

**CMPSC 580
Junior Seminar
Spring 2019**

**Lab 2 Assignment
Writing Diagram code in \LaTeX and Beamer**

Objectives

To enhance your understanding of adding graphics to documents which have been prepared using the \LaTeX text processing language. In this assignment, you will modify existing code in `Tikz` to add to your \LaTeX document.

GitHub Starter Link

<https://classroom.github.com/a/Xa04KSnI>

To use this link, please follow the steps below.

- Click on the link and accept the assignment
- Once the importing task has completed, click on the created assignment link which will take you to your newly created github repository for this lab,
- Clone this repository (bearing your name) and work locally
- As you are working on your lab, you are to commit and push regularly. The commands are the following.

```
- git add -A  
- git commit <nameOfFile> -m "Your notes about commit here"  
- git push
```

Introduction to Tikz

The library for \LaTeX , `Tikz` is a powerful drawing program which enables the user to design complicated illustrations and figures using only code. In this lab, we will be using Latex code from online tutorials for `Tikz` to draw figures for our \LaTeX documents. Note: This lab assignment contains code for examples and is therefore six pages. Save a tree: please refrain from printing your assignment (unless it is absolutely necessary).

Some helpful references

Many times, when working on a document, it might be easier to begin with the code that someone else has written in \LaTeX and then edit the code to perform as you require. Start by looking at the below links (not an exhaustive listing by any means!) In this lab, we will draw our code from <http://www.texample.net/tikz/examples/all/>.

- https://www.sharelatex.com/learn/TikZ_package
- <http://www.math.uni-leipzig.de/~hellmund/LaTeX/pgf-tut.pdf>
- <http://www.texample.net/tikz/examples/feature/mindmaps/>

How to submit your work

Compile your work to a PDF file and leave it in your article assignment repository `thesis/` or `beamer/allegHENYPres/`. In your submitted work, your \LaTeX text document should at least have a title to indicate your name, the assignment number, the date, the Honor code statement, and the Beamer document should at least contain one slide with similar information. Compile your text document and Beamer code to produce PDFs, which you can verify the correctness of the code. Be sure you use the git commands, `add`, `commit`, and `push` to regularly send out your file to the repository. If you haven't already done so, be sure to share your repository with the instructor for the course.

Tikz Assignment:

In this lab, you are to modify the code of any **five** of the figures located from <http://www.texample.net/tikz/examples/all/> to add to a copy of your \LaTeX document from last week. Choose five figures from the examples that you may find useful and beneficial for your own potential research. Place each of your diagram code snippets into a copy of your \LaTeX text document and Beamer slides that you have created during the previous step. Your diagrams do not have to describe any particular information as the point of this lab is to learn how to use code from an online library to create your own graphics. Try to alter the colors and text of your diagrams to make your diagrams unique. Remember, for each figure you use, please add a *references* line to the caption or text to describe where you found the code.

Summary of Deliverables

- **Latex and Beamer:** You are submitting \LaTeX code and Beamer code. Much of the code from one project can be used in the other. For the completion of this assignment, please edit the relevant files for your article or presentation in the `latex` and `beamer` directories in your lab assignment repository. Please note, that the included \LaTeX code in this assignment for the article and the presentation documents is the same as that contained in your `materials` directory of your `classDocs` repository.
- **Five Figures:** Your working \LaTeX code for your text document and Beamer slides which show your modified five figures. Please feel free to edit these figure to personalize them to your taste.
- **Reflection:** Edit the file, `write/reflection.md` to contain a short description of some of the problems that you encountered and how you were able to overcome them. Mention here how you modified your code to add a personalization to your diagrams.

Basic Tikz Examples

The following code shows some examples of working code. **You are to find your own examples.** Spend some time studying and trying out the code for the below diagrams, taken from https://www.sharelatex.com/learn/TikZ_package. To run them, you may need to add the following packages to your L^AT_EX code. Please be sure to read the documentation for your examples to learn which libraries you are to add. This library is added to the source code with the following line in code: `\usepackage{libraryName}`. Please be sure to check the code documentation for other types of library code to add.

- `\usepackage{tikz}`
- `\usetikzlibrary{positioning}`
- `\usepackage{dtklogos}`
- And perhaps others: please see the code documentation for this information.

```
\begin{figure}[htp]
  \begin{center}
    \begin{tikzpicture}
      \draw[blue, very thick] (0,0)rectangle (3,2);
      \draw[orange, ultra thick] (4,0) -- (6,0) -- (5.7,2) -- cycle;
    \end{tikzpicture}
  \end{center}
  \caption{An example to draw squares and triangles.}
  \label{fig:square}
\end{figure}
```

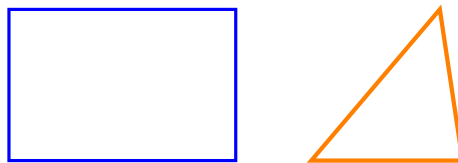


Figure 1: An example to draw squares and triangles.