Ans.1) We are considering Q11 and Q13 and find the correlation. For this, we first start with analyze -> correlate -> Bivariate -> Pearson as variables are continuous.

BRAND X

Correlations

		Brand X	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Brand X)
Brand X	Pearson Correlation	1	-.705**
	Sig. (2-tailed)		.000
	N	4331	4331
Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Brand X)	Pearson Correlation	-.705**	1
	Sig. (2-tailed)	.000	
	N	4331	4331

**. Correlation is significant at the 0.01 level (2-tailed).

```
CORRELATIONS
  /VARIABLES=q11x2 q13_1_2
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

There is a negative association of -0.705 between Brand Commitment and Likelihood of recommending for BRAND X.

As p = 0.000 which is p < 0.01, we reject the null hypothesis and accept there is significant evidence against the null.

JC PENNY

Correlations

		JC Penney	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. JC Penney)
JC Penney	Pearson Correlation	1	-.673**
	Sig. (2-tailed)		.000
	N	98	98
Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. JC Penney)	Pearson Correlation	-.673**	1
	Sig. (2-tailed)	.000	
	N	98	98

**. Correlation is significant at the 0.01 level (2-tailed).

```
CORRELATIONS
  /VARIABLES=q11x11 q13_1_11
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

There is a negative association of -0.673 between Brand Commitment and the Likelihood of recommending JC PENNY.
As p = 0.000 i.e p < 0.01, we reject the null hypothesis and accept significant evidence against the null.

KOHL'S

Correlations

		Kohl's	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Kohl's)
Kohl's	Pearson Correlation	1	-.730**
	Sig. (2-tailed)		.000
	N	1610	1610
Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Kohl's)	Pearson Correlation	-.730**	1
	Sig. (2-tailed)	.000	
	N	1610	1610

**. Correlation is significant at the 0.01 level (2-tailed).

```
CORRELATIONS
  /VARIABLES=q11x3 q13_1_3
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

There is a negative association of -0.730 between Brand Commitment and Likelihood to Recommend for KOHL'S.

As p = 0.000 which is p < 0.01, we reject the null hypothesis and accept significant evidence against the null.

NORTSDORM

Correlations

		Nordstrom	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Nordstrom)
Nordstrom	Pearson Correlation	1	-.691**
	Sig. (2-tailed)		.000
	N	1590	1590
Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Nordstrom)	Pearson Correlation	-.691**	1
	Sig. (2-tailed)	.000	
	N	1590	1590

**. Correlation is significant at the 0.01 level (2-tailed).

```
CORRELATIONS
  /VARIABLES=q11x23 q13_1_23
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

There is a negative association of -0.691 between Brand Commitment and the likelihood of recommending for NORTSDORM.
As p = 0.000 which is p < 0.01, we reject null hypothesis, and accept there is a significant evidence against null

AMAZON

Correlations

		Amazon	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Amazon)
Amazon	Pearson Correlation	1	-.497**
	Sig. (2-tailed)		.000
	N	1608	1608
Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Amazon)	Pearson Correlation	-.497**	1
	Sig. (2-tailed)	.000	
	N	1608	1608

**. Correlation is significant at the 0.01 level (2-tailed).

```
CORRELATIONS
  /VARIABLES=q11x15 q13_1_15
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

There is a negative association of -0.497 between Brand Commitment and the Likelihood of recommending for AMAZON.
As p = 0.000 which is p < 0.01, we reject null hypothesis, and accept there is a significant evidence against null.

TJ MAXX

Correlations

		TJ Maxx	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. TJ Maxx)
TJ Maxx	Pearson Correlation	1	-.713**
	Sig. (2-tailed)		.000
	N	1603	1603
Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. TJ Maxx)	Pearson Correlation	-.713**	1
	Sig. (2-tailed)	.000	
	N	1603	1603

**. Correlation is significant at the 0.01 level (2-tailed).

There is a negative association of -0.713 between Brand Commitment and Likelihood of recommending for TJ MAXX.

As p = 0.000 which is p < 0.01, we Reject null hypothesis, and accept there is a significant evidence against null.

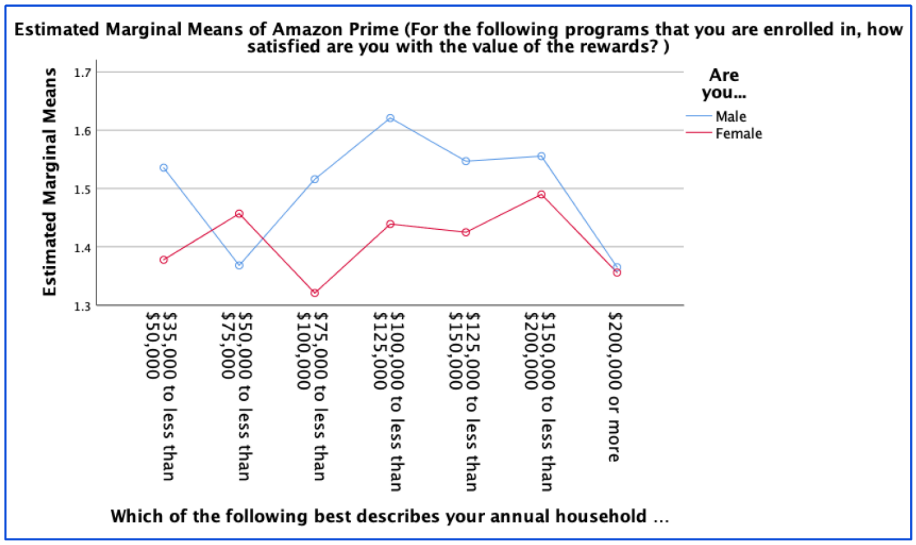
Ans.2)
Here, we are doing 2-way ANOVA.

Tests of Between-Subjects Effects

Dependent Variable: Amazon Prime (For the following programs that you are enrolled in, how satisfied are you with the value of the rewards?)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	13.871[a]	13	1.067	1.762	.044
Intercept	2840.831	1	2840.831	4690.951	.000
s1	2.834	1	2.834	4.680	.031
s8	5.247	6	.874	1.444	.194
s1 * s8	5.184	6	.864	1.427	.200
Error	1315.965	2173	.606		
Total	5798.000	2187			
Corrected Total	1329.835	2186			

a. R Squared = .010 (Adjusted R Squared = .005)



H0: ua = ub; Null Hypothesis: Satisfaction with the reward program doesn't differ by gender and household income.

Ha: Ua not equal to ub; Satisfaction of reward program defers by gender and household income.

Now, we see that this is a two-way Annova problem with satisfaction (q21a_3) as a dependent variable and two independent variables are gender(s1) and household income(s8).
As it can be seen the **overall model is significant** and has a p-value<0.05, however, s1*s8 (Interaction effect) has a p-value >0.05 hence it is insignificant. Therefore, we cannot reject the null hypothesis.
Also, there is no significant income effect.

Ans .3)

Correlations

			Which of the following best describes your annual household income?	JC Penney
Spearman's rho	Which of the following best describes your annual household income?	Correlation Coefficient	1.000	.038
		Sig. (2-tailed)	.	.713
		N	4331	98
	JC Penney	Correlation Coefficient	.038	1.000
		Sig. (2-tailed)	.713	.
		N	98	98

Correlations

			Which of the following best describes your annual household income?	Amazon
Spearman's rho	Which of the following best describes your annual household income?	Correlation Coefficient	1.000	-.059*
		Sig. (2-tailed)	.	.018
		N	4331	1608
	Amazon	Correlation Coefficient	-.059*	1.000
		Sig. (2-tailed)	.018	.
		N	1608	1608

*. Correlation is significant at the 0.05 level (2-tailed).

JC Penny, there is a positive association between annual household income and respective likelihood to purchase for JC Penny. It can be seen that the p-value for JCPenney >=0.05 therefore null hypothesis that is there is no correlation between annual household income and the respective likelihood to purchase.

However, for Amazon, there is a **negative association** between annual household income and the respective likelihood of purchasing from Amazon. P = 0.018 which is <0.05 so the Null hypothesis can be rejected therefore there is a chance that there is a relationship between annual income and the likelihood of purchasing.

Ans.4) As the p-value<0.05, therefore we can reject the null hypothesis which means there is an impact of brand love with the likelihood of a recommendation.

Correlations

			JC Penney (Which statement best captures how you feel about the following brands?)	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. JC Penney)
Spearman's rho	JC Penney (Which statement best captures how you feel about the following brands?)	Correlation Coefficient	1.000	-.652**
		Sig. (2-tailed)	.	.000
		N	4331	98
	Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. JC Penney)	Correlation Coefficient	-.652**	1.000
		Sig. (2-tailed)	.000	.
		N	98	98

**. Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.633[a]	.401	.395	1.656

a. Predictors: (Constant), JC Penney (Which statement best captures how you feel about the following brands?)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	176.246	1	176.246	64.246	.000[b]
	Residual	263.356	96	2.743		
	Total	439.602	97			

a. Dependent Variable: Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. JC Penney)

b. Predictors: (Constant), JC Penney (Which statement best captures how you feel about the following brands?)

Coefficients[a]

Double-click to activate

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	10.982	.497		22.116	.000
	JC Penney (Which statement best captures how you feel about the following brands?)	-1.766	.220	-.633	-8.015	.000

a. Dependent Variable: Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. JC Penney)

From the linear regression analysis in SPSS we got the correlation between Brand Love and Likelihood of Recommendation for JC Penny is 0.633. The proportion of variability in Likelihood for Recommendation can be explained by Brand Love which is 40.1% in other words behaviour of recommending JC penny is 40.1% chance explained by Brand Love.

In the ANOVA table we see that P is less than 0.01, so the null hypothesis is rejected. Therefore, there is a linear relationship between Brand Love and the Likelihood of Recommendation for JC Penny.

Regression equation:
Predicted likelihood to recommend JC Penny = 10.982 + (-1.766) Brand Love for JC Penny.

As scaling for Brand Love and Likelihood for Recommendation are opposite so sign is negative for b1.
Perceptions for Brand Love have an impact on the Likelihood for Recommendation, and there exists a 40.1% chance that the variability in the Likelihood for Recommendation can be explained by Brand

Love. The strength of the relationship is significant as P value is less than 0.01. The relationship is linear in nature.