

MAP REDUCE ASSIGNMENT

NAME: UPPALA USHA SAI KIRAN

CAMPUS_ID : GX71972

MAIL_ID : u36@umbc.edu

```
# My Date Of Birth - 12/10/2000  
# DOB :- 10th December 2000
```

```
pip install pyenchant
```

```
Requirement already satisfied: pyenchant in c:\users\uppal\anaconda3\lib\site-packages (3.2.2)
```

```
Note: you may need to restart the kernel to use updated packages.
```

```
import pandas as pd # -> Panda library  
import numpy as np  
import matplotlib.pyplot as plt  
import seaborn as sns
```

```
#to ignore warnings  
import warnings  
warnings.filterwarnings('ignore')
```

ANSWER 1: Write Python code and use MapReduct to count occurrences of each word in the first text file (file.txt). How many times each word is repeated?

STEP 1: Open and read the file with UTF-8 encoding and displaying it

```
with open('file1.txt', 'r', encoding='utf-8') as file:  
    data = file.read()  
print(data)
```

isolated incident, and the Muggle Liaison Office was dealing with all memory modifications as they spoke.

"Oh, and I almost forgot," Fudge had added. "We're importing three foreign dragons and a sphinx for the Triwizard Tournament, quite routine, but the Department for the Regulation and Control of Magical Creatures tells me that it's down in the rule book that we have to notify you if we're bringing highly dangerous creatures into the country."

"I – what – dragons?" spluttered the Prime Minister.

"Yes, three," said Fudge. "And a sphinx. Well, good day to you."

The Prime Minister had hoped beyond hope that dragons and sphinxes would be the worst of it, but no. Less than two years later, Fudge had erupted out of the fire yet again, this time with the news that there had been a mass breakout from Azkaban.

"A mass breakout?" repeated the Prime Minister hoarsely.

"No need to worry, no need to worry!" shouted Fudge, already with one foot in the flames. "We'll have them rounded up in no time – just thought you ought to know!"

And before the Prime Minister could shout, "Now, wait just one moment!" Fudge had vanished in a shower of green sparks.

Whatever the press and the opposition might say, the Prime Minister was not a foolish man. It had not escaped his notice that, despite Fudge's assurances at their first meeting, they were now seeing rather a lot of each other, nor that Fudge was becoming more flustered with each visit. Little though he liked to think about the Minister

of Magic (or, as he always called Fudge in his head, the Other Minister), the Prime Minister could not help but fear that the next time Fudge appeared it would be with graver news still. The sight, therefore, of Fudge stepping out of the fire once more, looking disheveled and fretful and sternly surprised that the Prime Minister did not know exactly why he was there, was about the worst thing that had happened in the course of this extremely gloomy week.

"How should I know what's going on in the – er – Wizarding community?" snapped the Prime Minister now. "I have a country to run and quite enough concerns at the moment without –"

"We have the same concerns," Fudge interrupted.

"The Brockdale Bridge didn't wear out. That wasn't really a hurricane. Those murders were not the work

of Muggles. And Herbert Chorley's family would be safer without him. We are currently making arrangements to have him transferred to St. Mungo's Hospital for Magical Maladies and Injuries. The move should be effected tonight."

"What do you ... I'm afraid I ... What?" blustered the Prime Minister. Fudge took a great, deep breath and said, "Prime Minister, I am very sorry to have to tell you that he's back. He-Who-Must-Not-Be-Named is back."

"Back? When you say 'back' ... he's alive? I mean --"

The Prime Minister groped in his memory for the details of that horrible conversation of three years previously, when Fudge had told him about the wizard who was feared above all others, the wizard who had committed a thousand terrible crimes before his mysterious disappearance fifteen years earlier.

"Yes, alive," said Fudge. "That is -- I don't know -- is a man alive if he can't be killed? I don't really understand it, and Dumbledore won't explain properly -- but anyway, he's certainly got a body and is walking and talking and killing, so I suppose, for the purposes of our discussion, yes, he's alive."

The Prime Minister did not know what to say to this, but a persistent habit of wishing to appear well informed on any subject that came up made him cast around for any details he could remember of their previous conversations.

"Is Serious Black with -- er -- He-Who-Must-Not-Be Named?"

"Black? Black?" said Fudge distractedly, turning his bowler rapidly in his fingers. "Sirius Black, you mean? Merlin's beard, no. Black's dead. Turns out we were -- er -- mistaken about Black. He was innocent after all. And he wasn't in league with He-Who-Must Not-Be-Named either. I mean," he added defensively, spinning the bowler hat still faster, "all the evidence pointed -- we had more than fifty eyewitnesses -- but anyway, as I say, he's dead. Murdered, as a matter of fact. On Ministry of Magic premises. There's going to be an inquiry, actually. ..."

To his great surprise, the Prime Minister felt a fleeting stab of pity for Fudge at this point. It was, however, eclipsed almost immediately by a glow of smugness at the thought that, deficient though he himself might be in the area of materializing out of fireplaces, there had never been a murder in any of the government departments under his charge. ... Not yet, anyway ...

While the Prime Minister surreptitiously touched the wood of his desk, Fudge continued, "But Black's by-the-by now. The point is, we're at war,

Prime Minister,

and steps must be taken.”

“At war?” repeated the Prime Minister nervously.

“Surely that’s a little bit of an overstatement?”

“He-Who-Must-Not-Be-Named has now been joined by those of his followers who broke out of Azkaban in January,” said Fudge, speaking more and more rapidly and twirling his bowler so fast that it was a lime-green blur. “Since they have moved into the open, they have been wreaking havoc. The Brockdale Bridge – he did it, Prime Minister, he threatened a mass Muggle killing unless I stood aside for him and –”

“Good grief, so it’s your fault those people were killed and I’m having to answer questions about rusted rigging and corroded expansion joints and I don’t know what else!” said the Prime Minister furiously.

“My fault!” said Fudge, coloring up. “Are you saying you would have caved in to blackmail like that?”

“Maybe not,” said the Prime Minister, standing up and striding about the room, “but I would have put all my efforts into catching the blackmailer before he committed any such atrocity!”

“Do you really think I wasn’t already making every effort?” demanded Fudge heatedly. “Every Auror in the Ministry was – and is – trying to find him and round up his followers, but we happen to be talking about one of the most powerful wizards of all time, a wizard who has eluded capture for almost three decades!”

“So I suppose you’re going to tell me he caused the hurricane in the West

Country too?” said the Prime Minister, his temper rising with every pace he took. It

was infuriating to discover the reason for all these terrible disasters and not to be able to tell the public, almost worse than it being the government’s fault after all.

“That was no hurricane,” said Fudge miserably.

“Excuse me!” barked the Prime Minister, now positively stamping up and down. “Trees uprooted, roofs ripped off, lampposts bent, horrible injuries –”

“It was the Death Eaters,” said Fudge. “He-Who-Must Not-Be-Named’s followers. And ... and we suspect giant involvement.”

The Prime Minister stopped in his tracks as though he had hit an invisible wall. “What involvement?”

Fudge grimaced. “He used giants last time, when he wanted to go for the grand effect,” he said. “The Office of Misinformation has been working around the clock, we’ve had teams of Obliviators out trying to modify

the memories of all the Muggles who saw what really happened, we've got most of the Department for the Regulation and Control of Magical Creatures running around Somerset, but we can't find the giant – it's been a disaster."

"You don't say!" said the Prime Minister furiously.

"I won't deny that morale is pretty low at the Ministry," said Fudge. "What with all that, and then losing Amelia Bones."

"Losing who?"

"Amelia Bones. Head of the Department of Magical Law Enforcement. We think He-Who-Must-Not-Be Named may have murdered her in person, because

she was a very gifted witch and – and all the evidence was that she put up a real fight."

Fudge cleared his throat and, with an effort, it seemed, stopped spinning his bowler hat.

"But that murder was in the newspapers," said the Prime Minister, momentarily diverted from his anger.

"Our newspapers. Amelia Bones ... it just said she was a middle-aged woman who lived alone. It was a – a nasty killing, wasn't it? It's had rather a lot of publicity. The police are baffled, you see."

Fudge sighed. "Well, of course they are," he said.

"Killed in a room that was locked from the inside, wasn't she? We, on the other hand, know exactly who did it, not that that gets us any further toward catching him. And then there was Emmeline Vance, maybe you didn't hear about that one –"

"Oh yes I did!" said the Prime Minister. "It happened just around the corner from here, as a matter of fact. The papers had a field day with it, 'breakdown of law and order in the Prime Minister's backyard –' "

"And as if all that wasn't enough," said Fudge, barely listening to the Prime Minister, "we've got dementors swarming all over the place, attacking people left, right, and center. ..."

Once upon a happier time this sentence would have been unintelligible to the Prime Minister, but he was wiser now.

"I thought dementors guard the prisoners in Azkaban," he said cautiously.

"They did," said Fudge wearily. "But not anymore.

They've deserted the prison and joined He-Who-Must Not-Be-Named. I won't pretend that wasn't a blow."

"But," said the Prime Minister, with a sense of dawning horror, "didn't you tell me they're the creatures that drain hope and happiness out of people?"

"That's right. And they're breeding. That's what's

causing all this mist."

The Prime Minister sank, weak-kneed, into the nearest chair. The idea of invisible creatures swooping through the towns and countryside, spreading despair and hopelessness in his voters, made him feel quite faint. "Now see here, Fudge – you've got to do something! It's your responsibility as Minister of Magic!"

"My dear Prime Minister, you can't honestly think I'm still Minister of Magic after all this? I was sacked three days ago! The whole Wizarding community has been screaming for my resignation for a fortnight. I've never known them so united in my whole term of office!" said Fudge, with a brave attempt at a smile.

The Prime Minister was momentarily lost for words. Despite his indignation at the position into which he had been placed, he still rather felt for the shrunken looking man sitting opposite him.

"I'm very sorry," he said finally. "If there's anything I can do?" "It's very kind of you, Prime Minister, but there is nothing. I was sent here tonight to bring you up to date on recent events and to introduce you to my successor. I rather thought he'd be here by now, but of course, he's very

busy at the moment, with so much going on."

Fudge looked around at the portrait of the ugly little man wearing the long curly silver wig, who was digging in his ear with the point of a quill. Catching Fudge's eye, the portrait said, "He'll be here in a moment, he's just finishing a letter to Dumbledore."

"I wish him luck," said Fudge, sounding bitter for the first time. "I've been writing to Dumbledore twice a day for the past fortnight, but he won't budge. If he'd just been prepared to persuade the boy, I might still be ... Well, maybe Scrimgeour will have more success."

Fudge subsided into what was clearly an aggrieved silence, but it was broken almost immediately by the portrait, which suddenly spoke in its crisp, official voice.

"To the Prime Minister of Muggles. Requesting a meeting. Urgent. Kindly respond immediately. Rufus Scrimgeour, Minister of Magic."

"Yes, yes, fine," said the Prime Minister distractedly, and he barely flinched as the flames in the grate turned emerald green again, rose up, and revealed a second spinning wizard in their heart, disgorging him moments later onto the antique rug.

Fudge got to his feet and, after a moment's hesitation, the Prime Minister did the same, watching the new

arrival straighten up, dust down his long black robes, and look around.

The Prime Minister's first, foolish thought was that Rufus Scrimgeour looked rather like an old lion.

There were streaks of gray in his mane of tawny hair and his bushy eyebrows; he had keen yellowish eyes

behind a pair of wire-rimmed spectacles and a certain rangy, loping grace even though he walked with a slight limp. There was an immediate impression of shrewdness and toughness; the Prime Minister thought he understood why the Wizarding community preferred Scrimgeour to Fudge as a leader in these dangerous times.

"How do you do?" said the Prime Minister politely, holding out his hand.

Scrimgeour grasped it briefly, his eyes scanning the room, then pulled out a wand from under his robes.

"Fudge told you everything?" he asked, striding over to the door and tapping the keyhole with his wand.

The Prime Minister heard the lock click.

"Er – yes," said the Prime Minister. "And if you don't mind, I'd rather that door remained unlocked."

"I'd rather not be interrupted," said Scrimgeour shortly, "or watched," he added, pointing his wand at the windows, so that the curtains swept across them.

"Right, well, I'm a busy man, so let's get down to business. First of all, we need to discuss your security." The Prime Minister drew himself up to his fullest height and replied, "I am perfectly happy with the security I've already got, thank you very –"

"Well, we're not," Scrimgeour cut in. "It'll be a poor lookout for the Muggles if their Prime Minister gets put under the Imperius Curse. The new secretary in your outer office –"

"I'm not getting rid of Kingsley Shacklebolt, if that's what you're suggesting!" said the Prime Minister

hotly. "He's highly efficient, gets through twice the work the rest of them –"

"That's because he's a wizard," said Scrimgeour, without a flicker of a smile. "A highly trained Auror, who has been assigned to you for your protection."

"Now, wait a moment!" declared the Prime Minister.

"You can't just put your people into my office, I decide who works for me –"

"I thought you were happy with Shacklebolt?" said Scrimgeour coldly.

"I am – that's to say, I was –"

"Then there's no problem, is there?" said Scrimgeour.

"I ... well, as long as Shacklebolt's work continues to be ... er ... excellent," said the Prime Minister lamely,

but Scrimgeour barely seemed to hear him.
“Now, about Herbert Chorley, your Junior Minister,” he continued. “The one who has been entertaining the public by impersonating a duck.”
“What about him?” asked the Prime Minister.
“He has clearly reacted to a poorly performed Imperius Curse,” said Scrimgeour. “It’s addled his brains, but he could still be dangerous.”
“He’s only quacking!” said the Prime Minister weakly.
“Surely a bit of a rest ... Maybe go easy on the drink ...”
“A team of Healers from St. Mungo’s Hospital for Magical Maladies and Injuries are examining him as we speak. So far he has attempted to strangle three of them,” said Scrimgeour. “I think it best that we remove him from Muggle society for a while.”
“I ... well ... He’ll be all right, won’t he?” said the Prime Minister anxiously. Scrimgeour merely shrugged, already moving back toward the fireplace. “Well, that’s really all I had to say. I will keep you posted of developments, Prime Minister – or, at least, I shall probably be too busy to come personally, in which case I shall send Fudge here. He has consented to stay on in an advisory capacity.”
Fudge attempted to smile, but was unsuccessful; he merely looked as though he had a toothache.
Scrimgeour was already rummaging in his pocket for the mysterious powder that turned the fire green. The Prime Minister gazed hopelessly at the pair of them for a moment, then the words he had fought to suppress all evening burst from him at last.
“But for heaven’s sake – you’re wizards! You can do magic! Surely you can sort out – well – anything!”
Scrimgeour turned slowly on the spot and exchanged an incredulous look with Fudge, who really did manage a smile this time as he said kindly, “The trouble is, the other side can do magic too, Prime Minister.” And with that, the two wizards stepped one after the other into the bright green fire and vanished.

```
from collections import defaultdict

# Map function
# The Map function processes input data (often in the form of key-
# value pairs)
# It transforms it into a different format that can be further
# analyzed or aggregated.
def map_function(file_content):
```



```

word_count = []
for line in file_content:
    words = line.strip().split()
    for word in words:
        word_count.append((word, 1))
return word_count

# Shuffle and Sort function
# it organizes the intermediate key-value pairs generated by the Map
function into a format that the Reduce function
def shuffle_and_sort(mapped_data):
    shuffled_data = defaultdict(list)
    for word, count in mapped_data:
        shuffled_data[word].append(count)
    return shuffled_data

# Reduce function
# It process the grouped and sorted key-value pairs produced by the
Map and Shuffle and Sort functions and produce a final output.
def reduce_function(shuffled_data):
    reduced_data = {}
    for word, counts in shuffled_data.items():
        reduced_data[word] = sum(counts)
    return reduced_data

# Main function to execute MapReduce
def mapreduce_word_count(filename):
    # Read the file with specified encoding
    with open(filename, 'r', encoding='utf-8') as file:
        file_content = file.readlines()

    # Map phase
    mapped_data = map_function(file_content)

    # Shuffle and Sort phase
    shuffled_data = shuffle_and_sort(mapped_data)

    # Reduce phase
    reduced_data = reduce_function(shuffled_data)

    return reduced_data

# Use the function
filename = 'file1.txt'
word_count = mapreduce_word_count(filename)

# Print the result
for word, count in word_count.items():
    print(f'{word}:{count}')

```

isolated:1
incident,:1
and:50
the:138
Muggle:3
Liaison:1
Office:2
was:31
dealing:1
with:21
all:15
memory:2
modifications:1
as:15
they:5
spoke.:1
"Oh,:1
I:28
almost:5
forgot,:":1
Fudge:25
had:20
added.:1
"We're:1
importing:1
three:5
foreign:1
dragons:2
a:63
sphinx:1
for:26
Triwizard:1
Tournament,:1
quite:3
routine,:1
but:16
Department:3
Regulation:2
Control:2
of:64
Magical:5
Creatures:2
tells:1
me:4
that:27
it's:3
down:3
in:35
rule:1
book:1

we:9
have:13
to:52
notify:1
you:23
if:6
we're:3
bringing:1
highly:3
dangerous:2
creatures:3
into:8
country.":1
"I:11
-:27
what:6
dragons?":1
spluttered:1
Prime:51
Minister.:5
"Yes,:3
three,:1
said:36
Fudge.:4
"And:3
sphinx.:1
Well,:2
good:1
day:3
you.:1
The:18
Minister:35
hoped:1
beyond:1
hope:2
sphinxes:1
would:6
be:19
worst:2
it,:5
no.:2
Less:1
than:3
two:2
years:3
later,:1
erupted:1
out:10
fire:4
yet:1

again,:2
this:6
time:5
news:2
there:4
been:13
mass:3
breakout:1
from:8
Azkaban.:1
"A:3
breakout?":1
repeated:2
hoarsely.:1
"No:1
need:3
worry,:1
no:4
worry!":1
shouted:1
Fudge,:7
already:5
one:6
foot:1
flames.:1
"We'll:1
them:4
rounded:1
up:8
just:7
thought:7
ought:1
know!":1
And:6
before:3
could:4
shout,:1
"Now,:3
wait:2
moment!":2
vanished:1
shower:1
green:3
sparks.:1
Whatever:1
press:1
opposition:1
might:3
say,:3
not:11

foolish:2
man.:1
It:4
escaped:1
his:32
notice:1
that,:4
despite:1
Fudge's:2
assurances:1
at:14
their:4
first:2
meeting,:1
were:6
now:3
seeing:1
rather:7
lot:2
each:2
other,:1
nor:1
becoming:1
more:5
flustered:1
visit.:1
Little:1
though:5
he:36
liked:1
think:5
about:10
Magic:3
(or,:1
always:1
called:1
head,:1
Other:1
Minister),:1
help:1
fear:1
next:1
appeared:1
it:8
graver:1
still.:1
sight,:1
therefore,:1
stepping:1
once:1

more,:1
looking:2
disheveled:1
fretful:1
sternly:1
surprised:1
did:6
know:6
exactly:2
why:2
there,:1
thing:1
happened:2
course:2
extremely:1
gloomy:1
week.:1
"How:2
should:2
what's:2
going:4
on:7
er:4
Wizarding:3
community?":1
snapped:1
now.:3
country:1
run:1
enough:1
concerns:1
moment:1
without:3
—":10
"We:1
same:1
concerns,":1
interrupted.:1
"The:4
Brockdale:2
Bridge:2
didn't:2
wear:1
out.:1
That:1
wasn't:7
really:6
hurricane.:1
Those:1
murders:1

work:3
Muggles.:2
Herbert:2
Chorley's:1
family:1
safer:1
him.:4
We:2
are:3
currently:1
making:2
arrangements:1
him:11
transferred:1
St.:2
Mungo's:2
Hospital:2
Maladies:2
Injuries.:1
move:1
effected:1
tonight.":1
"What:4
do:5
...:14
I'm:4
afraid:1
What?":1
blustered:1
Minister.Fudge:1
took:1
great,:1
deep:1
breath:1
said,:2
"Prime:1
Minister,:12
am:3
very:6
sorry:1
tell:4
he's:8
back.:1
He-Who-Must-Not-Be-Named:1
is:8
back.":1
"Back?:1
When:1
say:2
'back':1

alive?:1
mean:1
groped:1
details:2
horrible:2
conversation:1
previously,:1
when:2
told:2
wizard:4
who:12
feared:1
above:1
others,:1
committed:2
thousand:1
terrible:2
crimes:1
mysterious:2
disappearance:1
fifteen:1
earlier.:1
alive,:1
"That:2
don't:5
man:3
alive:1
can't:4
killed?:1
understand:1
Dumbledore:2
won't:5
explain:1
properly:1
anyway,:2
certainly:1
got:5
body:1
walking:1
talking:2
killing,:2
so:7
suppose,:1
purposes:1
our:1
discussion,:1
yes,:2
alive.:1
this,:1
persistent:1

habit:1
wishing:1
appear:1
well:3
informed:1
any:5
subject:1
came:1
made:2
cast:1
around:5
remember:1
previous:1
conversations.:1
"Is:1
Serious:1
Black:1
He-Who-Must-Not-Be:2
Named?":1
"Black?:1
Black?":1
distractedly,:2
turning:1
bowler:4
rapidly:2
fingers.:1
"Sirius:1
Black,:1
mean?:1
Merlin's:1
beard,:1
Black's:2
dead.:2
Turns:1
mistaken:1
Black.:1
He:2
innocent:1
after:5
all.:2
league:1
He-Who-Must:2
Not-Be-Named:1
either.:1
mean,:1
added:1
defensively,:1
spinning:3
hat:1
still:5

faster,:1
"all:1
evidence:2
pointed:1
fifty:1
eyewitnesses:1
Murdered,:1
matter:2
fact.:2
On:1
Ministry:2
premises.:1
There's:1
an:9
inquiry,:1
actually.:1
...":3
To:1
great:1
surprise,:1
felt:2
fleeting:1
stab:1
pity:1
point.:1
was,:1
however,:1
eclipsed:1
immediately:2
by:5
glow:1
smugness:1
deficient:1
himself:2
area:1
materializing:1
fireplaces,:1
never:2
murder:2
government:1
departments:1
under:3
charge.:1
Not:1
yet,:1
anyway:1
While:1
surreptitiously:1
touched:1
wood:1

desk,:1
continued,:1
"But:4
by-the-by:1
point:2
is,:2
war,:1
steps:1
must:1
taken." :1
"At:1
war?":1
nervously.:1
"Surely:2
that's:4
little:2
bit:2
overstatement?":1
"He-Who-Must-Not-Be-Named:1
has:9
joined:2
those:2
followers:1
broke:1
Azkaban:1
January," :1
speaking:1
twirling:1
fast:1
lime-green:1
blur.:1
"Since:1
moved:1
open,:1
wreaking:1
havoc.:1
threatened:1
killing:1
unless:1
stood:1
aside:1
"Good:1
grief,:1
your:7
fault:2
people:3
killed:1
having:1
answer:1
questions:1

rusted:1
rigging:1
corroded:1
expansion:1
joints:1
else!":1
furiously.:2
"My:2
fault!":1
coloring:1
up.:1
"Are:1
saying:1
caved:1
blackmail:1
like:2
that?":1
"Maybe:1
not,:":2
standing:1
striding:2
room,:2
"but:1
put:4
my:5
efforts:1
catching:2
blackmailer:1
such:1
atrocitiy!":1
"Do:1
every:2
effort?":1
demanded:1
heatedly.:1
"Every:1
Auror:1
trying:2
find:2
round:1
followers,:1
happen:1
most:2
powerful:1
wizards:2
time,:2
eluded:1
capture:1
decades!":1
"So:1

suppose:1
you're:3
caused:1
hurricane:1
West:1
Country:1
too?":1
temper:1
rising:1
pace:1
took.:1
infuriating:1
discover:1
reason:1
these:2
disasters:1
able:1
public,:1
worse:1
being:1
government's:1
hurricane,":1
miserably.:1
"Excuse:1
me!":1
barked:1
positively:1
stamping:1
down.:1
"Trees:1
uprooted,:1
roofs:1
ripped:1
off,:1
lampposts:1
bent,:1
injuries:1
"It:2
Death:1
Eaters,":1
"He-Who-Must:1
Not-Be-Named's:1
followers.:1
suspect:1
giant:2
involvement.":1
stopped:2
tracks:1
hit:1

invisible:2
wall.:1
involvement?":1
grimaced.:1
"He:2
used:1
giants:1
last:1
wanted:1
go:2
grand:1
effect,":1
said.:2
Misinformation:1
working:1
clock,:1
we've:2
teams:1
Obliviators:1
modify:1
memories:1
Muggles:2
saw:1
happened,:1
running:1
Somerset,:1
disaster." :1
"You:2
say!":1
deny:1
morale:1
pretty:1
low:1
Ministry,":1
then:4
losing:1
Amelia:2
Bones." :1
"Losing:1
who?":1
"Amelia:1
Bones.:1
Head:1
Law:1
Enforcement.:1
Named:1
may:1
murdered:1
her:1

person,:1
because:2
she:3
gifted:1
witch:1
real:1
fight.":1
cleared:1
throat:1
and,:2
effort,:1
seemed,:1
hat.:1
newspapers,:1
momentarily:2
diverted:1
anger.:1
"Our:1
newspapers.:1
Bones:1
middle-aged:1
woman:1
lived:1
alone.:1
nasty:1
it?:1
It's:2
publicity.:1
police:1
baffled,:1
see.":1
sighed.:1
"Well,:3
are,:1
"Killed:1
room:1
locked:1
inside,:1
she?:1
We,:1
other:3
hand,:1
gets:3
us:1
further:1
toward:2
Emmeline:1
Vance,:1
maybe:2

hear:2
"Oh:1
yes:1
did!":1
corner:1
here,:2
papers:1
field:1
'breakdown:1
law:1
order:1
Minister's:2
backyard:1
-':1
":1
enough,":1
barely:3
listening:1
"we've:1
dementors:2
swarming:1
over:2
place,:1
attacking:1
left,:1
right,:2
center.:1
Once:1
upon:1
happier:1
sentence:1
unintelligible:1
wiser:1
guard:1
prisoners:1
Azkaban,":1
cautiously.:1
"They:1
did,":1
wearily.:1
anymore.:1
They've:1
deserted:1
prison:1
Not-Be-Named.:1
pretend:1
blow.":1
"But,":1
sense:1

dawning:1
horror,:1
"didn't:1
they're:2
drain:1
happiness:1
people?":1
"That's:2
right.:1
breeding.:1
That's:1
causing:1
mist.":1
sank,:1
weak-kneed,:1
nearest:1
chair.:1
idea:1
swooping:1
through:2
towns:1
countryside,:1
spreading:1
despair:1
hopelessness:1
voters,:1
feel:1
faint."Now:1
see:1
you've:1
something!:1
responsibility:1
Magic!":1
dear:1
honestly:1
this?:1
sacked:1
days:1
ago!:1
whole:2
community:2
screaming:1
resignation:1
fortnight.:1
I've:2
known:1
united:1
term:1
office!":1

brave:1
attempt:1
smile.:2
lost:1
words.:1
Despite:1
indignation:1
position:1
which:3
placed,:1
shrunk:1
sitting:1
opposite:1
"I'm:2
sorry,:1
finally.:1
"If:1
there's:2
anything:1
can:4
do?" "It's:1
kind:1
you,:1
nothing.:1
sent:1
here:3
tonight:1
bring:1
date:1
recent:1
events:1
introduce:1
successor.:1
he'd:2
now,:1
course,:1
busy:3
moment,:3
much:1
on.:1
looked:3
portrait:2
ugly:1
wearing:1
long:3
curly:1
silver:1
wig,:1
digging:1

ear:1
quill.:1
Catching:1
eye,:1
"He'll:1
finishing:1
letter:1
Dumbledore.":1
wish:1
luck,:1
sounding:1
bitter:1
time.:1
"I've:1
writing:1
twice:2
past:1
fortnight,:1
budge.:1
If:1
prepared:1
persuade:1
boy,:1
Scrimgeour:11
will:2
success.":1
subsided:1
clearly:2
aggrieved:1
silence,:1
broken:1
portrait,:1
suddenly:1
spoke:1
its:1
crisp,:1
official:1
voice.:1
"To:1
Requesting:1
meeting.:1
Urgent.:1
Kindly:1
respond:1
immediately.:1
Rufus:2
Scrimgeour,:2
Magic.":1
fine,:1

flinched:1
flames:1
grate:1
turned:3
emerald:1
rose:1
up,:2
revealed:1
second:1
heart,:1
disgorging:1
moments:1
later:1
onto:1
antique:1
rug.:1
feet:1
moment's:1
hesitation,:1
same,:1
watching:1
new:2
arrival:1
straighten:1
dust:1
black:1
robes,:1
look:2
around.:1
first,:1
old:1
lion.:1
There:2
streaks:1
gray:1
mane:1
tawny:1
hair:1
bushy:1
eyebrows,:1
keen:1
yellowish:1
eyes:2
behind:1
pair:2
wire-rimmed:1
spectacles:1
certain:1
rangy,:1

loping:1
grace:1
even:1
walked:1
slight:1
limp.:1
immediate:1
impression:1
shrewdness:1
toughness,:1
understood:1
preferred:1
leader:1
times.:1
do?":1
politely,:1
holding:1
hand.:1
grasped:1
briefly,:1
scanning:1
pulled:1
wand:2
robes.:1
"Fudge:1
everything?":1
asked,:1
door:2
tapping:1
keyhole:1
wand.:1
heard:1
lock:1
click.:1
"Er:1
yes,:1
mind,:1
I'd:1
remained:1
unlocked.":1
"I'd:1
interrupted,:1
shortly,:1
"or:1
watched,:1
added,:1
pointing:1
windows,:1
curtains:1

swept:1
across:1
them.:1
"Right,:1
well,:2
man,:1
let's:1
get:1
business.:1
First:1
all,:1
discuss:1
security."The:1
drew:1
fullest:1
height:1
replied,:1
perfectly:1
happy:2
security:1
got,:1
thank:1
cut:1
in.:1
"It'll:1
poor:1
lookout:1
Imperius:2
Curse.:1
secretary:1
outer:1
office:1
getting:1
rid:1
Kingsley:1
Shacklebolt,:1
suggesting!":1
hotly.:1
"He's:2
efficient,:1
rest:2
wizard,":1
flicker:1
trained:1
Auror,:1
assigned:1
protection." :1
declared:1
office,:1
decide:1

works:1
Shacklebolt?":1
coldly.:1
"Then:1
problem,:1
there?":1
Scrimgeour.:3
Shacklebolt's:1
continues:1
excellent,":1
lamely,:1
seemed:1
Chorley,:1
Junior:1
Minister,":1
continued.:1
entertaining:1
public:1
impersonating:1
duck.":1
him?":1
asked:1
reacted:1
poorly:1
performed:1
Curse,":1
"It's:1
addled:1
brains,:1
dangerous.":1
only:1
quacking!":1
weakly.:1
Maybe:1
easy:1
drink:1
team:1
Healers:1
Injuries:1
examining:1
speak.:1
So:1
far:1
attempted:2
strangle:1
them,":1
best:1
remove:1
society:1

while." :1
He'll:1
he?" :1
anxiously.:1
merely:2
shrugged,:1
moving:1
back:1
fireplace.:1
say.:1
keep:1
posted:1
developments,:1
or,:1
least,:1
shall:2
probably:1
too:1
come:1
personally,:1
case:1
send:1
here.:1
consented:1
stay:1
advisory:1
capacity." :1
smile,:1
unsuccessful;:1
toothache.:1
rummaging:1
pocket:1
powder:1
green.:1
gazed:1
hopelessly:1
words:1
fought:1
suppress:1
evening:1
burst:1
last.:1
heaven's:1
sake:1
wizards!:1
You:1
magic!:1
Surely:1
sort:1


```
anything!":1
slowly:1
spot:1
exchanged:1
incredulous:1
manage:1
smile:1
kindly,:1
trouble:1
side:1
magic:1
too,:1
Minister."And:1
stepped:1
bright:1
vanished.:1
```

ANSWER 2:From the second text file (file2.txt), write Python code and use MapReduce to count how many times non-English words (names, places, spells etc.) were used. List those words and how many times each was repeated.

```
# Open and read the file with UTF-8 encoding
with open('file2.txt', 'r', encoding='utf-8') as file:
    data = file.read()
```

```
# Display the content of the file
print(data)
```

```
"Yeah ... yeah, now Umbridge has left, obviously we
need a new Defense Against the Dark Arts teacher,
don't we? So, er, what's he like?"
"He looks a bit like a walrus, and he used to be Head
of Slytherin," said Harry. "Something wrong,
Hermione?"
She was watching him as though expecting strange
symptoms to manifest themselves at any moment.
She rearranged her features hastily in an
unconvincing smile.
"No, of course not! So, um, did Slughorn seem like
he'll be a good teacher?"
"Dunno," said Harry. "He can't be worse than
Umbridge, can he?"
```

"I know someone who's worse than Umbridge," said a voice from the doorway. Ron's younger sister slouched into the room, looking irritable. "Hi, Harry."

"What's up with you?" Ron asked.

"It's her," said Ginny, plonking herself down on Harry's bed. "She's driving me mad."

"What's she done now?" asked Hermione sympathetically.

"It's the way she talks to me – you'd think I was about three!"

"I know," said Hermione, dropping her voice. "She's so full of herself."

Harry was astonished to hear Hermione talking about Mrs. Weasley like this and could not blame Ron for saying angrily, "Can't you two lay off her for five seconds?"

"Oh, that's right, defend her," snapped Ginny. "We all know you can't get enough of her."

This seemed an odd comment to make about Ron's mother. Starting to feel that he was missing something, Harry said, "Who are you – ?"

But his question was answered before he could finish it. The bedroom door flew open again, and Harry instinctively yanked the bedcovers up to his chin so hard that Hermione and Ginny slid off the bed onto the floor.

A young woman was standing in the doorway, a woman of such breathtaking beauty that the room seemed to have become strangely airless. She was tall and willowy with long blonde hair and appeared to emanate a faint, silvery glow. To complete this vision of perfection, she was carrying a heavily laden breakfast tray.

"'Arry," she said in a throaty voice. "Eet 'as been too long!"

As she swept over the threshold toward him, Mrs. Weasley was revealed, bobbing along in her wake, looking rather cross.

"There was no need to bring up the tray, I was just about to do it myself!"

"Eet was no trouble," said Fleur Delacour, setting the tray across Harry's knees and then swooping to kiss him on each cheek: He felt the places where her mouth had touched him burn. "I 'ave been longing to see 'im. You remember my seester, Gabrielle? She never stops talking about 'Arry Potter. She will be delighted to see you again."

"Oh ... is she here too?" Harry croaked.

"No, no, silly boy," said Fleur with a tinkling laugh, "I

mean next summer, when we – but do you not know?”

Her great blue eyes widened and she looked reproachfully at Mrs. Weasley, who said, “We hadn’t got around to telling him yet.”

Fleur turned back to Harry, swinging her silvery sheet of hair so that it whipped Mrs. Weasley across the face.

“Bill and I are going to be married!”

“Oh,” said Harry blankly. He could not help noticing how Mrs. Weasley, Hermione, and Ginny were all determinedly avoiding one another’s gaze. “Wow. Er – congratulations!”

She swooped down upon him and kissed him again.

“Bill is very busy at ze moment, working very ‘ard, and I only work part-time at Gringotts for my Eenglish, so he brought me ‘ere for a few days to get to know ‘is family properly. I was so pleased to ‘ear you would be coming – zere isn’t much to do ‘ere, unless you like cooking and chickens! Well – enjoy your breakfast, ‘Arry!”

With these words she turned gracefully and seemed to float out of the room, closing the door quietly behind her.

Mrs. Weasley made a noise that sounded like “tchah!”

“Mum hates her,” said Ginny quietly.

“I do not hate her!” said Mrs. Weasley in a cross whisper. “I just think they’ve hurried into this engagement, that’s all!”

“They’ve known each other a year,” said Ron, who looked oddly groggy and was staring at the closed door.

“Well, that’s not very long! I know why it’s happened, of course. It’s all this uncertainty with You-Know-Who coming back, people think they might be dead tomorrow, so they’re rushing all sorts of decisions they’d normally take time over. It was the same last time he was powerful, people eloping left, right, and center –”

“Including you and Dad,” said Ginny slyly.

“Yes, well, your father and I were made for each other, what was the point in waiting?” said Mrs. Weasley.

“Whereas Bill and Fleur ... well ... what have they really got in common? He’s a hardworking, down-toearth sort of person, whereas she’s –”

“A cow,” said Ginny, nodding. “But Bill’s not that down-to-earth. He’s a Curse-Breaker, isn’t he, he likes a bit of adventure, a bit of glamour. ... I expect that’s why he’s gone for Phlegm.”

"Stop calling her that, Ginny," said Mrs. Weasley sharply, as Harry and Hermione laughed. "Well, I'd better get on. ... Eat your eggs while they're warm, Harry."

Looking careworn, she left the room. Ron still seemed slightly punch-drunk; he was shaking his head experimentally like a dog trying to rid its ears of water.

"Don't you get used to her if she's staying in the same house?" Harry asked.

"Well, you do," said Ron, "but if she jumps out at you unexpectedly, like then ..."

"It's pathetic," said Hermione furiously, striding away from Ron as far as she could go and turning to face him with her arms folded once she had reached the wall.

"You don't really want her around forever?" Ginny asked Ron incredulously. When he merely shrugged, she said, "Well, Mum's going to put a stop to it if she can, I bet you anything."

"How's she going to manage that?" asked Harry.

"She keeps trying to get Tonks round for dinner. I think she's hoping Bill will fall for Tonks instead. I hope he does, I'd much rather have her in the family."

"Yeah, that'll work," said Ron sarcastically. "Listen, no bloke in his right mind's going to fancy Tonks when Fleur's around. I mean, Tonks is okay-looking when she isn't doing stupid things to her hair and her nose, but —"

"She's a damn sight nicer than Phlegm, ' ' said Ginny

"And she's more intelligent, she's an Auror!" said Hermione from the corner.

"Fleur's not stupid, she was good enough to enter the Triwizard Tournament," said Harry.

"Not you as well!" said Hermione bitterly.

"I suppose you like the way Phlegm says ' 'Arry,' do you?" asked Ginny scornfully.

"No," said Harry, wishing he hadn't spoken, "I was just saying, Phlegm — I mean, Fleur —"

"I'd much rather have Tonks in the family," said Ginny. "At least she's a laugh."

"She hasn't been much of a laugh lately," said Ron.

"Every time I've seen her she's looked more like Moaning Myrtle."

"That's not fair," snapped Hermione. "She still hasn't got over what happened ... you know ... I mean, he was her cousin!"

Harry's heart sank. They had arrived at Sirius. He picked up a fork and began shoveling scrambled eggs into his mouth, hoping to deflect any invitation to join

in this part of the conversation.

"Tonks and Sirius barely knew each other!" said Ron.

"Sirius was in Azkaban half her life and before that their families never met –"

"That's not the point," said Hermione. "She thinks it was her fault he died!"

"How does she work that one out?" asked Harry, in spite of himself.

"Well, she was fighting Bellatrix Lestrange, wasn't she? I think she feels that if only she had finished her off, Bellatrix couldn't have killed Sirius."

"That's stupid," said Ron.

"It's survivor's guilt," said Hermione. "I know Lupin's tried to talk her

round, but she's still really down.

She's actually having trouble with her Metamorphosing!"

"With her – ?"

"She can't change her appearance like she used to," explained Hermione. "I think her powers must have been affected by shock, or something."

"I didn't know that could happen," said Harry.

"Nor did I," said Hermione, "but I suppose if you're really depressed ..."

The door opened again and Mrs. Weasley popped her head in. "Ginny," she whispered, "come downstairs and help me with the lunch."

"I'm talking to this lot!" said Ginny, outraged.

"Now!" said Mrs. Weasley, and withdrew.

"She only wants me there so she doesn't have to be alone with Phlegm!" said Ginny crossly. She swung her long red hair around in a very good imitation of Fleur and pranced across the room with her arms held aloft like a ballerina.

"You lot had better come down quickly too," she said as she left.

Harry took advantage of the temporary silence to eat more breakfast. Hermione was peering into Fred and George's boxes, though every now and then she cast sideways looks at Harry. Ron, who was now helping himself to Harry's toast, was still gazing dreamily at the door.

"What's this?" Hermione asked eventually, holding up what looked like a small telescope.

"Dunno," said Ron, "but if Fred and George've left it here, it's probably not ready for the joke shop yet, so be careful."

"Your mum said the shop's going well," said Harry.

"Said Fred and George have got a real flair for business."

"That's an understatement," said Ron. "They're raking in the Galleons! I can't wait to see the place, we haven't been to Diagon Alley yet, because Mum says Dad's got to be there for extra security and he's been really busy at work, but it sounds excellent."

"And what about Percy?" asked Harry; the thirdeldest Weasley brother had fallen out with the rest of the family. "Is he talking to your mum and dad again?"

"Nope," said Ron.

"But he knows your dad was right all along now about Voldemort being back —"

"Dumbledore says people find it far easier to forgive others for being wrong than being right," said Hermione. "I heard him telling your mum, Ron."

"Sounds like the sort of mental thing Dumbledore would say," said Ron.

"He's going to be giving me private lessons this year," said Harry conversationally.

Ron choked on his bit of toast, and Hermione gasped.

"You kept that quiet!" said Ron.

"I only just remembered," said Harry honestly. "He told me last night in your broom shed."

"Blimey ... private lessons with Dumbledore!" said Ron, looking impressed. "I wonder why he's ... ?"

His voice tailed away. Harry saw him and Hermione exchange looks. Harry laid down his knife and fork, his heart beating rather fast considering that all he was doing was sitting in bed. Dumbledore had said to do it. ... Why not now? He fixed his eyes on his fork, which was gleaming in the sunlight streaming into his lap, and said, "I don't know exactly why he's going to be giving me lessons, but I think it must be because of the prophecy."

Neither Ron nor Hermione spoke. Harry had the impression that both had frozen. He continued, still speaking to his fork, "You know, the one they were trying to steal at the Ministry."

"Nobody knows what it said, though," said Hermione quickly. "It got smashed."

"Although the Prophet says —" began Ron, but Hermione said, "Shh!"

"The Prophet's got it right," said Harry, looking up at them both with a great effort: Hermione seemed frightened and Ron amazed. "That glass ball that smashed wasn't the only record of the prophecy. I heard the whole thing in Dumbledore's office, he was

the one the prophecy was made to, so he could tell me. From what it said," Harry took a deep breath, "it looks like I'm the one who's got to finish off Voldemort. ... At least, it said neither of us could live while the other survives."

The three of them gazed at one another in silence for a moment. Then there was a loud bang and Hermione vanished behind a puff of black smoke.

"Hermione!" shouted Harry and Ron; the breakfast tray slid to the floor with a crash.

Hermione emerged, coughing, out of the smoke, clutching the telescope and sporting a brilliantly purple black eye.

"I squeezed it and it – it punched me!" she gasped. And sure enough, they now saw a tiny fist on a long spring protruding from the end of the telescope.

"Don't worry," said Ron, who was plainly trying not to laugh, "Mum'll fix that, she's good at healing minor injuries –"

"Oh well, never mind that now!" said Hermione hastily. "Harry, oh, Harry ..."

She sat down on the edge of his bed again.

"We wondered, after we got back from the Ministry ... Obviously, we didn't want to say anything to you, but from what Lucius Malfoy said about the prophecy, how it was about you and Voldemort, well, we thought it might be something like this. ... Oh, Harry ..." She stared at him, then whispered, "Are you scared?"

"Not as much as I was," said Harry. "When I first heard it, I was ... but now, it seems as though I always knew I'd have to face him in the end. ..."

"When we heard Dumbledore was collecting you in person, we thought he might be telling you something

```
pip install pyspellchecker==0.5.6
```

```
Collecting pyspellchecker==0.5.6
```

```
Obtaining dependency information for pyspellchecker==0.5.6 from
https://files.pythonhosted.org/packages/6f/9d/5bb403decde661abc6c54673
19a0729d7c238e04d8217d9fef885510ec9d/pyspellchecker-0.5.6-py2.py3-
none-any.whl.metadata
```

```
Downloading pyspellchecker-0.5.6-py2.py3-none-any.whl.metadata (8.1
kB)
```

```
Downloading pyspellchecker-0.5.6-py2.py3-none-any.whl (2.5 MB)
```

```
----- 0.0/2.5 MB ? eta -:--:--
```

```
----- 0.0/2.5 MB ? eta -:--:--
```

```
----- 0.0/2.5 MB 640.0 kB/s eta
```

```

0:00:04
----- 0.2/2.5 MB 1.8 MB/s eta
0:00:02
----- 0.4/2.5 MB 2.9 MB/s eta
0:00:01
----- 0.6/2.5 MB 3.5 MB/s eta
0:00:01
----- 0.9/2.5 MB 3.9 MB/s eta
0:00:01
----- 1.0/2.5 MB 4.0 MB/s eta
0:00:01
----- 1.0/2.5 MB 4.0 MB/s eta
0:00:01
----- 1.0/2.5 MB 4.0 MB/s eta
0:00:01
----- 1.6/2.5 MB 4.0 MB/s eta
0:00:01
----- 1.6/2.5 MB 4.0 MB/s eta
0:00:01
----- 1.9/2.5 MB 3.8 MB/s eta
0:00:01
----- 2.2/2.5 MB 4.1 MB/s eta
0:00:01
----- 2.4/2.5 MB 4.1 MB/s eta
0:00:01
----- 2.5/2.5 MB 4.1 MB/s eta
0:00:01
----- 2.5/2.5 MB 4.0 MB/s eta
0:00:00

```

Installing collected packages: pyspellchecker

Attempting uninstall: pyspellchecker

Found existing installation: pyspellchecker 0.8.1

Uninstalling pyspellchecker-0.8.1:

Successfully uninstalled pyspellchecker-0.8.1

Successfully installed pyspellchecker-0.5.6

Note: you may need to restart the kernel to use updated packages.

Step 2: Importing necessary libraries

```

import re
from spellchecker import SpellChecker
spell = SpellChecker(distance=1) # set at initialization
spell.distance = 2 # set the distance parameter back to the default
def extract_non_english_words(filename):
    non_english_word_count = {} # Dictionary to hold non-English
words and their counts
    # Read the file
    with open(filename, 'r', encoding='utf-8') as file:
        for line in file:
            # Use regex to find words
            # regex (regular expressions) is a sequence of characters

```



```

that defines a search pattern
    # Regular expressions are widely used for pattern matching
    within strings, especially in tasks like text processing, data
    cleaning, and searching for patterns.
    words = re.findall(r'\b\w+\b', line)
    for word in words:
        # Check if the word is not in the English dictionary
        if word.lower() not in spell:
            # Add to the dictionary or increment the count
            word_lower = word.lower()
            if word_lower in non_english_word_count:
                non_english_word_count[word_lower] += 1
            else:
                non_english_word_count[word_lower] = 1

    return non_english_word_count
# Specify the filename
filename = 'file2.txt'
# Extracting non-English words and their counts
non_english_word_count = extract_non_english_words(filename)
# Print the non-English words and their counts
print("Non-English words found with their counts:")
for word, count in non_english_word_count.items():
    print(f"{word}: {count}")

```

Non-English words found with their counts:

```

t: 24
s: 61
ll: 3
plonking: 1
d: 6
mrs: 11
weasley: 12
bedcovers: 1
delacour: 1
seester: 1
reproachfully: 1
gringotts: 1
eenglish: 1
tchah: 1
incredulously: 1
tonks: 6
auror: 1
triwizard: 1
bellatrix: 2
lestrange: 1
metamorphosing: 1
m: 2
crossly: 1
diagon: 1

```

```
shh: 1  
malfoy: 1
```