Professor Salaries – Lab

**Professor salaries**

The 2008-09 nine-month academic salary for Assistant Professors, Associate Professors and Professors in a college in the U.S. The data were collected as part of the on-going effort of the college's administration to monitor salary differences between male and female faculty members.

397 observations on the following 6 variables.

* **rank**: AssocProf, AsstProf, Prof
* **discipline**: A or B
* **yrs.since.phd**: years since PhD.
* **yrs.service**: years of service.
* **sex**: a factor with levels Female Male
* **salary**: nine-month salary, in dollars.

1. If a professor has salary greater than $100,000, what is the probability that they have discipline A?

P(discipline = A | salary > 100,000) = 0.42

#Q1 = 0.421875

1. If a professor has over 20 years of experience, and is Male, what is the probability that they have a salary greater than $100,000?

P(Salary > 100000 | Experience > 20 & Sex = Male) =

#Q2 = 0.773049

**PAUSE HERE, CHECK ANSWERS WITH CLASS, BRING FORWARD ANY QUESTIONS**

1. What is the probability that a professor is a female AssocProf? What is the probability that a female AssocProf has been a professor for more than 10 years since her PhD?

P(F & AssocProf) = 0.0251889

P(exp > 10 | F & assoc Prof ) =

P(x > 10 & F & assocProf ) / P( F & assocProf) = 0.9

1. If a professor is a male with less than 10 years of experience, what is the probability that they earn less than $100,000?

P(sal < 100000 | sex = male & exp <10)

= p(sal < 100000 & (sex = male & exp <10)) / p(sex = male & exp <10)

#Q4 = 0.619047

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