Object lifetime

This lesson discusses how std::variant handles object lifetime.

WE'LL COVER THE FOLLOWING

`std::variant` and Object Lifetime

When you use union, you need to manage the internal state: call constructors or destructors. This is error-prone, and it's easy to shoot yourself in the foot. But `std::variant` handles object lifetime as you expect. That means that if it's about to change the currently stored type, then a destructor of the underlying type is called.

```
// v allocates some memory for the string
std::variant<std::string, int> v { "Hello A Quite Long String" };

// we call destructor for the string!
v = 10;     // no memory leak
```

Or see this example with a custom type:

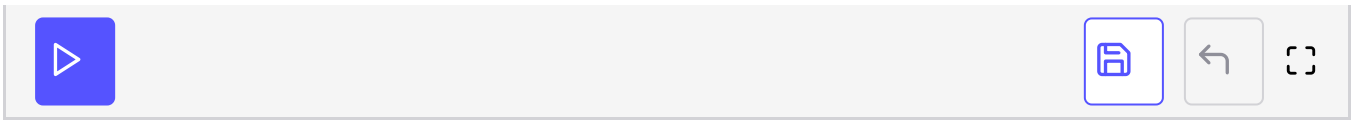
```
#include <iostream>
#include <variant>
using namespace std;


class MyType {
public:
    MyType() {
        std::cout << "MyType::MyType\n";
    }
    ~MyType() {
        std::cout << "MyType::~MyType\n";
    }
};

class OtherType {
public:
```

```
    OtherType() {
        std::cout << "OtherType::OtherType\n";
    }
    ~OtherType() {
        std::cout << "OtherType::~OtherType\n";
    }
};

int main() {
    std::variant<MyType, OtherType> v;
    v = OtherType();
    return 0;
}
```



At the start, we initialize with a default value of type `MyType`. Then we change the value with an instance of `OtherType`, and before the assignment, the destructor of `MyType` is called. Later we destroy the temporary object and the object stored in the variant.

Next lesson will entail information on how to access stored values inside a variant using the helper functions.