

Tools for Data Science

Task 1 Regression

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Seasons of Code

Web and Coding CLub, IIT B

Question 1

There is an outbreak of a deadly virus. The growth of the virus, total no. of cases, is said to be of the form $c_1 e^{c_2(\text{No.-of-days})}$. After 99 days finally a cure will be available in 11 days, i.e. 110th day.

[Hint: Will taking log on either side help?]

1. Given the data for the 99 days, you have to estimate the total no. of cases on the 110th day. Assuming that there are 100,000 beds, do you think the hospitals can handle that many cases?

[Note: take learning rate (α) to be 0.01; take 5000 iterations; do not use any other library apart from **numpy** and **pandas**]

2. If the learning rate (α) was 1 and 0.0001, what happens? Can you justify why this is happening?
3. Plot the given data points along with your fitted curve, using Matplotlib.

Basic Resoruces

1. [Linear regression using numpy](#)