Fundamentals of Computer Programming 2
Practice Problems – January 17, 2003

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Iteration with the "for" statement

for statement	Explanation

for(Initializer; Exp; Update) {
  statement1;
  statement2;
  ...
  statementn;
}
	"Initializer" is typically an assignment statement.
	It can also be a set of assignments separated by commas
	"Exp" is typically a boolean expression.
	In general it can be any real valued expression
	" Update" is a set of assignments separated by commas

Problems

The problems here are the same is in the previous handout. Try to use the for loop instead. Also try to avoid using the "break" statement in (2) and (3). (Is it possible to do them without using break ?)

1. Write a program to to generate the first 100 fibonacci numbers. Write another version of this program that generates the first k fibonacci numbers where k is an integer input by the user.

2. Write a program that generates all fibonacci numbers less than 1000.

3. Write a program that computes the gcd (greatest common divisor) of two integers (input by the user). (use the "brute force" algorithm : start with 2 and test if both integers are divisible by it, move on to 3 etc.).

Note

The fibonacci sequence is : $0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, \ldots$. i.e. the n'th fibonacci number is the sum of the (n-1)'th and (n-2)'th fibonacci numbers.