Technical University of Moldova
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Report

№: 2

APA

Subject: Composition and Inheritance

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1 Objectives

- study of inheritance, advantages and disadvantages
- study of composition
- study of inheritance patterns

2 Main notions of theory and used methods

One of the most important concepts in object-oriented programming is that of inheritance. Inheritance allows us to define a class in terms of another class, which makes it easier to create and maintain an application. This also provides an opportunity to reuse the code functionality and fast implementation time.

When creating a class, instead of writing completely new data members and member functions, the programmer can designate that the new class should inherit the members of an existing class. This existing class is called the base class, and the new class is referred to as the derived class.

The idea of inheritance implements the is a relationship. For example, mammal IS-A animal, dog IS-A mammal hence dog IS-A animal as well and so on.

3 Task

1. Să se creeze o ierarhie a claselor joc – joc sportiv – volei. Determinaţi constructorii, destructorul, operatorul de atribuire şi alte funcţii necesare.
2. Să se creeze class rate, care conţine rază. Determinaţi constructorii şi metodele de acces. Creaţi clasa automobil, care conţine roţi şi un câmp care reprezintă firma producătoare. Creaţi o clasă derivată autocamion care se deosebeşte prin tonaj. Determinaţi constructorii, destructorul şi alte funcţii necesare.

4 Data analysis

- The class *Car* is composed of a vector of wheels.
- Since the class *Lorry* inherits from *Car*, the *_wheels* and *_mark* fields are *protected* so that *Lorry* can have access to these fields.
- The *Game* has its function `void play(void) const;` overriden by each of his superclasses, each time differently.