Experiment No : 3

```python
import nltk

from nltk.stem import WordNetLemmatizer

from nltk.corpus import wordnet as wn

dict1={'CC':'coordinating conjunction','CD':'cardinal
digit','DT':'determiner','EX':'existentialthere','FW':'foreign word','IN':'preposition/subordinating
conjunction','JJ':'adjective'big'','JJR':'adjective, comparative 'bigger'','JJS':'adjective, superlative
'biggest'','LS':'listmarker','MD':'modal','NN':'noun, singular','NNS':'noun plural ','NNP':'proper
noun,singular','NNPS':'proper noun,
plural','PDT':'predeterminer','POS':'possessive','PRP':'personal
pronoun','PRP$':'possessivepronoun','RB':'adverb','RBR':'adverb, comparative','RBS':'adverb,
superlative','RP':'particle','TO':'to go','UH':'interjection','VB':'verb, base','VBD':'verb,
pasttense','VBG':'verb, gerund/present participle','VBN':'verb, past
participle','VBP':'verbpresent','VBZ':'verb, 3rd person ','WDT':'wh-determiner','WP':'wh-
pronoun','WP$':'possessive wh-pronoun','WRB':'wh-abverb'}


wordnet_lemmatizer = WordNetLemmatizer()

f = open("C:/Users/MY/Desktop/New folder/song.txt", "r")

if f.mode == 'r':

        sentence = f.read()

punctuations="?:!.,;$()[]*&@#"

sentence_words = nltk.word_tokenize(sentence)

for word in sentence_words:

        if word in punctuations:

                sentence_words.remove(word)


def pos(dict1,ab):

        for j in dict1:
```

```python
            if(ab==j):
                    print('Part of Speech: ',dict1[j])


def forms(word):
        forms = set()
        for k in wn.lemmas(word):
                forms.add(k.name())
                for related_lemma in k.derivationally_related_forms():
                        forms.add(related_lemma.name())


        print('Forms: ',forms)
tagged = nltk.pos_tag(sentence_words)


ab=[lis[1] for lis in tagged]
num=0
for word in sentence_words:
        print(word)
        print("Lemma: ",wordnet_lemmatizer.lemmatize(word, pos="v"))
        temp=ab[num]
        pos(dict1,temp)
        num=num+1
        forms(word)
        print()
```

Output:

C:\Users\MY\Desktop>python exp1.py

Input :

"Look at her face, it's a wonderful face

And it means something special to me

Look at the way that she smiles when she sees me

How lucky can one fellow be?

She's just my kind of girl, she makes me feel fine

Who could ever believe that she could be mine?

She's just my kind of girl, without her I'm blue

And if she ever leaves me what could I do, what could I do?

And when we go for a walk in the park

And she holds me and squeezes my hand

We'll go on walking for hours and talking

About all the things that we plan

She's just my kind of girl, she makes me feel fine

Who could ever believe that she could be mine?

She's just my kind of girl, without her I'm blue

And if she ever leaves me what could I do, what could I do?

"

C:\Users\MY\Desktop>python exp1.py

``

Lemma: ``

Forms: set()

Look

Lemma: Look

Part of Speech: verb, base

Forms: {'looker', 'look'}

at

Lemma: at

Part of Speech: preposition/subordinating conjunction

Forms: {'at', 'At'}

her

Lemma: her

Part of Speech: personal pronoun

Forms: set()

face

Lemma: face

Part of Speech: verbpresent

Forms: {'facial', 'facing', 'face'}

it

Lemma: it

Part of Speech: personal pronoun

Forms: {'IT'}

's

Lemma: 's

Part of Speech: verb, 3rd person

Forms: set()

a

Lemma: a

Part of Speech: determiner

Forms: {'a', 'A'}

wonderful

Lemma: wonderful

Part of Speech: adjective'big'

Forms: {'wonderful', 'wonderfulness'}

face

Lemma: face

Part of Speech: noun, singular

Forms: {'facial', 'facing', 'face'}

And

Lemma: And

Part of Speech: coordinating conjunction

Forms: set()

it

Lemma: it

Part of Speech: personal pronoun

Forms: {'IT'}

means

Lemma: mean

Part of Speech: verb, 3rd person

Forms: {'means'}

something

Lemma: something

Part of Speech: noun, singular

Forms: set()

special

Lemma: special

Part of Speech: adjective'big'

Forms: {'specialness', 'speciality', 'special'}

to

Lemma: to

Part of Speech: to go

Forms: set()

me

Lemma: me

Part of Speech: personal pronoun

Forms: {'ME'}

Look

Lemma: Look

Part of Speech: verb, base

Forms: {'looker', 'look'}

at

Lemma: at

Part of Speech: preposition/subordinating conjunction

Forms: {'at', 'At'}

the

Lemma: the

Part of Speech: determiner

Forms: set()

way

Lemma: way

Part of Speech: noun, singular

Forms: {'way'}

that

Lemma: that

Part of Speech: preposition/subordinating conjunction

Forms: set()

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

smiles

Lemma: smile

Part of Speech: verb, 3rd person

Forms: set()

when

Lemma: when

Part of Speech: wh-abverb

Forms: set()

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

sees

Lemma: see

Part of Speech: verb, 3rd person

Forms: set()

me

Lemma: me

Part of Speech: personal pronoun

Forms: {'ME'}

How

Lemma: How

Part of Speech: wh-abverb

Forms: set()

lucky

Lemma: lucky

Part of Speech: adjective'big'

Forms: {'luckiness', 'luck', 'lucky'}

can

Lemma: can

Part of Speech: modal

Forms: {'can', 'cannery'}

one

Lemma: one

Part of Speech: cardinal digit

Forms: {'one', 'oneness'}

fellow

Lemma: fellow

Part of Speech: noun, singular

Forms: {'fellow', 'fellowship'}

be

Lemma: be

Part of Speech: verb, base

Forms: {'be', 'being', 'Be'}

She

Lemma: She

Part of Speech: personal pronoun

Forms: set()

's

Lemma: 's

Part of Speech: verb, 3rd person

Forms: set()

just

Lemma: just

Part of Speech: adverb

Forms: {'just', 'justness'}

my

Lemma: my

Part of Speech: possessivepronoun

Forms: set()

kind

Lemma: kind

Part of Speech: noun, singular

Forms: {'kindness', 'kind'}

of

Lemma: of

Part of Speech: preposition/subordinating conjunction

Forms: set()

girl

Lemma: girl

Part of Speech: noun, singular

Forms: {'girlhood', 'girl'}

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

makes

Lemma: make

Part of Speech: verb, 3rd person

Forms: set()

me

Lemma: me

Part of Speech: personal pronoun

Forms: {'ME'}

feel

Lemma: feel

Part of Speech: verb, base

Forms: {'feeler', 'feel', 'feelings', 'feeling'}

fine

Lemma: fine

Part of Speech: noun plural

Forms: {'fineness', 'fine'}

Who

Lemma: Who

Part of Speech: proper noun,singular

Forms: {'WHO'}

could

Lemma: could

Part of Speech: modal

Forms: set()

ever

Lemma: ever

Part of Speech: adverb

Forms: {'ever'}

believe

Lemma: believe

Part of Speech: verb, base

Forms: {'believer', 'believe', 'believable', 'belief'}

that

Lemma: that

Part of Speech: preposition/subordinating conjunction

Forms: set()

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

could

Lemma: could

Part of Speech: modal

Forms: set()

be

Lemma: be

Part of Speech: verb, base

Forms: {'be', 'being', 'Be'}

mine

Lemma: mine

Part of Speech: adjective'big'

Forms: {'mine', 'miner', 'mining'}

She

Lemma: She

Part of Speech: personal pronoun

Forms: set()

's

Lemma: 's

Part of Speech: verb, 3rd person

Forms: set()

just

Lemma: just

Part of Speech: adverb

Forms: {'just', 'justness'}

my

Lemma: my

Part of Speech: possessivepronoun

Forms: set()

kind

Lemma: kind

Part of Speech: noun, singular

Forms: {'kindness', 'kind'}

of

Lemma: of

Part of Speech: preposition/subordinating conjunction

Forms: set()

girl

Lemma: girl

Part of Speech: noun, singular

Forms: {'girlhood', 'girl'}

without

Lemma: without

Part of Speech: preposition/subordinating conjunction

Forms: set()

her

Lemma: her

Part of Speech: possessivepronoun

Forms: set()

I

Lemma: I

Part of Speech: personal pronoun

Forms: {'I', 'i'}

'm

Lemma: 'm

Part of Speech: verbpresent

Forms: set()

blue

Lemma: blue

Part of Speech: adjective'big'

Forms: {'bluing', 'blueness', 'blue'}

And

Lemma: And

Part of Speech: coordinating conjunction

Forms: set()

if

Lemma: if

Part of Speech: preposition/subordinating conjunction

Forms: set()

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

ever

Lemma: ever

Part of Speech: adverb

Forms: {'ever'}

leaves

Lemma: leave

Part of Speech: verb, 3rd person

Forms: set()

me

Lemma: me

Part of Speech: personal pronoun

Forms: {'ME'}

what

Lemma: what

Part of Speech: wh-pronoun

Forms: set()

could

Lemma: could

Part of Speech: modal

Forms: set()

I

Lemma: I

Part of Speech: personal pronoun

Forms: {'I', 'i'}

do

Lemma: do

Part of Speech: verb, base

Forms: {'do', 'doer', 'DO'}

what

Lemma: what

Part of Speech: wh-pronoun

Forms: set()

could

Lemma: could

Part of Speech: modal

Forms: set()

I

Lemma: I

Part of Speech: personal pronoun

Forms: {'I', 'i'}

do

Lemma: do

Part of Speech: verb, base

Forms: {'do', 'doer', 'DO'}

And

Lemma: And

Part of Speech: coordinating conjunction

Forms: set()

when

Lemma: when

Part of Speech: wh-abverb

Forms: set()

we

Lemma: we

Part of Speech: personal pronoun

Forms: set()

go

Lemma: go

Part of Speech: verbpresent

Forms: {'goer', 'going', 'go'}

for

Lemma: for

Part of Speech: preposition/subordinating conjunction

Forms: set()

a

Lemma: a

Part of Speech: determiner

Forms: {'a', 'A'}

walk

Lemma: walk

Part of Speech: noun, singular

Forms: {'walking', 'walker', 'walk'}

in

Lemma: in

Part of Speech: preposition/subordinating conjunction

Forms: {'IN', 'In', 'in'}

the

Lemma: the

Part of Speech: determiner

Forms: set()

park

Lemma: park

Part of Speech: noun, singular

Forms: {'Park', 'park', 'parking'}

And

Lemma: And

Part of Speech: coordinating conjunction

Forms: set()

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

holds

Lemma: hold

Part of Speech: verb, 3rd person

Forms: set()

me

Lemma: me

Part of Speech: personal pronoun

Forms: {'ME'}

and

Lemma: and

Part of Speech: coordinating conjunction

Forms: set()

squeezes

Lemma: squeeze

Part of Speech: verb, base

Forms: set()

my

Lemma: my

Part of Speech: possessivepronoun

Forms: set()

hand

Lemma: hand

Part of Speech: noun, singular

Forms: {'hand'}

We

Lemma: We

Part of Speech: personal pronoun

Forms: set()

'll

Lemma: 'll

Part of Speech: modal

Forms: set()

go

Lemma: go

Part of Speech: verb, base

Forms: {'goer', 'going', 'go'}

on

Lemma: on

Part of Speech: preposition/subordinating conjunction

Forms: {'on'}

walking

Lemma: walk

Part of Speech: verb, gerund/present participle

Forms: {'walking', 'walk'}

for

Lemma: for

Part of Speech: preposition/subordinating conjunction

Forms: set()

hours

Lemma: hours

Part of Speech: noun plural

Forms: {'hours'}

and

Lemma: and

Part of Speech: coordinating conjunction

Forms: set()

talking

Lemma: talk

Part of Speech: verb, gerund/present participle

Forms: {'talking', 'talk'}

About

Lemma: About

Part of Speech: preposition/subordinating conjunction

Forms: {'about'}

all

Lemma: all

Part of Speech: predeterminer

Forms: {'all'}

the

Lemma: the

Part of Speech: determiner

Forms: set()

things

Lemma: things

Part of Speech: noun plural

Forms: {'things'}

that

Lemma: that

Part of Speech: preposition/subordinating conjunction

Forms: set()

we

Lemma: we

Part of Speech: personal pronoun

Forms: set()

plan

Lemma: plan

Part of Speech: verbpresent

Forms: {'plan', 'planner', 'planning'}

She

Lemma: She

Part of Speech: personal pronoun

Forms: set()

's

Lemma: 's

Part of Speech: verb, 3rd person

Forms: set()

just

Lemma: just

Part of Speech: adverb

Forms: {'just', 'justness'}

my

Lemma: my

Part of Speech: possessivepronoun

Forms: set()

kind

Lemma: kind

Part of Speech: noun, singular

Forms: {'kindness', 'kind'}

of

Lemma: of

Part of Speech: preposition/subordinating conjunction

Forms: set()

girl

Lemma: girl

Part of Speech: noun, singular

Forms: {'girlhood', 'girl'}

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

makes

Lemma: make

Part of Speech: verb, 3rd person

Forms: set()

me

Lemma: me

Part of Speech: personal pronoun

Forms: {'ME'}

feel

Lemma: feel

Part of Speech: verb, base

Forms: {'feeler', 'feel', 'feelings', 'feeling'}

fine

Lemma: fine

Part of Speech: noun plural

Forms: {'fineness', 'fine'}

Who

Lemma: Who

Part of Speech: proper noun,singular

Forms: {'WHO'}

could

Lemma: could

Part of Speech: modal

Forms: set()

ever

Lemma: ever

Part of Speech: adverb

Forms: {'ever'}

believe

Lemma: believe

Part of Speech: verb, base

Forms: {'believer', 'believe', 'believable', 'belief'}

that

Lemma: that

Part of Speech: preposition/subordinating conjunction

Forms: set()

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Lemma: she

Part of Speech: personal pronoun

Forms: set()

could

Lemma: could

Part of Speech: modal

Forms: set()

be

Lemma: be

Part of Speech: verb, base

Forms: {'be', 'being', 'Be'}

mine

Lemma: mine

Part of Speech: adjective'big'

Forms: {'mine', 'miner', 'mining'}

She

Lemma: She

Part of Speech: personal pronoun

Forms: set()

's

Lemma: 's

Part of Speech: verb, 3rd person

Forms: set()

just

Lemma: just

Part of Speech: adverb

Forms: {'just', 'justness'}

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Lemma: my

Part of Speech: possessivepronoun

Forms: set()

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Lemma: kind

Part of Speech: noun, singular

Forms: {'kindness', 'kind'}

of

Lemma: of

Part of Speech: preposition/subordinating conjunction

Forms: set()

girl

Lemma: girl

Part of Speech: noun, singular

Forms: {'girlhood', 'girl'}

without

Lemma: without

Part of Speech: preposition/subordinating conjunction

Forms: set()

her

Lemma: her

Part of Speech: possessivepronoun

Forms: set()

I

Lemma: I

Part of Speech: personal pronoun

Forms: {'I', 'i'}

'm

Lemma: 'm

Part of Speech: verbpresent

Forms: set()

blue

Lemma: blue

Part of Speech: adjective'big'

Forms: {'bluing', 'blueness', 'blue'}

And

Lemma: And

Part of Speech: coordinating conjunction

Forms: set()

if

Lemma: if

Part of Speech: preposition/subordinating conjunction

Forms: set()

she

Lemma: she

Part of Speech: personal pronoun

Forms: set()

ever

Lemma: ever

Part of Speech: adverb

Forms: {'ever'}

leaves

Lemma: leave

Part of Speech: verb, 3rd person

Forms: set()

me

Lemma: me

Part of Speech: personal pronoun

Forms: {'ME'}

what

Lemma: what

Part of Speech: wh-pronoun

Forms: set()

could

Lemma: could

Part of Speech: modal

Forms: set()

I

Lemma: I

Part of Speech: personal pronoun

Forms: {'I', 'i'}

do

Lemma: do

Part of Speech: verb, base

Forms: {'do', 'doer', 'DO'}

what

Lemma: what

Part of Speech: wh-pronoun

Forms: set()

could

Lemma: could

Part of Speech: modal

Forms: set()

I

Lemma: I

Part of Speech: personal pronoun

Forms: {'I', 'i'}

do

Lemma: do

Part of Speech: verb, base

Forms: {'do', 'doer', 'DO'}

"

Lemma: "

Forms: set()