

## person\_inh.cpp

```
#include <iostream>
using namespace std;
const int na = 30;
const int sg = 20;

class person { char name[na];
               int  jahr;
public:
    person(char n[na]="", int j=2005):jahr(j){
        strncpy_s(name,sizeof(name),n,sizeof(name)-1);
    }
    virtual void dummy(){} //wegen dynamic_cast<student *>

    int get_jahr() const { return jahr; }
    const char * const get_name() const { return name; }
};

class student : public person {
    unsigned long matrnr;
    char studg[sg];
public:
    student(char n[na]="", int j=2005,
            unsigned long m=4711,
            char s[sg]="WI04"): person(n, j), matrnr(m){
        strncpy_s(studg, sizeof(studg), s, sizeof(studg)-1);
    }

    unsigned long get_matrnr() const { return matrnr; }
    const char * const get_studg() const {
        return studg;
    }
};
```

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```
void main(){
    person *p1 = new student("Lehmann", 1984, 22337, "WI07");

    cout<<"p1->jahr    = "<<p1->get_jahr()<<endl;
    cout<<"p1->name    = "<<p1->get_name()<<endl;

    cout<<"p1->matrn timer = "<<((student *)p1)->get_matrn timer()<<endl;           //unsafe, true
    cout<<"p1->studg     = "<<static_cast<student *>(p1)->get_studg()<<endl; //unsafe, true

    person *p2 = new person("Schulze", 1964);

    cout<<"p2->jahr    = "<<p2->get_jahr()<<endl;
    cout<<"p2->name    = "<<p2->get_name()<<endl;

    cout<<"p2->matrn timer = "<<((student *)p2)->get_matrn timer()<<endl;           //unsafe, false
    cout<<"p2->studg     = "<<static_cast<student *>(p2)->get_studg()<<endl; //unsafe, false

    cout<<"p1->studg     = "<<(dynamic_cast<student *>(p1) ?
                                dynamic_cast<student *>(p1)->get_studg():
                                "unzulaessiger Downcast")<<endl;           //safe, true

    try { dynamic_cast<student &>(*p2);           //alternativ nur mit Referenz !
        cout<<"p2->studg     = "<<dynamic_cast<student *>(p2)->get_studg()<<endl;
    }
    catch(...){
        cout<<"p2->studg     = "<<"unzulaessiger downcast"<<endl;
    }

    delete p1; p1=0; delete p2; p2=0;
    cin.ignore();
}
```

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```

/*
p1->jahr      = 1984
p1->name      = Lehmann
p1->matrnr    = 22337
p1->studg     = WI07
p2->jahr      = 1964
p2->name      = Schulze
p2->matrnr    = 4261281277           //false
p2->studg     = 1/2/2/2/2/2/2/2^-|^| //false
p1->studg     = WI07
p2->studg     = unzulaessiger downcast
*/

```