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Link GitHub Repository:

<https://github.com/BouzampalidisVasileiosIoannis/InformationRetrieval>

Readme:

SongInformationSearchEngine

This project is implemented by the undergraduate students:

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For the Information Retrieval course MYE003 of the Undergraduate Program in Computer Science And Engineering course of the University of Ioannina.

Description

This project is an application that allows the user to search for song titles, lyrics and artists using Lucene.

Data Format

The loaded data for our application will be in .csv format.

We decided to obtain our data from the website: <https://www.kaggle.com/>, where we found the dataset: spotify_millsongdata.csv, containing 57651 entries in alphabetical order. The entries consist of three fields each occupying one column. The artist name occupies the first, the song title the second and the lyrics the third.

Application Design

The following description is still in the early phases of development and is subject to change

Goal and Functionality

The main goal of our application is to provide users with the ability to search for specific artists, song titles, or lyrics using a query input in the terminal.

Data Analysis and Indexing

To achieve this functionality, we have implemented a custom *Indexer* class based on the *IndexWriter* class of the Lucene library. The *Indexer* class contains fields for various Lucene objects, including *Directory*, *Analyzer*, *IndexWriterConfig*, and *IndexWriter*. The *Indexer* object requires the specification of the '*indexingPath*' parameter to initialize the *Directory* field using the *FSDirectory* sub-class. Moreover, the remaining fields are initialized within the constructor.

The primary function of this class is achieved by the *loadFromCSV* method. Using the '*csvPath*' and '*myIndexer*' parameter, the method opens the csv file, reads it line by line and stores the entries in the corresponding variables namely 'artist', 'song', 'title'. The tokenization is accomplished through the creation of a new *Document* object in which, a new *TextField* for each attribute is added. Every new document created, is added to '*myIndexer*' field. When every line is processed, every change is *finalized* by calling the *commit* method. The method is terminated by closing '*myIndexer*' object and displaying a message indicating the successful completion of data import.

Additionally, this class provides auxiliary methods, namely *addDoc*, *deleteDoc*, and getters to assist in the manipulation of the index.

Query Parsing and Searching

The [QueryHandler](#) class is responsible for handling user queries and returning the corresponding Lucene queries based on the user's input. It has a constructor that takes a [QueryParser](#) as a parameter, and a [getQuery](#) method that prompts the user to enter their query, parses it, and returns a corresponding Lucene [Query](#).

The [getQuery](#) method takes the user's input, splits it into two parts based on the first occurrence of ":" character, and uses the first part as the field type and the second part as the search phrase. If the search phrase consists of only one word, a [TermQuery](#) object is created and returned. Otherwise, if the search phrase consists of multiple words, a [PhraseQuery](#) object is created and returned, which matches documents containing the search phrase in the specified field type.

A detailed description of the *Searcher* class cannot be provided at the time being as it is incomplete.

Query Results Presentation

A possible presentation of the search results, based on the queries, would be through the terminal. However, we acknowledge that a better implementation would include a graphical interface, which is more user-friendly.

Sample of data entries

Artist	Title	Lyrics
ABBA	That's Me	Are you sure you want to hear more what if I ain't worth the while not the style you'd be looking for if I'm sweet tonight things look different in the morning light I'm jealous and I'm proud if you hurt my feelings I'll cry out loud I'm Carrie not-the-kind-of-girl-you'd-marry. That's me are you sure you want to hear more Would I be the one you seek Mild and meek like the girl next door Don't you realize I may be an angel in disguise It's lonely to be free But I'm not a man's toy, I'll never be I'm Carrie not-the-kind-of-girl-you'd-marry That's me I don't believe in fairy-tales Sweet nothings in my ear But I do believe in sympathy That's me, you see Are you sure you want to hear more Won't you have a drink with me Just to see you're not really sore I can't help my ways I'm just not the girl to hide my face I'm Carrie not-the-kind-of-girl-you'd-marry That's me There's a special love Like an eagle flying with a dove I'll find it in the end If I keep on searching, but until then I'm Carrie not-the-kind-of-girl-you'd-marry That's me
ABBA	The Day Before You Came	I must have left my house at eight, because I always do My train, I'm certain, left the station just when it was due I must have read the morning paper going into town And having gotten through the editorial, no doubt I must have frowned I must have made my desk around a quarter after nine With letters to be read, and heaps of papers waiting to be signed I must have gone to lunch at half past twelve or so The usual place, the usual bunch And still on top of this I'm pretty sure it must have rained The day before you came I must have lit my seventh cigarette at half past two And at the time I never even noticed I was blue I must have kept on dragging through the business of the day Without really knowing anything, I hid a part of me away At five I must have left, there's no exception to the rule A matter of routine, I've done it ever since I finished school The train back home again Undoubtedly I must have read the evening paper then Oh yes, I'm sure my life was well within its usual frame The day before you came I must have opened my front door at eight o'clock or so And stopped along the way to buy some Chinese food to go I'm sure I had my dinner watching something on TV There's not, I think, a single episode of Dallas that I didn't see I must have gone to bed around a quarter after ten I need a lot of sleep, and so I like to be in bed by then I must have read a while The latest one by Marilyn French or something in that style It's funny, but I had no sense of living without aim The day before you came And turning out the light I must have yawned and cuddled up for yet another night And rattling on the roof I must have heard the sound of rain The day before you came
Ace Of Base	Always Have, Always Will	Always have, always will I was mesmerized when I first met you Wouldn't let myself believe That you could step right out of my wildest dreams But you didn't know That secret part of me Until we kissed an made it open up so easily I always have Even when it didn't show I always will You know that I just want to touch you Whenever you're close to me I always have Doesn't matter where we go I always will You know that I just want to show you Just how much you mean to me Always have, always will Everything that you give in to Everything you'll ever need Is locked up somewhere deep inside of me You gotta know But more importantly You've got to stay and hold me while we live this fantasy I always have Even when it didn't show I always will You know that I just want to touch you Whenever you're close to me I always have Doesn't matter where we go I always will You know that I just want to show you Just how much you mean to me Always have, always will I always have Even when it didn't show I always will You know that I just want to touch you Whenever you're close to me I always have Doesn't matter where we go I always will You know that I just want to show you Just how much you mean to me Always have, always will

Adele	Need You Know	Picture perfect memories, Scattered all around the floor. Reaching for the phone cause, I can't fight it anymore. And I wonder if I ever cross your mind. For me it happens all the time. It's a quarter after one, I'm all alone and I need you now. Said I wouldn't call, but I lost all control and I need you now. And I don't know how I can do without, I just need you now. Another shot of whiskey, can't stop looking at the door. Wishing you'd come sweeping in the way you did before. And I wonder if I ever cross your mind. For me it happens all the time. It's a quarter after one, I'm a little drunk, And I need you now. Said I wouldn't call but I lost all control and I need you now. And I don't know how I can do without, I just need you now. Yes I'd rather hurt than feel nothing at all. It's a quarter after one, I'm all alone and I need you now. And I said I wouldn't call but I'm a little drunk and I need you now. And I don't know how I can do without, I just need you now. I just need you now. Oh baby I need you now.
Aerosmith	Mama Kin	It ain't easy, livin' like a gypsy. Tell ya, honey, how I feel. I've been dreaming, Floatin' down stream and Losin' touch with all that is real. Whole earth lover, keepin' under cover Never knowin' where ya been. You've been fadin', always out paradin'. Keepin' touch with Mama Kin. Well you've always got your tail on the wag. Shootin' fire from your mouth just like a dragon. You act like a perpetual drag. You better check it out, Or someday soon you'll have to climb back on the wagon. It ain't easy, livin' like ya want to And it's so hard to find piece of mind. Yes it is. The way I see it, you've got to say shit. But don't forget to drop me a line. Said you're as bald as an egg at eighteen. And workin' for you dad is just a drag. He still stuffs your mouth with your dreams. You better check it out, Or someday soon you'll have to climb back on the wagon. Keepin' touch with Mama Kin. Tell her where you've gone and been. Livin' out your fantasy, Sleeping late and smoking tea. Keepin' touch with Mama Kin. Tell her where you've gone and been. Livin' out your fantasy, Sleeping late and smoking tea. It ain't easy, livin' like ya want to, And it's so hard to find piece of mind. Yes it is.
Air Supply	Big Cat	Big cat walking on the wild sideBig cat talking on the wild sideHe knows he looks the way he shouldHe's got something making him feel goodHe's got the style, he's got the swayHe's a million miles awayShe cat walking on the wild sideShe cat talking on the wild sideShe don't smile, she don't lookShe don't do laundry and she don't cookShe's not listening to what he saysShe's not making any promisesHe just wants to love someoneShe just wants to love someoneHe just wants to hold someoneShe just wants to love someoneBig cat walking on the wild sideBig cat talking on the wild sideShe cat walking on the wild sideShe cat talking on the wild sideHe's thinking how she's not so toughCould be a diamond sitting in the roughShe's staring out to empty spaceShe's wondering how long he will takeHe just wants to love someoneShe just wants to love someoneHe just wants to hold someoneShe just wants to love someone
Aiza Segueria	Friend Of Mine	I've known you for so longYou are a friend of mineBut is this all we'd ever be?I've loved you ever sinceYou are a friend of mineBut babe, is this all we ever could be?You tell me things I've never knownI've shown you love you've never shownBut then again, when you cryI'm always at your sideYou tell me 'bout the love you've hadI listen very eagerlyBut deep inside you'll never seeThis feeling of emptinessIt makes me feel sadBut then again I'm gladI've known you all my lifeYou are a friend of mineI know this is how it's gonna beI've loved you then and I love you stillYou're a friend of mineNow, I know friends are all we ever could beYou tell me things I've never knownI've shown you love you've never shownBut then again, when you cryI'm always at your sideYou tell me 'bout the love you've hadAnd I listen very eagerlyBut deep inside you'll never seeThis feeling of emptinessIt makes me feel sadBut then againThen againThen again I'm glad
Alabama	Clear Water Blues	Clear water blues, thinkin' of youSittin' here fishin', catchin' a fewSpendin' my days just tryin' to loseThese clear water bluesClear water blues driftin' alongNowhere to go, now that you're goneMy lonely heart don't know what to doWith these clear water bluesLookin' out across the oceanBlue is all I seeAnd it seems like no matter how far I goYour memory just won't set me freeClear water blues won't leave me aloneKeeps on remindin' me why you're goneMy reflection is showin' a foolIn these clear water bluesClear water blues, still thinkin' of youSittin' here fishin', catchin' a fewSpendin' my days just tryin' to loseThese clear water bluesThese clear water blues

Chicago	Bigger Than Elvis	<p>Come, let's talk just you and me For once just let me be. The little boy you used to know. Relive that summer's bliss. Cause they came no more like this. Those were the days, The days when love was still in style. [Chorus] All I ever dreamed I'd be Is what you are to me. Bigger than Elvis. And for all the missing years, A memory reappears. Bigger than Elvis. I saw you on TV. The king, you were to me. Could you feel me watching you? At times my heart got mad, Only heroes are allowed To run free, That they could come back inside of me. [Chorus] We know the sadness of goodbyes Must be the one that's bringing tears to your child's eyes. Oh, from now on I'll walk with you Making music like you do. Would you believe I always knew? You were never hard to take In some mysterious way Bigger than Elvis And for all the missing years Your memory reappears Bigger than Elvis. Now I've found the missing years, Forgotten all my tears. I've found the missing years.</p>
Fall Out Boy	So Sick	<p>Originally by Ne-Yo Gotta change my answering machine Now that I'm alone Cause right now it says that we Can't come to the phone And I know it makes no sense Cause you walked out the door But it's the only way I hear your voice anymore It's ridiculous It's been months And for some reason I just Can't get over us And I'm stronger then this Ain't no faith in her Always walkin' 'round With my head down I'm so over being blue Cryin over you And I'm so sick of love songs So tired of tears So done with wishing you were still here Said I'm so sick of love songs So sad and slow So why can't I turn off the radio? Gotta fix that calender I have That's marked July 15th Because since there's no more you There's no more anniversary I'm so fed up with my thoughts of you And your memory And how every song reminds me Of what used to be That's the reason I'm so sick of love songs So tired of tears So done with wishing you were still here Said I'm so sick of love songs So sad and slow So why can't I turn off the radio? Leave me alone Stupid love songs Don't make me think about her smile Or having my first child Let it go I'm turning off the radio Cause I'm so sick of love songs So tired of tears So done with wishing she was still here Said I'm so sick of love songs So sad and slow So why can't I turn off the radio? Yes, I'm so sick of love songs So tired of tears So done with wishing she was still here Said I'm so done with love songs So sad and slow So why can't I turn off the radio? Why can't I turn off the radio?</p>
Kirsty Maccoll	Patrick	<p>He was a stranger in london at night And he felt alone so he followed a light Into a bar where the music was loud He ordered a pint and got lost in the crowd He asked a girl if she wanted to dance She turned up her nose and she told him "no chance!" He felt rejected and stood by the wall And wondered why he'd ever bothered at all He missed his family and wished he was home With all of those strangers he felt so alone Patrick don't be afraid You'll live to laugh another day Patrick don't be afraid The cavalry is on the way He stood in silence, looked round for a while Then he saw a girl and she looked back and smiled Then he went over and started to talk She looked a bit like his sister in cork He bought her a drink with his last two quid When he said "come back for a coffee" she did Patrick you've got it made You're halfway there, you're on your way Patrick she's not afraid And now I bet you're glad you stayed Looking so lovely and perfectly groomed She showed in the centre of patrick's room She was lit up from the inside and out Oh he was enchanted as she moved about She touched him like sunlight on cold mountain stone And he grew afraid lest she leave him alone Patrick don't be afraid You've won the girl and saved the day Patrick you've got it made The girl's not going to run away Patrick don't be afraid The cavalry is on the way Patrick you've got it made Just look outside it's a lovely day</p>

Kiss	I'm Alive	Oh, let's get 'em, boysToo many women, I've got too little timeI keep on tryin'Man, if it kills me I know that I'll goDead, stiff, and smilin'Oh, don't need no doctor puttin' me to bedGive me the nurse and I'll make sure that she's fedDon't need no doctor giving me pillsI'm hot enough to give you chillsLivin' life for love, I'm alive, I'm aliveI can't get enough (I can't get enough)Get it right (right) I'm aliveTake a look in the Book of Love, man it's understoodRight to the letterOne pretty girl makes you feel pretty goodTwo's even betterOh, I learned my lesson, my golden ruleYou know I made the teachers stay after schoolDon't look for reasons, don't waste my timeI've got the goods to make you mineLivin' life for love, I'm alive, yeah, I'm aliveI can't get enough (I can't get enough)Get it right (right) I'm aliveYou know baby, you make my heart beat, alrightDon't need no doctorTake a look at the Book of Love, man it's understoodIt ain't a crime to feel this good, noLivin' life for love, I'm alive, yeah, I'm aliveI can't get enough (can't get enough)Get it right (right) I'm aliveSing itLivin' life, livin' life for love, I'm alive, I'm aliveI can't get enough (can't get enough)Get it right I'm alive (I'm alive)Livin' life for love (livin' life for love)Livin' life for love (I'm alive)Livin' life for love, (yeah, can't get enough)Livin' life for love (I'm alive, whoo)Livin' life for love
Korn	Counting	I can't bare to face what's growing in my head.Please get away from me.Take advantage of what I still guess you do.One day you'll pay for me.So I'm saying nothing.Each day taking that much more.As I'm screaming all my pain.You will be there counting.You just see me as something you throw around.You were there for me (there for me).Beating down to the ground yes it always seems.You take more from me (from me).So I'm saying nothing.Each day taking that much more.As I'm screaming all my pain.You will be there counting.It's funny how we get started.They get their money from the things on you.They get your money and the girls and the fame.I only do it for the fun.That's my game.So I'm saying nothing.Each day taking that much more.As I'm screaming all my pain.You will be there counting.So I'm saying nothing.Each day taking that much more.As I'm screaming all my pain.You will be there counting.
Radiohead	Black Star	Get home from work and you're still standing in your dressing gownWell what am I to do?I know all the things around your head and what they do to you.What are we coming to?What are we gonna do?Blame it on the black starBlame it on the falling skyBlame it on the satellite that beams me home.The troubled words of a troubled mind I try to understandWhat is eating you.I try to stay awake but its 58hrs since that I last slept with you.What are we coming to?I just don't know anymore.I get on the train and I just stand about now that I don't think of you.I keep falling over I keep passing outWhen I see a face like you.What am I coming to?I'm gonna melt down.
Black Sabbath	Paranoid	Finished with my woman 'cause she couldn't help me with my mindPeople think I am insane because I'm frowning all the timeAll day long I think of things but nothing seems to satisfyThink I'll lose my mind if I don't find something to pacifyCan you help me, occupy my brain?Oh yeahI need someone to show me the things in life that I can't findI can't see the things that make true happiness, I must be blindMake a joke and I will sigh and you will laugh and I will cryHappiness I cannot feel and love to me is so unrealAnd so as you hear these words telling you now of my statel tell you to enjoy life I wish I could but it's too late

Bob Dylan	Foot Of Pride	<p>Like the lion tears the flesh off of a man So can a woman who passes herself off as a male They sang "Danny Boy" at his funeral and the Lord's Prayer Preacher talking 'bout Christ betrayed It's like the earth just opened and swallowed him up He reached too high, was thrown back to the ground You know what they say about bein' nice to the right people on the way up Sooner or later you gonna meet them comin' down Well, there ain't no goin' back when your foot of pride come down Ain't no goin' back Hear ya got a brother named James, don't forget faces or names Sunken cheeks and his blood is mixed He looked straight into the sun and said revenge is mine But he drinks, and drinks can be fixed Sing me one more song, about ya love me to the moon and the stranger And your fall by the sword love affair with Erroll Flynn In these times of compassion when conformity's in fashion Say one more stupid thing to me before the final nail is driven in. Well, there ain't no goin' back when your foot of pride come down Ain't no goin' back There's a retired businessman named Red, cast down from heaven and he's out of his head He feeds off of everyone that he can touch He said he only deals in cash or sells tickets to a plane crash He's not somebody that you play around with much Miss Delilah is his, a Philistine is what she is She'll do wondrous works with your fate Feed you coconut bread, spice buns in your bed If you don't mind sleepin' with your head face down in a grave. Well, there ain't no goin' back when your foot of pride come down Ain't no goin' back Well they'll choose a man for you to meet tonight You'll play the fool and learn how to walk through doors How to enter into the gates of paradise No, how to carry a burden too heavy to be yours Yeah, from the stage they'll be tryin' to get water outta rocks A whore will pass the hat, collect a hundred grand and say thanks They like to take all this money from sin, build big universities to study in Sing "Amazing Grace" all the way to the Swiss banks Well, there ain't no goin' back when your foot of pride come down Ain't no goin' back They got some beautiful people out there, man They can be a terror to your mind and show you how to hold your tongue They got mystery written all over their forehead They kill babies in the crib and say only the good die young They don't believe in mercy Judgment on them is something that you'll never see They can exalt you up or bring you down main route Turn you into anything that they want you to be Well, there ain't no goin' back when your foot of pride come down Ain't no goin' back Yes, I guess I loved him too Can still see him in my mind climbin' that hill Did he make it to the top, well he probably did and dropped Struck down by the strength of the will Ain't nothin' left here partner, just the dust of a plague that has left this whole town afraid From now on, this'll be where you're from Let the dead bury the dead. Your time will come Let hot iron blow as he raised the shade Well, there ain't no goin' back when your foot of pride come down Ain't no goin' back</p>
Bob Marley	Small Axe	<p>Why boasteth thyself Oh, evil men Playing smart And not being clever? I said, you're working iniquity To achieve vanity (if a-so a-so) But the goodness of Jah, Jahl-dureth forever So if you are the big tree We are the small axe Ready to cut you down (well sharp) To cut you down These are the words Of my master, keep on tellin' me No weak heart Shall prosper And whosoever diggeth a pit Shall fall in it, fall in it And whosoever diggeth a pit Shall fall in it (fall in it) If you are the big tree, let me tell you that We are the small axe, sharp and ready Ready to cut you down (well sharp) To cut you down (to cut you down) (to cut you down) These are the words Of my master, tellin' me that No weak heart Shall prosper And whosoever diggeth a pit Shall fall in it, uh, bury in it And whosoever diggeth a pit Shall bury in it, uh (bury in it) If you are the big, big tree We are the small axe Ready to cut you down (well sharp) To cut you down If you are the big, big tree, let me tell you that We are the small axe Ready to cut you down (well sharp) To cut you down Sharpened</p>

Zebrahead	Let Me Go	Well some wear their feelings right on their sleeveAnd some want to feel what's inside of meBut I've been here twice before oh I've been here twice beforeAnd I notice youSpy satellite snapping shots from the skylightEndo you know buffers up to a highlightink to the skin tight burned in the sunlightIf present lived hindsight, you would be dynamiteButterfly crucify yourself straight geminiChecking out grey clouds burning out blue skiesEven high tides rail slides break for landslidesJust another ride got shot goodbye sideDon't let me goI know I'm always late to see youI can't wait to see you again andDon't let me goI know I'm always late to see youI can't wait to see you here againWell some wear their feelings right on their sleeveAnd some want to feel what's inside of meBut I've been here twice before oh I've been here twice beforeAnd I notice youSpy satellite snapping shots from the skylightEndo you know buffers up to a highlightink to the skin tight burned in the sunlightIf present lived hindsight, you would be dynamiteButterfly crucify yourself straight geminiChecking out grey clouds burning out blue skiesEven high tides rail slides break for landslidesJust another ride got shot goodbye sideDon't let me goI know I'm always late to see youI can't wait to see you again andDon't let me goI know I'm always late to see youI can't wait to see you here againYou wanted something differentYou confused the linesAnd now you're trying, you're trying to make thisBetter 'cause you know you can't rewindCan't go back if that's what you're doing'Cause everything looks dope in slow motionBut you got taxed in all the commotionThen you got waxed for all your devotionFloating in spaceNo locomotion'Cause everything looks dope in slow motionBut you got taxed in all the commotionThen you got waxed for all your devotionFloating in spaceNo locomotionDon't let me goI know I'm always late to see youI can't wait to see you again andDon't let me goI know I'm always late to see youI can't wait to see you againDon't let me goI know I'm always late to see youI can't wait to see you again andDon't let me goI know I'm always late to see youI can't wait to see you here again
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