

# **COMPUTER PROGRAMMING IN JAVA**

## COLUMBIA UNIVERSITY HIGH SCHOOL SCIENCE HONORS PROGRAM

### Basic Java, Part 2 Assignment 2007 Feb 16 Sat

#### Finding the max in an array

Modify the code provided in class to find the max element in an array. First, ask the user for how many numbers they want to enter, and then enter that many numbers into an array. Then print out the index and the value of the max.

#### Prime Number Sieve

Here, we will implement a slightly different version of finding prime numbers: the prime number sieve (also known as the sieve of Eratosthenes).

#### Grades, Version 2

Enhance the grades program to also calculate the range and standard deviation.

#### Character and Word Frequencies

Ask the user for a single letter and a sentence, and print out the number of times that letter shows up in the sentence. Then, write another version of the program that, given a word, prints out the frequencies of the word in the sentence.

#### Rock, Paper, Scissors

Write a program that lets a user play “Rock, Paper, Scissors” against the computer. The program should ask the user to choose one of the three choices, and then the computer randomly picks one (without knowing what the user has chosen). Rock beats scissors, scissors beats paper, paper beats rock. The program should say who wins, and then keep playing until someone (the user or the computer) has won 10 round. The computer needs to keep track of the current score and should also display it before each round.

A basic template source file has been written for you called “RockPaperScissors.java”.