

PAPER — PROGRAMMING LANGUAGES IN PRACTICE

COMP 3010 — ORGANIZATION OF PROGRAMMING LANGUAGES

1. PAPER TOPIC

The paper for Organization of Programming Languages asks you to investigate independently into a topic that interests you about the historical, practical, and human aspects of programming languages used and developed by people over the years. For your subject, choose one of the following two options to write about (for approximately 5 pages):

- **Depth**

Choose one specific facet of programming language design to investigate, such as type systems, security, memory management, modularity, safety, expressiveness, alternative semantics (like constraint solving) *etc.*

- (1) Introduce and define your chosen facet (at least one page).
- (2) Discuss its development in the field of programming languages by punctuating its history with particular examples of innovations and deployments, and the context which motivated people to develop them. (Each such section should probably be at least a page, maybe more.)
- (3) End with a brief summarization (roughly a page) of open issues and ideas that you have for developing it (this last part is the only place where your opinion can enter in).

- **Breadth**

Choose one programming language (I suggest selecting a research or otherwise experimental language; a good place to start looking is Wikipedia https://en.wikipedia.org/wiki/Timeline_of_programming_languages) to explore its impact and evolution throughout its lifetime.

- (1) Briefly introduce it and the historical circumstances of its development (less than a page), including any any specific problem domains it was tailored to work well in, software development issues that it aimed to solve for programmers, or inspirations that lead to its invention.
- (2) Select a number of unique or interesting aspects of your chosen language (such as those listed above as "depth" topics) and discuss how it approaches them. The most important part of discussing the approach is walking through the consequences of the design in the lives of programmers and their software. (Each one should be at least a page and perhaps more.)
- (3) End with a brief personal perspective on what you think its influence has been or should be on the world of programming languages (roughly a page).

2. POLICY

Your paper will be due on **April 27, the last Wednesday of regular class**. I will not pre-grade your paper through office hours or slack/email, but I can try to discuss your topic with you or specific areas you are struggling. You will submit your paper inline via Blackboard in the same section as your regular homework assignments by uploading a PDF by the due date listed.

The PDF of your paper must be typed (not handwritten). Typesetting software (like LaTeX) is highly recommended, but you may also use a standard Word processors (like Microsoft word) for preparing your paper as long as you convert your final draft to a PDF for submission.

Your paper must be formatted with 0.5" margins, 11pt Times New Roman or Computer Modern font, and single-spaced. Each page must be numbered in the footer, and text must written on white paper with black ink (color may be used in diagrams, or only used sparingly in the text if you get approval). Work that is incorrectly formatted will not be graded and I will consider it as though you never turned it in.

You should not include long quotes, code samples, or large diagrams. I recommend using only mild formatting for emphasis and clarity. Sources should be referenced consistently and accurately throughout your paper. If you prepare your paper using LaTeX, I recommend organizing your sources automatically using BibTeX with the "alpha" citation style.

You should aim to write about five pages of content, not counting references. Your paper will receive a grade from 0% to 100%. I will evaluate your paper based on the veracity of its content, its logical structure, as well as its grammar, style, and form.