**Quiz 7 - Logistic Regression**

Consider using the dataset “churn.csv” to predict if a person will churn (switch) to a different company. A logistic regression model (M1) was formed using the following variables:

1. **Age** (years)
2. **Married** (0 = Unmarried, 1 = Married)
3. **Cust\_years** (duration of a customer's relationship with the company)
4. **Churned\_contacts** (number of customer’s contacts that have churned)
5. **Churned** (0 = Didn’t churn, 1 = churned)

Use the following model summary to answer all subsequent questions.

A screenshot of a computer

AI-generated content may be incorrect.

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| **Question 1**  Which of the following statements about the model’s construction is correct? | |
| A | It is a must to specify the family argument in glm() as “binomial” |
| B | It is a must to declare Churned as a factor before forming the model |
| C | It is a must to declare Married as a factor before forming the model |
| D | It is a must to scale all features before forming the model |

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| **Question 2**  How many coefficients does this model have? (including the intercept) | |
| A | 3 |
| B | 4 |
| C | 5 |
| D | 6 |

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| **Question 3**  Which variable is the most insignificant in this model? | |
| A | Age |
| B | Married |
| C | Cust\_years |
| D | Churned\_contacts |

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| **Question 4**  Select the correct interpretation for the coefficient of Age. | |
| A | Each 1 year increase in Age increases the log-odds of customer churn by 0.157 |
| B | Each 1 year decrease in Age decreases the log-odds of customer churn by 0.157 |
| C | Each 1 year increase in Age decreases the probability of customer churn by a factor of 0.855. |
| D | Each 1 year increase in Age decreases the odds of customer churn by a factor of 0.855. |

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| **Question 5**  Assume the model is named “M1” and we are trying to predict the churn status for a set of customers in the dataset “churn.test”. Which line of code will output the predicted class labels (0 or 1)? | |
| A | predict(M1, newdata = churn.test) |
| B | predict(M1, newdata = churn.test, type = “response”) |
| C | predict(M1, newdata = churn.test, type = “class”) |
| D | None of the above |