CPS 171 MP5 – Michigan County Divorce Rate Report
Due 03/20/2002

You have been asked by your boss to calculate and rank the divorce rates for Michigan counties. This public data was contained in Excel files, but we have saved the necessary two files in Text format for direct processing by your C++ program. (NOTE: Files saved in this format have tab characters as field delimiters! A tab is represented as '\t'). The files are:

CountyInfo.txt, which contains the state/county code (called the FIPS code), the county name, and the county population. A record in this file is displayed below:

State/County Code	County	Population(1999)
26001	Alcona	11147
26003	Alger	10084
…		

DivorceData.txt, which contains the state/county code, and divorce counts for years 1997-99. A record in this file is displayed below:

State/County Code	# Divorces - 1997	# of Divorces - 1998	# Divorces - 1999
26001	56	47	110
26003	43	44	224
…			

Your assignment is to produce the following report, listing the three counties with the highest divorce rate and the three counties with the lowest divorce rate. (The rate is defined as the average number of divorces for years 1997-99 per 100,000 county residents). You will need to access both files to obtain the information needed for the report. The State/County code present in each file allows this.

County Divorce Rate Report

Highest divorce rate:

Oakland   xx per 100,000 residents
Wayne   yy per 100,000 residents
Macomb   zz per 100,000 residents

(the above counties may not actually represent the highest rate, but are use for illustration purposes only).

Lowest divorce date:

Alpena   xy per 100,000 residents
Bay   xz per 100,000 residents
Ogemaw   yx per 100,000 residents

You are to utilize a minimum of three functions in your program. Use of both void and value-returning functions are required to receive full credit for this assignment. To minimize the amount of programming required, you may assume the data files are sorted in State/County Code order, and County names have been modified to be a single word (e.g. Grand_Traverse). Remember to skip the first (header) record in each file.

MP5 (continued)

Program design suggestions:

You may consider organizing your program to include functions similar to those defined below:

Function	Purpose/Suggested Arguments
GetDivorceData	A void function to retrieve all data for a county (accesses each data file). Possible Arguments: (countyName, countyPop, div97, div98, div99, endOfFile).
rate = CalcRate	A value-returning function to calculate the divorce rate for a county. Possible Arguments: (countyPop, div97, div98, div99).
RankCounty	A void function to determine the 3 highest and 3 lowest county rates. Possible Arguments: (countyName, rate, name1hi, rate1hi, name2hi, rate2hi ,name3hi, rate3hi, name1low, rate1low, name2low, rate2low, name3low, rate3low). Note: This function should be called for each county and must re-determine the ranking each time it is called. The final ranking would be represented in the arguments after the final call.
Extra Credit:	Change the several county names back to consist of two separate words. Discuss how your program would need to be changed/re-written to accommodate this condition.

The data files (with the names above) are located on the Novell network under the directory
T:\class\cps\cps171\datafiles
Be sure to get an electronic copy of these files on to a disk if you are working at home.