EAFIT University
Systems Engineering
ST0244 Programming Languages
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Practice 1 (20%)

F1 Pit Crew

The F1 is the most world popular event in which the authorized racing teams build their fastest race cars and compete together in some worldwide scenarios. Each team build two racing cars and compete in each racetrack with those cars These race cars are built and managed by many employees working for the automotive team like engineers, designers, managers, executives, etc. and are driven by two race drivers.

In this opportunity, you will build a project using Java or C++ programming languages to organize the team that will change the race car's tires in the pit crew belonging to the Eafun's F1 Team. To reach this, you must consider the following aspects:

1. Build a class named F1Team. This class gets the F1 Team information like name, foundation year, etc., so you must define its properties and methods.

2. There are 20 people working in pit crew during a race. They change the tires of the two team's race cars when they stop in the pit lane during a race. These employees make up the pit crew. In addition, five of these members work exclusively for one race driver and other five different members work exclusively for the other race driver.

3. You must create three classes named PitCrewTeam, TeamDriverA and TeamDriverB; each class must have its properties and methods (you must include at least one private method per class). Then, you must create one class for each type of task performed by pit crew workers in each formula 1 race (each class must have properties and methods). All. These tasks and the number of members per task can be found in the following url: https://bit.ly/3TutxUp. All of the classes belonging to the tasks must inheritance for the PitCrewTeam, but some of these must inheritance for the TeamDriverA class or for the TeamDriverB too, depending of the number of members belonging of each class.

4. Each class must contain at least three properties and at least two distinct methods. The builder, getters and setters are not included between these two methods.

5. In the Main class, create the 20 people defining each one by their own role or roles (if a person has more than one function).

6. You must evidence the four object-oriented programming characteristics: inheritance, polymorphism, encapsulation, and abstraction.

Assessment:

- Solution of the exercise making use of Java or C++ programming language (50%).
- Substantiation (50%).

Considerations:

- The practice will be carried out in a team of a maximum of two people.
- There is a space associated with the delivery of the practice in Interactive platform course's delivery space (where you found this document). The delivery is done in two ways: one is through GitHub, the developed exercise must be uploaded to GitHub and the repository must be shared with the user diegocruzo as a collaborator; and two, through interactive to access the proposed solution via one zip file including a text document with the url of the repository uploaded to GitHub.
- Your repository must contain a file named readme.md. In this file you must describe the full names of the students, the compiler version you selected and the framework used to develop your solution.
- The project developed must be based on object-oriented programming.
- The presentation of this practicum must be coordinated with the lecturer.