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Nebenläufige und verteilte Programmierung

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Serie 11

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Beide Programme sollen an den jeweiligen Korrektor geschickt werden: Jan **jwa**, Carsten **cak** bzw. Jens **jes @informatik.uni-kiel.de**

Aufgabe 1 (6 Punkte) [*Stable Marriage Problem* (7.15)] Let Man an Woman be arrays each of n processes. Each man ranks the women from 1 to n and each woman ranks the men from 1 to n. A pairing is a one-to-one correspondence of men and women. A pairing is *stable* if, for two men m_1 and m_2 and their paired women w_1 and w_2, both of the following conditions are satisfied:

- m_1 ranks w_1 higher than w_2 or w_2 ranks m_2 higher than m_1, and
- m_2 ranks w_2 higher than w_1 or w_1 ranks m_1 higher than m_2.

Expressed differently, a pairing is unstable if a man and a woman would both prefer each other to their current pair. A solution to the stable marriage problem is a set of n pairings, all of which are stable.

Write a program to solve the stable marriage problem. Use Java and the sockets package. The men should propose and the women should listen. A woman has to accept the first proposal she gets, because a better one might not come along; however, she can dump the first man if she later gets a better proposal. Print a trace of key events as they happen. Give comments and explanation for your solution.

Aufgabe 2 (4 Punkte) Abbildung 7.15 zeigt ein CSP Programm zur Berechnung von Primzahlen. Schreibe in Anlehnung daran ein Mpd-Programm mit asynchronen Message-Passing Primitiven (definiert in Section 7.1). Schreibe auch einen Coordinator Prozess um die Ergebnisse zu sammeln und auszugeben.