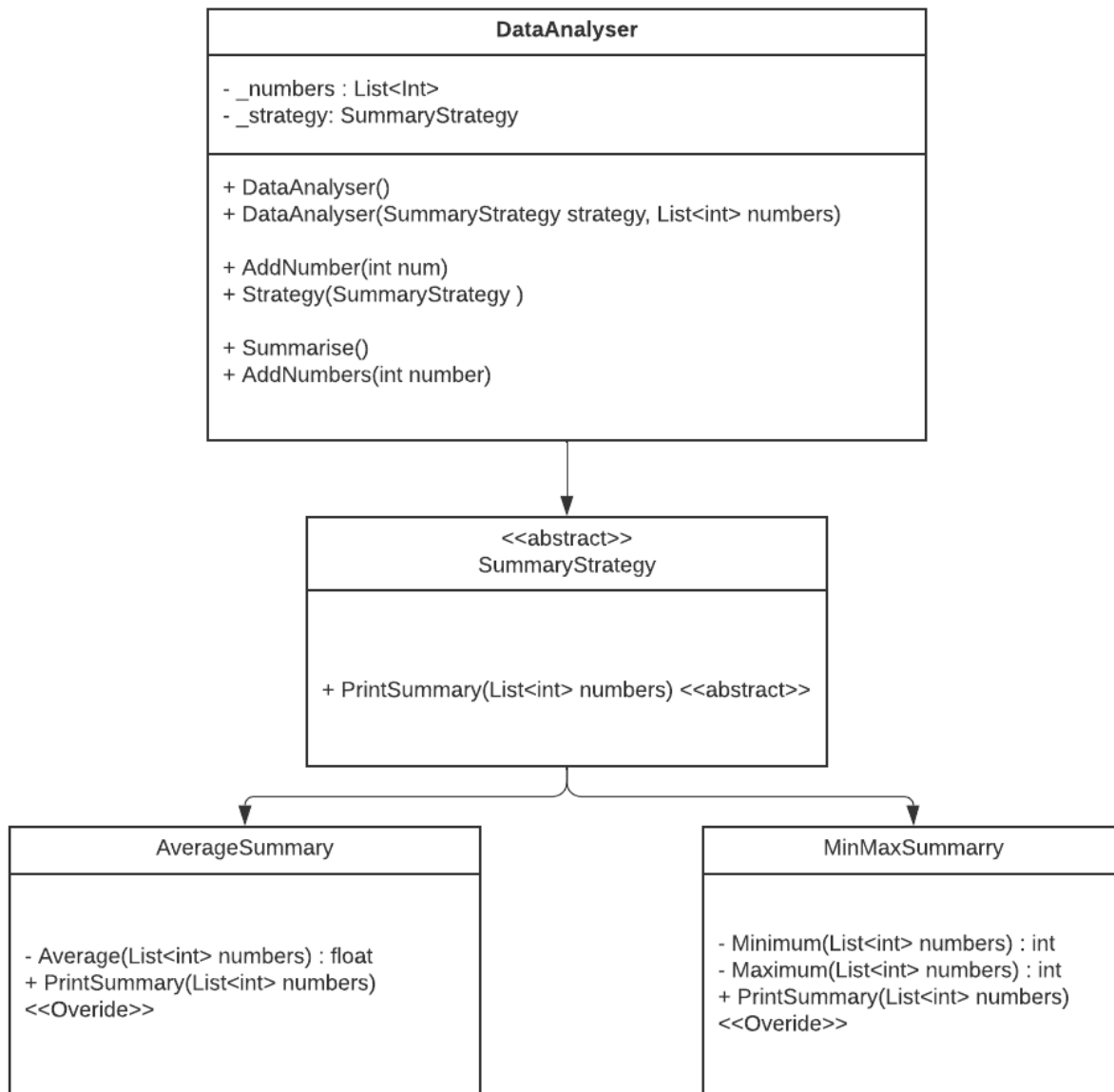


UMLOOP - Asm 1

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1. Describe the principle of polymorphism and how it was used in Task 1

- Polymorphism is 1 of the 4 main principles of Object-Oriented Programming and is often used by the developer to use method and object from a base class to perform different purposes in different ones, while virtually making no changes to the original class and method. This can be done if the original class uses the virtual method and other classes,

usually, its child overrides them using the override method whenever it's being called. The base class usually refers as the abstract class

- In task 1, polymorphism was used to create an abstract class "SummaryStrategy", as an access point for MinMaxSummary and AverageSummary. The design of SummaryStrategy allows to exist in different forms to suit the objective of the child classes

2. Using an example, explain the principle of abstraction.

Abstraction can be understood as the design principle of only making important, high-level detail of a program visible to the user, and hiding all complicated, unnecessary detail of that program. This allows users to handle various actions, without the need to understand the core of the operation related to such tasks.

An example would be an alarm clock. To be able to tell the time, or perform different action such as a precision alarm, The clock would need a complicated mechanism inside it that need to be implemented thoroughly by manufacturers. But the users don't need to fully understand the operation inside an alarm clock, instead, most alarm clocks were designed so that users can do wanted tasks without any previous knowledge, by showing and labeling important input such as a button to change time, a different button to set an alarm, a monitor showing the time,...

3. What was the issue with the original design in Task 1? Consider what would happen if we had 50 different summary approaches to choose from instead of just 2.

Task 1 original code was not considered a fully-designed OOP program, as there was no significant application of Polymorphism, mainly due to the lack of inheritance. Each of Average and finding MinMax require a different summary, which has basically the same code structure and operation, which is not efficient in terms of operation. If in the future the program requires 50 different summaries, it will have the same or more amount of code and variables to represent it.