

ASSIGNMENT 5 – TEXT PROCESSING (BINARY TREE) DUE 12/10/18

Design and Implement a primitive program that reads a text file and delivers a simple report showing distinctive words in alphabetical order and their corresponding frequencies. Modify the example code of `IntBinaryTree` (pages 1159-1180) into a template that can store frequency with its corresponding object ordered in a binary tree. So, this template can be extended into string class objects. You will also need to use c-string to clean up unwanted punctuations.

Note: Each one of you needs to complete the assignment and demonstrate your program and result in classes on 12/10 and possibly 12/12. When you demo your program, you'll test on a different text file.

The order of demonstration will be determined by lottery on Wednesday (12/5). This assignment will count for 5% of your grade.

Here is an article in text that I took from NYTimes:

Long the Toyota Corolla of New York City real estate — affordable, reliable and unassuming — Queens is finally getting some respect.

The Michelin Guide just anointed four Queens restaurants with the coveted star. Ridgewood is being heralded as the new Bushwick. And the offerings for apartment hunters are growing as developers and landlords rush to capitalize on the increasing buzz about the borough.

In already burgeoning Long Island City, more than 10,000 apartments are planned over the next three years, ranging from amenity-laden rentals to family-size condos, according to aptsandlofts.com, a New York brokerage that specializes in the marketing of developments. Hundreds of new apartments are expected in downtown Flushing over the next several years. Aging apartment buildings in neighborhoods like Forest Hills, Kew Gardens, Rego Park and Elmhurst are being reinvented with updated lobbies, redesigned apartments and amenities from green roofs to children's play areas.

And major developments will add thousands of residences to industrial areas and reshape the waterfront along the East River from Hunter's Point South in Long Island City, where the first two towers of a 30-acre complex are rising, to Astoria Cove, a nearly nine-acre site with 1,700 apartments in its future.

Photo

Dawn and Jordan Chapman looked at 30 places before they rented at the Court Plaza, Kew Gardens. Credit James Estrin/The New York Times

“Within the last two years there’s been huge interest in Queens, unlike anything I’ve ever seen before,” said Eric Benaïm, the chief executive of the Modern Spaces brokerage, which has offices in Queens in Long Island City and Astoria. “People are flocking to Queens like they did to Brooklyn as the next frontier.”

All of this is causing people like Corey Anker, a 15-year resident of Manhattan, to change their minds about Queens. “I just didn’t see myself living there,” Mr. Anker said. “To me, it was an old person’s borough.”

But with two children under the age of 5, he and his family began to feel cramped in a Junior Four apartment in the Gramercy area. So after a little prodding by his wife, Joana, he took the subway to Forest Hills to check out Parker Towers, a 1950s-era rental complex that was undergoing a makeover by the Jack Parker Corporation, a hotel and real estate company.

While the exterior was unimpressive, his interest was piqued when he entered a hotel-like lobby with retro-chic wall coverings and a convenience store called the Pantry tucked into a corner. Upstairs, roomy apartments were being updated with open kitchens, new flooring and bathrooms. There was a new gym.

A couple of blocks away on Austin Street, he found a mix of cafes, bars, chain stores and small businesses and began to picture a life there. Twenty minutes and four express stops later, he was back in Manhattan planning their move.

“I was vehemently opposed to moving to Queens,” said Mr. Anker, a life coach who arrived with his family to Parker Towers in May, renting a renovated \$3,600-a-month three-bedroom, two-bath with a balcony. “Now, I couldn’t love it any more if you paid me.”

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While affordability continues to be a major driver of people moving to Queens, prices have been going up. Market-rate rents in Long Island City and Astoria, where much of the new development is concentrated, are no longer a bargain, accounting for the highest prevailing rents in the borough, according to the brokerage firm MNS.

In October, the monthly rent for two-bedrooms in Long Island City was \$3,831 and in Astoria, \$2,610. But, brokers and developers say, more newcomers are considering those areas as destinations in their own right.

“There is less of a conversation around, ‘I can’t afford anything else,’ ” said Rachel Loeb, a development director for World Wide Group. “It’s now a neighborhood of choice.”

Your program result should look like this:

-> frequency: 4

10000 -> frequency: 1

15-year -> frequency: 1

1700 -> frequency: 1

1950s-era -> frequency: 1

2610 -> frequency: 1

30 -> frequency: 1

30-acre -> frequency: 1

3600-a-month -> frequency: 1

3831 -> frequency: 1

5 -> frequency: 1

a -> frequency: 24

about -> frequency: 2

according -> frequency: 2

accounting -> frequency: 1

add -> frequency: 1

afford -> frequency: 1

affordability -> frequency: 1

affordable -> frequency: 1

after -> frequency: 1

age -> frequency: 1

aging -> frequency: 1

all -> frequency: 1

along -> frequency: 1

already -> frequency: 1

amenities -> frequency: 1

amenity-laden -> frequency: 1
an -> frequency: 1
and -> frequency: 21
anker -> frequency: 3
anointed -> frequency: 1
any -> frequency: 1
anything -> frequency: 2
apartment -> frequency: 3
apartments -> frequency: 5
aptsandloftscom -> frequency: 1
are -> frequency: 9
area -> frequency: 1
areas -> frequency: 3
around -> frequency: 1
arrived -> frequency: 1
as -> frequency: 4
astoria -> frequency: 4
at -> frequency: 2
austin -> frequency: 1
away -> frequency: 1
back -> frequency: 1
balcony -> frequency: 1
bargain -> frequency: 1
bars -> frequency: 1
bathrooms -> frequency: 1

be -> frequency: 1
been -> frequency: 2
before -> frequency: 2
began -> frequency: 2
behind -> frequency: 1
being -> frequency: 3
benaim -> frequency: 1
blocks -> frequency: 1
borough -> frequency: 3
brokerage -> frequency: 3
brokers -> frequency: 1
brooklyn -> frequency: 1
buildings -> frequency: 1
burgeoning -> frequency: 1
bushwick -> frequency: 1
businesses -> frequency: 1
but -> frequency: 2
buzz -> frequency: 1
by -> frequency: 2
cafes -> frequency: 1
called -> frequency: 1
cammebys -> frequency: 1
cant -> frequency: 1
capitalize -> frequency: 1
causing -> frequency: 1

chain -> frequency: 1

change -> frequency: 1

chapman -> frequency: 1

check -> frequency: 1

chief -> frequency: 1

children -> frequency: 1

childrens -> frequency: 1

choice -> frequency: 1

city -> frequency: 6

coach -> frequency: 1

company -> frequency: 1

complex -> frequency: 2

concentrated -> frequency: 1

condos -> frequency: 1

considering -> frequency: 1

continue -> frequency: 1

continues -> frequency: 1

convenience -> frequency: 1

conversation -> frequency: 1

corey -> frequency: 1

corner -> frequency: 1

corolla -> frequency: 1

corporation -> frequency: 1

couldnt -> frequency: 1

couple -> frequency: 1

court -> frequency: 1
cove -> frequency: 1
coverings -> frequency: 1
coveted -> frequency: 1
cramped -> frequency: 1
dawn -> frequency: 1
destinations -> frequency: 1
developers -> frequency: 2
development -> frequency: 2
developments -> frequency: 2
did -> frequency: 1
didnt -> frequency: 1
director -> frequency: 1
downtown -> frequency: 1
driver -> frequency: 1
east -> frequency: 1
elmhurst -> frequency: 1
else -> frequency: 1
entered -> frequency: 1
eric -> frequency: 1
estate -> frequency: 2
estrinthe -> frequency: 1
ever -> frequency: 1
executive -> frequency: 1
expected -> frequency: 1

express -> frequency: 1

exterior -> frequency: 1

family -> frequency: 2

family-size -> frequency: 1

feel -> frequency: 1

finally -> frequency: 1

firm -> frequency: 1

first -> frequency: 1

flocking -> frequency: 1

flooring -> frequency: 1

flushing -> frequency: 1

for -> frequency: 4

forest -> frequency: 2

found -> frequency: 1

four -> frequency: 3

from -> frequency: 3

frontier -> frequency: 1

future -> frequency: 1

gardens -> frequency: 1

gardenscredit -> frequency: 1

getting -> frequency: 1

going -> frequency: 1

gramercy -> frequency: 1

green -> frequency: 1

group -> frequency: 2

growing -> frequency: 1
guide -> frequency: 1
gym -> frequency: 1
has -> frequency: 1
have -> frequency: 1
he -> frequency: 5
heralded -> frequency: 1
highest -> frequency: 1
hills -> frequency: 2
his -> frequency: 4
hotel -> frequency: 1
hotel-like -> frequency: 1
huge -> frequency: 1
hundreds -> frequency: 1
hunters -> frequency: 2
i -> frequency: 4
if -> frequency: 1
in -> frequency: 19
increasing -> frequency: 1
industrial -> frequency: 1
interest -> frequency: 2
international -> frequency: 1
into -> frequency: 1
is -> frequency: 5
island -> frequency: 5

it -> frequency: 2

its -> frequency: 3

ive -> frequency: 1

jack -> frequency: 1

james -> frequency: 1

joana -> frequency: 1

jordan -> frequency: 1

junior -> frequency: 1

just -> frequency: 2

kew -> frequency: 2

kitchens -> frequency: 1

landlords -> frequency: 1

last -> frequency: 1

later -> frequency: 1

less -> frequency: 1

life -> frequency: 2

like -> frequency: 3

little -> frequency: 1

living -> frequency: 1

lobbies -> frequency: 1

lobby -> frequency: 1

loeb -> frequency: 1

long -> frequency: 6

longer -> frequency: 1

looked -> frequency: 1

love -> frequency: 1
main -> frequency: 1
major -> frequency: 2
makeover -> frequency: 1
manhattan -> frequency: 2
market-rate -> frequency: 1
marketing -> frequency: 1
may -> frequency: 1
me -> frequency: 2
michelin -> frequency: 1
minds -> frequency: 1
minutes -> frequency: 1
mix -> frequency: 1
mns -> frequency: 1
modern -> frequency: 1
monthly -> frequency: 1
more -> frequency: 3
move -> frequency: 1
moving -> frequency: 2
mr -> frequency: 2
much -> frequency: 1
myself -> frequency: 1
nearly -> frequency: 1
neighborhood -> frequency: 1
neighborhoods -> frequency: 1

new -> frequency: 8
newcomers -> frequency: 1
next -> frequency: 3
nine-acre -> frequency: 1
no -> frequency: 1
now -> frequency: 2
october -> frequency: 1
of -> frequency: 15
offerings -> frequency: 1
offices -> frequency: 1
old -> frequency: 1
on -> frequency: 2
open -> frequency: 1
opposed -> frequency: 1
out -> frequency: 1
over -> frequency: 2
own -> frequency: 1
paid -> frequency: 1
pantry -> frequency: 1
park -> frequency: 1
parker -> frequency: 3
partners -> frequency: 1
people -> frequency: 3
persons -> frequency: 1
photo -> frequency: 1

picture -> frequency: 1
piqued -> frequency: 1
places -> frequency: 1
planned -> frequency: 1
planning -> frequency: 1
play -> frequency: 1
plaza -> frequency: 1
point -> frequency: 1
prevailing -> frequency: 1
prices -> frequency: 1
prodding -> frequency: 1
properties -> frequency: 1
queens -> frequency: 8
rabina -> frequency: 1
rachel -> frequency: 1
ranging -> frequency: 1
reading -> frequency: 1
real -> frequency: 2
redesigned -> frequency: 1
rego -> frequency: 1
reinvented -> frequency: 1
reliable -> frequency: 1
renovated -> frequency: 1
rent -> frequency: 1
rental -> frequency: 1

rentals -> frequency: 1
rented -> frequency: 1
renting -> frequency: 1
rents -> frequency: 2
reshape -> frequency: 1
residences -> frequency: 1
resident -> frequency: 1
respect -> frequency: 1
restaurants -> frequency: 1
retro-chic -> frequency: 1
ridgewood -> frequency: 1
right -> frequency: 1
rising -> frequency: 1
river -> frequency: 1
roofs -> frequency: 1
roomy -> frequency: 1
rush -> frequency: 1
said -> frequency: 4
say -> frequency: 1
see -> frequency: 1
seen -> frequency: 1
several -> frequency: 1
site -> frequency: 1
small -> frequency: 1
so -> frequency: 1

some -> frequency: 1
south -> frequency: 1
spaces -> frequency: 1
specializes -> frequency: 1
star -> frequency: 1
stops -> frequency: 1
store -> frequency: 1
stores -> frequency: 1
story -> frequency: 1
street -> frequency: 1
subway -> frequency: 1
than -> frequency: 1
that -> frequency: 2
the -> frequency: 30
their -> frequency: 3
there -> frequency: 4
theres -> frequency: 1
they -> frequency: 2
this -> frequency: 1
those -> frequency: 1
thousands -> frequency: 1
three -> frequency: 1
three-bedroom -> frequency: 1
times -> frequency: 1
to -> frequency: 20

took -> frequency: 1

towers -> frequency: 3

toyota -> frequency: 1

tucked -> frequency: 1

twenty -> frequency: 1

two -> frequency: 3

two-bath -> frequency: 1

two-bedrooms -> frequency: 1

unassuming -> frequency: 1

under -> frequency: 1

undergoing -> frequency: 1

unimpressive -> frequency: 1

unlike -> frequency: 1

up -> frequency: 1

updated -> frequency: 2

upstairs -> frequency: 1

vehemently -> frequency: 1

wall -> frequency: 1

was -> frequency: 8

waterfront -> frequency: 1

were -> frequency: 1

when -> frequency: 1

where -> frequency: 2

which -> frequency: 1

while -> frequency: 2

who -> frequency: 1

wide -> frequency: 2

wife -> frequency: 1

will -> frequency: 1

with -> frequency: 8

within -> frequency: 1

world -> frequency: 2

years -> frequency: 3

york -> frequency: 3

you -> frequency: 1