

Unit 2 Quiz C

Randomly select 3 questions to ask members of the group requesting the next set of assignments. If they get all questions correct, give them the entire stack of quizzes and assignments so that they can quiz the next group. If they get any question wrong, send them back to their seats to review and then try again in 10 minutes or more.

1. In linear regression using `lm()`, what do β_0 (intercept) and β_1 (slope) represent?

Answer: beta 0 represents the expected value of the dependent variable when all independent variables are 0 (the y-intercept). beta_1 represents how much the dependent variable changes for a one-unit increase in the independent variable. For example, in the Love Island analysis, beta 0 was the baseline probability of winning for someone age 0, and beta_1 showed how the probability of winning changed for each year increase in age.

2. What does a p-value less than 0.05 indicate in the context of linear regression? How do we use this to make statistical conclusions?

Answer: A p-value less than 0.05 indicates strong evidence against the null hypothesis that there is no relationship between the variables (that $\beta_1 = 0$). We reject the null hypothesis at the 5% significance level and conclude there is statistically significant evidence of a relationship between the variables.

3. Write a function in R that takes a numeric vector as input and returns both its minimum and maximum values.

Answer:

```
function(x) c(min(x), max(x))
```

```
function(x) c(min(x), max(x))
```

4. What is the purpose of the curly brackets `{}` in R function definitions? When are they required?

Answer: Curly brackets `{}` group multiple lines of code together in a function body. They are required when your function spans multiple lines.

5. Write the R code to estimate the linear model analyzing whether age predicts success on Love Island.

Answer: `lm(win ~ age, love)`

6. In R, `group_by(x) %>% summarize(n = n())` is equivalent to what function?

Answer: `count(x)`