

This document contain information about laboratory exercises.

Object programming - classes 3

Subject - Polimorphism, abstract classes, copy constructor, dynamic object creation, initialize data in costructors.

1. Polimorfizm

1. Basing on classes Person, Student and Worker create a program which counts incomes of people from university.
 - a) Create virtual method *float income()* in class Person and define table which would store Persons.
 - b) Create global function *spending()* that will count total income of people connected to university as sum of incomes of each person.
 - c) Change table of pointers to the table of objects. Check whatever the polymorphism mechanism works correctly ? Does it work if you delete a word *virtual* from income method ?
 - d) Change method *income* in class Person to pure virtual method. Are you now allowed to create objects of type Person? What will change if you comment definition of method *income* in class Student?

2. Constructors, copy Constructors

1. Open file *heap.cpp*
 - a) Watch how to dynamic create and delete objects in C++.
 - b) Add to class Heap constructor with two arguments (*string, string*) that will set field *type* and *name* from parent class Container.
 - c) Using *new* create in *main()* new object Heap with a given name 'Dynamic created Heap'. Invoke method *WriteContainerMethod()* on him.
 - d) Add copy constructor to class Container(*const&Container*). Check what now happened when you invoke method *WriteContainerMethod()* ?. What is the difference when copy constructor is set and when it is commented?
 - e) Execute a method *WriteHeapElements()* two times one by another.
 - f) Define in Heap new arg-constructor with argument type *const char**. Execute method *WriteHeapElements()* with string parameter *string a* what will happened ? How to prevent such behaviour?

3. Do it yourself tasks

1. Create properly working copy constructor for class Heap (pointers should point to new place in memory).

2. Change Heap class so that it could operate on different data types (string, float, double).