CMPS 12A

Introduction to Programming
Winter 2003
Brian F Hanks

Course Content
- In this course, we will cover the basics of computer programming.
- We will use the computer language Java
- I will also discuss programming style and program debugging.

Target Audience
- This class is primarily for SOE majors
- Assumed knowledge includes
  - Some familiarity with Unix
  - Experience using web browser
Instructor and TAs

- Instructor
  - Brian Hanks
  - BE 189A
  - Office Hours: Wednesday, 1:15 – 3:15 or by appointment
- Teaching Assistants
  - Sanjit Jhala
  - Karl Brandt

Text Book

- Java by Dissection, by Ira Pohl and Charlie McDowell
- We will cover chapters 1 through 6
- Available at Bay Tree and Slug Books
- There are some errors – see course web site. I'll try to address these during the course

Course Web Site

- Course web site is at http://www.soe.ucsc.edu/classes/cmps012a/Winter03-01/
- Can get there from SOE home page, under classes link.
- There is lots of useful material there
Assignments and Grading

- 9 Programming assignments
  - 5 graded (20% of course grade)
  - 4 ungraded, but highly recommended
    - Will help you with graded assignments
    - I may use these to determine borderline grades
  - Must attend at least one lab per week
- 5 Bi-weekly quizzes (40%)
- Final Exam (40%)

Assignments and Grading

- You must get at least 50% in each area (programming assignments, quizzes, final) to pass this class
- Getting 50% in each area is not sufficient
  - For example, if you get 51% in each area, you will probably NOT pass

Working Together

- All quizzes and the final must be done individually.
- All programming and lab assignments will be done with a partner, using Pair Programming.
- You will have the same partner for the entire quarter.
- Fill out sheet at end of class to allow us to assign partners.
Academic Dishonesty

- On the graded assignments, you may work only with your partner
- On the ungraded assignments, you may work with anyone in the class
- On the quizzes and the final, you must work alone
- Copying other people's programs is strictly forbidden – we have a program that looks for copying, and it is very good.

Academic Dishonesty

- Academic Dishonesty will not be tolerated.
- Results of Academic Dishonesty
  - Failure in this class
  - Possible expulsion from the major
- More detailed info on course web site
- See me if you have any questions about permissible behavior

Why Pair Programming?

- Studies have shown that students who pair
  - Are more likely to pass the course (72% vs 62%)
  - Are more likely to stay in CS, CE, or ISM major
  - Produce better quality programs
- In industry, you will have to work with others, so this is good experience
- You can use your partner as a resource – you learn from each other
What's a program?

- Need a volunteer
- How many spaces are in this sentence?
  - “The quick brown fox jumps over the lazy dog.”

Algorithm

- An algorithm is a set of steps for solving a problem.
- We use algorithms everyday:
  - Recipe for baking chocolate chip cookies
  - Instructions for driving to the airport

Psuedocode

- English-like description of an algorithm
- Good way to start thinking about your program, without having to worry about detailed syntax
- Psuedocode to count the spaces in our sentence:

  Set a counter to 0.
  Start at the beginning of the sentence.
  Repeat for each character:
    - if the character is a space, then add 1 to the counter.
  until we get to the end of the sentence.
/* CountSpaces

This is a Java program that counts the number of spaces in our
example sentence.

Written by Brian Banks
*/
class CountSpaces {
    public static void main(String[] args) {
        int numSpaces = 0;
        String sentence = "The quick brown fox jumps over the lazy dog.";
        char space = ' ';
        int position = 0;
        while (position < sentence.length()) {
            if (sentence.charAt(position) == space) {
                numSpaces = numSpaces + 1;
            }
            position = position + 1;
        }
        System.out.println("There are "+numSpaces+" spaces.");
    }
}

For Next Time

- Read:
  - Chapter 1 of the text
  - "Kindergarten" paper – link on web site
  - Course web site – especially the front page