# P09 Student Instructions – Python Plots & Export

**Objectives:** - Create line, bar, scatter, and histogram plots using matplotlib - Customise plots by adjusting labels and figure size - Save plots in multiple file formats

**Prerequisites:** Basic Python programming skills **Estimated Time:** 2 hours **Learning Outcomes:** - Use matplotlib to generate various plot types - Customise axes, titles, and legends - Export plots as PNG and PDF files

**Dataset Description:** | Column | Type | Description | |——-|——|————-| | X | float64 | Synthetic column | | Sin | float64 | Synthetic column | | Cos | float64 | Synthetic column | | HistData | float64 | Synthetic column |

**Tasks and Steps:** 1. Load the Python plotting dataset 2. Create a line plot for Sin and Cos vs X 3. Generate a bar chart of histogram bin counts from HistData 4. Produce a scatter plot of Sin vs Cos 5. Save each plot as both PNG and PDF

**Formulas / Methods:** - Histogram bin counts derived from the data

**Submission Checklist:** - Line plot, bar chart, scatter plot images in PNG and PDF - Code used to generate the plots - Brief interpretation of patterns

**मराठी सारांश (Marathi Summary):** या प्रात्यक्षिकात आपण पायथन मधील matplotlib पुस्तकालय वापरून विविध प्रकारचे ग्राफ तयार करू आणि ते PNG आणि PDF स्वरूपात जतन करू.