Local Poisson regression

Write a report that contains the results of the computations that you are asked to carry out below, as well as the explanation of what you are doing. The main text (2 or 3 pages) should include pieces of source code and graphical and numerical output.
Upload your answers in a .pdf document (use LaTeX or R Markdown, for instance) to ATENEA, as well as the source code (*.R or *.Rmd, for instance). Your work must be reproducible.

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1. Bandwidth choice for the local Poisson regression

Modify the functions `h.cv.sm.binomial` and `loglik.CV` to obtain a bandwidth choice method for the local Poisson regression based on the leave-one-out cross-validation (loo-CV) estimation of the expected likelihood of an independent observation.

Remember that the loo-CV estimation of the expected log-likelihood of an independent observation, when using h as bandwidth, is

$$\ell_{CV}(h) = \frac{1}{n}\sum_{i=1}^{n} \log\left(\widehat{\Pr}_h^{(-i)}(Y = y_i|X = x_i)\right),$$

where $\widehat{\Pr}_h^{(-i)}(Y = y_i|X = x_i)$ is an estimation of

$$\Pr(Y = y_i|X = x_i) = e^{-\lambda_i}\frac{\lambda_i^{y_i}}{y_i!},$$

and

$$\lambda_i = \mathbb{E}(Y|X = x_i)$$

should be estimated by maximum local likelihood using h as bandwidth (for instance, using the function `sm.poisson` from the R package `sm`).

2. Local Poisson regression for Country Development Data

Consider the country development dataset (file `HDI.2017.subset.csv`) containing information on development indicators measured in 179 countries (Source: [Human Development Data (1990-2017)](http://hdr.undp.org/en/data), The Human Development Report Office, United Nations). Variable `le.fm` always takes non-negative values. Define `le.fm.r` as the rounded value of `le.fm`:
`le.fm.r <- round(le.fm)`
Fit a local Poisson regression modeling `le.fm.0` as a function of `Life.expec`. Use `sm.poisson` from the R package `sm` with the bandwidth obtained by loo-CV.