

37-223: Compiler Design II

Fall Term 2007

Assignment 3

Due date: Nov 13, 2007, 10:15 a.m.

1 Introduction

The objective of this assignment is to allow you to explore in depth one of the topics presented in class.

2 Tasks

Your tasks are

1. To agree on a project that your team will complete by the end of this semester. See the next section on possible projects.
2. To prepare a 3 (three) minute presentation on this project proposal and a description (at most one page). Present the proposal on Nov 13 in class. You can submit the description *after* the meeting (but no later than Nov 16, 8 a.m.); the description must take into account any feedback given during the meeting into account.

The proposal must include:

- The names of all team members.
- The objective of the project.
- Why do you find this project interesting?

Usually one single slide (foil) is enough, the proposal should be no more than 1 page (using 10 pt font).

3 Possible Projects

The following is a list of possible projects. You are *encouraged* to suggest other topics. If you want, two teams can join forces and do the project together. However, you must indicate the composition of the team at the time of the first project presentation (Tuesday Nov 13).

- Implement PRE based on SSA for J06 (for those data types that are handled by your SSA implementation).

- Implement basic block profiles for your J06 compiler and use the information to implement function splitting.
- Turn a block profile of a J06 program into an edge profile and use this to implement (basic block) code positioning.
- Use gprof (either on the output of your compiler or on the output of another compiler) to obtain a block profile that is used to implement function splitting.