

COMPUTER PROGRAMMING IN JAVA

COLUMBIA UNIVERSITY HIGH SCHOOL SCIENCE HONORS PROGRAM

Basic Java, Part 1 Assignment 2007 Feb 09 Sat

Distance Conversion

First, prompt the user whether they want to enter metric distances or imperial distances (Give a prompt like “Pick 1 for metric distances, and 2 for imperial distances”). If they choose metric distances, then, given a certain number of meters, convert it to yards and feet. If they choose imperial distances, then given a certain number of yards, convert it to meters.

The program does not have to loop; if the user wants to do another calculation, they have to start the program again. You can use the Degree Conversion program from last week as a template.

Prime Number

Here is a very simple (and very inefficient) algorithm for determining whether a number n is prime or not:

```
for each number  $i$  between 2 and  $n - 1$ :
    see if the remainder of  $n / i$  is equal to 0
    if it is:
        return not a prime
    else:
        return is a prime
```

Implement this algorithm; you can use “Prime.java” as a template.

Grades

Prompt the user for a list of 6 grades from 0 to 100 inclusive, and calculate the mean. Now change it so that it can accept an arbitrary number of grades (prompted by the user).

You can use Grades.java as a template.

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”.