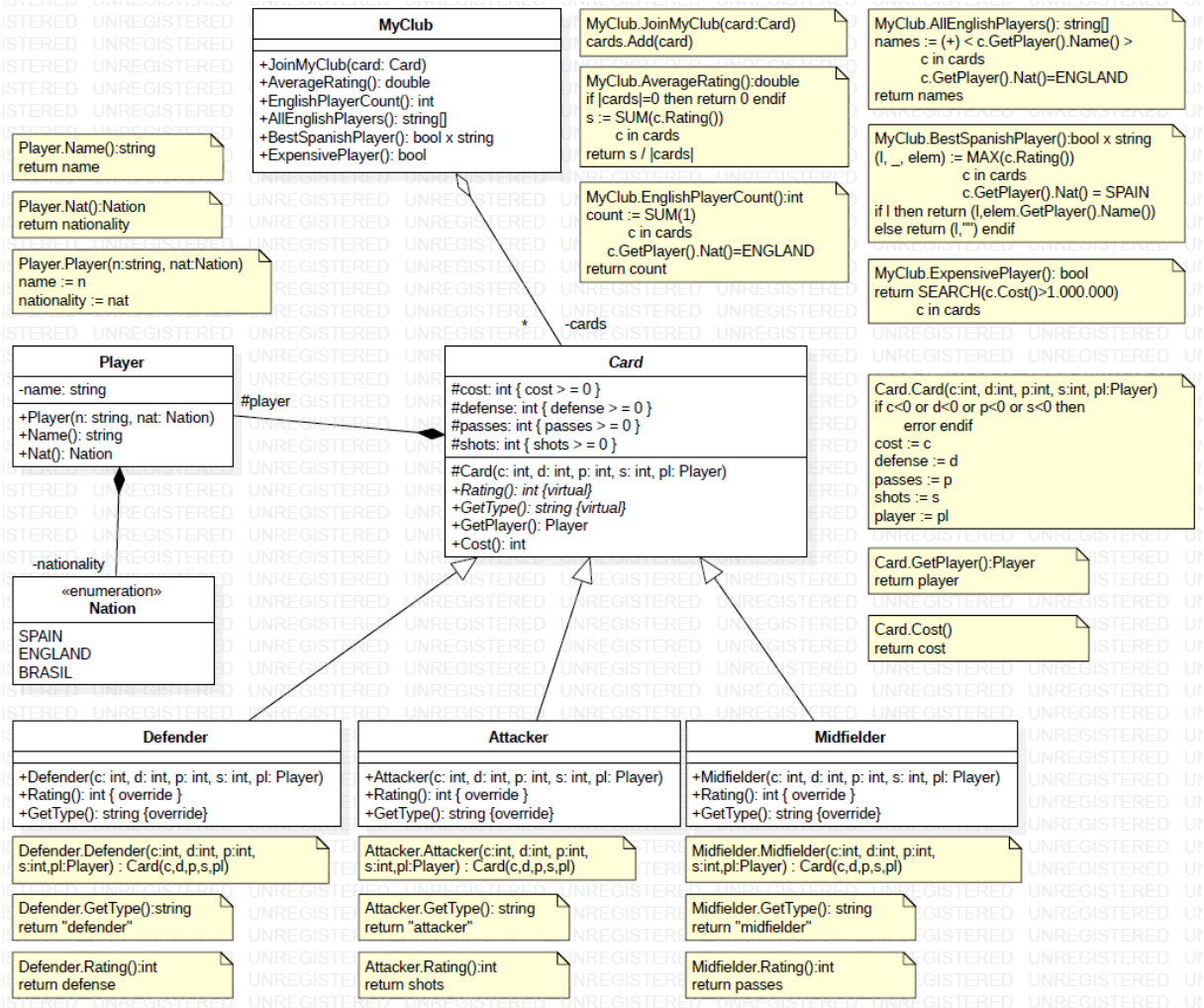
For Grade 3

Model the football trading cards for kids. There is a binder for the cards in which the cards can be stored. Each card stores the data of a soccer player: the cost, the defense value, the number of shots, and the number of passes. There are 3 types of players so 3 types of cards: defender, attacker, and midfielder. The cards can be rated: a defender's rate means its defense value, the attacker's rate means its number of shots, and the midfielder is rated by the number of passes. We also store the name and the nationality of each player.

- What is the average rating of the possessed cards?
- How many English players are there in the card pack?
- What are the names of all of the English players?
- Which Spanish player has the best rating?
- Is there an expensive player who costs more than 1.000.000 euros?

An UML class diagram is given, which solves the given task, implement it! The diagram is attached in vector graphic format, too. Note that this plan does **not** satisfy the SOLID principles of OOP.



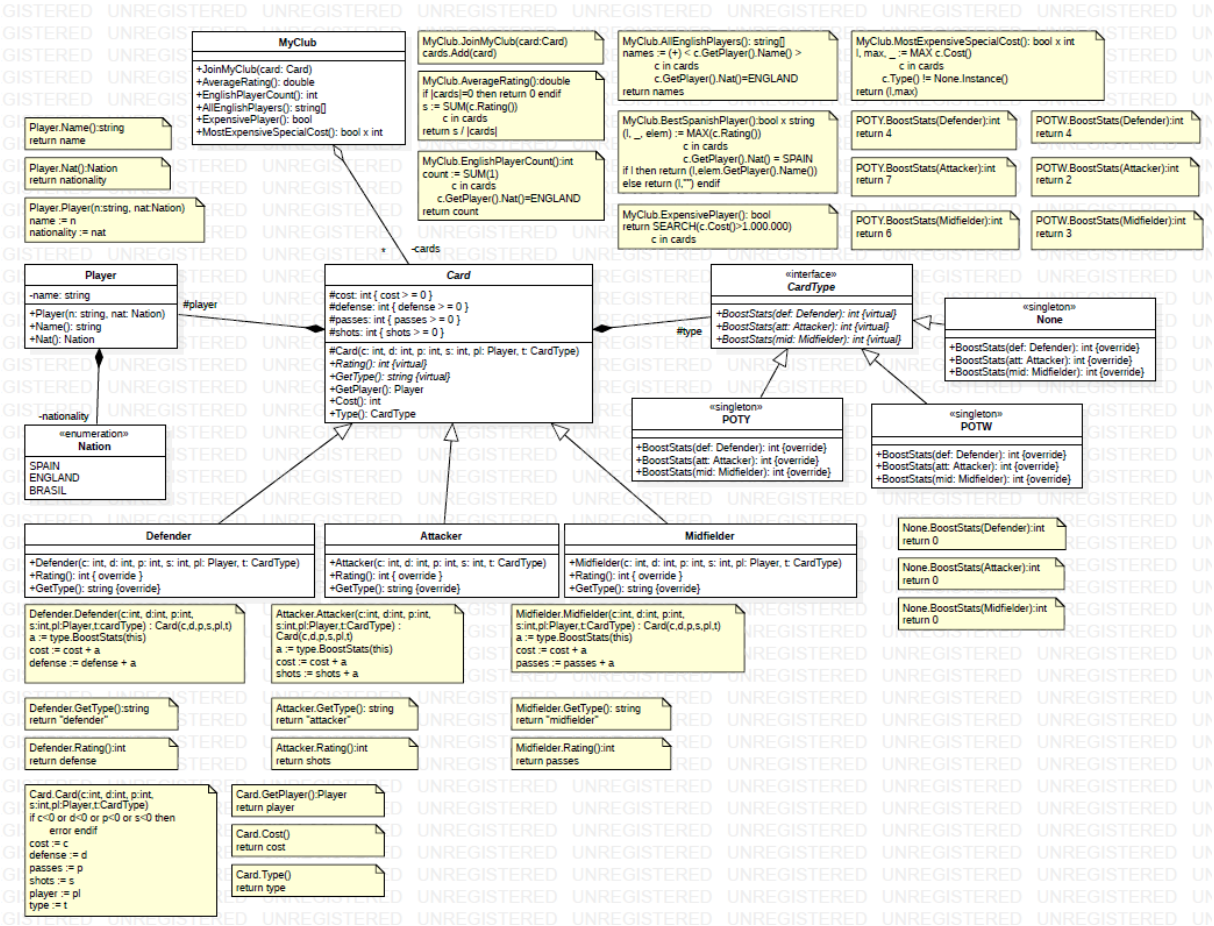
For Grade 5

Model football trading cards for kids. The task for grade 3 is extended: there are normal and special cards (for the player of the week and the player of the year). The special cards have a boost on their properties. For a player of the week: a defender's defense is increased by 4, an attacker's shots are greater by 2, and a midfielder's number of passes get 3 extra passes. For a player of the year: a defender's defense is increased by 4, an attacker's shots are greater by 7, and a midfielder's number of passes get 6 extra passes. The cost for each special card is also increased by the above detailed number.

For each card it has to be given if it is special or not. The properties are calculated based on the type of specialty.

- How much the most expensive special card's player cost?

An UML class diagram is given, which solves the given task, implement it! The diagram is attached in vector graphic format, too. Note that this plan does **not** satisfy the SOLID principles of OOP.



Parts to modify: CardType class, its children, and its relations, MyCard's MostExpensiveSpecialCost() function, Card's and its children's constructor, Card's getter for CardType.

General information

You do not have to solve the one for grade 3 to get grade 5, but it is worthy to start with the smaller one. If you cannot pass the bigger one you will fail without a working solution.

When you are finished with a solution, you have to *zip it without the bin and obj folders* and upload it into TMS (files to upload: *.sln, *.csproj, *.cs). Make sure not to change the relative position of the files as the relative path of the files has to be kept.

You get the Program.cs for local testing, so you do not have to upload your solution to check if it is good. You can modify the file, but in that case you ruin your test environment (it does not affect the tester).

Please put every code of yours into the same namespace as it is in the Program.cs, otherwise the TMS tester fails and you do not get a grade.

You get a grade only if you pass the TMS tester and a teacher has checked your code and accepted it.

If you pass the TMS tester, raise your hand and wait for a teacher to be checked, or continue with the task for grade 5.

To be graded, you have to be checked by a teacher on site personally. Without personal check you cannot get a grade. **If you leave the endterm without being checked, you fail.**

If you have question, raise your hand and wait for a teacher. The teacher can help you to understand the task but cannot highlight your mistakes. The teachers do not help in debugging and finding bugs in your code. It is your job. Based on the pseudo code you have to be able to put it into C#.

The teachers can also help in general and with unexpected errors, like the windows crashes or if you can see an error in the UML diagram or in the provided Program.cs.

When the time is up (you get 135 minutes), please leave the room and wait outside. A teacher will take you to your computer to see if your solution works or not. If not, you fail unfortunately. If it works and the TMS verifies it via tests, you pass. Keep the code for grade 3 if you continue working for grade 5 or upload it and ask a teacher to check it!

If a teacher can see you cooperating with somebody else, you will be sent away and you fail even if you got a grade previously.

If you keep checking the monitor of another student, the same thing happens with you.

Good luck!