The Beauty and Joy of Computing

Laboratory Exercises

Lab Manual by
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Introduction to Lab Exercises

The lab exercises in this packet are designed for the Beauty and Joy of Computing class (CSC 100) at the University of North Carolina at Greensboro. This class is part of a nationwide effort to re-think how students are introduced to computer science concepts - this project is referred to as the "CS Principles" project (see http://www.csprinciples.org) and several universities have experimented with specific classes as part of this project. When we first created our class at UNCG, it was based on the class of the same name (The Beauty and Joy of Computing) at the University of California at Berkeley and the University of North Carolina at Charlotte. Since that time, we have diverged from these originally sources of inspiration, but you can still see the influences, especially in the first few labs.

Each lab exercise contains pre-lab background reading with self-assessment questions, specific activities to do during the lab session, and follow-up discussion. Students should read the pre-lab background information and scan the activities prior to coming to the lab so they know what to expect. In-lab activities are designed to take approximately 90 minutes - we schedule labs in a 110 minute lab period, so students that don't read and understand the background material run the risk of not completing everything. After completing the activities, students should read the discussion section, and review the concepts and vocabulary terms that were introduced in the lab. At UNCG, we also have students complete a short on-line quiz over the concepts from the lab, due a few days after the lab is completed.

The lab exercises are designed so that the initial labs have significant "hand-holding," leading students step-by-step through activities, and with each subsequent lab the student is expected to fill in more details with their own insights and creativity. By slowly removing the "training wheels" we hope students get to a level of independent work without being expected to take off on their own from the beginning. There is a lot of material here, and a lot to learn, but the best advice to the student is to experiment - indulge your curiosity and nurture your creativity! Programming is an area where you can turn your ideas into something concrete, entertaining, and amazing. Impress us with who you are and what you can do!