

Project Proposal Guidelines

Project proposals should be three to five pages long – typed, single spaced, normal size fonts. Group proposals should be longer (but no need for 4n pages). The proposal should:

1. Explain and motivate the **problem** you're trying to solve.
2. Set an ambitious and measurable **goal** for the project. Mention possible intermediate goals, in case the full goal ends up having been too ambitious.
3. Describe your initial **plan** for achieving that goal. Include any **preliminary work** you've done. Since this is a systems course, your plan **must include some implementation and/or experiments** – a paper design will not suffice.
4. Mention any **resources** you will need, or might like to have.

For example, here's the outline of a proposal for a hypothetical 2- or 3-person project.

1. "To get good performance, an event-driven program must never block. But not all blocking calls are obvious: for example, the `gethostbyname` library function will block waiting for a return from the nameserver. It's difficult for an event-driven programmer to find all the blocking calls, and the compiler won't help."
2. "We'll develop an addition to C's type system that exposes information about whether particular functions can block, and implement that type system in a simple C compiler. Our goal is to identify the blocking calls in programs like Figure 1."
3. "Figure 2 shows our first cut at the type system. Once we settle on the type system (which should occur by next week), we'll modify the `gcc` compiler (or `CCured`, or . . .) to add our `blocking` attribute."
4. "Our own computers, and SEASnet computers, should be sufficient to complete this project, since we won't be doing any performance testing."
Or for a performance-oriented project: "We'd like root access to a high-performance server, with clients for load testing. If we don't get that access, our plan is to test with the server and clients running on the same machine, but this will be nonoptimal because. . . ."

A good project proposal will help you realize now what the potential roadblocks are, so you can avoid them. It will also help me understand what you plan to do, so I can give you advice – especially on whether you're being too ambitious or not ambitious enough. To help this happen, the project proposal *should contain some details*. The proposal outlined above has chosen to detail a proposed type system, for example.

You will be graded on the project proposal. It will be OK to reuse some proposal text for the project itself, so do a good job!