SMM637 Exercises - GAM

For this exercise consider the `Wage` data from `ISLR` library.

- Look at the help function of `Wage` for a description of the variables.
- Fit a GAM model with Gaussian distribution and identity link to predict `wage` using a TPRS functions of `age`. Also, include in the model `education` and `year` but without smooth functions.
- Produce a summary of the gam fit and comment on the results.
- Using the function `gam.check()`, produce a residual analysis and comment the findings.
- Plot the estimated smooth function of `age` with point-wise intervals. What do you notice?
- Now fit a logistic regression GAM on the same dataset (this can be achieved by using a binomial distribution wtih logistic link). In order to do so we need to dichotomize our response variable `wage`. We can achieve this, for example, by setting `wage` to 1 if `wage`> 250 and zero otherwise. Look at the summary results, plot the estimated smooth unction and comment the results.