

C16 - Lab: Implementing a Template Class Triplet

Objective

The goal of this lab is to reinforce the understanding of C++ templates by implementing a template class **Triplet** that can hold three items of any data type. Students will practice working with class templates, constructors, getters, setters, and utility functions.

Class Specification

Implement a class **Triplet<T1, T2, T3>**, where T1, T2, and T3 represent the data types of the three elements in the triplet. The class must include:

- Private data members for the three elements.
- A constructor using lazy list initializer syntax with default values.
- Getters and setters for each element.
- A toString() method to return a string representation of the object.
- A display() function to print the triplet.

Class Diagram

```
+-----+
| Triplet<T1,T2,T3> |
+-----+
| - first:  T1      |
| - second: T2      |
| - third:  T3      |
+-----+
| + Triplet(T1 = {}, T2 = {}, T3 = {}) |
| + getFirst():  T1                     |
| + getSecond(): T2                     |
| + getThird():  T3                     |
| + setFirst(T1): void                  |
| + setSecond(T2): void                 |
| + setThird(T3): void                  |
| + display():   void                   |
| + toString():  string                 |
+-----+
```