AinB Group Assignment

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Regression Model Analysis

Model 1: Friendship v/s Creativity

|	Dependent variable:		
	degreeCR		
	normal	Poisson	negative binomial
	(1)	(2)	(3)
degreeFS	0.76***	0.13***	0.13***
	(0.13)	(0.02)	(0.02)
Constant	1.15	0.90***	0.88***
	(0.81)	(0.12)	(0.15)
Observations	60	60	60
Log Likelihood	-151.77	-142.87	-140.37
theta			10.44* (5.48)
Akaike Inf. Crit.	307.54	289.75	284.74
Note:			*p<0.1;* ***p<0.05;*** p<0.01

Model 2: Friendship v/s Implementation

	Dependent variable:		
	degreeIM		
	normal	Poisson	negative binomial
	(1)	(2)	(3)
degreeFS	0.91***	0.14***	0.15***
	(0.14)	(0.02)	(0.02)
Constant	0.54	0.82***	0.80***
	(0.84)	(0.12)	(0.17)
Observations	60	60	60
Log Likelihood	-154.03	-152.61	-148.38
theta			6.80** (3.17)
Akaike Inf. Crit.	312.06	309.22	300.75
Note:			*p<0.1;* ***p<0.05;*** p<0.01

Model 3: Friendship v/s Influence

	Dependent variable:		
	degreeIN		
	normal	Poisson	negative binomial
	(1)	(2)	(3)

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degreeFS	0.60***	0.10***	0.10***
	(0.19)	(0.02)	(0.03)
Constant	2.02*	1.05***	1.07***
	(1.17)	(0.12)	(0.21)
Observations	60	60	60
Log Likelihood	-173.46	-184.11	-156.91
theta			2.59*** (0.73)
Akaike Inf. Crit.	350.91	372.23	317.82

Note: $p<0.1;$ ***$p<0.05;$*** $p<0.01$
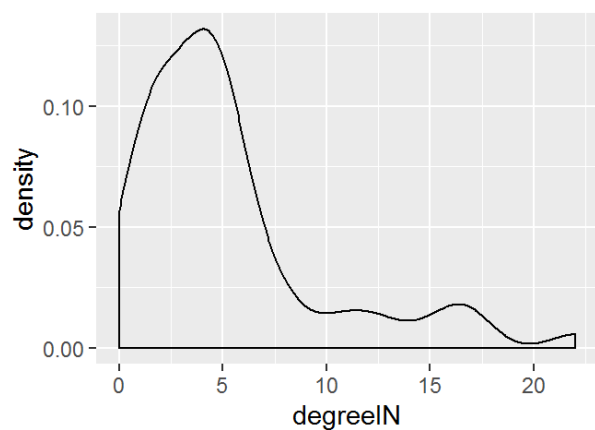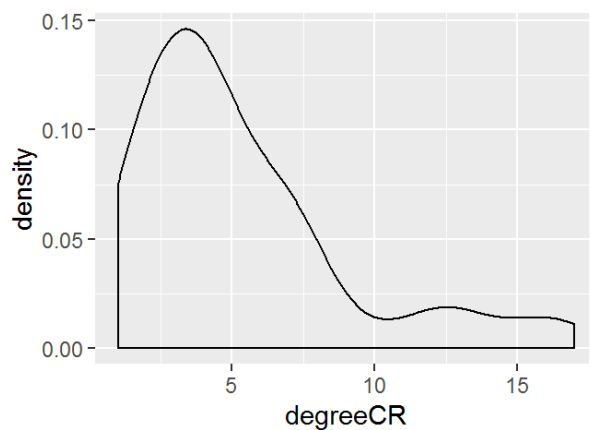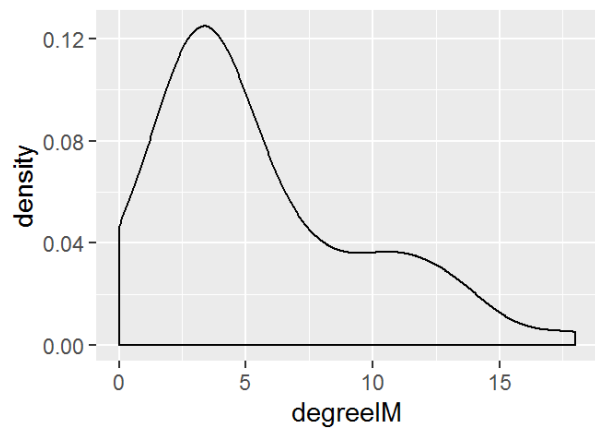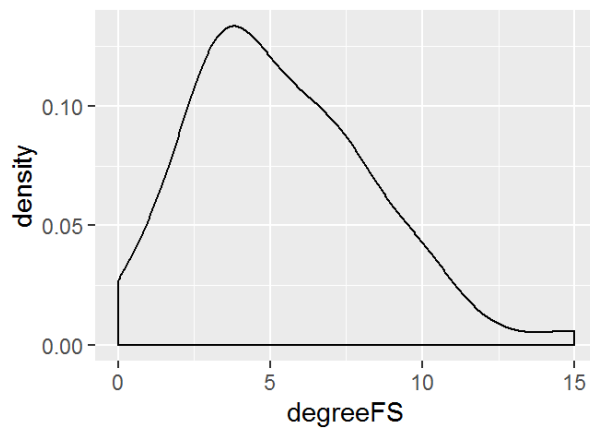
```
## 
## Call:
## glm(formula = degreeCR ~ degreeFS, family = poisson(link = "log"))
## 
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -2.9285  -0.8712  -0.3116   0.4198   3.7139
## 
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)   0.8971     0.1247   7.196 6.22e-13 ***
## degreeFS      0.1270     0.0167   7.604 2.87e-14 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## (Dispersion parameter for poisson family taken to be 1)
## 
##     Null deviance: 140.335  on 59  degrees of freedom
## Residual deviance:  87.067  on 58  degrees of freedom
## AIC: 289.75
## 
## Number of Fisher Scoring iterations: 5
```

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```
## 
## Call:
## glm.nb(formula = degreeCR ~ degreeFS, init.theta = 10.43971222,
##     link = log)
## 
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -2.2457  -0.7258  -0.2567   0.3272   3.1071
## 
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  0.88342    0.15393   5.739 9.51e-09 ***
## degreeFS     0.12921    0.02222   5.814 6.09e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## (Dispersion parameter for Negative Binomial(10.4397) family taken to be
1)
## 
##     Null deviance: 91.112  on 59  degrees of freedom
## Residual deviance: 56.794  on 58  degrees of freedom
## AIC: 284.74
## 
## Number of Fisher Scoring iterations: 1
## 
## 
##               Theta:  10.44
##           Std. Err.:  5.48
## 
##  2 x log-likelihood:  -278.738
```

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```
##
## Call:
## glm(formula = degreeIM ~ degreeFS, family = poisson(link = "log"))
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -3.2865  -0.8759  -0.2325   0.7490   4.5620
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  0.82283    0.12347   6.664 2.66e-11 ***
## degreeFS     0.14395    0.01611   8.938  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for poisson family taken to be 1)
##
##     Null deviance: 187.99  on 59  degrees of freedom
## Residual deviance: 115.07  on 58  degrees of freedom
## AIC: 309.22
##
## Number of Fisher Scoring iterations: 5
```

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```
## 
## Call:
## glm.nb(formula = degreeIM ~ degreeFS, init.theta = 6.800965794,
##     link = log)
## 
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -2.8187  -0.7188  -0.1767   0.6111   3.5222
## 
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  0.80468    0.16689   4.822 1.42e-06 ***
## degreeFS     0.14682    0.02431   6.039 1.55e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## (Dispersion parameter for Negative Binomial(6.801) family taken to be 1)
## 
##     Null deviance: 110.14  on 59  degrees of freedom
## Residual deviance:  71.73  on 58  degrees of freedom
## AIC: 300.75
## 
## Number of Fisher Scoring iterations: 1
## 
## 
##               Theta:  6.80
##           Std. Err.:  3.17
## 
##  2 x log-likelihood:  -294.754
```

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```
##
## Call:
## glm(formula = degreeIN ~ degreeFS, family = poisson(link = "log"))
##
## Deviance Residuals:
##     Min        1Q    Median        3Q       Max
## -3.1354   -1.2847   -0.3710    0.3015    5.4206
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)  1.05334    0.12311    8.556  < 2e-16 ***
## degreeFS     0.10253    0.01713    5.987 2.14e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for poisson family taken to be 1)
##
##     Null deviance: 213.91  on 59  degrees of freedom
## Residual deviance: 180.41  on 58  degrees of freedom
## AIC: 372.23
##
## Number of Fisher Scoring iterations: 5
```

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```
##
## Call:
## glm.nb(formula = degreeIN ~ degreeFS, init.theta = 2.591851102,
##     link = log)
##
## Deviance Residuals:
##     Min       1Q    Median       3Q       Max
## -2.1875   -0.8274   -0.2263    0.1727    2.9905
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  1.07081    0.20989   5.102 3.37e-07 ***
## degreeFS     0.09944    0.03263   3.048  0.00231 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for Negative Binomial(2.5919) family taken to be 1)
##
##     Null deviance: 74.256  on 59  degrees of freedom
## Residual deviance: 64.044  on 58  degrees of freedom
## AIC: 317.82
##
## Number of Fisher Scoring iterations: 1
##
##
##               Theta:  2.592
##           Std. Err.:  0.727
##
##  2 x log-likelihood:  -311.824
```

```
##
##  Overdispersion test
##
## data:  fsCR.poi
## z = 1.4892, p-value = 0.06821
## alternative hypothesis: true alpha is greater than 0
## sample estimates:
##     alpha
## 0.6484894
```

```
##
##  Overdispersion test
##
## data:  fsIM.poi
## z = 1.5115, p-value = 0.06533
## alternative hypothesis: true alpha is greater than 0
## sample estimates:
##     alpha
## 0.9425235
```

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```
##
##   Overdispersion test
##
## data:  fsIN.poi
## z = 2.4399, p-value = 0.007346
## alternative hypothesis: true alpha is greater than 0
## sample estimates:
##    alpha
## 2.72367
```

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