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| **Practicum Case** |  |
| MATH6183 | MATH6183001 | MATH6183016 | MATH6183049  Scientific Computing |
| **Mathematics & Statistics** | **E231-MATH6183-JJ01-03** |
| ***Valid on*** *Even Semester Year 2022/2023* | **Revision 00** |

## Learning Outcomes

* LO2 – solve the systems of linear algebraic equations, eigenvalues, eigenvectors, regression and interpolation through scientific computation

## Topic

* Session 03 – Regression & Interpolation

## Sub Topics

* Plotting Using Matplotlib Library
* Least Square Regression
* Linear Interpolation
* Cubic Interpolation
* Newton Polynomial Interpolation

## Soal

*Case*

1. **Least Square Regression**

Create a **Least** **Square** **Regression** from the matrix (x, y) in “**matrix-1.txt**”, then **print** the value of ‘**m**’ and ‘**c**’ from the formula of **“y = mx + c”**. Lastly, show the **original** **matrix** and the result of **Least Square Regression** in **one** **plot** using **matplotlib** (with legend).

**Chart, scatter chart

Description automatically generated**

**Figure 1. Least Square Regression**

1. **Polynomial Regression**

Create a **Polynomial** **Regression** with 7 order from the matrix (x, y) in “**matrix-2.txt**”, then show the result of **Polynomial Regression** in **each order plot** using matplotlib.

Chart, line chart

Description automatically generated

**Figure 2. Polynomial Regression**