

## CMPE130 Homework 4

Due date: 6 Oct. 2009

1. Consider a disk file containing 286,371,000 records
  - a. How many comparisons would be required on the average to find a record using sequential search, if the record is known to be in the file?
  - b. If the record is not in the file, how many comparisons are required?
  - c. If the record has a 71% probability of being in the file, how many comparisons are required on average?
  - d. If the file is blocked so that 18 records are stored per block, how many disk accesses would be required in parts a., b. and c. ?
2. Repeat the previous question, giving the results if the record is found using a binary search.

3. Consider a file containing the following data. The first row of the table is a header record. The first column contains the primary key.

	<b>Currency units per SDR</b>				
	February 28, 2008	February 27, 2008	February 26, 2008	February 25, 2008	February 22, 2008
Japanese Yen	170.354000	171.381000	171.828000	170.250000	170.872000
U.K. Pound Sterling	0.808852	0.806523	0.807116	0.808002	0.808113
Kazakhstani Tenge	193.296000	191.627000	191.627000	191.020000	191.126000
Euro	1.059830	1.064070	1.069160	1.070850	1.070720
U.S. Dollar	1.602570	1.600790	1.590270	1.586670	1.589800
Indonesian Rupiah	14,548.200000	14,514.400000	14,433.200000	14,559.300000	14,586.500000
Chilean Peso	742.407000	746.993000	742.970000	740.565000	744.491000
Israeli New Sheqel	5.802920	5.775640	5.769470	5.680300	5.710570
Botswana Pula	10.220500	10.163800	10.226800	10.296400	10.330100
Bahrain Dinar	0.602569	0.601898	0.597940	0.596591	0.597768
Indian Rupee	63.798300	63.599500	63.467500	63.546100	63.560300
Korean Won	1,512.190000	1,515.630000	1,506.620000	1,505.750000	1,505.550000
Colombian Peso	3,002.370000	3,001.980000	3,001.980000	3,001.980000	3,014.030000
Chinese Yuan	11.411800	11.438500	11.371200	11.338400	11.361200
Brunei Dollar	2.235110	2.243350	2.234640	2.229280	2.237970
Icelandic Krona	104.904000	104.644000	104.926000	105.720000	106.390000
Canadian Dollar	1.557540	1.565250	1.567840	1.583500	1.614610
Czech Koruna	26.649200	26.650000	26.745000	26.762400	26.810400
Australian Dollar	1.700160	1.712080	1.712910	1.717740	1.727490
Danish Krone	7.899080	7.932230	7.970540	7.983970	7.982250
Hungarian Forint	274.296000	273.655000	278.170000	282.333000	284.289000
Brazilian Real	2.701180	2.712040	2.712040	2.702430	2.717930
Iranian Rial	14,738.500000	14,778.300000	14,778.300000	14,778.300000	14,771.900000

Show the contents of the data file and primary index generated from this file. (Note: You may replace the numeric fields in the data file by abbreviations to save effort.)