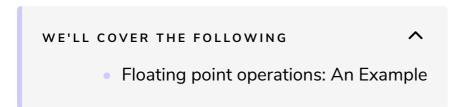
## The basics

Let's get started with the basics.



Unions are rarely used in the client code, and most of the time they should be avoided.

## Floating point operations: An Example #

```
#include <iostream>
using namespace std;

union SuperFloat
{
    float f;
    int i;
};

int RawMantissa(SuperFloat f)
{
    return f.i & ((1 << 23) - 1);
}

int RawExponent(SuperFloat f)
{
    return (f.i >> 23) & 0xFF;
}
```

However, while the above code might work in C99, due to stricter aliasing rules, it gives undefined behavior in C++!

There's an existing Core Guideline Rule on that C.183:

## C.183: Don't use a union for type punning

Reason: It is undefined behaviour to read a union member with a

different type from the one with which it was written. Such punning is

invisible, or at least harder to spot than using a named cast. Type punning using a union is a source of errors.

The next lesson will give you a basic example of std::variant. Read on to find out more.