WST 311

Assignment K: 7-18 May 2018

Forty people are asked whether or not they would subscribe to a newspaper. For each person, the variables sex (Female, Male), age, and subscribe (1=yes, 0=no) are recorded. The observed data are given in the table below.

Sex	Age	Subs	Sex	Age	Subs	Sex	Age	Subs	Sex	Age	Subs
Female	35	0	Female	48	0	Male	50	1	Female	39	0
Male	44	0	Female	56	1	Female	45	0	Male	34	0
Male	45	1	Male	46	1	Female	47	0	Female	52	1
Female	47	1	Female	59	1	Female	30	1	Female	46	0
Female	51	0	Female	46	1	Female	39	0	Male	58	1
Female	47	0	Male	59	1	Female	51	0	Female	50	1
Male	54	1	Male	38	1	Female	45	0	Female	32	0
Male	47	1	Female	39	0	Female	43	1	Female	52	1
Female	35	0	Male	49	1	Male	39	1	Female	35	0
Female	34	0	Male	42	1	Male	31	0	Female	51	0

The news agent wants to predict whether or not a person would subscribe to the newspaper based on their sex and age. Fit a logit model to the data and answer the following questions.

1. Give the missing values or words in the following statements.

   When using the two way frequency table of 'subscribe by sex' to calculate odds and odds ratios, the odds of subscribing to the newspaper is _____ times higher given the respondent was male compared to respondents who were female. The corresponding value for the estimate of this odds ratio in the model where age was kept constant is _____ .

2. Write down the logistic regression model that was fitted to the data.

3. Calculate an estimate for the probability that a 53 year old female will subscribe to the new newspaper.