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ModeTimings.py

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'''
Created on Feb 27, 2011

@author: ola
'''
5  import random,time
    _MAX = 500

10  def create_list(n):
    return [random.randint(0,_MAX) for i in xrange(0,n)]

    def mode_compA(nums):
        occs = [nums.count(n) for n in nums]
15         m = max(occs)
        mindex = occs.index(m)
        return nums[mindex]

    def mode_compB(nums):
20         occs = [nums.count(n) for n in nums]
        m = max(occs)
        for n in nums:
            if nums.count(n) == m:
                return n

25  def mode_compC(nums):
        occs = [nums.count(n) for n in nums]
        for n in nums:
            if nums.count(n) == max(occs):
30                 return n

    def mode_compD(nums):
        mn = min(nums)
        mx = max(nums)
35         counts = [0]*(mx-mn+1)
        for n in nums:
            counts[n-mn] += 1
        mindex = counts.index(max(counts))
        return mindex+mn

40  def time_all(n):
        funcs = [mode_compA,mode_compB,mode_compC,mode_compD]
        nums = create_list(n)
        for f in funcs:
45             start = time.time()
            mode = f(nums)
            end = time.time()
            print "%s mode = %d time = %4.3fn" % (f,mode,(end-start))

50  if __name__ == "__main__":
        time_all(5000)

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SearchTimings.py

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'''
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'''
5  import random,time,bisect,sys

    def get_number():
10         return random.randint(0,sys.maxint)

    def create_list(n):
        return [get_number() for i in xrange(0,n)]

15  def linear_search(search,nums):
        f = 0
        for i in search:
            if i in nums:
                f += 1
20         return f

    def binary_search(search,nums):
        f = 0
        nums.sort()
25         for i in search:
            index = bisect.bisect_left(nums,i)
            if index == len(nums) or nums[index] == i:
                f += 1
        return f

30  def timings(size, search_size):
        nums = create_list(size)
        search = create_list(search_size/2)
        search.extend(nums[search_size/2])
        funcs = [linear_search,binary_search]
35         for f in funcs:
            start = time.time()
            found = f(search,nums)
            end = time.time()
            print "%s: size = %d\tsearch = %d\tfound=%d\ttime = %4.3f" % (f,len(nums), len(search)
40             ,found,(end-start))

    if __name__ == "__main__":
        timings(10000,5000)
        timings(10000,10000)
45         timings(20000,10000)
        timings(20000,20000)

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SetTimings.py

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'''
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'''
5  import random,time

def create_word():
10     ls = list("etaoins")
    random.shuffle(ls)
    return ''.join(ls)

def create_list(n):
15     return [create_word() for i in xrange(0,n)]

def diffA(words):
    return len(set(words))

20 def diffB(words):
    d = 0
    for i,word in enumerate(words):
        if words[:i].count(word) == 0:
            d += 1
25     return d

def time_all(n):
    funcs = [diffA, diffB]
    nums = create_list(n)
30     for f in funcs:
        start = time.time()
        diffs = f(nums)
        end = time.time()
        print "n = %d %s diffs = %d time = %4.3f\n" % (n, f, diffs, (end-start))
35
if __name__ == "__main__":
    time_all(2000)
    time_all(4000)
    time_all(5000)
40     time_all(10000)

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