CS5500-SPRING17-TEAM1

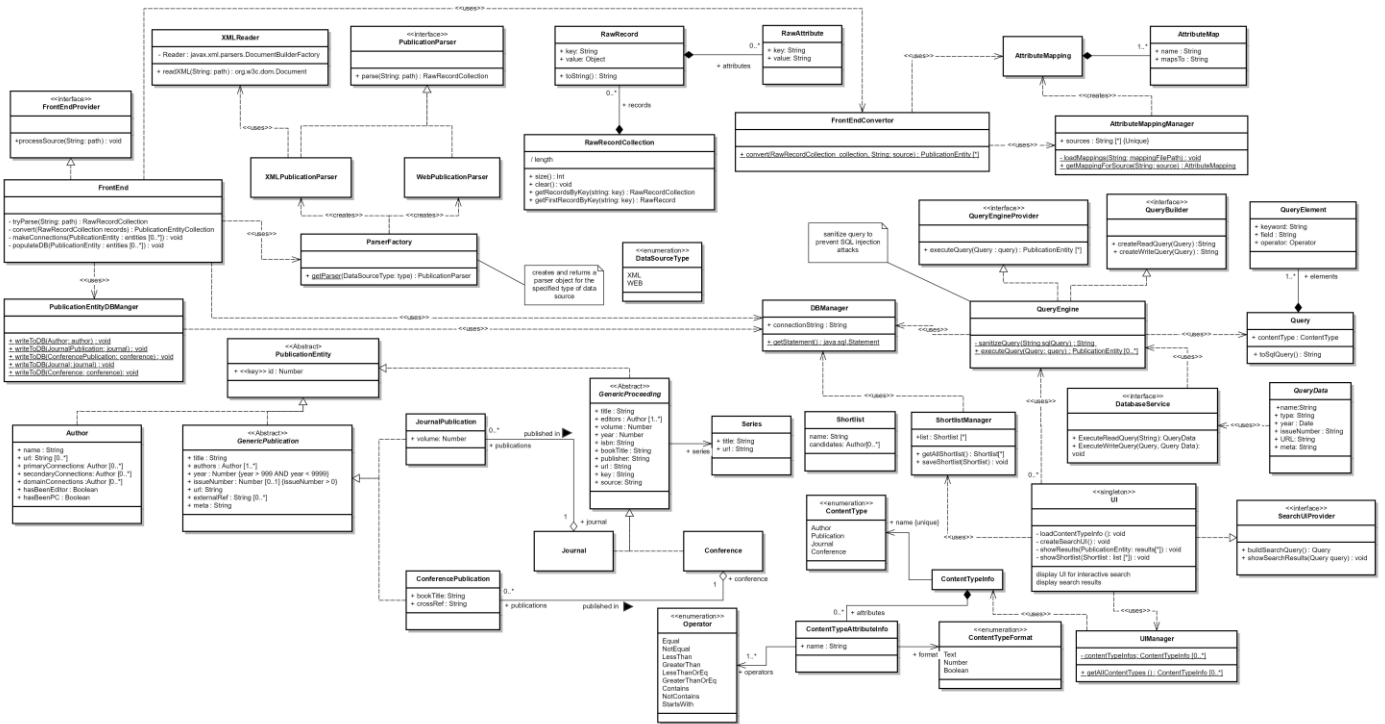## System UML Design

V1.2

Abstract

Class diagram and associated class descriptions & Sequence diagram depicting system functionality

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Class Diagram

Interface Definitions

FrontEndProvider	Specifies behavior for analyzing, interpreting and storing data from a data source	
	processSource(String: path) : void	Takes the path to the data source as input. Parses, converts and stores the data in the database

PublicationParser	Specifies behavior for parsing a data source	
	parse(String: path) : RawRecordCollection	Takes the path to the data source as input. Parses the data source and returns the representation as a RawRecordCollection

QueryEngineProvider	Specifies behavior for retrieving search results from the database for a given query	
	executeQuery(Query: query) : PublicationEntity [*]	Retrieve search results from the database and return it as a collection of Publication entity objects

QueryBuilder	Creates a query based on the search criteria formulated from the frontEnd.	
	createReadQuery(String[] : queryparams) : String createWriteQuery(String[] : queryparams) : String	Create an SQL query to read data from databse and return in the string format Create an SQL query to write data and return in the string format

SearchUIProvider	Specifies behavior for creating search query representation and communicating with the QueryEngine	
	buildSearchQuery() : Query	Build Query object that represents the search query specified by the user in the UI window
	showSearchResults(PublicationEntity: entities[*]) : void	Displays the collection of PublicationEnitity objects to the user

Data Model

PublicationEntity <>	Models the parent of all data model types related to publication
Author	Models the attributes of an author of a publication
GenericPublication <>	Models the common attributes of a publication
JournalPublication	Models the publication in a Journal
ConferencePublication	Models the publication in a Conference
GenericProceeding <>	Models the common attributes of a Journal and Conference
Journal	Models a Journal. A Journal has a collection of JournalPublication
Conference	Models a Conference. A Conference has a collection of ConferencePublication
Series	Models the attributes of a Series associated with a Conference or Journal
ContentType	Models the types of distinct Publication related Content
ContentTypeInfo	Models the attributes of a content type.
ContentTypeAttributeInfo	Models the properties of an attribute of a content type
Operator <<enumeration>>	Models the various operations that can be performed on a content type attribute
ContentTypeFormat	Models the format of data that the attribute holds
ContentTypeInfo	Models the attributes of a content type

Font-end related Class Definitions

FrontEnd	Models the functionality of the front-end component that analyzes the data source and converts it to a representation suitable for querying and stores the representation in the database
RawRecord	Models a key value pair that represents a single information in original data source
RawAttribute	Models a key value pair that represents meta data about a RawRecord object
RawRecordCollection	Defines a collection of RawAttribute
AttributeMap	Models a mapping between a data source attribute and a PublicationEntity attribute
AttributeMapping	Collection of AttributeMap for a data source
AttributeMappingManager	Manages mappings for all data sources
FrontEndConvertor	Models conversion of RawRecord object to a PublicationEntity object
XMLPublicationParser	Models parsing of a data source in XML format
WebPublicationParser	Models parsing of a data source in a web / HTML format
XMLReader	Models functionality for handling XML files
ParserFactory	Creates an appropriate parser object for the given data source type
PublicationEntityDBManager	Models functionality to store a PublicationEntity object to the corresponding table in the database
DataSourceType <<enumeration>>	Modes the types of data source formats

Query Engine related Class Definitions

QueryEngine	This is the main driver class for QueryEngine. It receives the query parameters in the form of query elements and performs necessary steps to fetch the result from the database
Query	Query object that contains the details about the query params. It is used by query builder to form a query
QueryElement	This is individual elements containing information about a filter or search text entered by user
DatabaseService	Used as bridge between the database and the Query engine. This class makes all the database search calls and sends the results back via the query engine.
QueryData	The Database results are formatted in the form of queryData object. This acts the object trealtion between database entities and the QueryEngine data object
QueryBuilder	Formulates the query based on the query object passed from the User-Interface. Validation and creation of different kinds of queries is performed by this class

UI related Class Definitions

UI	Models the functionality that enables the user to search for publications
UIManager	Provides information on data models to generate UI elements correspondingly
ShortList	Models a list of potential candidates
ShortListManager	Models functionality to manage short lists

Database related Class Definitions

DBManager	Handles connection to Database and provides a gateway for other components to access the database

Sequence Diagram