Object-oriented Programming vs. Procedural Programming

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Abstract: *In this report, we examine the differences between object-oriented programming and procedural programming.*

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1 Introduction

Computer programming, from the Latin *programma*, meaning to provide a computer with a set of instructions to perform a specific task, is often considered to date back to Ada Lovelace's algorithm [Wik20] whereby Charles Babbage's then-unbuilt "analytical engine" could calculate a sequence of Bernoulli numbers. We will not delve into the semantics; the interested reader may refer to, e.g., [Tar18]. The algorithm did use such constructs as variables and repeating loops, which are fundamental programming concepts. Later, Herman Hollerith's work [dC20] led to a system for storing algorithms as well as data on the "machine", so that these could be recalled when required for computation, rather than needing to be input for each use.

This sets the foundation for *procedural programming*, which we shall investigate briefly, and then move on to contrast this with another programming paradigm, called *object-oriented programming*.

1.1 What is procedural programming?

`Python` is a multi-paradigm programming language, and can also handle object-oriented programs, but for this assignment, we used it as a procedural language. `C` is a procedural programming language.

	Procedural Programming	Object-oriented Programming

1.2 What is object-oriented programming?

2 Similarities between object-oriented and procedural programming

2.1 Similarities in the exercise

3 Differences between object-oriented and procedural programming

3.1 Differences in our exercise

4 Conclusions

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References

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[Tar18] Sinclair Target. What did Ada Lovelace's Program Actually Do?, 2018.

[Wik20] Wikipedia. Computer programming — Wikipedia, the free encyclopedia, 2020.