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| **ENS101 Lab Week 12**  **EXAMPLE**      Example of collected data, and their plot:    **The fit of the data on various polynomials**    **The code for the previous example**  The polyfit function generates coefficients of polynomial, the function polyval generates a numerical function based on the coefficients of polynomial  Example  x = [0:10];  y = polyval([2 3], x)  Will make the vector  y = 2\*x + 3  **to make 4 figures in one with subplots**  x = 0:5;  y = [0,20,60,68,77,110];  new\_x = 0:0.1:5; |

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| **Task 1**  Assume that you collected the data of young people leaving Bosnia at the age of 20, and people returning to Bosnia at the age of 65, and the data was by the years:   |  |  |  | | --- | --- | --- | | Year | Leaving (at age of 20) | Getting back (at age of 65) | | 2000 | 5045 | 1302 | | 2004 | 6107 | 1354 | | 2007 | 6905 | 1666 | | 2012 | 8077 | 1777 | | 2013 | 8540 | 1878 | | 2015 | 9013 | 1957 | | 2019 | 9666 | 2666 |   Use polyfit, and polyval with ploynomila of 1st degree, 2ed degree and 3rd degree to find how many young people will leave Bosnia in 2022, and how amny people will get back in 2022.  Are you going to leave Bosnia if you pass this class 😉 ?  Note: The data is imaginary, you can find the real data online, and redo the Task for extra credit 😉 |
| **Task 2**  Population Models  The population of the earth is expanding rapidly, as is the population of the United States. The table contains the population of the U.S. Census from the years 1900 through 2000 for each decade.  Use polyfit to check and plot the population expand using polynomial from 2nd to 5th order    **What is the population of USA in 2022 based on those models ?**  **Google it and check.** |
| **Task 3**  **Repeat one of the previous tasks using excel, and show one trend line of your choice.** |