ICompare Web Search Engine Documentation

1. Purpose of Application

This web application is an implementation of comparing book and DVD prices which will invoke and interact with several real-world web services. With proper web service, the web application can present useful information required by user.

There are two options for search in my iCompare website: Books or DVDs. Then the user can search not only a particular book by entering the title, ISBN or author, but also a particular DVD by entering the title, or director.

2. Web Service Deployed

There are several web services deployed for different usage, which is listed as follows:

- Google Custom Search API: obtain useful information(such as price, link, title) about the book or DVD
- Flickr API： obtain a relevant image/picture of the book or DVD
- YouTube API: present trailers for DVDs.
- Own created RESTful web service: obtain useful information about the book or DVD from the local database
- eBay Finding API: present prices for book or DVD in eBay
- Amazon Product Advertising API: present prices for book or DVD in Amazon； performing some simple sentiment analysis using Twitter's tweets to say whether the general opinions about the book or DVD are negative, positive or neutral
- Twitter API: performing some simple sentiment analysis using Amazon's reviewsto say whether the general opinions about the book or DVD are negative, positive or neutral

3. Class Diagram

3.1 Entity Class

Books

Attributes

private long serialVersionUID = 1L
private Integer bookid
private String isbn
private String booktitle
private String author
private String publicationtime
private Double retailprice
private String currencytype
private String snippet

Operations

public Books( )
public Books(Integer bookid)
public Integer getBookid( )
public void setBookid(Integer bookid)
public String getIsbn( )
public void setIsbn(String isbn)
public String getBooktitle( )
public void setBooktitle(String booktitle)
public String getAuthor( )
public void setAuthor(String author)
public String getPublicationtime( )
public void setPublicationtime(String publicationtim)
public Double getRetailprice( )
public void setRetailprice(Double retailprice)
public String getCurrencytype( )
public void setCurrencytype(String currencytype)
public String getSnippet( )
public void setSnippet(String snippet)
public int hashCode( )
public boolean equals(Object object)
public String toString( )

Dvds

Attributes

private long serialVersionUID = 1L
private Integer dvdid
private String dvdtitle
private String director
private String publicationtime
private Double retailprice
private String currencytype
private String snippet

Operations

public Dvds( )
public Dvds(Integer dvdid)
public Integer getDvdid( )
public void setDvdid(Integer dvdid)
public String getDvdtitle( )
public void setDvdtitle(String dvdtitle)
public String getDirector( )
public void setDirector(String director)
public String getPublicationtime( )
public void setPublicationtime(String publicationtim)
public Double getRetailprice( )
public void setRetailprice(Double retailprice)
public String getCurrencytype( )
public void setCurrencytype(String currencytype)
public String getSnippet( )
public void setSnippet(String snippet)
public int hashCode( )
public boolean equals(Object object)
public String toString( )

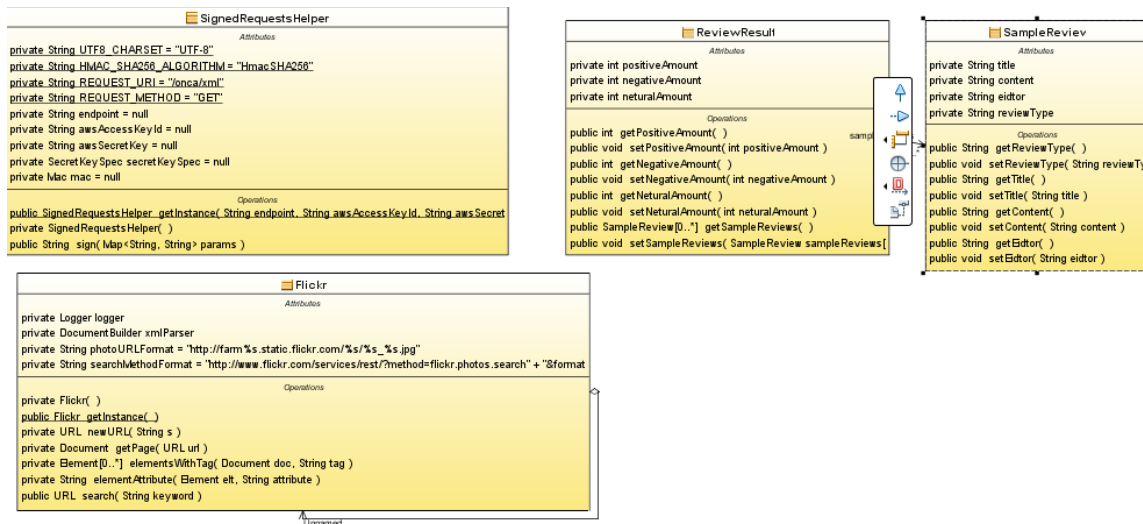3.2 output class for google, amazon, ebay search result

AmazonEbayResult

Attributes
private String title
private String price
private String usedPrice
private String newPrice
private String limitedPrice
private String condition
private String sellers[0..*]
private String reviewsUrl

Operations
public String getReviewsUrl( )
public void setReviewsUrl(String reviewsUrl)
public String getCondition( )
public void setCondition(String condition)
public String getPrice( )
public void setPrice(String price)
public String[0..*] getSellers( )
public void setSellers(String sellers[0..*])
public String getTitle( )
public void setTitle(String title)
public String getUsedPrice( )
public void setUsedPrice(String usedPrice)
public String getNewPrice( )
public void setNewPrice(String newPrice)
public String getLimitedPrice( )
public void setLimitedPrice(String limitedPrice)

SearchResultGoogle

Attributes
private String title
private String htmlTitle
private String link
private String displayLink
private String snippet
private String htmlSnippet
private String formattedUrl
private String htmlFormattedUrl

Operations
public String getTitle( )
public void setTitle(String title)
public String getHtmlTitle( )
public void setHtmlTitle(String htmlTitle)
public String getLink( )
public void setLink(String link)
public String getDisplayLink( )
public void setDisplayLink(String displayLink)
public String getSnippet( )
public void setSnippet(String snippet)
public String getHtmlSnippet( )
public void setHtmlSnippet(String htmlSnippet)
public String getFormattedUrl( )
public void setFormattedUrl(String formattedUrl)
public String getHtmlFormattedUrl( )
public void setHtmlFormattedUrl(String htmlFormattedUrl)

3.3 Servlet

BookSearchServlet

Attributes

Operations
protected void processRequest(HttpServletRequest request, HttpServletResponse response)
protected void doGet(HttpServletRequest request, HttpServletResponse response)
protected void doPost(HttpServletRequest request, HttpServletResponse response)
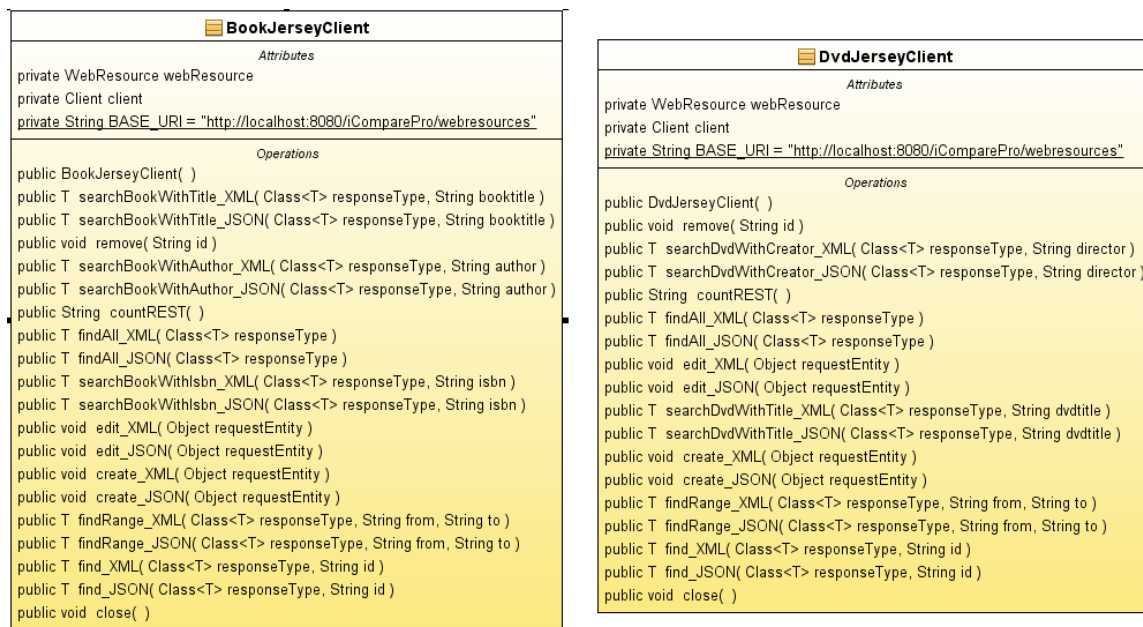public String getServletInfo( )

DvdSearchServlet

Attributes

Operations
protected void processRequest(HttpServletRequest request, HttpServletResponse response)
protected void doGet(HttpServletRequest request, HttpServletResponse response)
protected void doPost(HttpServletRequest request, HttpServletResponse response)
public String getServletInfo( )

3.4 Flickr Class and Review Feedback Class

SignedRequestsHelper

Attributes
private String UTF8_CHARSET = "UTF-8"
private String HMAC_SHA256_ALGORITHM = "HmacSHA256"
private String REQUEST_URI = "/onca/xml"
private String REQUEST_METHOD = "GET"
private String endpoint = null
private String awsAccessKeyId = null
private String awsSecretKey = null
private SecretKeySpec secretKeySpec = null
private Mac mac = null

Operations
public SignedRequestsHelper getInstance(String endpoint, String awsAccessKeyId, String awsSecret
private SignedRequestsHelper( )
public String sign(Map<String, String> params)

ReviewResult

Attributes
private int positiveAmount
private int negativeAmount
private int neturalAmount

Operations
public int getPositiveAmount( )
public void setPositiveAmount(int positiveAmount)
public int getNegativeAmount( )
public void setNegativeAmount(int negativeAmount)
public int getNeturalAmount( )
public void setNeturalAmount(int neturalAmount)
public SampleReview[0..*] getSampleReviews( )
public void setSampleReviews(SampleReview sampleReviews[

SampleReviev

Attributes
private String title
private String content
private String eidtor
private String reviewType

Operations
public String getReviewType( )
public void setReviewType(String reviewTy
public String getTitle( )
public void setTitle(String title)
public String getContent( )
public void setContent(String content)
public String getEidtor( )
public void setEidtor(String eidtor)

Flickr

Attributes
private Logger logger
private DocumentBuilder xmlParser
private String photoURLFormat = "http://farm%s.static.flickr.com/%s/%s_%s.jpg"
private String searchMethodFormat = "http://www.flickr.com/services/rest/?method=flickr.photos.search" + "&format

Operations
private Flickr( )
public Flickr getInstance( )
private URL newURL(String s)
private Document getPage(URL url)
private Element[0..*] elementsWithTag(Document doc, String tag)
private String elementAttribute(Element elt, String attribute)
public URL search(String keyword)

Unnamed

3.5 Jersey Client

BookJerseyClient

Attributes
private WebResource webResource
private Client client
private String BASE_URI = "http://localhost:8080/iComparePro/webresources"

Operations
public BookJerseyClient( )
public T searchBookWithTitle_XML(Class<T> responseType, String booktitle)
public T searchBookWithTitle_JSON(Class<T> responseType, String booktitle)
public void remove(String id)
public T searchBookWithAuthor_XML(Class<T> responseType, String author)
public T searchBookWithAuthor_JSON(Class<T> responseType, String author)
public String countREST( )
public T findAll_XML(Class<T> responseType)
public T findAll_JSON(Class<T> responseType)
public T searchBookWithIsbn_XML(Class<T> responseType, String isbn)
public T searchBookWithIsbn_JSON(Class<T> responseType, String isbn)
public void edit_XML(Object requestEntity)
public void edit_JSON(Object requestEntity)
public void create_XML(Object requestEntity)
public void create_JSON(Object requestEntity)
public T findRange_XML(Class<T> responseType, String from, String to)
public T findRange_JSON(Class<T> responseType, String from, String to)
public T find_XML(Class<T> responseType, String id)
public T find_JSON(Class<T> responseType, String id)
public void close( )

DvdJerseyClient

Attributes
private WebResource webResource
private Client client
private String BASE_URI = "http://localhost:8080/iComparePro/webresources"

Operations
public DvdJerseyClient( )
public void remove(String id)
public T searchDvdWithCreator_XML(Class<T> responseType, String director)
public T searchDvdWithCreator_JSON(Class<T> responseType, String director)
public String countREST( )
public T findAll_XML(Class<T> responseType)
public T findAll_JSON(Class<T> responseType)
public void edit_XML(Object requestEntity)
public void edit_JSON(Object requestEntity)
public T searchDvdWithTitle_XML(Class<T> responseType, String dvdtitle)
public T searchDvdWithTitle_JSON(Class<T> responseType, String dvdtitle)
public void create_XML(Object requestEntity)
public void create_JSON(Object requestEntity)
public T findRange_XML(Class<T> responseType, String from, String to)
public T findRange_JSON(Class<T> responseType, String from, String to)
public T find_XML(Class<T> responseType, String id)
public T find_JSON(Class<T> responseType, String id)
public void close( )

4. Test Plan
4.1 Platform Details
- NetBean version: 7.2.1
- Imported Java package: Jersey 1.8, google-api-services-customsearch-v1-rev15-java-1.14.1-beta, google-api-services-youtube-v3-rev34-java-1.13.2-beta, FlikrResponse.jar, java-json.jar, jsoup-1.7.2.jar
- Instruction: just install the package and VS2010 above
4.2 Implementation
- Choose your search option: Book or DVD
- Input your search keywords

ICOMPARE SEARCH

BOOK   DVD

Search With Title/Author/ISBN:

Harry Potter

Harry Potter

Search

- Get Search Result

Google Result

Compare Price

LEGO Harry Potter: Years 5-7

Snippet: Get the best price on "LEGO Harry Potter: Years 5-7 (PSP)" game from Video Ezy. Check out our huge....

Dvd Show:

Lets Play Lego Harry Pot...

Harry Potter & the Goblet

Our Price

No dvd available in our database

Amazon Price

Harry Potter and the Sorcerer's Stone

New Price: $1.99
Used Price: not available for this item!
Limited Price: not available for this item!
Sellers: [Amazon Digital Services , Inc.]

Dvd Show:

Harry Potter and the Sorc...
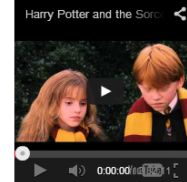
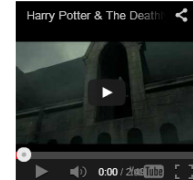**eBay Price**

Harry Potter and the Deathly Hallows: Part II (Blu-ray/DVD, 2011, 3-Disc Set,...

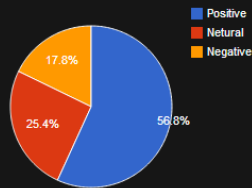We're sorry, this image is temporarily unavailable

Like New Price: $4.35

Dvd Show:

Harry Potter & The Deathl...
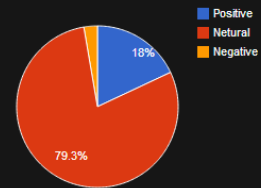
Sentiment Analysis

Amazon Result

Amazon Review Analysis

- Positive
- Netural
- Negative

17.8%
25.4%
56.8%

Twitter Result

Twitter Review Analysis

- Positive
- Netural
- Negative

18%
79.3%

Note:To view sample review, please click the pie char element!

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