NON-LINEAR OPTIMIZATION

we know how to fit lines or linear functions. what about when the function is non-linear?

consider the corona data of your choice (eg. countries / states / cities / world) and what (infected, tested, death, recovered). you can also take multiple such data.

① fit a function that suits the data. clearly explain why this is good model, including references.
write the objective function, and how to optimize with GD and newton's. your output is a brief report (not more than one page in writing).

② demonstrate how to model using the data. please show how the objective function converge and how good your model at the end (quantitatively). your output is a set of graphs and brief explanations.

(3) consider the phase of decline of cases in the case of corona. how do we fit a model and calculate when $f(x) = 0$. i.e. when is it safe to start moving freely? Or should we solve for $f(x) = \alpha$.

Use china data and the data from italy and see when will italy be safe? if your answer is not realistic, what could be the reasons?