Lesson 16:

1. Quiz: Data Structures

[[keyword, [[url, count], [url, count], …], …], …]

1. Quiz: Ben Bitdiddle

It would produce the same results for all queries, but add\_to\_index would be faster and lookup would usually be slower than the original code.

1. Quiz: Networking

More Bandwidth

1. Quiz: Better Splitting

def split\_string(source, splitlist):

return\_list = source.split(splitlist[0])

splitlist = splitlist[1:]

while len(splitlist) > 0:

for item in return\_list:

if splitlist[0] in item:

index = return\_list.index(item)

return\_list.remove(return\_list[index])

split\_item = item.split(splitlist[0])

for split\_items in split\_item:

if split\_items:

return\_list.insert(index, split\_items)

index += 1

if len(splitlist) > 1:

splitlist = splitlist[1:]

else:

break

while '' in return\_list:

return\_list.remove('')

return return\_list

1. Quiz: Improving the Index

def add\_to\_index(index, keyword, url):

for entry in index:

if entry[0] == keyword:

if url not in entry[1]:

entry[1].append(url)

return

# not found, add new keyword to index

index.append([keyword, [url]])

1. Quiz: Counting Clicks

def record\_user\_click(index, keyword, url):

for entry in index:

if entry[0] == keyword:

for item in entry[1]:

if item[0] == url:

item[1] += 1

return

def add\_to\_index(index, keyword, url):

clicks = 0

for entry in index:

if entry[0] == keyword:

for item in entry[1]:

if item[0] == url:

return

entry[1].append([url, clicks])

return

# not found, add new keyword to index

index.append([keyword, [[url, clicks]]])

1. Quiz: Time Spent at Routers

Total trip time = 75ms

One-way distance = 2500km

Both ways = 2\*2500 = 5000km

Speed of light in optical line = 200,000km/s

Time on wires = 5000km / 200,000km/s = 0.025s = 0.025s \* 1000 = 25ms

Router time = 75ms – 25ms = 50ms