

# Explicit Casts

- C++ has four different cast operators:
  - `dynamic_cast`, `static_cast`, `const_cast` and `reinterpret_cast`
- Each cast has a special use-case.
- The syntax:


```
double myDouble{5.5};  
int i = static_cast<int>(myDouble);
```



## **C-Casts** ( `int i= (int)myDouble;` )

- Should not be used.
- Apply eventually a series of casts `static_cast` → `const_cast` → `reinterpret_cast`

# dynamic\_cast

- Converts a pointer or a reference of a class to a pointer or a reference in the same inheritance hierarchy.
- Can only be used on polymorphic types. nce
- Allows to cast up, down, and cross the inheritance hierarchy.
- Type information at run time is used to determine if the cast is valid.
- If the cast is not possible, you will get a `nullptr` in case of a pointer or an `std::bad_cast`-exception in case of a reference.

# static\_cast

- Allows the conversion between related types
  - Pointer types in class hierarchies
  - Integral into enumerations
  - floating-point numbers into integrals
- Difference to the `dynamic_cast`
  - Will be performed during compile time.
  - Can not be applied to polymorphic types.



Inheritance