Loop 2

Spring 2012
Student-grade.txt

- Format:
  - data format: id;hw1;hw2;hw3
Examples 1

- Extract homework 2 score
- Extract the average of homework 2 score
- Count the total number of students
- Find the minimal score of homework 3
- Find the maximum score of homework 3
- Find the average score of all homework for all students
Examples 2

- The Fibonacci sequence starts 1,1,2,3,5,8,…. Each number in the sequence (after the first two) is the sum of the previous two.
- Write a program that computes and outputs the n th Fibonacci number, where n is a value entered by the user.
Examples 3

- Write a program that uses a while loop to determine how long it takes for an investment to double at a given interest rate. The input will be an annualized interest rate, and the output is the number of years it takes an investment to double.

- Note:
  - The amount of the initial investment does not matter; you can use $1.
Examples 4

- Heating and cooling degree-days are measures used by utility companies to estimate energy requirements. If the average temperature for a day is below 60, then the number of degrees below 60 is added to the heating degree-days. If the temperature is above 80, the amount over 80 is added to the cooling degree-days.

- Write a program that accepts a sequence of average daily temps and computes the running total of cooling and heating degree-days. The program should print these two totals after all the data has been processed.
Examples 5

• A positive whole number $n > 2$ is prime if no number between 2 and $n^{1/2}$ (inclusive) evenly divides $n$.

• Write a program that accepts a value of $n$ as input and determines if the value is prime. If $n$ is not prime, your program should quit as soon as it finds a value that evenly divides $n$. 
Examples 6

- The Goldbach conjecture asserts that every even number is the sum of two prime numbers.
- Write a program that gets a number from the user, checks to make sure that it is even, and then finds two prime numbers that add up to the number.
Examples 7

- The greatest common divisor (GCD) of two values can be computed using Euclid’s algorithm.
- Write a program that finds the GCD of two numbers using this algorithm.