Creating Bibliography with LaTeX

There are two ways of producing a bibliography. You can either produce a bibliography by *manually* listing the entries of the bibliography or producing it *automatically* using the BibTeX program of LaTeX. Both types are detailed below.

A) Manually Creating a Bibliography

The bibliography is produced manually with the environment

```
\begin{thebibliography}{widest entry}
  \bibitem[label1]{cite_key1} bibliographic information
  \bibitem[label2]{cite_key2} bibliographic information
  ...
\end{thebibliography}
```

This environment adds Bibliography into table of contents and sets up the style of the bibliography pages. *label* is an optional argument and *cite_key* is a mandatory argument. The mandatory argument *cite_key* is a reference keyword that does not appear in the bibliography but it is used to as a quick name to cite a reference.

Without the optional argument *label*, **\bibitem** produces a running number in square brackets as the label for the reference in the text. The citation numbers are defined by the order in which the keys appear on the **\bibitem** commands inside "thebibliography" environment, so it is the responsibility of the student to sort the bibliography entries alphabetically when a bibliography is created manually. With *label*, you can give whatever indicator you wish to see when you cite a reference, i.e. an abbreviation of the author's name and last two digits of the year.

For the standard application with running numbers, *widest entry* is a dummy number with as many digits as the largest. The citation in the text itself is made with the command **\cite{cite_key}** where *cite_key* is the reference keyword that appears in the **\bibitem** command. Two examples are given below with their outputs.

File: BiblioHelp2

Example 1: An example without using *label* argument for entries is given below. Numeric labels are given automatically. The output is shown in Figure 1.

```
%%%%%%%%% Example 1%%%%%%%%%%%%%%%%%%%%%%%%%%%
\begin{thebibliography}{100}  % 100 is a random guess of the total number of
%references

\bibitem{Boney96} Boney, L., Tewfik, A.H., and Hamdy, K.N., ``Digital
Watermarks for Audio Signals," \emph{Proceedings of the Third IEEE
International Conference on Multimedia}, pp. 473-480, June 1996.

\bibitem{MG}  Goossens, M., Mittelbach, F., Samarin, \emph{A LaTeX
Companion}, Addison-Wesley, Reading, MA, 1994.

\bibitem{HK}  Kopka, H., Daly P.W., \emph{A Guide to LaTeX},
Addison-Wesley, Reading, MA, 1999.

\bibitem{Pan} Pan, D., ``A Tutorial on MPEG/Audio Compression," \emph{IEEE
Multimedia}, Vol.2, pp.60-74, Summer 1998.

\end{thebibliography}
%%%%%%%%%%%%% end %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```


BIBLIOGRAPHY

[1] Boney, L., Tewfik, A.H., and Hamdy, K.N., "Digital Watermarks for Audio Signals," *Proceedings of the Third IEEE International Conference on Multimedia*, pp. 473-480, June 1996.

[2] Goossens, M., Mittelbach, F., Samarin, *A LaTeX Companion*, Addison-Wesley, Reading, MA, 1994.

[3] Kopka, H., Daly P.W., *A Guide to LaTeX*, Addison-Wesley, Reading, MA, 1999.

[4] Pan, D., "A Tutorial on MPEG/Audio Compression," *IEEE Multimedia*, Vol.2, pp.60-74, Summer 1998.

Figure 1. Output of Example 1: Bibliography with Numbers as Label

In the text,
```
    ... time approaches infinity \cite{Pan}.
```
will produce :

time approaches infinity [4].

Example 2: An example using a *label* argument for each entry is given below. Labels are inserted in the Bibliography output and in the text. The output of example 2 is shown in Figure 2. Note that, since the width of labels chosen by the student may change, it might be needed to use

commands **\addtolength**{\leftmargin}{*length*} & **\setlength**{\itemindent}{*length*} together as given in Example 2 to align the lines. The *length* value can be changed depending on the width of the labels.

```
%%%%%%%% Example 2%%%%%%%%%%%%%%%%%%%%%%%%
\begin{thebibliography}{100}  % 100 is a random guess of the total number of
%references

\addtolength{\leftmargin}{0.2in} % sets up alignment with the following line.
\setlength{\itemindent}{-0.2in}

\bibitem[Bon96]{Boney96} Boney, L., Tewfik, A.H., and Hamdy, K.N., ``Digital
Watermarks for Audio Signals," \emph{Proceedings of the Third IEEE
International Conference on Multimedia}, pp. 473-480, June 1996.


\bibitem[Goo94]{MG}  Goossens, M., Mittelbach, F., Samarin, \emph{A LaTeX
Companion}, Addison-Wesley, Reading, MA, 1994.

\bibitem[Kop99]{HK}  Kopka, H., Daly P.W., \emph{A Guide to LaTeX},
Addison-Wesley, Reading, MA, 1999.

\bibitem[Pan98]{Pan} Pan, D., ``A Tutorial on MPEG/Audio Compression,"
\emph{IEEE Multimedia}, Vol.2, pp.60-74, Summer 1998.

\end{thebibliography}

%%%%%%%%% end %%%%%%%%%%%%%%%%%%%%%%%%%%%%
```


Figure 2. Output of Example 2: Bibliography with Labels

In the text,
```
... time approaches infinity \cite{Pan}.
```

```
will produce :
```

time approaches infinity [Pan98].

See the iitsample.tex file for more examples.

B) Creating a Bibliography Automatically Using BibTeX

Why should you use BibTeX? There are some difficulties of manually creating the bibliography:

- It is difficult to make entries consistent, i.e. variations in the use of full forenames versus abbreviations, italicization, or quoting of titles, spelling, etc…
- A bibliography laid out in one style (e.g., alphabetic by author and year) is extremely difficult to convert to another (e.g, numeric citation order) if requested.
- It is difficult to maintain one large database of bibliographic references that can be reused in different documents.
- It is difficult to manage sorting manually, whereas, some bibliography styles sort entries in alphabetical order automatically.

Authors and researchers often find that they refer to the same set of papers in most of their publications. Thus, it is very useful to create a bibliography database, and to use the database from one work to the next. A database is possible with BibTeX program supplied by LaTeX. The information about the various publications is stored in one or more files with the extension of **.bib**. For each publication there is a *cite_key* that identifies it, which may be used in the text to refer to it. This kind of file is called a bibliography database.

Bibliography Database

You can use one or more databases to construct a bibliography. To create a bibliography, LaTeX tex file must contain the command **\bibliography**{*database1,database2,…*} at the point where the bibliography is to appear. Here, *database1*, and *database2* are root names, and they have the extension of **.bib**. However, the extension **.bib** is not written explicitly.

Reference can be made to a publication in one of the databases at any time in the text with the command **\cite{***cite_key***}** as explained before. After the BibTeX program is run, all of the database entries won't appear in the output. Only the publications cited in the text with **\cite** command will appear in the bibliography output.

The entries in a bibliography database are of the form

```
@entry_type{cite_key,
    field_name = { field text},
    ...
    field_name={field text}
}
```

For example, if the reference is a book:

```
@BOOK{HK,
    AUTHOR={H. Kopka and P. W. Daly},
    TITLE={A Guide to LaTeX},
    PUBLISHER={Addison-Wesley},
    ADDRESS={Reading, MA},
    YEAR=1999.
  }
```

where BOOK is the entry type, HK is the *cite_key* which is used as **\cite{**HK**}** to refer to this book in the text, and other fields are the book information. A field name is separated from another one with a comma, and a curly brace is used to indicate that the information for the particular entry is finished.

The standard entry types are article, book, booklet, conference, inbook, incollection, inproceedings, manual, mastersthesis, misc, phdthesis, proceedings, techreport, unpublished, and some of the fields that are used with entries are author, address, title, month, year, number, volume, publisher, etc.. Each entry type has some required fields and some optional fields. For example, for article entry, author, title, journal, year fields are required, and volume, number, pages, month, note fields are optional. Information about entry types and fields can be found in http://newton.ex.ac.uk/tex/pack/bibtex/btxdoc/node5.html

Bibliography Style

A bibliography style has to be chosen. The bibliography style can be declared with `\bibliography{`*style*`}` command, which may be issued anywhere after the preamble. The *style* is a file with **.bst** extension that determines how bibliography entries will appear at the output, such as if they are sorted or not, or how they are labeled etc… The extension **.bib** is not written explicitly. There are many standard bibliography style files. Two of them that are compatible with IIT thesis manual are *plain.bst* and *alpha.bst*. They are part of the LaTeX package; a student does not need to download it. The *plain.bst* and *alpha.bst* styles are explained below.

plain.bst The entries in the bibliography are ordered alphabetically; each is assigned a running number in square brackets as the in-text reference marker, printed where **\cite** commands are issued.

alpha.bst Entries ordered alphabetically (same as plain), and markers are an abbreviation of the author's name with year of publication. For instance, a reference to Smith (1987) would appear as [Smi87].

There are other style files that are used for some scientific magazines, and they might be preferable to use for some majors, i.e. students/advisors in electrical engineering generally prefers to use IEEE bibliography style (IEEEtranS.bst) which does not conflict with IIT thesis manual. As long as there is no conflict between the bibliography style file that a student would like to use and the IIT thesis manual, he/she may also use his/her major's style file.

Bibliography Examples

A bibliography database file called ***mybib.bib*** is created as a sample, and it is given below.

```
%%%%%%%%%% mybib.bib %%%%%%%%%%%%%%%%%%%
@BOOK{HK,
   AUTHOR={H. Kopka and P. W. Daly},
   TITLE={A Guide to LaTeX},
   PUBLISHER={Addison-Wesley},
   ADDRESS={Reading, MA},
   YEAR=1999.
 }

@BOOK{MG,
   AUTHOR={M. Goossens and F. Mittelbach and A. Samarin},
   TITLE={A LaTeX Companion},
   PUBLISHER={Addison-Wesley},
   ADDRESS={Reading, MA},
   YEAR=1994.
 }

@ARTICLE{Pan,
    AUTHOR={D. Pan},
    TITLE={A Tutorial on MPEG/Audio Compression},
    JOURNAL={IEEE Multimedia},
    YEAR={1995},
    VOLUME= {2} ,
    PAGES={60-74},
    MONTH={Summer}.
}

@INPROCEEDINGS{Boney96,
AUTHOR={L. Boney and A. H. Tewfik and K. N. Hamdy},
TITLE={Digital Watermarks for Audio Signals},
booktitle={Proceedings  of  the  Third  IEEE  International  Conference  on
Multimedia},
PAGES={473-480},
MONTH={June},
YEAR={1996}.
}
%%%%%%%%%%%% end %%%%%%%%%%%%%%%%%%%%%%
```

Example 3: Inserting the following commands in the tex file, a bibliography in plain style can be created.

```
\bibliographystyle{plain}
\bibliography{mybib}
```

The output is given in Figure 3.

BIBLIOGRAPHY

[1] L. Boney, A. H. Tewfik, and K. N. Hamdy. Digital watermarks for audio signals. In *Proceedings of the Third IEEE International Conference on Multimedia*, pages 473–480, June 1996.

[2] M. Goossens, F. Mittelbach, and A. Samarin. *A LaTeX Companion*. Addison-Wesley, Reading, MA, 1994.

[3] H. Kopka and P. W. Daly. *A Guide to LaTeX*. Addison-Wesley, Reading, MA, 1999.

[4] D. Pan. A tutorial on mpeg/audio compression. *IEEE Multimedia*, 2:60–74, Summer 1995.

Figure 3. Output of Example 3: Bibliography with plain.bst style.

In the text,

```
... time approaches infinity \cite{Pan}.
```

will produce :

time approaches infinity [4].

Example 4: Inserting the following commands in the tex file, a bibliography in alpha style can be created.

```
\bibliographystyle{alpha}
\bibliography{mybib}
```

The output is given in Figure 4.

BIBLIOGRAPHY

[BTH96] L. Boney, A. H. Tewfik, and K. N. Hamdy. Digital watermarks for audio signals. In *Proceedings of the Third IEEE International Conference on Multimedia*, pages 473–480, June 1996.

[GMS94] M. Goossens, F. Mittelbach, and A. Samarin. *A LaTeX Companion*. Addison-Wesley, Reading, MA, 1994.

[KD99] H. Kopka and P. W. Daly. *A Guide to LaTeX*. Addison-Wesley, Reading, MA, 1999.

[Pan95] D. Pan. A tutorial on mpeg/audio compression. *IEEE Multimedia*, 2:60–74, Summer 1995.

Figure 4. Output of Example 4: Bibliography with alpha.bst style.

In the text,

```
... time approaches infinity \cite{Pan}.
```

will produce :

time approaches infinity [Pan95].