# M08 Final Project: Coordinate Plotter

## 1. Purpose

This program reads a .docx file containing X and Y coordinates with characters, then plots them in a two-dimensional grid to reveal a hidden block-letter message. It demonstrates skills in reading structured data, manipulating arrays, and rendering visual output.

## 2. How It Works

1. The input file (M08 Final Project InputData.docx) contains a table of three columns: x-coordinate, character, and y-coordinate.  
2. The program reads the data using the python-docx library and stores each entry as (x, y, char).  
3. It determines the maximum X and Y values to create a 2D grid of appropriate size.  
4. Each character is plotted in its corresponding (x, y) position, producing a block-letter message.  
5. The completed message is printed to the terminal, and optionally saved as an image file (output.png).

## 3. How to Run

1. Place both files in the same folder:  
 • plot\_from\_docx.py  
 • M08 Final Project InputData.docx  
2. Open a terminal or command prompt in that folder.  
3. Run the command:  
 python plot\_from\_docx.py "M08 Final Project InputData.docx"  
4. The message will appear in the terminal. If matplotlib is installed, the output will also be saved as an image named output.png.

## 4. Example Output

Max X: 89, Max Y: 6  
EICWKDKO  
The ASCII pattern above is the hidden message revealed by plotting the coordinates.

## 5. Requirements

• Python 3.x  
• python-docx (for reading Word files)  
• matplotlib (optional, for saving PNG image)  
  
To install requirements, run:  
 pip install python-docx matplotlib

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