Lyrics Generator Using Character Level Model

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***Abstract*—This paper is about the generation of lyrics from a chosen genre. Five genre choices can be made, Pop, Hip-hop, Rock, Country, and Blues. User enters a few words and generate more lyrics from there.**

Keywords—genre, lyrics, pop, rock, country, blues, hip-hop

I. Introduction

Song is one of the essential entertainments and part of human's life but writing a lyric for a song requires creativity to construct a meaningful, interesting story and lyrical skill to produce a good rhyme pattern and form a good flow. This lyric generator project aims to build a system that will automatically generate text by completing the sentences entered by the user. This system will have 5 categories of song that liaise with the generation of the lyrics. The 5 categories of song are Pop, Hip-hop, Rock, Country, and Blues. Character-level model was used in this system to predict the upcoming character to complete the whole lyrics which is commonly used in and NLP related systems.

II. Related work

A. Generating lyrics using rhythm

Tra-la-la-lyrics is a system that is built for the generation of lyrics according to a particular pre-generated melody. The relationship between words, the musical beat of melodies, and rhymes was studied by Oliveira, Cardoso, and Pereira. They implemented various algorithms which performed the division of syllables and can recognize the 'syllabic stress' on a specific word. They also set up a database which intended to store words and form of grammar. Unfortunately, their result was not pleasant.

B. Generation of rap lyrics

A Rap Lyrics Generator was developed by Nguyen and Sa. A database of around 40,000 existing rap lyrics was used in this program. From the words and verses found in the existing lyrics, a new lyric is then generated. To create the lyrics, a linear-interpolated trigram model approach was used. However, the result was graded as lacking flow. Therefore, they shift to a quad gram model. They also implemented a database containing rhyming phrases from two separate sentences. They produced sentences in this manner that rhyme with each other. Finally, all the sentences were written together according to the song structure and arrangement. The generator worked well but it was not applicable to the content of the lyrics and did not relate to a specific theme.

C. Automated generation of poems

WASP (Wishful Automatic Spanish Poet) was the first poem generating program that merged natural language generation techniques with artificial intelligence. It is a system that receives user inputs and these were used as seeds. The system is a forward reasoning rule-based system. The results obtained were assessed as being poor and not very efficient.

D. Semantic similarity in song lyrics Logan

Kositsky and Moreno experimented on the use of lyrics to automatically identify and classify music and to assess artist similarity. Song lyrics were collected from various kinds of sources on the internet to evaluate the content and semantics of the lyrics, various techniques such as the PLSA (Probabilistic Latent Semantic Analysis) and the k-means clustering methods were used. To check their similarity, evaluation was carried out by matching the system together with another audio system. Both techniques used had their pros and cons. Hence, a combination of the two methods could prove to be much better but this was left to work in future.

E. Natural language processing and lyrics generation

Mahedero, Martinez and Cano implemented basic natural language processing tools to analyze song lyrics. Experiments were carried out on the lyrics to identify the languages, to classify them according to various themes, to extract the structure and to search for similarity between them. A sample of 500 lyrics was chosen from few websites. Italian, Spanish, German, French and English were the languages that were used. The results achieved 92% accurate. A Naive Bayes classifier was used. The Inverse Document Frequency (IDF) and Cosine distance was used to measure similarity. The identification of languages proved to be a simpler task compared to the others.

III. System functionalities

A. Workflow

The system includes several functionalities including creating a dataset, pre-processing text, one-hot encoding, training the model, evaluating the model getting user input and predicting the lyrics based on the genre selected. Figure 1 shows the workflow for the system.

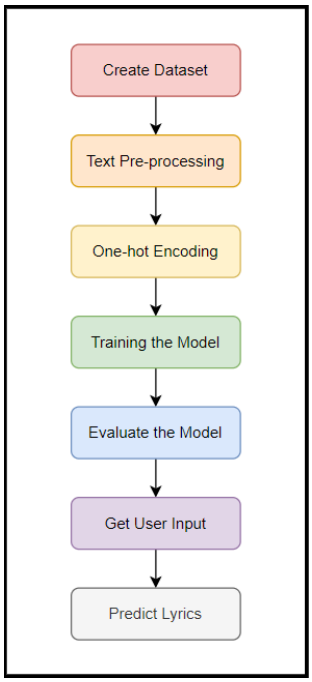
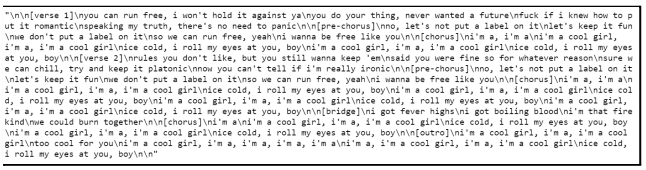


Figure 1: System Workflow

First, we create the dataset using Spotify and Genius API. Songs from five different genres are retrieved from Spotify's API and the lyrics for those songs are retrieve from Genius website using web scraping. The song names, and their respective artist name, genre and lyrics are then stored and exported into a csv file. Figure 2 shows the example of the raw lyrics extracted.



```
"\n\n[verse 1]\nyou can run free, i won't hold it against ya\nyou do your thing, never wanted a future\nfuck if i knew how to p
ut it romantic\nspeaking my truth, there's no need to panic\n\n[pre-chorus]\nno, let's not put a label on it\nlet's keep it fun
\nwe don't put a label on it\nso we can run free, yeah\ni wanna be free like you\n\n[chorus]\ni'm a, i'm a\ni'm a cool girl,
i'm a, i'm a cool girl\nice cold, i roll my eyes at you, boy\ni'm a cool girl, i'm a, i'm a cool girl\nice cold, i roll my eyes
at you, boy\n\n[verse 2]\nrules you don't like, but you still wanna keep 'em\nsaid you were fine so for whatever reason\nsure u
e can chill, try and keep it platonic\nnow you can't tell if i'm really ironic\n\n[pre-chorus]\nno, let's not put a label on it
\nlet's keep it fun\nwe don't put a label on it\nso we can run free, yeah\ni wanna be free like you\n\n[chorus]\ni'm a, i'm a\n
i'm a cool girl, i'm a, i'm a cool girl\nice cold, i roll my eyes at you, boy\ni'm a cool girl, i'm a, i'm a cool girl\nice col
d, i roll my eyes at you, boy\ni'm a cool girl, i'm a, i'm a cool girl\nice cold, i roll my eyes at you, boy\ni'm a cool girl,
i'm a, i'm a cool girl\nice cold, i roll my eyes at you, boy\n\n[bridge]\ni got fever highs\ni got boiling blood\ni'm that fire
kind\nwe could burn together\n\n[chorus]\ni'm a\ni'm a cool girl, i'm a, i'm a cool girl\nice cold, i roll my eyes at you, boy
\ni'm a cool girl, i'm a, i'm a cool girl\nice cold, i roll my eyes at you, boy\n\n[outro]\ni'm a cool girl, i'm a, i'm a cool
girl\ntoo cool for you\ni'm a cool girl, i'm a, i'm a, i'm a, i'm a\ni'm a, i'm a cool girl, i'm a, i'm a cool girl\nice cold,
i roll my eyes at you, boy\n\n"
```

Figure 2: Extracted Raw Lyrics

After that, we perform some text *pre-processing* by remove unnecessary items like symbols, numbers, punctuations, newline tag and extra whitespace. The words inside brackets like 'verse 1' and 'chorus' are not important, so we remove those as well.

We then train one model for each genre, each using different songs from the dataset. For example, the rock model will only be trained using songs from the rock genre. Once the model is trained complete, it's architecture and weights are then saved into a json and h5 file respectively.

The end product is a lyrics generator program. The user interface will be done using Tkinter to enable users to interact with it. Users are to choose a genre for the songs they want to write and input a few words as the seed for the model. Based on the genre chosen, the model will be loaded and used to predict the lyrics. Different models will show different results even though the seed entered by the user is the same. Output is then displayed to users.

B. Detailed Explanation of Algorithms Used

Before feeding the data in the model, we need to perform some pre-processing. Python's RegEx library is used to clean the lyrics. Figure 3 shows the implementation of cleaning the lyrics.

```
cleaned = re.sub("[\(\[].*?[\)\]]", " ", lyr) # remove words inside brackets
cleaned_1 = re.sub(r"\n"," ",cleaned) # remove newline
cleaned_2 = re.sub('[^a-zA-Z]'," ", cleaned_1) # remove punctuaction and numbers
cleaned_3 = re.sub(r' +', ' ', cleaned_2) # remove extra whitespace
```

Figure 3: Cleaning the lyrics

Character level model is used for this project. The input will be a series of characters called seed. The model will be used to predict the next character that comes after. The seed and next character is then used together to generate the next character. Since the input shape of the network needs to be the same, after adding the new character into the seed, the first character of the original seed will be discarded. This process is then repeated for several iterations until the desired length of character is reached. Figure 3 shows the visual representation of the process. The network takes in the seed length of 20 characters. The original input seed is "Tryna_keep_it_simple" , on each iteration a new character is generated and added to the seed, the first character is discarded to maintain the 20 character input length. The process ran for 21 iterations. The model predicted "_is_a_struggle_for_me" based on the input given.

Basic Character-level model overview

seed length: 20 characters

seed		new_char
Tryna_keep_it_simple	>>>	_
ryna_keep_it_simple_	>>>	i
yna_keep_it_simple_i	>>>	s
na_keep_it_simple_is	>>>	_
a_keep_it_simple_is_	>>>	a
_keep_it_simple_is_a	>>>	_
keep_it_simple_is_a_	>>>	s
eep_it_simple_is_a_s	>>>	t
ep_it_simple_is_a_st	>>>	r
p_it_simple_is_a_str	>>>	u
_it_simple_is_a_stru	>>>	g
it_simple_is_a_strug	>>>	g
t_simple_is_a_strugg	>>>	l
_simple_is_a_struggl	>>>	e
simple_is_a_struggle	>>>	_
imple_is_a_struggle_	>>>	f
mple_is_a_struggle_f	>>>	o
ple_is_a_struggle_fo	>>>	r
le_is_a_struggle_for	>>>	_
e_is_a_struggle_for_	>>>	m
_is_a_struggle_for_m	>>>	e
is_a_struggle_for_me		

Result:

Tryna_keep_it_simple_is_a_struggle_for_me

Figure 3: Model Overview

Although it seems complicated, this is just a multiclass classification problem. With the classes being the total number of distinct characters. The predicted output can be any of the 27 classes. Since we remove any non-alphabetical characters when we pre-process the data, our total number of distinct characters is 27, one of them being white space and the remaining 26 being the alphabets.

Before fitting the data into the model, we need to convert the characters to categorical values. This is done using one-hot encoding.

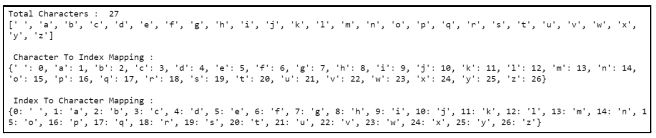


Figure 4: One-hot Encoding

The order of input is very important for this problem, so RNN is chosen as it takes into the temporal aspect of the problem. RNN creates a network that takes in consecutive inputs and also uses the activation from previous nodes as a parameter for the next one. Simple RNN encounters the problem that information from early cells are not likely to be passed on to later ones, so LSTMs layer is added to solve this problem by adding a little memory to every cell that stores some information about what happened before. Dense layer is then added for classification. Figure 5 shows the model architecture.

```
Model: "sequential_3"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
lstm_4 (LSTM)                (None, 20, 256)           290816
_________________________________________________________________
lstm_5 (LSTM)                (None, 128)               197120
_________________________________________________________________
dense_4 (Dense)              (None, 100)               12900
_________________________________________________________________
dense_5 (Dense)              (None, 27)                2727
=================================================================
Total params: 503,563
Trainable params: 503,563
Non-trainable params: 0
_________________________________________________________________
```

Figure 5: Model Architecture

The data is then ready to fit into the model to learn. An early stopping callback is used to stop training the model if the loss does not improve for 3 consecutive epochs.

To create some diversity and ensure that not always the same output is produced, Francois Chollet's keras text Tgeneration example provides a helper function sample to sample an index from a probability array. The function generates a multinomial distribution of predictions. The purpose is to add some randomness so that the most likely word is not always chosen. The parameter diversity is used by the sample function, which will randomly select the next most probable word from the softmax output. As a result, when diversity is low, there are a lot of repetitive words.

C. Screen Shots

How to use the system:

1. Run user interface.ipynb.
2. Choose the genre for the song you want to write.
3. Enter a few words (at least 20 characters)
4. Press Generate button and wait for results.
5. To generate another song lyric, click Reset and repeat 1 to 4.

Figure 6 shows the user interface for the Lyrics Generator program. Users must select the genre from the dropdown list and enter the seed.

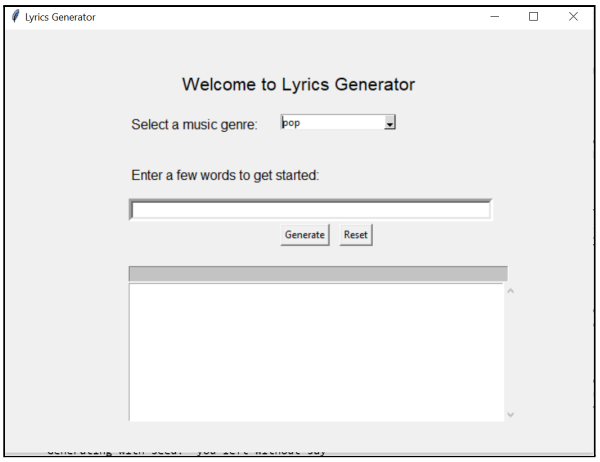


Figure 6: User Interface

A progress bar will load after the user clicks on the Generate button to show the progress. The output of is shown the bottom box. Users can also click the Reset button to clear all the input and enter generate another lyric. Figure 7 shows a sample input.

Figure 7: Sample Input and Output

Since the input shape of our model is 20 characters if the seed is less than that the model will not predict well. So, if the user enters less than 20 characters an error message will be shown. Figure 8 shows the error message.

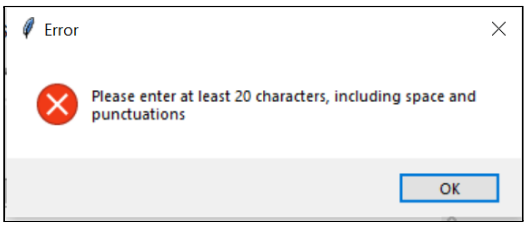


Figure 8: Error Message

IV. Results and Discussion

Table 1 shows the genres and the number of songs they have in the dataset, the epoch on which they stop training and their corresponding accuracy. Hip hop performed the

worst out of all probably because of the use of slang words and short forms that are hard to interpret.

Genre	Number of songs	Stops on epoch	Accuracy
Pop	505	214	91.96%
Rock	544	168	93.25%
Blues	530	145	95.50%
Hip Hop	506	36	71.38%
Country	630	107	87.22%

Table 1: Information and results on each genre

After the model is finished training, a function called predict_lyrics is used to get the input from the user and generate the lyrics with different diversity. Based on the results, we find that when higher diversity is used, the words produced are not accurate and some of them are spelled incorrectly or does not exist, the sentences do not make much sense too , so in the end we used diversity = 0.2 for the final system.

To ensure that the model performs the best, no matter how long the user input is, we will only take the first 20 characters, which is the same input shape that we used to train the model.

For example, Figures 9 to 13 are the outputs based on the seed "you left without saying" from different genres. "You left without saying" is shortened to only "you left without say". The final output length will be 400 characters.

A. Blues Model

```
----- diversity: 0.1
----- Generating with seed: "you left without say"
you left without say what s the only sinalers at stick with my friends i say what you re doing baby come over here i ll prove t
o you baby while the moon is shining breaking head saven that s good to me oh yeah my tears leady with the river and i m hip ca
ttly recon his deckin you just talk to all this time on this lenshi know she love me leave leave a little cholecaticless cewip
messing you call me home that s where a
----- diversity: 0.2
----- Generating with seed: "you left without say"
you left without say what s the time hey when the rain brother you go out off you it s high lord lee tell me lay down hey hey h
ey i m a voodoo child baby i don t got too pull the sun i want you to roll me like mother will wut on my mind i don t owe you a
thing i don t owe you a thing i don t owe you a thing baby i don t owe you a thing i don t owe you a thing baby i don t owe you
a thing i don t owe you a thing i don
----- diversity: 0.4
----- Generating with seed: "you left without say"
you left without say what they was crazy about you in the back yand i d better leave you or song i ve got my own everything tha
t i got the way that try yeah lord i m troubled i m all worried in mind yeah and i m never being satisfied and i just can t kee
p from crying sometimesoh momma she s dead and goneand i know i m all alonei can t keep from crying sometimeslater one of these
earies i am the call of the dayscare i
----- diversity: 0.6
----- Generating with seed: "you left without say"
you left without say what they was crazy about you sugar mama because you ease my worried mind i tried to give you consolis cri
ed don t have a soul not to make where that ain t lie away i ll take you way with me that rides and and that s expect as cut hi
s song well i turned whole i need to lie i m telling it s always here baby come the time that i plant him will hold you i m gon
na leave this town sally was for you to
----- diversity: 0.8
----- Generating with seed: "you left without say"
you left without say you want to darlin trlist me and my souland i could call her about with you um where you know oh may baby
oh oh oh oh swell for me now you can see it through the children crying hey baby don t you want to go annoletand my baby s gone
i m gonna leave the city got to get away all this fussin in light want to work that frontier s mother s ninelear fixing holleg
on down my mama i don t knowlord you g
----- diversity: 1.0
----- Generating with seed: "you left without say"
you left without say you will what s the devil starts to rock you better get some insury can t be worried he said what you alra
ded lim i how i feel like our love i need a soul baby hangin around my house when i m not home me the day i shot at studen is t
ears on me no more oh don t youyall my love s in vain the way i m booked i gotta go come on i m thinkin around my desire don t
ment nobody knows what i feeled inside
----- diversity: 1.2
----- Generating with seed: "you left without say"
you left without say hat a reck in and younger on kind breaker i ll do that the next woman you make her all the thing dance you
got me breat to you to youungecal it remains a little queen ins ease when i was ten years onderate i am so funny really take my
head crying won t help you babyyou can t she love you in my head hangin and you will make a high people for gook leaving here b
y my sinse is going to be rainin outd
```

Figure 9: Blues Model Sample Output

B. Country Model

```
----- diversity: 0.1
----- Generating with seed: "you left without say"
you left without sayi d hold my hand ween a shotgut the smile on your face sends a cold one and took you on anything that makes
you wanna sway eh eh hey eh eh hey oh oh ooh that makes you wanna sway eh eh hey eh eh hey oh oh ooh start by kid on sadnof tim
e and when i sail the same what s the key and i m tired of pretending i don t love you anymore she s qurnin and get lacedit mak
es me wanna take you downtown s summer
----- diversity: 0.2
----- Generating with seed: "you left without say"
you left without sayi d hold my hand ween a swing on swicked the words that you don t know how much longer i d be size this ain
t worth a thing i can t get through red bikei m sorry it s going to take my hand are you upwe can t be saying i m gonna meet he
r alone she didn t cowberwe ve seen her bed stares in the morning line enough to know i m a survivor you re crazy free through
we got a brand new way i like my thoug
----- diversity: 0.4
----- Generating with seed: "you left without say"
you left without say that i was goneshe s just like me and i m gonna make you miss me make you wish it s time to take a heart b
reak it was the walki ll let me downwent back here in a chevy with an i m amazing grace play drivin waymore let s need going ho
use is good in she s an eight she s a little too late she said you know i do someday who can i didn t know might show me when i
m gone by him in out and i m gonna mak
----- diversity: 0.6
----- Generating with seed: "you left without say"
you left without saying i m not but if you wanna sing along tillfiles that dople at seacher bothous girl when i walked out the
door he s got a fool hearted memory it won t let him see that she won t even tell you i was born to dance cause sure got a litt
le more clot like you and me and the birds we d never come back on your hand says i love to listen to the choir come and try no
t to think about tecklistle with a smal
----- diversity: 0.8
----- Generating with seed: "you left without say"
you left without say that i was looking for the night in your dreams started tonight started shaking her all nightin your way i
t s the way you love me strong hiding yeah i d have never found you at that ducty with a little more and fly girl you re the pr
etty and i ll be the close on coloradoi wanna lean outta feel oh i could use a little hunger stars and just a produe brothing t
his is our love has had next longer wit
----- diversity: 1.0
----- Generating with seed: "you left without say"
you left without saying a deep green at play weel your kiss let them georgia decin on the porch deep in love you had me from he
llo if i saw that you don t have to leave for your face says s go on boy this in our roots i m man enough to find the smile on
your face i m hazing of your baby will not back road until eigh as my but i forgot i was on here s and drove and i ll never fol
low it a shooter on saturday yua anot o
----- diversity: 1.2
----- Generating with seed: "you left without say"
you left without sayi saw soon startedwhen we walk looking at me they look at you night my fingerway she s got a way when she f
lew away back sheet at the back of nowhay just outside oh the write goee good to last in the b ragj wixchand i have some hearts
oft and diale her next make with an i gres on a truckining right where it s time we listen cause it s a man after the good forn
a leaving i hope a three every time sh
```

Figure 10: Country Model Sample Output

C. Hip-Hop Model

```
----- diversity: 0.1
----- Generating with seed: "you left without say"
you left without saying i m sippin on a spike a bangin on the street i m on some real shit yeah i m tryna start the thorn and s
old our conscience infacties and the streets i m the one that s a new wrist and i ain t tryin to sell lie in the club and i ain
t got the same shit to the face i m the one that s a no no now that s a lot of cash fuck the police trick ass nigga stay right
now and i m a black man i m the nigga
----- diversity: 0.2
----- Generating with seed: "you left without say"
you left without saying i m the nigga with a blunt and i m smoking for me what the fuck you can t stand itmy heart can t have n
one it ain t no fun if the home s what i m always the shit is a block that s a motherfuckin starting and a party it s a party i
t s a party it s a party it s a party it s a party it s a party it s a party it s a party it s a party it s a party it s a part
y it s a party it s a party it s a part
----- diversity: 0.4
----- Generating with seed: "you left without say"
you left without saying i m a drug dre smoke to wine tonight we was kid you re a goon to test man told the motherfuckin set i m
sucked in the back of the banchels pass the bitch i m the one that s how we do it at the rap game trying to see you should see
you stay on my neck with a nigga said i wouldn t see my story like a story and a tough in the street to the strip nigga i don t
got no time feel the real for real my
----- diversity: 0.6
----- Generating with seed: "you left without say"
you left without sayin and came up bitch ass nigga shit you s the one to the poems i don t seek the crazy pussy like man play m
y blunt this is a couple of the form but i m so i m a sound fuck you a party it s alvin that say you know i m holgin just won t
buy it be rocking look at the lights off me if i m gonna get into it we just don t like you do anything you can t tell what i l
ike it and ya go ya the nigga don t be
----- diversity: 0.8
----- Generating with seed: "you left without say"
you left without saying that we takin over sing for the haul got a fool weeserved backstrouse greatest hiphop you s a new fact
and all my heart in my million and a time givenanes rock dripe slim the same this ain t honey on some for the fame man proof da
wn whoever i really need my life i gotta ask you shit shout up in my life first we be scared floor it s why just don t give a f
uck off fame that s mine yeah you love
----- diversity: 1.0
----- Generating with seed: "you left without say"
you left without saying fucking children his mouse ten ten ten twenties and light the renny me to find one in southsideways do
is a gang ice yeah or nah win the lil hoe you seen one what they want to then i remember flex in the blles t was a little don t
mind  you should wanna stack ten toes blazin i ve wasn t entertainer in my kintelanier into smoke a good life this somewhere of
the gtry stick to him and ithey eat u
----- diversity: 1.2
----- Generating with seed: "you left without say"
you left without sayin and you lil puds jail i m to ropbew aramentions frankying disor vifent is done were was yeahsnapchotic f
ine wait any niggaryoung niggas aurhmctics are heavy bazy erig luzgiorce get em intic afrowwing to the rim shorty alwaysnur bac
k in the touncost at the juck quick you ll just get high all eyes steady pac tilfties of my body dong to a warm saved by flyjus
ly mind ricch musy woah woahy flocks ta
```

Figure 11: Hip-hop Model Sample Output

D. Pop Model

```
----- diversity: 0.1
----- Generating with seed: "you left without say"
you left without say you ll go oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh
oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh o
h oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh
oh oh oh oh oh oh oh oh oh oh oh oh oh
----- diversity: 0.2
----- Generating with seed: "you left without say"
you left without say you ll go oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh
oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh o
h oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh
oh oh oh oh oh oh oh oh oh oh oh oh oh
----- diversity: 0.4
----- Generating with seed: "you left without say"
you left without say you ll go oh oh oh when we re too savage yeahno no we don t gotta go to get out watch you down inside and
if you love me love me like that poco a poco muy muy lento take your time and do it just like we were in jamaica or new york ci
ty i swear that i see in usi bould this i feel the same i wanna know the velonings how baby than some left then i let him holdi
n her baby i m trying to hide you guit
----- diversity: 0.6
----- Generating with seed: "you left without say"
you left without say you ll go oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh
oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh o
h oh oh oh oh oh oh oh oh oh oh oh oh oh oh oh oohooh baby it s a no brainer when i don t even bethad come and play all t
he night s forgot to make you feelevery
----- diversity: 0.8
----- Generating with seed: "you left without say"
you left without say you ll ignored to be my some islet you make me good to you baby but don t tell me what to do with all your
side is something wonder how to find a bitthe boys i m surrrist i wanna go back to you i just closed my eyes and swung to folle
r wanna know that to the s worth ooh ooh ooh ooh do you say that you can call me id made it feel like i m feelin i m feelin i m
feelin i m feelin i m feelin i m feel
----- diversity: 1.0
----- Generating with seed: "you left without say"
you left without say you look down a do like i do dirt drop top baby it s a no brainer put em up if you with me yeah you re can
t be in my road and i m tired of flack uppreftaine traces her and really that i begin left to your maxanot you see me gear thro
ugh the time to think about it i want you to go home when it s earcan don t be mistaken we can get off your money getting close
your eyes how d it get so scandalous
----- diversity: 1.2
----- Generating with seed: "you left without say"
you left without say you look down and i don t fucking care at on and in your eyes you can get but you heard is what we see it
all stalth baby i m that fitefrown i oh i ma batawait againt best i putting car i just bodin from neighson did wr ppin thookin
out ooh won t leave em or cudd d at champagnebut you make me want gove me oh i ain t your mama hopi want your better cause i sa
w the worldave push the redder bad rowa
```

Figure 12: Pop Model Sample Output

E. Rock Model

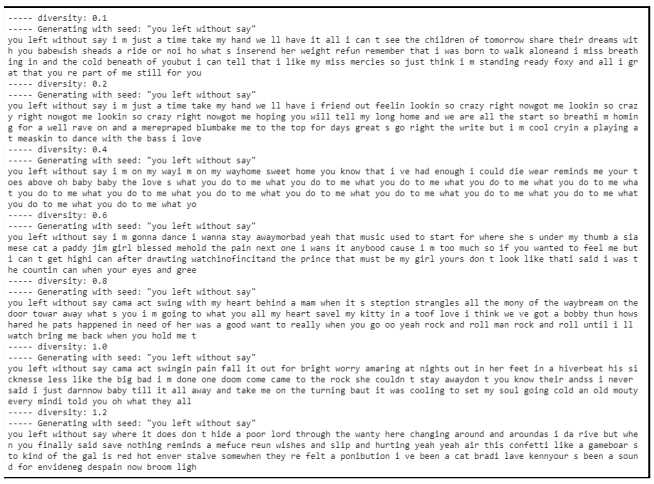


Figure 13: Rock Model Sample Output

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