

Introduction

Phrase query is used to search documents which contain a particular sequence of terms.

Class declaration

Following is the declaration for **org.apache.lucene.search PhraseQuery** class:

```
public class PhraseQuery
    extends Query
```

Class constructors

S.N.	Constructor & Description
1	PhraseQuery Constructs an empty phrase query.

Class methods

S.N.	Method & Description
1	void addTermterm Adds a term to the end of the query phrase.
2	void addTermterm, intposition Adds a term to the end of the query phrase.
3	Weight createWeightSearchersearcher Expert: Constructs an appropriate Weight implementation for this query.
4	boolean equalsObjecto Returns true iff o is equal to this.
5	void extractTermsSet < Term > queryTerms Expert: adds all terms occurring in this query to the terms set.
6	int[] getPositions

Returns the relative positions of terms in this phrase.

7

int getSlop

Returns the slop.

8

Term[] getTerms

Returns the set of terms in this phrase.

9

int hashCode

Returns a hash code value for this object.

10

Query rewriteIndexReaderreader

Expert: called to re-write queries into primitive queries.

11

void setSlopints

Sets the number of other words permitted between words in query phrase.

12

String toStringStringf

Prints a user-readable version of this query.

Methods inherited

This class inherits methods from the following classes:

- org.apache.lucene.search.Query
- java.lang.Object

Usage

```
private void searchUsingPhraseQuery(String[] phrases)
    throws IOException, ParseException{
    searcher = new Searcher(indexDir);
    long startTime = System.currentTimeMillis();

    PhraseQuery query = new PhraseQuery();
    query.setSlop(0);

    for(String word:phrases){
        query.add(new Term(LuceneConstants.FILE_NAME,word));
    }

    //do the search
    TopDocs hits = searcher.search(query);
    long endTime = System.currentTimeMillis();

    System.out.println(hits.totalHits +
        " documents found. Time :" + (endTime - startTime) + "ms");
    for(ScoreDoc scoreDoc : hits.scoreDocs) {
```

```

        Document doc = searcher.getDocument(scoreDoc);
        System.out.println("File: "+ doc.get(LuceneConstants.FILE_PATH));
    }
    searcher.close();
}

```

Example Application

Let us create a test Lucene application to test search using PhraseQuery.

Step Description

- 1 Create a project with a name *LuceneFirstApplication* under a package *com.tutorialspoint.lucene* as explained in the *Lucene - First Application* chapter. You can also use the project created in *Lucene - First Application* chapter as such for this chapter to understand searching process.
- 2 Create *LuceneConstants.java* and *Searcher.java* as explained in the *Lucene - First Application* chapter. Keep rest of the files unchanged.
- 3 Create *LuceneTester.java* as mentioned below.
- 4 Clean and Build the application to make sure business logic is working as per the requirements.

LuceneConstants.java

This class is used to provide various constants to be used across the sample application.

```

package com.tutorialspoint.lucene;

public class LuceneConstants {
    public static final String CONTENTS="contents";
    public static final String FILE_NAME="filename";
    public static final String FILE_PATH="filepath";
    public static final int MAX_SEARCH = 10;
}

```

Searcher.java

This class is used to read the indexes made on raw data and searches data using lucene library.

```

package com.tutorialspoint.lucene;

import java.io.File;
import java.io.IOException;

import org.apache.lucene.analysis.standard.StandardAnalyzer;
import org.apache.lucene.document.Document;
import org.apache.lucene.index.CorruptIndexException;
import org.apache.lucene.queryParser.ParseException;
import org.apache.lucene.queryParser.QueryParser;
import org.apache.lucene.search.IndexSearcher;
import org.apache.lucene.search.Query;
import org.apache.lucene.search.ScoreDoc;
import org.apache.lucene.search.TopDocs;
import org.apache.lucene.store.Directory;
import org.apache.lucene.store.FSDirectory;
import org.apache.lucene.util.Version;

public class Searcher {

    IndexSearcher indexSearcher;
    QueryParser queryParser;
    Query query;
}

```

```

public Searcher(String indexDirectoryPath) throws IOException{
    Directory indexDirectory =
        FSDirectory.open(new File(indexDirectoryPath));
    indexSearcher = new IndexSearcher(indexDirectory);
    queryParser = new QueryParser(Version.LUCENE_36,
        LuceneConstants.CONTENTS,
        new StandardAnalyzer(Version.LUCENE_36));
}

public TopDocs search( String searchQuery)
    throws IOException, ParseException{
    query = queryParser.parse(searchQuery);
    return indexSearcher.search(query, LuceneConstants.MAX_SEARCH);
}

public TopDocs search(Query query) throws IOException, ParseException{
    return indexSearcher.search(query, LuceneConstants.MAX_SEARCH);
}

public Document getDocument(ScoreDoc scoreDoc)
    throws CorruptIndexException, IOException{
    return indexSearcher.doc(scoreDoc.doc);
}

public void close() throws IOException{
    indexSearcher.close();
}
}

```

LuceneTester.java

This class is used to test the searching capability of lucene library.

```

package com.tutorialspoint.lucene;

import java.io.IOException;

import org.apache.lucene.document.Document;
import org.apache.lucene.index.Term;
import org.apache.lucene.queryParser.ParseException;
import org.apache.lucene.search PhraseQuery;
import org.apache.lucene.search.Query;
import org.apache.lucene.search.ScoreDoc;
import org.apache.lucene.search.TopDocs;

public class LuceneTester {

    String indexDir = "E:\\Lucene\\Index";
    String dataDir = "E:\\Lucene\\Data";
    Searcher searcher;

    public static void main(String[] args) {
        LuceneTester tester;
        try {
            tester = new LuceneTester();
            String[] phrases = new String[]{"record1.txt"};
            tester.searchUsingPhraseQuery(phrases);
        } catch (IOException e) {
            e.printStackTrace();
        } catch (ParseException e) {
            e.printStackTrace();
        }
    }

    private void searchUsingPhraseQuery(String[] phrases)
        throws IOException, ParseException{
        searcher = new Searcher(indexDir);
        long startTime = System.currentTimeMillis();
    }
}

```

```

PhraseQuery query = new PhraseQuery();
query.setSlop(0);

for(String word:phrases){
    query.add(new Term(LuceneConstants.FILE_NAME,word));
}

//do the search
TopDocs hits = searcher.search(query);
long endTime = System.currentTimeMillis();

System.out.println(hits.totalHits +
    " documents found. Time : " + (endTime - startTime) + "ms");
for(ScoreDoc scoreDoc : hits.scoreDocs) {
    Document doc = searcher.getDocument(scoreDoc);
    System.out.println("File: " + doc.get(LuceneConstants.FILE_PATH));
}
searcher.close();
}
}

```

Data & Index directory creation

I've used 10 text files named from record1.txt to record10.txt containing simply names and other details of the students and put them in the directory **E:\Lucene\Data**. [Test Data](#). An index directory path should be created as **E:\Lucene\Index**. After running the indexing program during chapter *Lucene - Indexing Process*, you can see the list of index files created in that folder.

Running the Program:

Once you are done with creating source, creating the raw data, data directory, index directory and indexes, you are ready for this step which is compiling and running your program. To do this, Keep LuceneTester.java file tab active and use either **Run** option available in the Eclipse IDE or use **Ctrl + F11** to compile and run your **LuceneTester** application. If everything is fine with your application, this will print the following message in Eclipse IDE's console:

```

1 documents found. Time :14ms
File: E:\Lucene\Data\record1.txt
Processing math: 100%

```