- Solution

Let's look at the solution review for the exercise we presented in the last lesson.

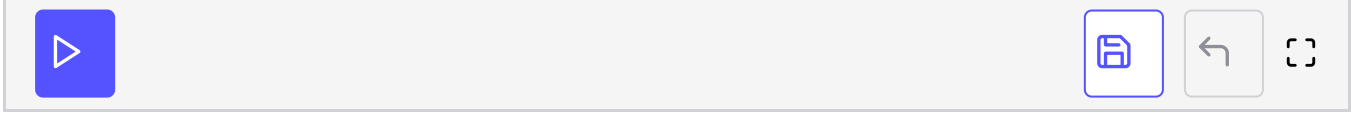
WE'LL COVER THE FOLLOWING

- Solution Review
  - Explanation

Solution Review

```
// Template Types

#include <iostream>
#include <string>

class Account{};

template<typename T>
struct Type{
  std::string getName() const {
    return "unknown";
  }
};

template<typename T>
struct Type<T*>{
  std::string getName() const {
    return "pointer";
  }
};

template<typename T>
struct Type<const T>{
  std::string getName() const {
    return "const";
  }
};


template<>
struct Type<int>{
  std::string getName() const {
    return "int";
  }
};
```

```
template<>
struct Type<double>{

  std::string getName() const {
    return "double";
  }
};

template<>
struct Type<std::string>{
  std::string getName() const {
    return "std::string";
  }
};

template<>
struct Type<Account>{
  std::string getName() const {
    return "Account";
  }
};

int main(){

  std::cout << std::boolalpha << std::endl;

  Type<float> tFloat;
  std::cout << "tFloat.getName(): " << tFloat.getName() << std::endl;

  Type<const float> tConstFloat;
  std::cout << "tConstFloat.getName(): " << tConstFloat.getName() << std::endl;

  Type<float*> tFloatPointer;
  std::cout << "tFloatPointer.getName(): " << tFloatPointer.getName() << std::endl;

  Type<double> tDouble;
  std::cout << "tDouble.getName(): " << tDouble.getName() << std::endl;

  Type<std::string> tString;
  std::cout << "tString.getName(): " << tString.getName() << std::endl;

  Type<int> tInt;
  std::cout << "tInt.getName(): " << tInt.getName() << std::endl;

  Type<Account> tAccount;
  std::cout << "tAccount.getName(): " << tAccount.getName() << std::endl;

  std::cout << std::endl;

}
```



Explanation

In the code above, we have separately defined the partial and full specialization of the class template `Type`. The partial and full specializations

accept an `int`, `double`, `Account`, `string`, `const`, and `Pointer`. Upon calling each type, the relative type is returned. We have not defined the full specialization for `float`, so when instantiating the class template for `float`, it gives `unknown` in response.

In the next lesson, we'll study CRTP.