

Your task is to study following topics in in C++:

- 1) object oriented programming (classes, associations, inheritance, polymorphism)
- 2) advanced topics (templates, exceptions)
- 3) C++ standard library (e.g. input/output with files)

Material connected to this topic is available at the following link (start from "Object-oriented section"):<http://www.cplusplus.com/doc/tutorial/>

After each topic you should come to our office to write an exam.

Combining all grades from the exams will construct your final grade at the course of Programming II.

If you have any questions please arrange an appointment at least few days in ahead.

TOPIC 1 - object oriented programming

Task 1

Write at least 4 unique examples of inheritance (example Person **is** Student). Enrich each class with at least 2 private properties (example Person has lastname, firstname).

Task 2

Implement one example of inheritance from Task 1.

Task 3

Add aggregation to your example (Example: Person **has** Address that has street name and house number).

Task 4

Dinamic vs static (Example: Person *a=new Person("Matej", "Crepinsek", adress); or Person a(("Matej", "Crepinsek", adress).

Demonstrate dinamic vs static creation of objects.

Task 5

Enrich examples with use of arrays (Example Parent has list of Children) maybe [vector](#).

Task 6

Write main program with menu.

Example:

```
1: Insert new Person
2: Print all persons
3: Find oldest person
...
0: Exit
Select action:
```

Test example:

“In C++ write a class "Accommodation", which has two properties: "label" (string) and "ac" (bool). Define method "display" (to show instance values of class "Accommodation") and an abstract method "calculate". From class "Accommodation" derive the following classes: HotelRoom and "Apartment". The first class includes additional properties: "no_persons" (int) and "cost_per_person" (int). The second class contains property "cost". Implement method "display" and "calculate" in both classes. Write a main program that demonstrates the use of derived classes. In this task try to use the following: use abstract methods, virtual methods, and other lessons learned from exercises.”