

Lab 3

The data below is from a Canadian 1970 census which collected information about specific occupations. Data collected was used to develop a regression model to predict prestige for all occupations. Use the data below and:

- (1) Save the data to excel and read into R for analysis.
- (2) To get a sense of the data, generate a scatterplot to examine the association between prestige score and years of education. Briefly describe the form, direction, and strength of the association between the variables. Calculate the correlation.
- (3) Calculate the least squares regression equation that predicts prestige from education, income and percentage of women.
- (4) Compute the multiple R-squared by this formula: $R^2 = \frac{Reg\ SS}{Total\ SS}$.

Data:

Occupational Title	Education Level (years)	Income (\$)	Percent of Workforce that are Women	Prestige Score
GOV. ADMINISTRATORS	13.11	12351	11.16	68.8
GENERAL MANAGERS	12.26	25879	4.02	69.1
ACCOUNTANTS	12.77	9271	15.7	63.4
PURCHASING OFFICERS	11.42	8865	9.11	56.8
CHEMISTS	14.62	8403	11.68	73.5
PHYSICISTS	15.64	11030	5.13	77.6
BIOLOGISTS	15.09	8258	25.65	72.6
ARCHITECTS	15.44	14163	2.69	78.1
CIVIL ENGINEERS	14.52	11377	1.03	73.1
MINING ENGINEERS	14.64	11023	0.94	68.8
SURVEYORS	12.39	5902	1.91	62
DRAUGHTSMEN	12.3	7059	7.83	60
COMPUTER PROGRAMERS	13.83	8425	15.33	53.8
ECONOMISTS	14.44	8049	57.31	62.2
PSYCHOLOGISTS	14.36	7405	48.28	74.9
SOCIAL WORKERS	14.21	6336	54.77	55.1
LAWYERS	15.77	19263	5.13	82.3
LIBRARIANS	14.15	6112	77.1	58.1
VOCATIONAL COUNSELLORS	15.22	9593	34.89	58.3
MINISTERS	14.5	4686	4.14	72.8
UNIVERSITY TEACHERS	15.97	12480	19.59	84.6
PRIMARY SCHOOL TEACHERS	13.62	5648	83.78	59.6
SECONDARY SCHOOL TEACHERS	15.08	8034	46.8	66.1
PHYSICIANS	15.96	25308	10.56	87.2
VETERINARIANS	15.94	14558	4.32	66.7
OSTEOPATHS CHIROPRACTORS	14.71	17498	6.91	68.4
NURSES	12.46	4614	96.12	64.7
NURSING AIDES	9.45	3485	76.14	34.9
PHYSIO THERAPSTS	13.62	5092	82.66	72.1
PHARMACISTS	15.21	10432	24.71	69.3
MEDICAL TECHNICIANS	12.79	5180	76.04	67.5
COMMERCIAL ARTISTS	11.09	6197	21.03	57.2
RADIO TV ANNOUNCERS	12.71	7562	11.15	57.6
ATHLETES	11.44	8206	8.13	54.1
SECRETARIES	11.59	4036	97.51	46
TYPISTS	11.49	3148	95.97	41.9
BOOKKEEPERS	11.32	4348	68.24	49.4
TELLERS CASHIERS	10.64	2448	91.76	42.3
COMPUTER OPERATORS	11.36	4330	75.92	47.7
SHIPPING CLERKS	9.17	4761	11.37	30.9
FILE CLERKS	12.09	3016	83.19	32.7
RECEPTIONISTS	11.04	2901	92.86	38.7
MAIL CARRIERS	9.22	5511	7.62	36.1
POSTAL CLERKS	10.07	3739	52.27	37.2
TELEPHONE OPERATORS	10.51	3161	96.14	38.1
COLLECTORS	11.2	4741	47.06	29.4
CLAIM ADJUSTORS	11.13	5052	56.1	51.1
TRAVEL CLERKS	11.43	6259	39.17	35.7
OFFICE CLERKS	11	4075	63.23	35.6
SALES SUPERVISORS	9.84	7482	17.04	41.5

COMMERCIAL_TRAVELLERS	11.13	8780	3.16	40.2
SALES_CLERKS	10.05	2594	67.82	26.5
NEWSBOYS	9.62	918	7	14.8
SERVICE_STATION_ATTENDANT	9.93	2370	3.69	23.3
INSURANCE_AGENTS	11.6	8131	13.09	47.3
REAL_ESTATE_SALESMEN	11.09	6992	24.44	47.1
BUYERS	11.03	7956	23.88	51.1
FIREFIGHTERS	9.47	8895	0	43.5
POLICEMEN	10.93	8891	1.65	51.6
COOKS	7.74	3116	52	29.7
BARTENDERS	8.5	3930	15.51	20.2
FUNERAL_DIRECTORS	10.57	7869	6.01	54.9
BABYSITTERS	9.46	611	96.53	25.9
LAUNDERERS	7.33	3000	69.31	20.8
JANITORS	7.11	3472	33.57	17.3
ELEVATOR_OPERATORS	7.58	3582	30.08	20.1
FARMERS	6.84	3643	3.6	44.1
FARM_WORKERS	8.6	1656	27.75	21.5
ROTARY_WELL_DRILLERS	8.88	6860	0	35.3
BAKERS	7.54	4199	33.3	38.9
SLAUGHTERERS_1	7.64	5134	17.26	25.2
SLAUGHTERERS_2	7.64	5134	17.26	34.8
CANNERS	7.42	1890	72.24	23.2
TEXTILE_WEAVERS	6.69	4443	31.36	33.3
TEXTILE_LABOURERS	6.74	3485	39.48	28.8
TOOL_DIE_MAKERS	10.09	8043	1.5	42.5
MACHINISTS	8.81	6686	4.28	44.2
SHEET_METAL_WORKERS	8.4	6565	2.3	35.9
WELDERS	7.92	6477	5.17	41.8
AUTO_WORKERS	8.43	5811	13.62	35.9
AIRCRAFT_WORKERS	8.78	6573	5.78	43.7
ELECTRONIC_WORKERS	8.76	3942	74.54	50.8
RADIO_TV_REPAIRMEN	10.29	5449	2.92	37.2
SEWING_MACH_OPERATORS	6.38	2847	90.67	28.2
AUTO_REPAIRMEN	8.1	5795	0.81	38.1
AIRCRAFT_REPAIRMEN	10.1	7716	0.78	50.3
RAILWAY_SECTIONMEN	6.67	4696	0	27.3
ELECTRICAL_LINEMEN	9.05	8316	1.34	40.9
ELECTRICIANS	9.93	7147	0.99	50.2
CONSTRUCTION_FOREMEN	8.24	8880	0.65	51.1
CARPENTERS	6.92	5299	0.56	38.9
MASONS	6.6	5959	0.52	36.2
HOUSE_PAINTERS	7.81	4549	2.46	29.9
PLUMBERS	8.33	6928	0.61	42.9
CONSTRUCTION_LABOURERS	7.52	3910	1.09	26.5
PILOTS	12.27	14032	0.58	66.1
TRAIN_ENGINEERS	8.49	8845	0	48.9
BUS_DRIVERS	7.58	5562	9.47	35.9
TAXI_DRIVERS	7.93	4224	3.59	25.1
LONGSHOREMEN	8.37	4753	0	26.1
TYPESETTERS	10	6462	13.58	42.2
BOOKBINDERS	8.55	3617	70.87	35.2