HW5 R Markdown

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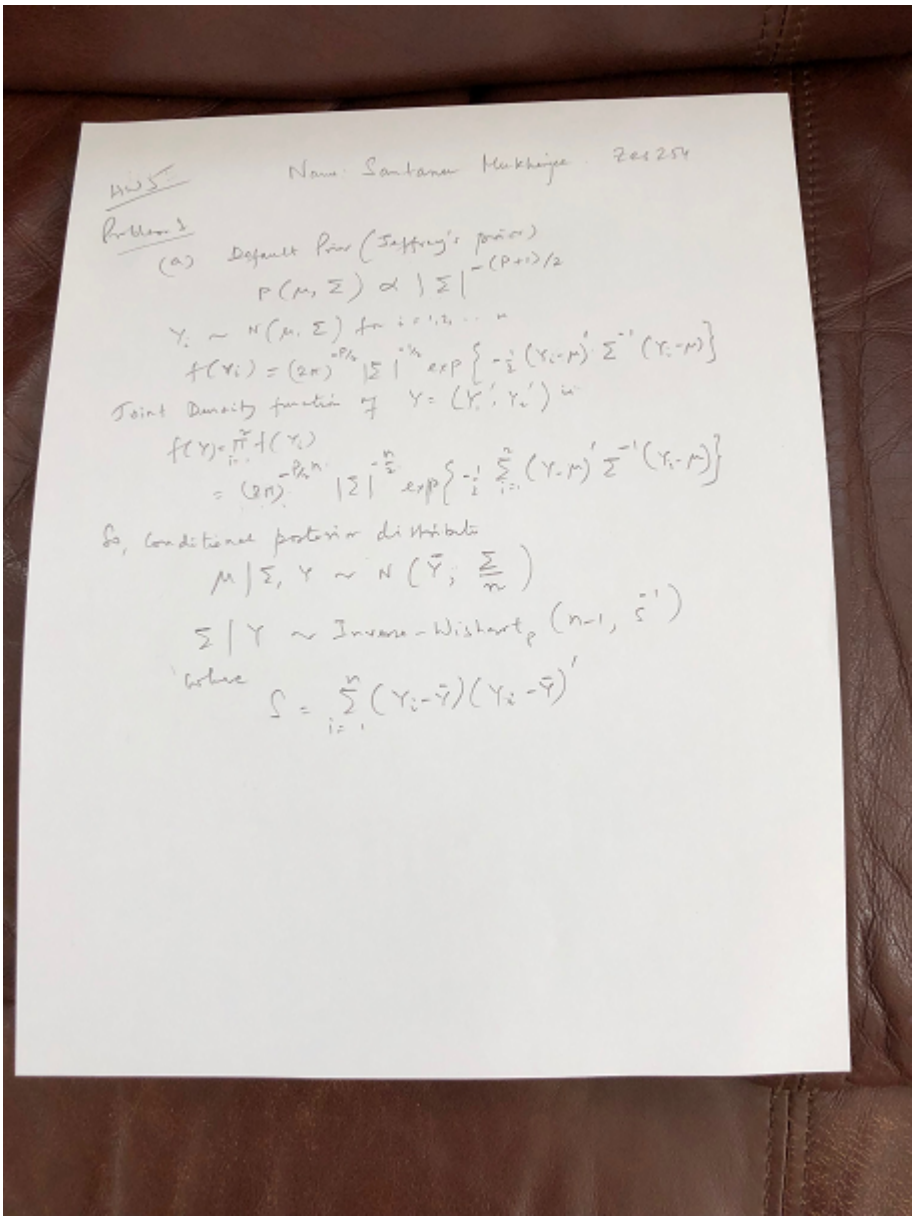
R Markdown

Answer 1a



Answer-1-a

Answer 1 b

The below table contains the point estimates and 95% equal tailed credible intervals of μ_1, μ_2, σ_1, σ_2 and ρ.

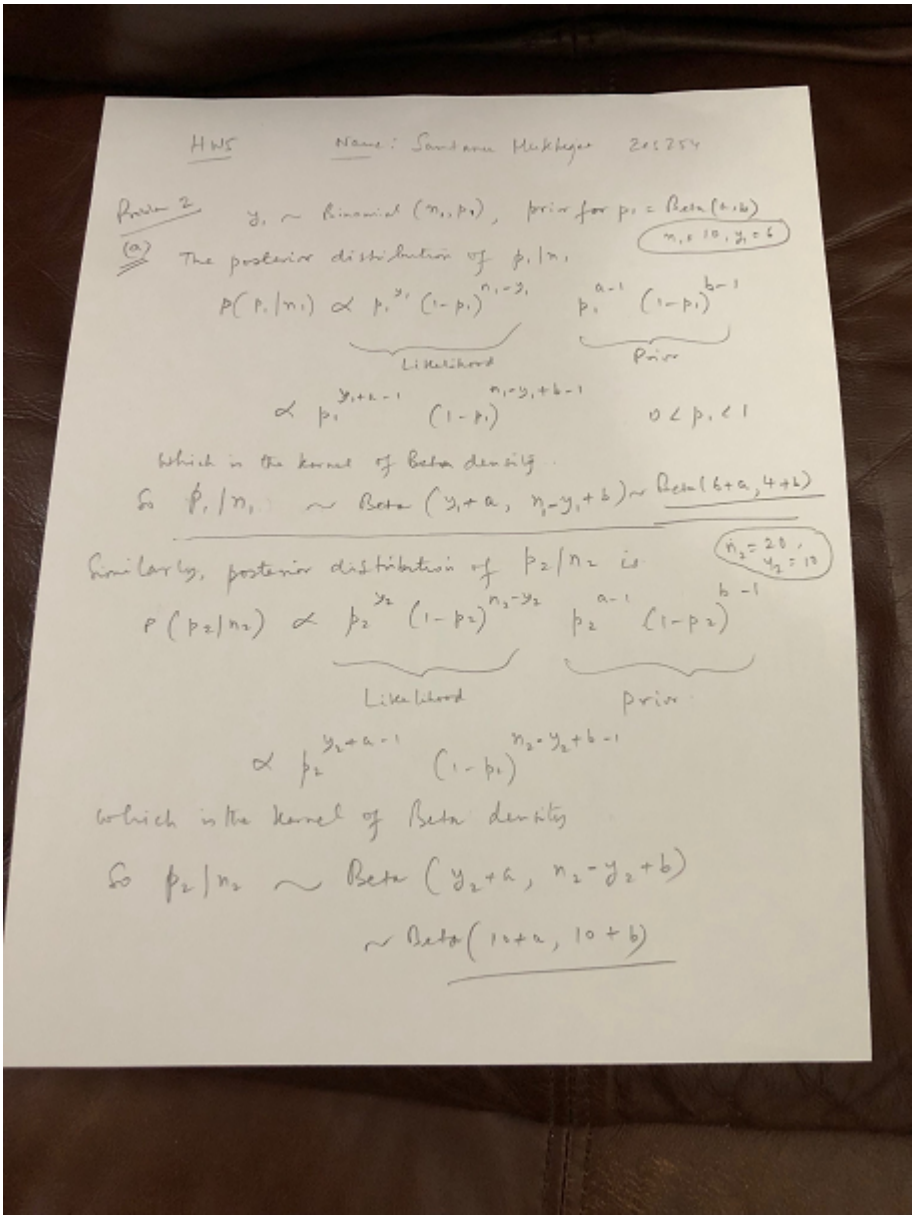
	mu1 <dbl>	mu2 <dbl>	Sigma1 <dbl>	Sigma2 <dbl>	Rho <dbl>
Point Estimates	113.4635	908612.4	25.06277	75295.29	0.35256967
95% CI Lower Limit	105.4661	885176.2	19.90548	60037.37	0.04892729
95% CI Upper Limit	121.3482	932534.4	31.45136	94159.95	0.60509732

3 rows

Answer 1 c

The point estimate for ρ is 0.3525697 and both the 95% credible intervals (lower and upper) for ρ did not contain **zero**. So, we can conclude that there is a positive linear correlation between **Verbal IQ** and **Performance IQ** scores.

Answer 2 a



Answer-2-a

Answer 2 b

The different values of a and b are stored in an array and used to calculate the 95% posterior interval for $p1 - p2$ and also used to calculate posterior probability that $p1 > p2$. The below table provides the results for different values of a and b.

a <dbl>	b <dbl>	95%_CI_Lower_p1-p2 <dbl>	95%_CI_Upper_p1-p2 <dbl>	Prob_p1_GreaterThan_p2 <dbl>
1	1	-0.026131663	0.1066616	0.6165
2	2	-0.012794706	0.1096365	0.6424
3	3	0.004257154	0.1117055	0.6623
4	4	0.010447044	0.1173520	0.6820
5	5	0.026062482	0.1184199	0.7055

5 rows