Ex.4a: MLE POISSON REGRESSION

Poisson regression:

$$\mathbb{P}((Y = y \mid x) = \frac{\mu^y}{y!} \exp(-\mu)$$
$$\mu = \exp(\alpha + \beta x)$$

sample $(x_1, y_1), \ldots, (x_n, y_n)$:

ML-ESTIMATION

1. find the **log likelihood:**
2. find the **likelihood equations**(score function)
3. find the **information:**
4. find the **observed information**:
5. find an estimator of the the **covariance matrix of the MLE**

NEWTON-METHOD

1. find the second derivative matrix (**Hessian**)
2. state the **Newton method**