Week 6 Quiz

Name:

1.) Given the logistic regression equation:

$$\hat{y} = 1.7 + 1.356 * age + 30.1 * gender$$

**(2 pts.)** What is the exact interpretation of the coefficient for age in terms of odds?

Holding all other variables constant, for a one unit increase in age, the odds of the event occurring change by a factor of 3.88 on average.

**(2 pts.)** What is the exact interpretation for the coefficient of gender in terms of odds, assuming gender has only two levels, male and female, and female was the reference level?

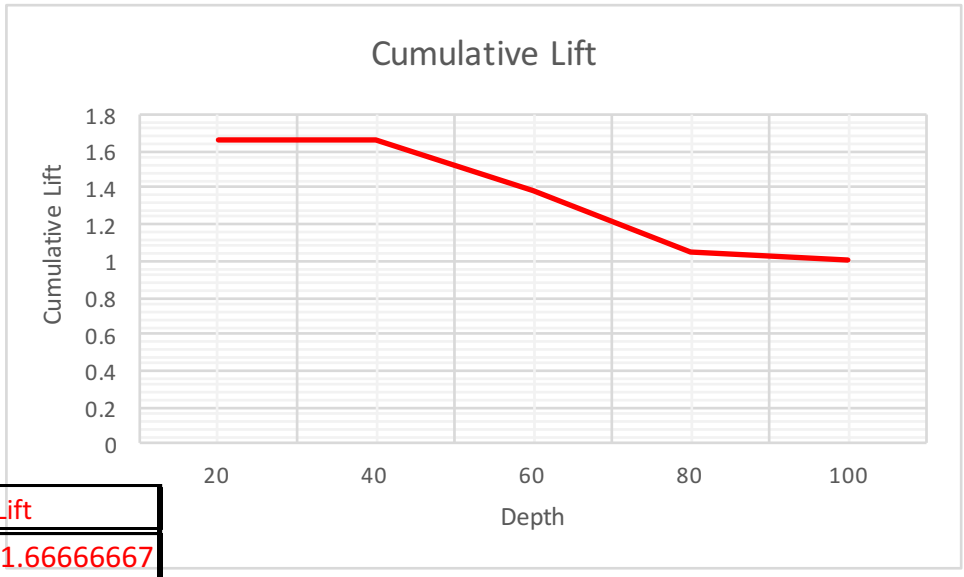
Holding all other variables constant, a person being male changes the odds of the event occurring by a factor of 11810380924255.46 ($1.18 \times 10^{13}$) on average.

**(2 pts.) Yes or no**: should the interpretation of the coefficient for gender call into question the validity of this model?

Yes

2.) **(4 pts.)** Given the table of actual responses and predicted probabilities below, generate a cumulative lift plot assuming a probability cutoff of 0.3. Generate lift values for depths of the 20%, 40%, 60%, 80% and 100%.

| Actual | Predicted |
|---|---|
| 1 | 0.85 |
| 1 | 0.75 |
| 1 | 0.7 |
| 1 | 0.65 |
| 0 | 0.65 |
| 1 | 0.55 |
| 0 | 0.55 |
| 0 | 0.45 |
| 1 | 0.35 |
| 0 | 0.1 |




| Depth | Lift |
|---|---|
| 20 | 1.66666667 |
| 40 | 1.66666667 |
| 60 | 1.38888889 |
| 80 | 1.04166667 |
| 100 | 1 |

Numbers or plot, or both, is fine.