Exercise 5: Data fitting

Download the dataset “measles.csv” from VULA.

Assume at population size of 15500.

1. Plot the dataset

2. Develop an SIR model to mimic the epidemic pattern in the dataset.

3. Fit the model to the dataset using a Least Squares algorithm

i. Fit the model by comparing the data with the reported incidence predicted by the model.

ii. Use a reporting parameter of rep=0.7

4. Plot your fitted model on the dataset to assess the goodness of fit.

5. Repeat the exercise by fitting the model using a Poisson Maximum Likelihood approach. Are there substantial differences in the optimal fits?