How to Format Your Workshop Paper

Tetiana A. Vakaliuk*
tetianavakaliuk@acnsci.org
Zhytomyr Polytechnic State University
Zhytomyr, Ukraine
Institute for Digitalisation of Education of the NAES of Ukraine
Kyiv, Ukraine
Kryvyi Rih State Pedagogical University
Kryvyi Rih, Ukraine
Academy of Cognitive and Natural Sciences
Kryvyi Rih, Ukraine

Serhiy O. Semerikov*
semerikov@acnsci.org
Kryvyi Rih State Pedagogical University
Kryvyi Rih, Ukraine
Kryvyi Rih National University
Kryvyi Rih, Ukraine
Institute for Digitalisation of Education of the NAES of Ukraine
Kyiv, Ukraine
Zhytomyr Polytechnic State University
Zhytomyr, Ukraine
Academy of Cognitive and Natural Sciences
Kryvyi Rih, Ukraine

Abstract

A clear and well-documented LaTeX document is presented as an article formatted for publication by ACM in a conference proceedings. Based on the "acmart" document class, this article presents and explains many of the common variations, as well as many of the formatting elements an author may use in the preparation of the documentation of their work.

CCS Concepts

• **Do Not Use This Code → Generate the Correct Terms for Your Paper**; *Generate the Correct Terms for Your Paper*; Generate the Correct Terms for Your Paper; Generate the Correct Terms for Your Paper.

Keywords

LaTeX class, paper template, paper formatting, ACM, doors

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1 Introduction

ACM's consolidated article template, introduced in 2017, provides a consistent LaTeX style for use across ACM publications, and incorporates accessibility and metadata-extraction functionality necessary for future Digital Library endeavours. Numerous ACM and SIG-specific LaTeX templates have been examined, and their unique features incorporated into this single new template.

If you are new to publishing with ACM, this document is a valuable guide to preparing your work for publication. If you have published with ACM before, it provides insight and instruction into more recent changes to the article template.

The "acmart" document class can be used to prepare articles for any ACM publication — conference or journal, and for any stage of publication, from review to final "camera-ready" copy, to the author's own version, with *very* few changes to the source.

2 Template Overview

As noted in the introduction, the "acmart" document class can be used to prepare many different kinds of documentation – a double-anonymous initial submission of a full-length technical paper, a two-page SIGGRAPH Emerging Technologies abstract, a "camera-ready" journal article, a SIGCHI Extended Abstract, and more — all by selecting the appropriate *template style* and *template parameters*.

This document will explain the major features of the document class. For further information, the *LaTeX User's Guide* is available from https://www.acm.org/publications/proceedings-template.

2.1 Template Styles

The primary parameter given to the "acmart" document class is the *template style* which corresponds to the kind of publication or SIG publishing the work. This parameter is enclosed in square brackets and is a part of the documentclass command:

```
\documentclass[STYLE]{acmart}
```

The majority of conference proceedings documentation will use the acmconf template style.

- sigconf: The default proceedings template style.

2.2 Template Parameters

In addition to specifying the *template style* to be used in formatting your work, there are a number of *template parameters* which modify some part of the applied template style. A complete list of these parameters can be found in the *LaTeX User's Guide.*

Frequently-used parameters, or combinations of parameters, include:

*Both authors contributed equally to this research.

doors '26, Zhytomyr, UA

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https://doi.org/XXXXXXX.XXXXXXX

- `anonymous,review`: Suitable for a "double-anonymous" conference submission. Anonymizes the work and includes line numbers. Use with the `\acmSubmissionID` command to print the submission's unique ID on each page of the work.
- `authorversion`: Produces a version of the work suitable for posting by the author.
- `screen`: Produces colored hyperlinks.

This document uses the following string as the first command in the source file:

```
\documentclass[sigconf, screen, review]{acmart}
```

3 Modifications

Modifying the template – including but not limited to: adjusting margins, typeface sizes, line spacing, paragraph and list definitions, and the use of the `\vspace` command to manually adjust the vertical spacing between elements of your work – is not allowed.

Your document will be returned to you for revision if modifications are discovered.

4 Typefaces

The "`acmart`" document class requires the use of the "Libertine" typeface family. Your TEX installation should include this set of packages. Please do not substitute other typefaces. The "`lmodern`" and "`ltimes`" packages should not be used, as they will override the built-in typeface families.

5 Title Information

The title of your work should use capital letters appropriately – https://capitalizemytitle.com/ has useful rules for capitalisation. Use the `title` command to define the title of your work. If your work has a subtitle, define it with the `subtitle` command. Do not insert line breaks in your title.

If your title is lengthy, you must define a short version to be used in the page headers, to prevent overlapping text. The `title` command has a "short title" parameter:

```
\title[short title]{full title}
```

6 Authors and Affiliations

Each author must be defined separately for accurate metadata identification. As an exception, multiple authors may share one affiliation. Authors' names should not be abbreviated; use full first names wherever possible. Include authors' e-mail addresses whenever possible.

Grouping authors' names or e-mail addresses, or providing an "e-mail alias," as shown below, is not acceptable:

```
\author{Brooke Aster, David Mehldau}
\email{dave,judy,steve@university.edu}
\email{firstname.lastname@phillips.org}
```

The `authornote` and `authornotemark` commands allow a note to apply to multiple authors – for example, if the first two authors of an article contributed equally to the work.

If your author list is lengthy, you must define a shortened version of the list of authors to be used in the page headers, to prevent overlapping text. The following command should be placed just after the last `\author{}` definition:

```
\renewcommand{\shortauthors}{McCartney, et al.}
```

Omitting this command will force the use of a concatenated list of all of the authors' names, which may result in overlapping text in the page headers.

The article template's documentation, available at https://www.acm.org/publications/proceedings-template, has a complete explanation of these commands and tips for their effective use.

Note that authors' addresses are mandatory for journal articles.

7 Rights Information

Authors of any work published by ACM will need to complete a rights form. Depending on the kind of work and the rights management choice made by the author, this may be a copyright transfer, permission, license, or an OA (open access) agreement.

Regardless of the rights management choice, the author will receive a copy of the completed rights form once it has been submitted. This form contains LATEX commands that must be copied into the source document. When the document source is compiled, these commands and their parameters add formatted text to several areas of the final document:

- the "ACM Reference Format" text on the first page.
- the "rights management" text on the first page.
- the conference information in the page header(s).

Rights information is unique to each work; if you are preparing several works for an event, make sure to use the correct set of commands for each work.

The ACM Reference Format text is required for articles over one page and optional for one-page articles (abstracts).

8 CCS Concepts and User-Defined Keywords

Two elements of the "acmart" document class provide powerful taxonomic tools for you to help readers find your work in an online search.

The ACM Computing Classification System – https://www.acm.org/publications/class-2012 – is a set of classifiers and concepts that describe the computing discipline. Authors can select entries from this classification system, via https://dl.acm.org/ccs/ccs.cfm, and generate the commands to be included in the LATEX source.

User-defined keywords are a comma-separated list of words and phrases of the authors' choosing, providing a more flexible way of describing the research being presented.

CCS concepts and user-defined keywords are required for all articles over two pages in length and are optional for one- and two-page articles (or abstracts).

9 Sectioning Commands

Your work should use standard LATEX sectioning commands: `\section`, `\subsection`, `\subsubsection`, `\paragraph`, and `\subparagraph`. The sectioning levels up to `\subsubsection` should be numbered; do not remove the numbering from the commands.

Simulating a sectioning command by setting the first word or words of a paragraph in boldface or italicised text is **not allowed.**

Below are examples of sectioning commands.

9.1 Subsection

This is a subsection.

9.1.1 Subsubsection. This is a subsubsection.

Paragraph. This is a paragraph.
Subparagraph This is a subparagraph.

10 Tables

The "acmart" document class includes the "booktabs" package – https://ctan.org/pkg/booktabs – for preparing high-quality tables.

Table captions are placed *above* the table.

Because tables cannot be split across pages, the best placement for them is typically the top of the page nearest their initial cite. To ensure this proper "floating" placement of tables, use the environment **table** to enclose the table's contents and the table caption. The contents of the table itself must go in the **tabular** environment, to be aligned properly in rows and columns, with the desired horizontal and vertical rules. Again, detailed instructions on **tabular** material are found in the *LaTeX User's Guide*.

Immediately following this sentence is the point at which Table 1 is included in the input file; compare the placement of the table here with the table in the printed output of this document.

Table 1: Frequency of Special Characters

Non-English or Math	Frequency	Comments
Ø	1 in 1,000	For Swedish names
π	1 in 5	Common in math
\$	4 in 5	Used in business
Ψ_1^2	1 in 40,000	Unexplained usage

To set a wider table, which takes up the whole width of the page's live area, use the environment **table*** to enclose the table's contents and the table caption. As with a single-column table, this wide table will "float" to a location deemed more desirable. Immediately following this sentence is the point at which Table 2 is included in the input file; again, it is instructive to compare the placement of the table here with the table in the printed output of this document.

Always use midrule to separate table header rows from data rows, and use it only for this purpose. This enables assistive technologies to recognise table headers and support their users in navigating tables more easily.

11 Math Equations

You may want to display math equations in three distinct styles: inline, numbered, or non-numbered display. The next three sections discuss each of the three.

11.1 Inline (In-text) Equations

A formula that appears in the running text is called an inline or in-text formula. It is produced by the **math** environment, which can be invoked with the usual `\begin . . . \end` construction or with the short form `$ . . . $`. You can use any of the symbols and structures, from α to ω, available in LaTeX [27]; this section will simply show a few examples of in-text equations in context. Notice how this equation: $\lim_{n\to\infty} x = 0$, set here in in-line math style, looks slightly different when set in display style. (See next section).

11.2 Display Equations

A numbered display equation – one set off by vertical space from the text and centred horizontally – is produced by the **equation** environment. An unnumbered display equation is produced by the **displaymath** environment.

Again, in either environment, you can use any of the symbols and structures available in LaTeX; this section will just give a couple of examples of display equations in context. First, consider the equation, shown as an inline equation above:

$$\lim_{n\to\infty} x = 0 \tag{1}$$

Notice how it is formatted somewhat differently in the **displaymath** environment. Now, we'll enter an unnumbered equation:

$$\sum_{i=0}^{\infty} x + 1$$

and follow it with another numbered equation:

$$\sum_{i=0}^{\infty} x_i = \int_0^{\pi+2} f \tag{2}$$

just to demonstrate LaTeX's able handling of numbering.

12 Figures

Figures must be included in an article's source code at the appropriate place in the text, not grouped at the end.

Each figure should have a brief caption describing it and, if necessary, interpreting the various lines and symbols on the figure. As much lettering as possible should be removed from the figure itself and included in the caption. If a figure has parts, these should be labelled (*a*), (*b*), (*c*), etc.

Place the figure as close as possible after the point where it is first referenced in the text. If there are a large number of figures, it might be necessary to place some before the text citation. Figures should never appear within or after the reference list.

Individual figures should generally be centred, but two figures should be placed side-by-side if they will fit comfortably like this, as it saves space. At times, it may be convenient to put two figures side by side or put the caption at the side of a figure. To put figures side by side, within a figure environment, put each figure and its caption into a minipage with an appropriate width (e.g. 3in or 18pc if the figures are of equal size) and then separate the figures slightly by adding some horizontal space between the two minipages (e.g. `\hspace{.2in}` or `\hspace{1.5pc}`. To get the caption at the side of the figure, add the small horizontal space after the `\includegraphics` command and then put the `\caption` within a minipage of the appropriate width aligned bottom, i.e. `\begin{minipage}[b]{3in}` etc.

The "figure" environment should be used for figures. One or more images can be placed within a figure.

Your figures should contain a caption which describes the figure to the reader (see Figure 1). Figure captions go below the figure. Your figures should also include a description suitable for screen

Table 2: Some Typical Commands

Command	A Number	Comments
\author	100	Author
\table	300	For tables
\table*	400	For wider tables

readers to assist the visually challenged in understanding your work better.

Figure 1: 1907 Franklin Model D roadster.

For figures with a fixed position in the text, use the syntax of Figure 1:

```
\begin{figure}[h]
 \centering
 \includegraphics[width=0.75\linewidth]
       {img/example-franklin}
 \caption{1907 Franklin Model D roadster.}
 \label{fig-0}
\end{figure}
```

If a figure has parts, these should be labelled as (a), (b), (c) etc, on the actual figure. Parts should not have separate captions (see Figure 2).

```
\begin{figure}[t]
 \begin{center}
 \begin{minipage}[b]{0.47\columnwidth}
 \includegraphics[width=1\columnwidth]{img/name.eps}
 \begin{center}(a)\end{center}
 \end{minipage}
 \hspace{0.04\columnwidth}
 \begin{minipage}[b]{0.47\columnwidth}
 \includegraphics[width=1\columnwidth]{img/name.eps}
 \begin{center}(b)\end{center}
 \end{minipage}
 \end{center}
 \caption{\label{fig5}A caption of the figure
    of two parts, (a) and (b).}
\end{figure}
```

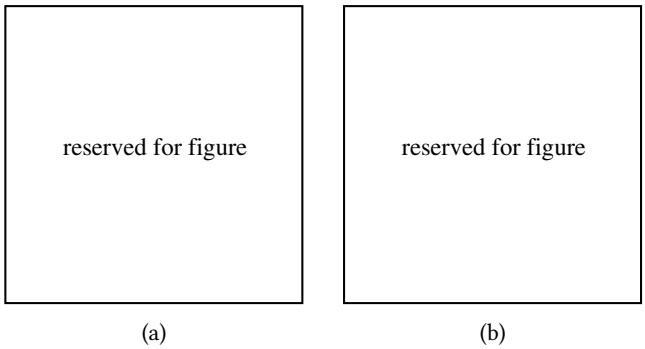

Figure 2: A caption of the figure of two parts, (a) and (b).

A figure description must be unformatted plain text less than 2000 characters long (including spaces). **Figure descriptions should not repeat the figure caption – their purpose is to capture important information that is not already provided in the caption or the main text of the paper.** For figures that convey important and complex new information, a short text description may not be adequate. More complex alternative descriptions can be placed in an appendix and referenced in a short figure description. For example, provide a data table capturing the information in a bar chart, or a structured list representing a graph. For additional information regarding how best to write figure descriptions and why doing this is so important, please see https://www.acm.org/publications/taps/describing-figures/.

12.1 Colour Illustrations

You are free to use colour illustrations (Figure 3).

12.1.1 Remark. Use over 300 dpi resolution for your figures (we prefer 600 dpi).

One more remark. Do not use the lossy compressed images (e.g., JPEG).

13 Citations and Bibliographies

The use of BibTEX for the preparation and formatting of one's references is mandatory. Authors' names should be complete – use full first names ("Donald E. Knuth") not initials ("D. E. Knuth") – and

Figure 3: 1907 Franklin Model D roadster.

the salient identifying features of a reference should be included: title, year, volume, number, pages, article DOI, etc.

The bibliography is included in your source document with these two commands, placed just before the `\end{document}` command:

```
\bibliographystyle{ACM-Reference-Format}
\bibliography{bibfile}
```

where "`bibfile`" is the name, without the "`.bib`" suffix, of the BibTEX file.

13.1 Some Examples

A paginated journal article [23], an enumerated journal article [19, 43], a monograph (whole book) [31], a monograph/whole book in a series [13], a divisible-book such as an anthology or compilation [9] followed by the same example, however, we only output the series if the volume number is given [10] (so series should not be present since it has no volume number), a chapter in a divisible book [50], a chapter in a divisible book in a series [8], a multi-volume work as book [24], an article in a proceedings (of a conference, symposium, workshop for example) (paginated proceedings article) [2, 29], a proceedings article with all possible elements [49], an informally published work [12], a doctoral dissertation [5], a master's thesis: [3], an online document / world wide web resource [1, 36, 53], a video game (Case 1) [33] and (Case 2) [32] and [28] and (Case 3) a patent [42], work accepted for publication [39]. Multi-volume works as books [16] and [15]. A couple of citations with DOIs: [17, 21]. Online citations: [4, 38, 53, 56].

A lot of citations with `\cite`: [6, 7, 11, 14, 18, 20, 22, 25, 26, 30, 34, 35, 37, 40, 41, 44–48, 51, 52, 54, 55, 57–59].

Same citations with `\citet`: Descartes [6], Dirac [7], Goncharov et al. [11], Haveman and Gualtieri [14], Kalitkin and Kuz'mina

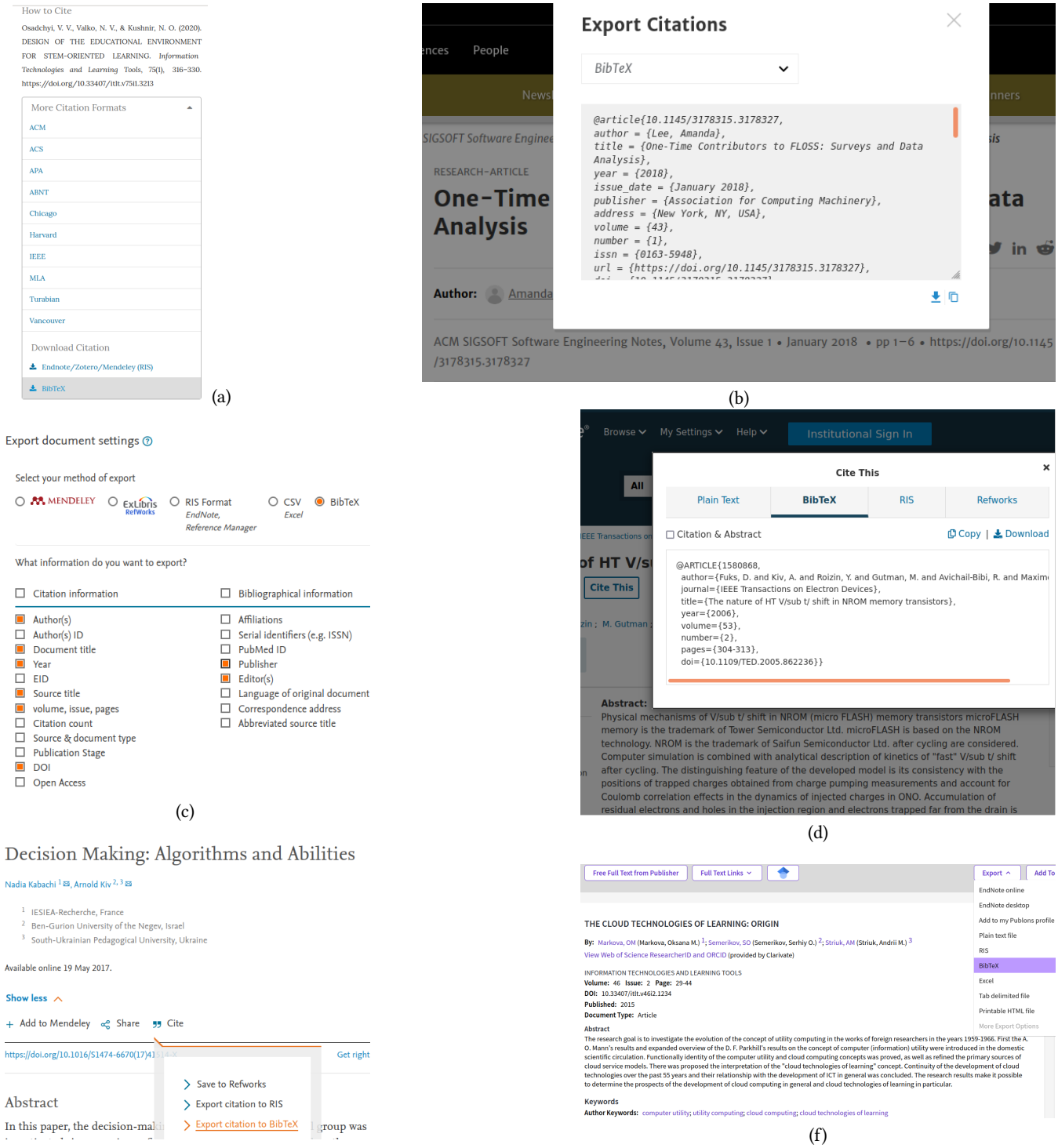

Figure 4: Export citations into a BibTEX file.

[18], Kerley [20], Kiv et al. [22], Konoplya [25], Koryakova and Epimakhov [26], Morkun et al. [30], Osadchyi et al. [34], Plato [35], Puu and Sushko [37], Russell [40], Saptsin and Soloviev [41], Semerikov et al. [44], Shramko [45, 46], Shramko and Rossman

[47], Shramko and Wansing [48], Sutherland [51], Teplytskyi [52], Tkachuk et al. [54], Trius et al. [55], Von Humboldt [57], Zhaldak [58, 59].

13.2 Best Practices: Export Citations into a BibTEX File

A good way to make your bibliography is to exclude manual creation of bibliography items whenever possible. We strongly recommend to use the "Cite" (export) facilities to BibTEX which available in the most of OJS installations (figure 4a), ACM Digital Library (figure 4b), Scopus (figure 4c), IEEE Xplore (figure 4d), ScienceDirect (figure 4e), Web of Science (figure 4f) etc.

14 Acknowledgments

Identification of funding sources and other support, and thanks to individuals and groups that assisted in the research and the preparation of the work should be included in an acknowledgment section, which is placed just before the reference section in your document.

This section has a special environment:

```
\begin{acks}
...
\end{acks}
```

so that the information contained therein can be more easily collected during the article metadata extraction phase, and to ensure consistency in the spelling of the section heading.

Authors should not prepare this section as a numbered or unnumbered `\section`; please use the "`acks`" environment.

15 Appendices

If your work needs an appendix, add it before the "`\end{document}`" command at the conclusion of your source document.

Start the appendix with the "`appendix`" command:

```
\appendix
```

and note that in the appendix, sections are lettered, not numbered. This document has two appendices, demonstrating the section and subsection identification method.

Acknowledgments

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A Research Methods

A.1 Part One

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A.2 Part Two

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B Online Resources

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