Introduction to Program Synthesis (SS 2025) - Exercise Sheet 0

Fortran I Compiler and Code Optimization (Literature Discussion)

Based on the literature presented in today's exercise unit, in the framework of the next unit, we will take up and discuss the content that is relevant and interesting for the course.

As already communicated in today's exercise session, this sheet is intended as a further introduction to topics relevant for the course and does not contain any mandatory submission.

More information regarding the procedure and structure of the exercise format will be announced in the lecture next week.

> **Exercise 1: Fortran 1 Compiler Literature**
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> Familiarise yourself with the original Fortran Automatic Coding System paper[a] Backus et al. (1957) paper as well as with its recapitulation[b] Padua (2000).

[a] https://dl.acm.org/doi/pdf/10.1145/1455567.1455599
[b] https://ucla-biostat-257-2020spring.github.io/readings/fortran.pdf

References

Backus, J. W., Beeber, R. J., Best, S., Goldberg, R., Haibt, L. M., Herrick, H. L., Nelson, R. A., Sayre, D., Sheridan, P. B., Stern, H., Ziller, I., Hughes, R. A., and Nutt, R. (1957). The fortran automatic coding system. In *Papers Presented at the February 26-28, 1957, Western Joint Computer Conference: Techniques for Reliability*, IRE-AIEE-ACM '57 (Western), page 188–198, New York, NY, USA. Association for Computing Machinery.

Padua, D. A. (2000). The fortran I compiler. *Comput. Sci. Eng.*, 2(1):70–75.