





9

МНК

	0	1	2	3	4	5
$x_i$	0	1,7	3,4	5,1	6,8	8,5
$y_i$	0	3,038	5,2	7,583	9,497	11,415

1)  $y = ax + b$

$$F(a, b) = \sum_{i=0}^n (y_i - (ax_i + b))^2 \rightarrow \min$$

$$\Rightarrow \begin{cases} \frac{\partial F(a, b)}{\partial a} = 0 \\ \frac{\partial F(a, b)}{\partial b} = 0 \end{cases}$$

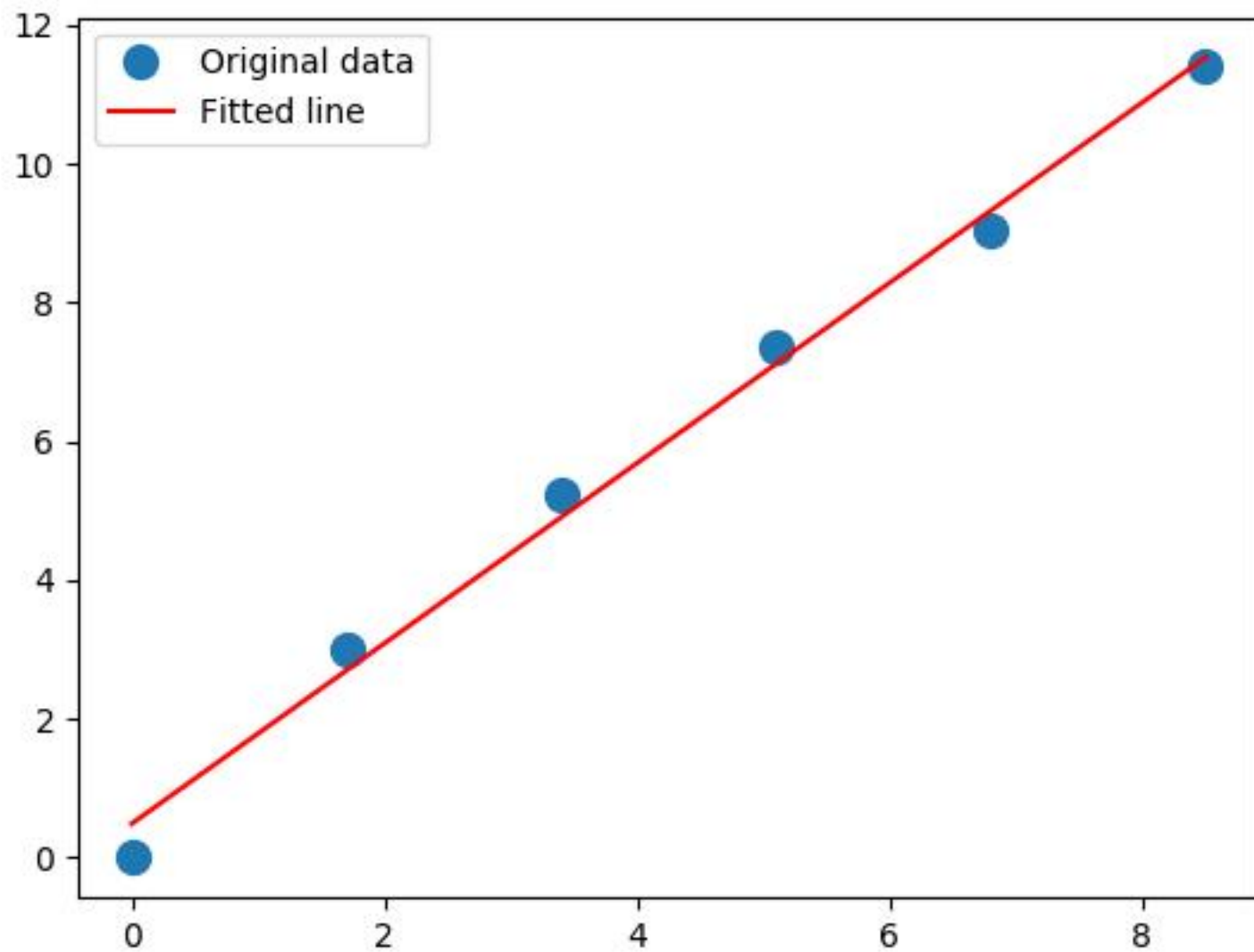
$$\Rightarrow \begin{cases} a \sum x_i^2 + b \sum x_i = \sum x_i y_i \\ a \sum x_i + \sum b = \sum y_i \end{cases}$$

$$\begin{cases} 158,95a + 25,5b = 219,0149 \\ 25,5a + 6b = 36,0687 \end{cases}$$

$$\Rightarrow y = 1,3x + 0,4885$$



Figure 1



x=4.47621 y=9.52273

[7.interpolation.py:18049): Gtk-WARNING \*\*: 22:17:05.156: Theme parsing error:

[7.interpolation.py:18049): Gtk-WARNING \*\*: 22:17:05.170: Theme parsing error:

[<matplotlib.lines.Line2D object at 0x7f44340a1f60>]

>>> plt.plot(x, m\*x + c, 'r', label='Fitted line')

[<matplotlib.lines.Line2D object at 0x7f44340ae1d0>]

>>> plt.legend()



$$2) y = ax^2 + bx + c$$

$$\begin{cases} a \sum x_i^4 + b \sum x_i^3 + c \sum x_i^2 = \sum x_i^2 y_i \\ a \sum x_i^3 + b \sum x_i^2 + c \sum x_i = \sum x_i y_i \\ a \sum x_i^2 + b \sum x_i + c n = \sum y_i \end{cases}$$

$$\begin{cases} \cancel{1105,425} 8476,7059 a + \cancel{1105,425} b + 158,95 c = 1503,78 \\ 1105,425 a + 158,95 b + 25,5 c = 219,014 \\ 158,95 a + 25,5 c + 6 c = 36,0687 \end{cases}$$

$$\Rightarrow y = -0,0333 x^2 + 1,5824 x + 0,1679$$



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WARNING: You are using pip version 19.2.3, however version 19.3.1 is available.
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```
You should consider upgrading via the 'pip install --upgrade pip' command.
```

```
huy@huy-Inspiron-5559:~/Win_Documents/MAI/ThirdCourse/pp tinh/homework$ import ma
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matplotlib.pyplot: not authorized to call 'matplotlib.pyplot.savefig' on 'huy-Inspiron-5559'
```

Figure 1

