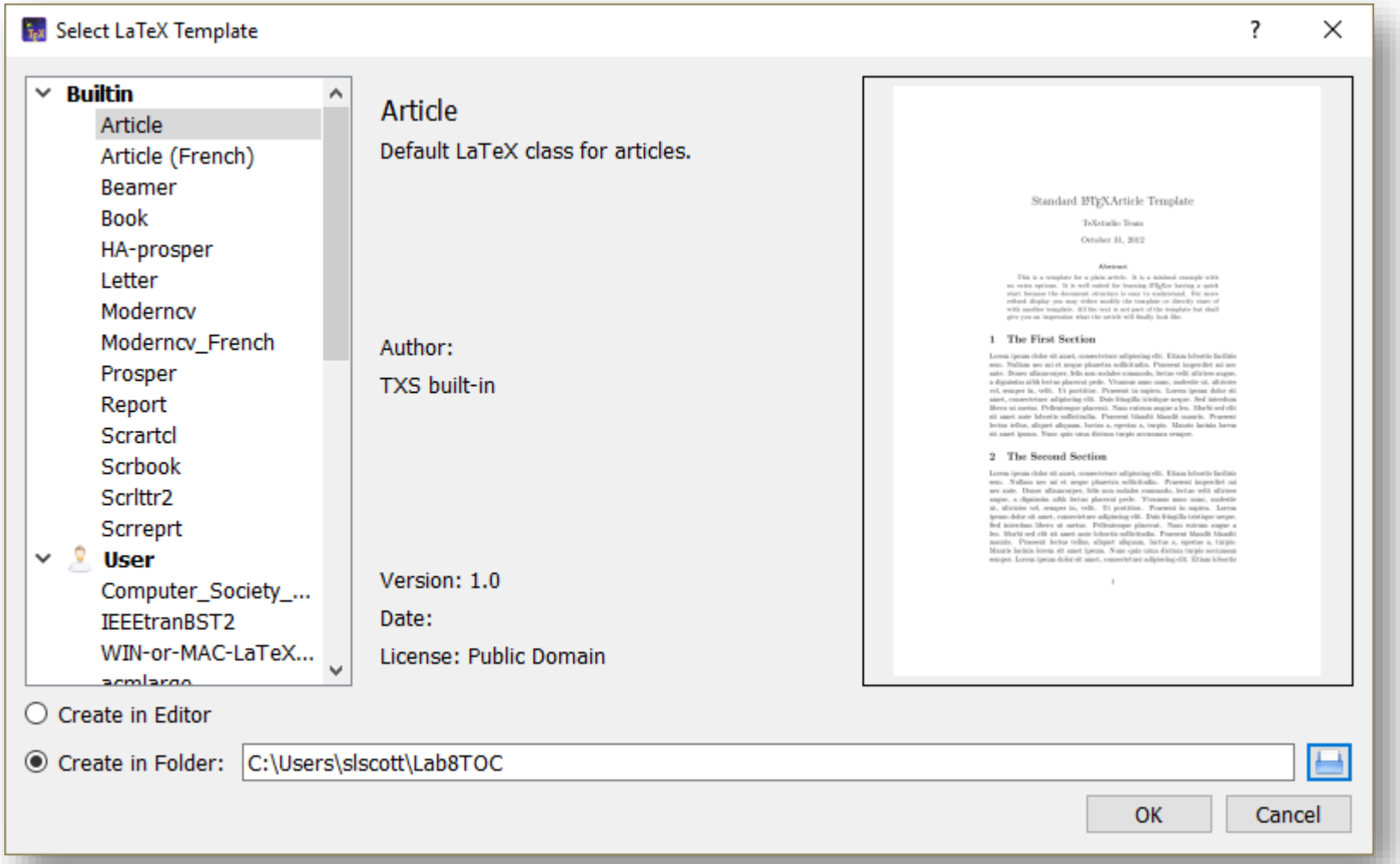
LaTex Lab 8: Table of Contents, Figures, and Tables

CSI 500

Course material derived from:
Lamport, L. (1994). *LATEX: a document preparation system: user's guide and reference manual*. Addison-Wesley.

Article

- Let's make another LaTex document
- Make a new folder called "Lab8TOC"
- In TexStudio, File, New From Template
- Select "Article"
- Select "Create in Folder", and navigate to your "Lab8TOC" folder.
- Press OK



LaTex code

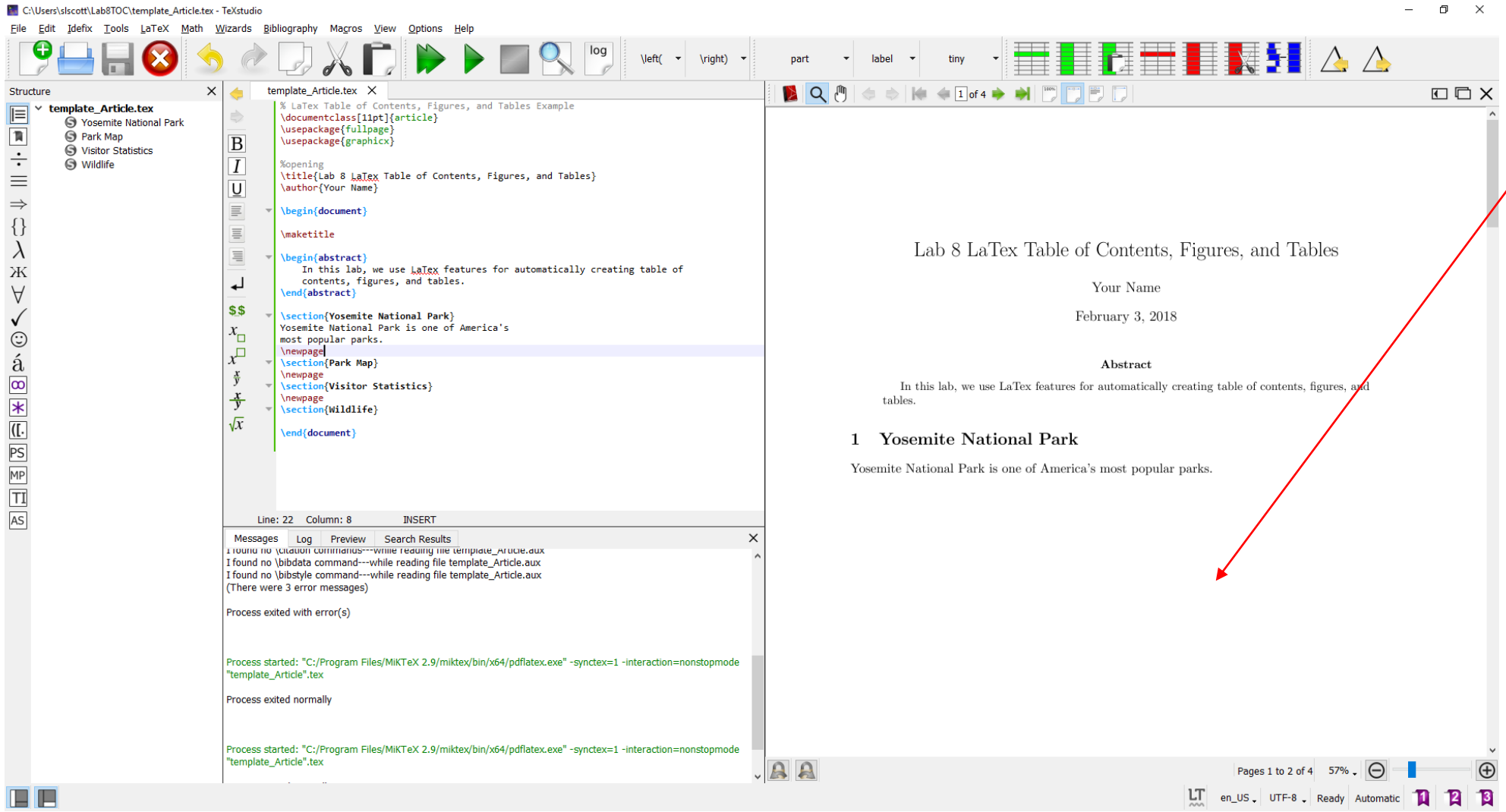
- Type in the following in the editor window.
  - Your additions are shown in RED font color
  - the "%" indicates comments
- Save the document
- Press the green arrowhead titled "Build and View" on the menu bar - it looks like this 
- At the dialog box, press F5 and OK

```
% LaTex Table of Contents, Figures, and Tables Example
\documentclass[11pt]{article}
\usepackage{fullpage}
\usepackage{graphicx}

%opening
\title{Lab 8 LaTex Table of Contents, Figures, and Tables}
\author{Your Name}

\begin{document}

\maketitle

\begin{abstract}
In this lab, we use LaTex features for automatically creating table of
contents, figures, and tables.
\end{abstract}

\section{Yosemite National Park}
Yosemite National Park is one of America's
most popular parks.
\newpage
\section{Park Map}
\newpage
\section{Visitor Statistics}
\newpage
\section{Wildlife}

\end{document}
```

What it should look like

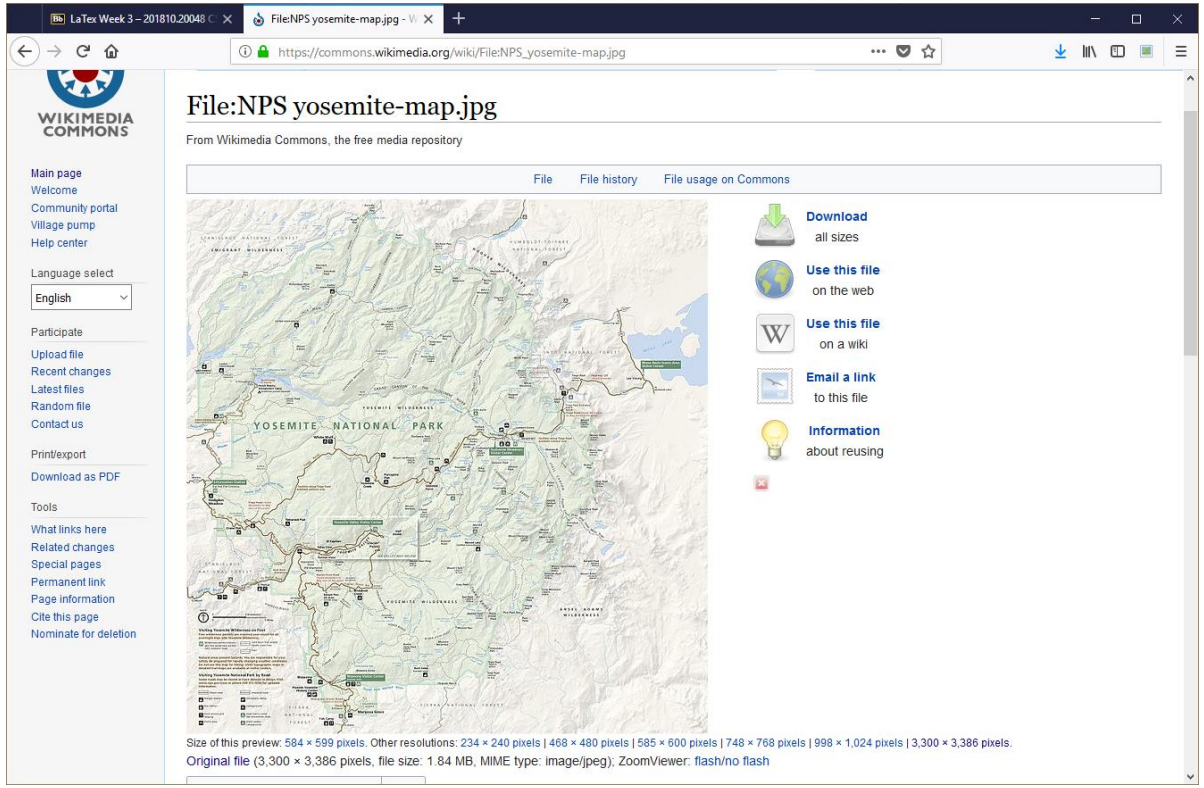
4 Sections

Page 1 of 4



Let's add some geospatial content

- go to Wikimedia commons web site at https://commons.wikimedia.org/wiki/Main_Page
- search for "Yosemite National Park Map"
  - view the images that come back
  - here is a good one that is public domain
  - https://commons.wikimedia.org/wiki/File:NPS_yosemite-map.jpg
  - download the file and save to your working directory



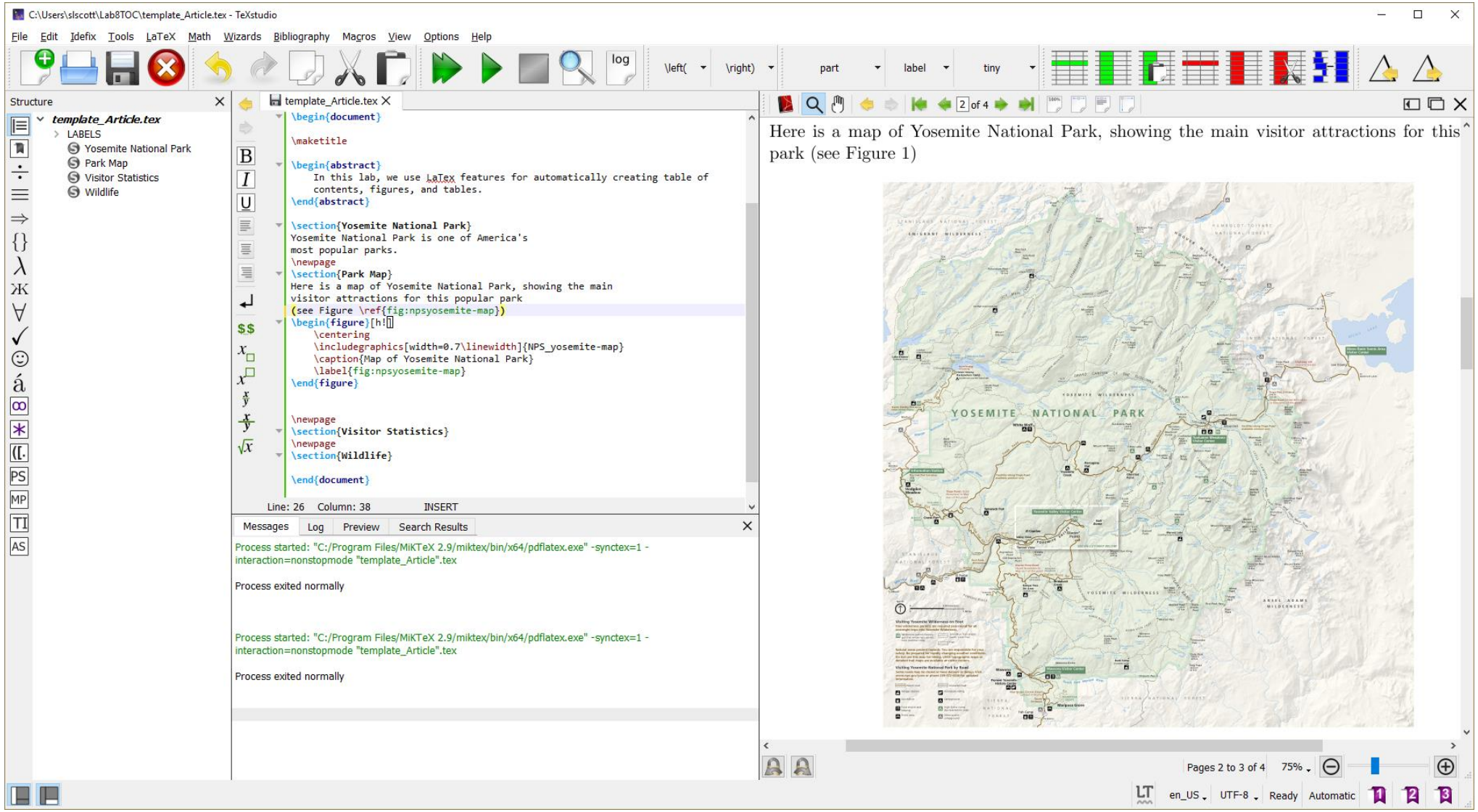
Now let's add a map to our document

- Go to the section titled \section{Park Map}
  - enter in the text shown in red
- Now enter in the \figure text as shown
- When done, go back to the \section{Park Map}
  - add in a reference to the figure using the \ref command.

  (see Figure \ref{fig:npsyosemite-map})
- Press "Build and View"

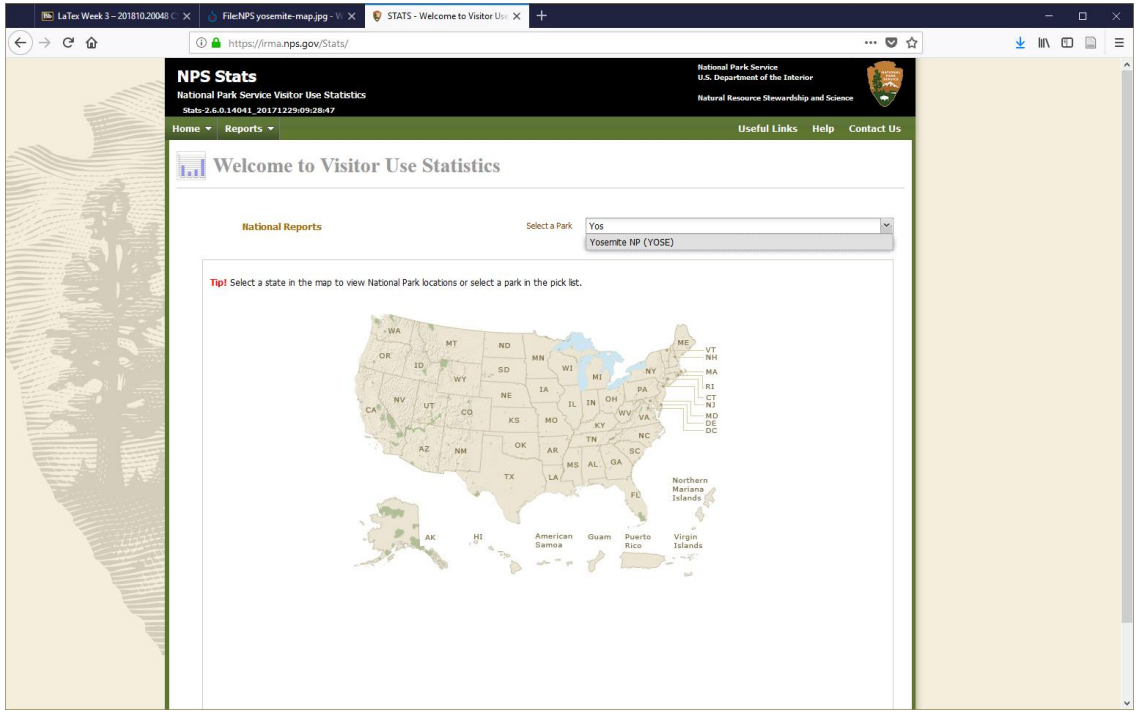
```
\section{Park Map}
Here is a map of Yosemite National Park, showing the main
visitor attractions for this popular park.(see Figure \ref{fig:npsyosemite-map})

\begin{figure}[h!]
        \centering
        \includegraphics[width=0.7\linewidth]{NPS_yosemite-map}
        \caption{Map of Yosemite National Park}
        \label{fig:npsyosemite-map}
\end{figure}
```

Here's what it should look like



Let's add some numeric content

- go to US National Park Service web site at https://irma.nps.gov/Stats/
- search for "Yosemite National Park Map"
- choose the top link "Annual Park Recreation Visitation (1906 - Last Calendar Year)"
- scroll to the bottom for 2010-2016
- save this page - we'll use it for tabular data



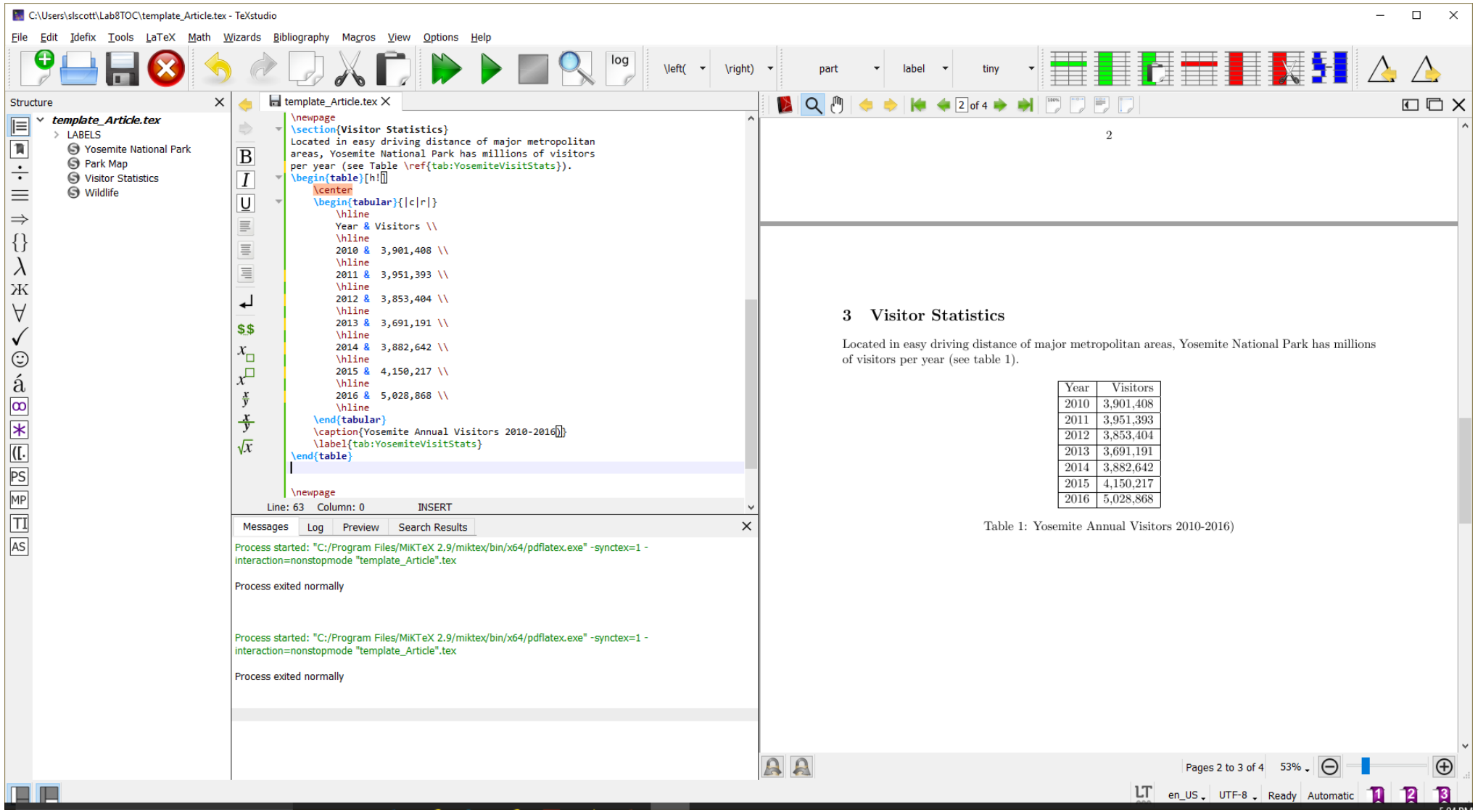
Now let's add a table to our document

- Go to the section titled \section{Visitor Statistics}
  - enter in the text shown in red
- Now enter in the \table text as shown using NPS data
- When done, go back to the \section{Visitor Statistics}
  - add in a reference to the figure using the \ref command.

    (see Figure \ref{tab:YosemiteVisitStats})
- Press "Build and View"

```
\section{Visitor Statistics}
Located in easy driving distance of major metropolitan
areas, Yosemite National Park has millions of visitors
per year (see Table \ref{tab:YosemiteVisitStats}).
\begin{table}[h!]
        \center
        \begin{tabular}{|c|r|}
                \hline
                Year & Visitors \\
                \hline
                2010 &  3,901,408 \\
                \hline
                2011 &  3,951,393 \\
                \hline
                2012 &  3,853,404 \\
                \hline
                2013 &  3,691,191 \\
                \hline
                2014 &  3,882,642 \\
                \hline
                2015 &  4,150,217 \\
                \hline
                2016 &  5,028,868 \\
                \hline
        \end{tabular}
        \caption{Yosemite Annual Visitors 2010-2016)}
        \label{tab:YosemiteVisitStats}
\end{table}
```

Here's what it should look like



Let's add some imagery

- You can reuse the image you did for Lab 7, or pick a new image
- Find a copyright-free public domain image for this lab
  - https://commons.wikimedia.org/wiki/Main_Page
- Search for "Yosemite National Park wildlife"
- Download and save to your working directory

A marmot seen on top of
Mount Dana, Yosemite, CA, USA

Now let's add an image to our document

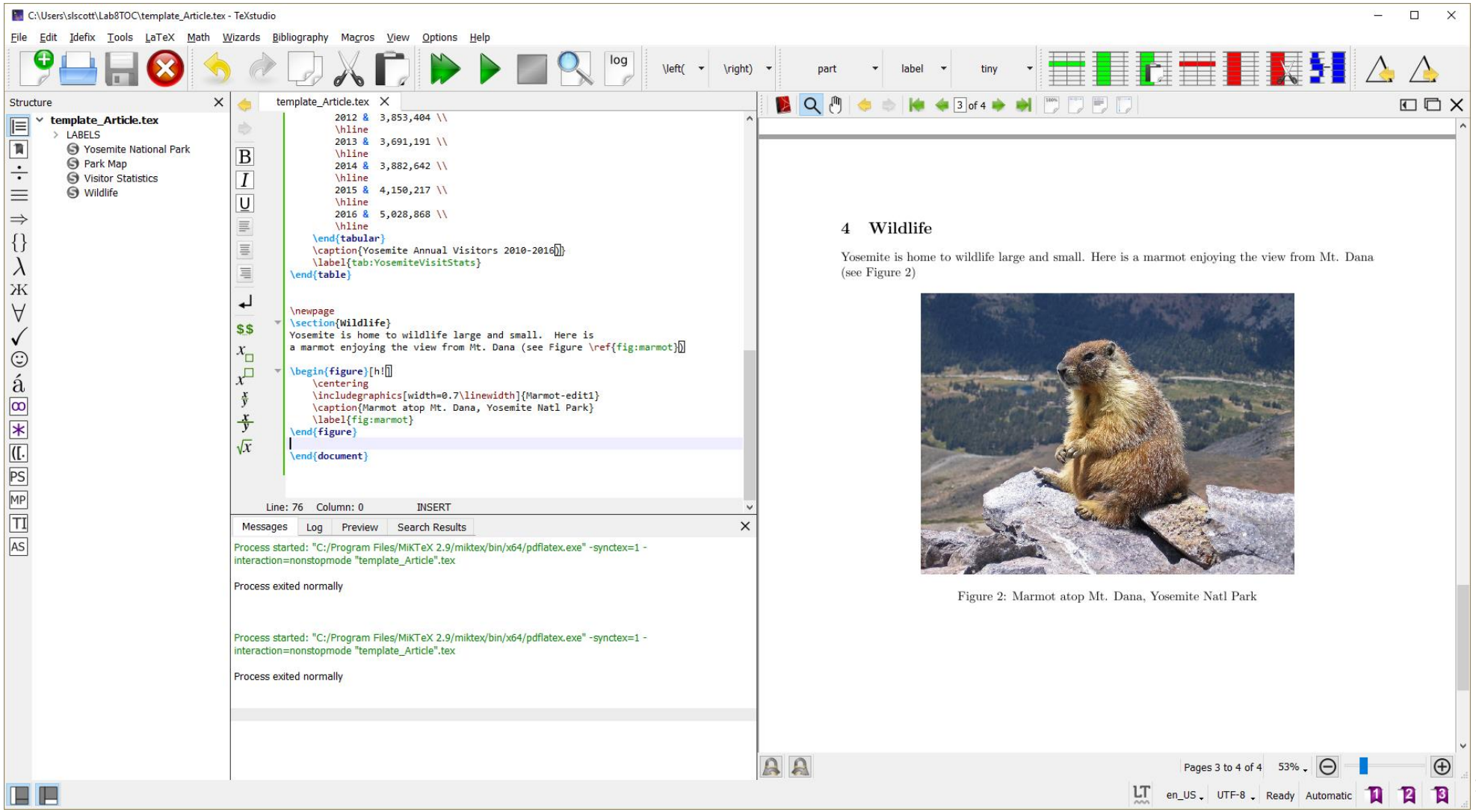
- Go to the section titled \section{Wildlife}
  - enter in the text shown in red
- Now enter in the \figure text as shown
- When done, go back to the \section{Wildlife}
  - add in a reference to the figure using the \ref command.

(see Figure \ref{fig:marmot})

- Press "Build and View"

```
\newpage
\section{Wildlife}
Yosemite is home to wildlife large and small.  Here is
a marmot enjoying the view from Mt. Dana (see Figure \ref{fig:marmot})

\begin{figure}[h!]
        \centering
        \includegraphics[width=0.7\linewidth]{Marmot-edit1}
        \caption{Marmot atop Mt. Dana, Yosemite Natl Park}
        \label{fig:marmot}
\end{figure}
```

Here's what it should look like

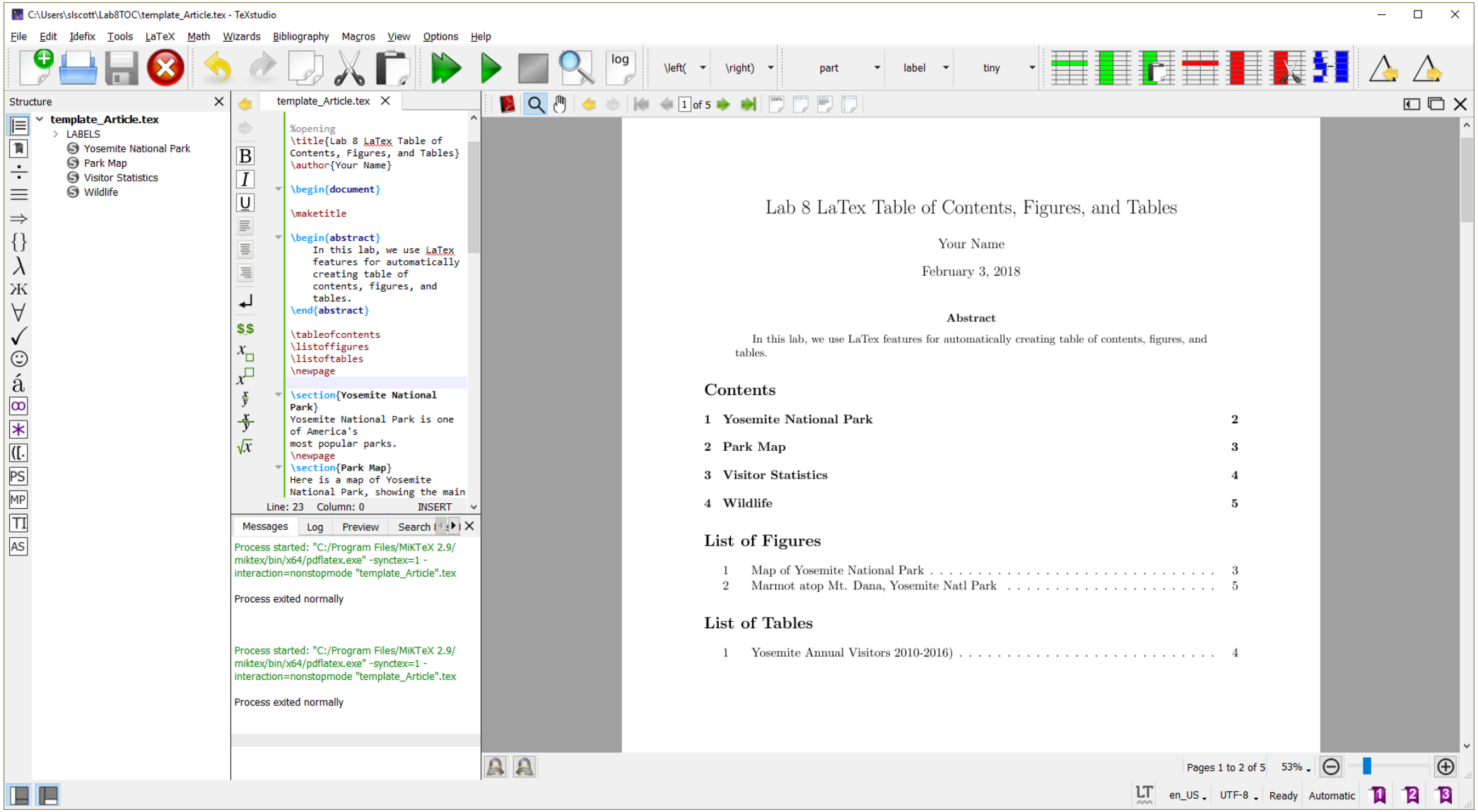


Adding tables of contents, figures, and tables

- LaTex supports automatically generating tables of contents, figures, and tables
  - The \tableofcontents command generates a table of contents
  - The \listoffigures command generates a table of figures
  - The \listoftables command generates a table of tables
  - All these commands immediately insert the results at the point where the command occurs in the document
- Add the code at the right to your document, press "Build and View"

```
\begin{document}

\maketitle

\begin{abstract}
In this lab, we use LaTex features for automatically creating table of contents, figures, and tables.
\end{abstract}

\tableofcontents
\listoffigures
\listoftables
\newpage

\section{Yosemite National Park}
Yosemite National Park is one of America's most popular parks.
```

What is should look like



Tables of Contents, figures, and tables summary

- LaTex supports automatically generating a table of contents
  - the \tableofcontents command creates the TOC
  - lists the Sections and their page numbers
- LaTex supports figures including graphics and images using the major image file formats (JPEG, PNG, TIF, others)
  - the \listoffigures command generates the list of figures and page numbers
- LaTex supports tabular data such as tables
  - the \listoftables command generates the list of tables and page numbers