# Software Requirements Specification

# for

# BibTeX Manager

Version 1.0

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# Introduction

## Purpose

The BibTeX bibliography manager is intended to facilitate use of BibTeX references in research papers. This software will provide the means for researchers, including students, to organize and manage their BibTeX citations and to help them integrate their citations with their research papers.

## Intended Audience and Reading Suggestions

This document was developed both as a guideline for student developers, and also as a reference for researchers seeking assistance with managing their BibTeX references.

## Project Scope

The goal of this application is to make management of BibTeX citations simpler when developing a research paper, and to provide the researcher with a means of organizing notes and annotations of their bibliography. The application will allow categorization of citations, including sub-categories. It will be able to read BibTeX format citations and also write BibTeX files, and provide some compatibility between alternative formats and BibTeX. It will help the user manage their annotations of their bibliography, and help them organize citations and create limited bibliographies for specific papers.

# Overall Description

## Product Perspective

This software product is being developed by students of the Object-Oriented Software Development course at DePauw University and is intended for use by student researchers or anyone wanting assistance with the management of their BibTeX references. The goal of this project is to develop a feature-rich application which will serve as a functioning prototype for a more comprehensive application which could be developed from extending the codebase.

## Product Features

The main features of this product are:

* reading / writing BibTeX files and providing some compatibility with other formats
* organizing, categorizing, and annotating citations
* browsing, editing, and developing new citations

## User Classes and Characteristics

The only users intended for this application are researchers, which may include students. The area of research is unimportant, but the use of BibTeX references means the user is more likely a researcher in computer science, mathematics, or a related field.

## Operating Environment

This application is designed to work with a Java Virtual Machine in a desktop environment. Users of this application are expected to be running a Windows, MacOS, or Linux desktop operating system.

## Design and Implementation Constraints

This application will use the filesystem as a means of saving citation data and configuration data. One or more files will be created and maintained by the application to track the state of the bibliography. A graphical user interface will be provided for the user to interact with the system.

## User Documentation

A programmer's guide to working with the software components developed as part of this application will be provided for those who wish to continue development on this application. Additionally, a user's guide will be provided for those who wish to use this application to assist in their research.

# System Features

The following features, with their associated requirements, will be implemented in the final revision of this software system:

## Reading and Writing Citations

3.1.1 Description and Priority

A user can load and save citations in BibTeX, and can convert to and from another format.

3.1.2 Functional Requirements

REQ-1: A general citation representation must exist which can generally represent BibTeX citations.

REQ-2: citations formatted as BibTeX files should be importable into the application

REQ-3: The application must be able to write BibTeX formatted files.

REQ-4: Support for (importing/exporting) citations must be present.

## Annotating the Bibliography

3.2.1 Description and Priority

A user can easily annotate citations with information relevant to their research, and review and record the relevance of a citation.

3.2.2 Functional Requirements

REQ-1: The system must be able to store a free-form variety of annotations for citations

REQ-2: The system must additionally allow annotation by tags

REQ-3: Annotations should be able to be saved and loaded from files for use between sessions.

REQ-4: The user will be able to create custom tags for each citation, allowing

Him or her to add absolutely anything they need to the citation.

## Editing the Bibliography

3.3.1 Description and Priority

A user can manually update the content of a citation, or create a new citation.

3.3.2 Functional Requirements

REQ-1: The application will provide an interface for creating new citations

REQ-2: The application will provide an interface for altering the fields of an existing citation.

REQ-3: The application will provide an interface for removing existing citations.

REQ-4: Additions and changes should be saved and loaded between sessions.

REQ-5: Citations should have a robust internal representation, which is extensible and adaptable to many BibTeX citation types.

## Browsing and Organizing the Bibliography

3.4.1 Description and Priority

A user can easily search or browse their bibliography to find the information they seek.

3.4.2 Functional Requirements

REQ-1: Citations can be summarized and displayed in a long list for browsing purposes.

REQ-2: Citations can be searched by author, tag, keyword, date range, or title, with the results displayed in the REQ-1 browsing format.

REQ-3: Displayed citations can be re-ordered by date, author, or title in ascending or descending order.

REQ-4: Bibliography files can be generated with a select subset of the entire bibliography.

# External Interface Requirements

## Hardware Interfaces

The software will run on a desktop or laptop and no additional hardware is needed.

## Software Interfaces

BibTeX files produced by this application will be used by the latex typesetting software to generate research papers.

# Other Nonfunctional Requirements

## Performance Requirements

Queries performed over the citation data must consume minimal system resources so as to be accessible in real-time by users of the system. This application is intended to be used interactively, so users should not be expected to wait for the completion of any of the operations provided by the application.

## Security Requirements

It must be possible for the primary user of the application (the instructor) to keep citation information private. This will be achieved through existing user-based security on the host operating system.

## Software Quality Attributes

This application will ship with a suite of tests which insure its proper function, even if third-party updates to the source-code are integrated. Additionally, at run time, this application will verify the correctness of any data files it uses, or of any input provided by the user, and issue appropriate error messages in the cases of unexpected or erroneous input.