Questione one

crosstab

Table Title

| year | interest | | | | | | | | | | | Total |
	clinical	cogneuro	cognitive	community	counseling	forensic	health	industrial	other	social	unsure	
junior	9	11	5	0	20	8	5	8	2	5	7	80
	11.2 %	13.8 %	6.2 %	0 %	25 %	10 %	6.2 %	10 %	2.5 %	6.2 %	8.8 %	100 %
senior	7	3	3	1	28	4	2	6	5	4	8	71
	9.9 %	4.2 %	4.2 %	1.4 %	39.4 %	5.6 %	2.8 %	8.5 %	7 %	5.6 %	11.3 %	100 %
sophomore	5	2	1	0	9	1	0	0	1	0	2	21
	23.8 %	9.5 %	4.8 %	0 %	42.9 %	4.8 %	0 %	0 %	4.8 %	0 %	9.5 %	100 %
Total	21	16	9	1	57	13	7	14	8	9	17	172
	12.2 %	9.3 %	5.2 %	0.6 %	33.1 %	7.6 %	4.1 %	8.1 %	4.7 %	5.2 %	9.9 %	100 %

$\chi^2=19.650 \cdot df=20 \cdot$ Cramer's $V=0.239 \cdot$ Fisher's $p=0.481$

Junior studenst with proportion of 80/172.

Question two

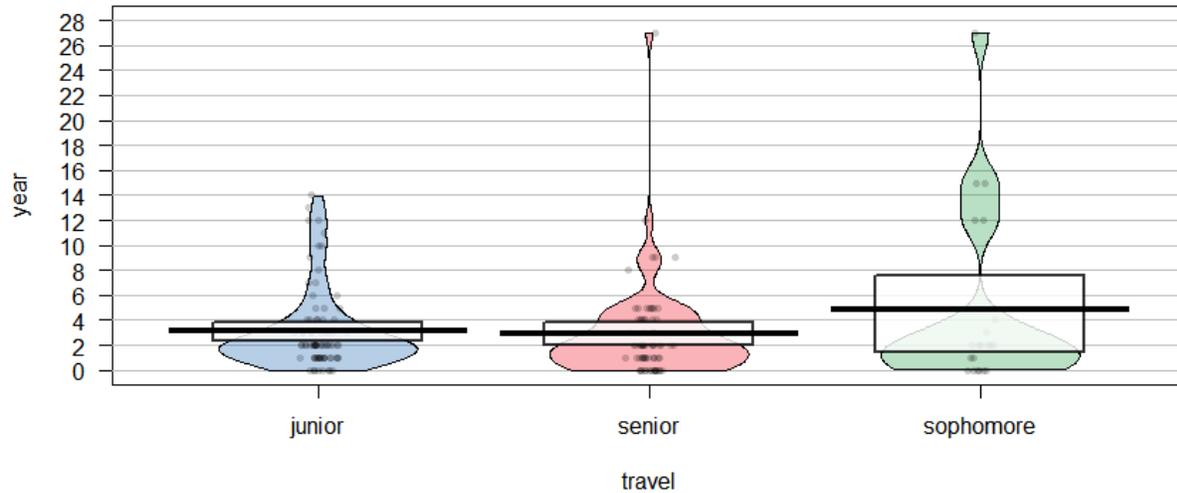```
Table 5

Descriptive statistics for travel as a function of year.

     year   M   SD
   junior 3.20 3.25
   senior 2.89 3.84
 sophomore 4.86 7.15

Note. M and SD represent mean and standard deviation, respectively.
```

Pirate plot

## Pirateplot of year and countries visited



C

1) Raw data,

   The graph above pictorially describes the raw data which cannot be seen using the mean above, that is, we can see the extreme values and how the data points( travel) are distributed across the year

2) Descriptive statistics,

   The graph gives detailed information about mean, median and mode, and interquartile range as shown by the rectangular figures, the dark lines shows the means, while the upper corner shows the 75% quartile while the lower corner shows the 25% quartile.

Question three

Yes, from the graph below, we can see a linear positive relationship hence we conclude that they are positively related.

**Scatter plot + histograms**



0.14
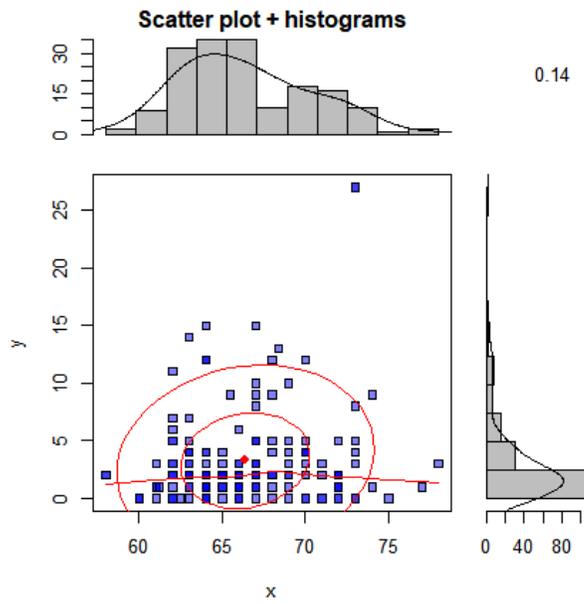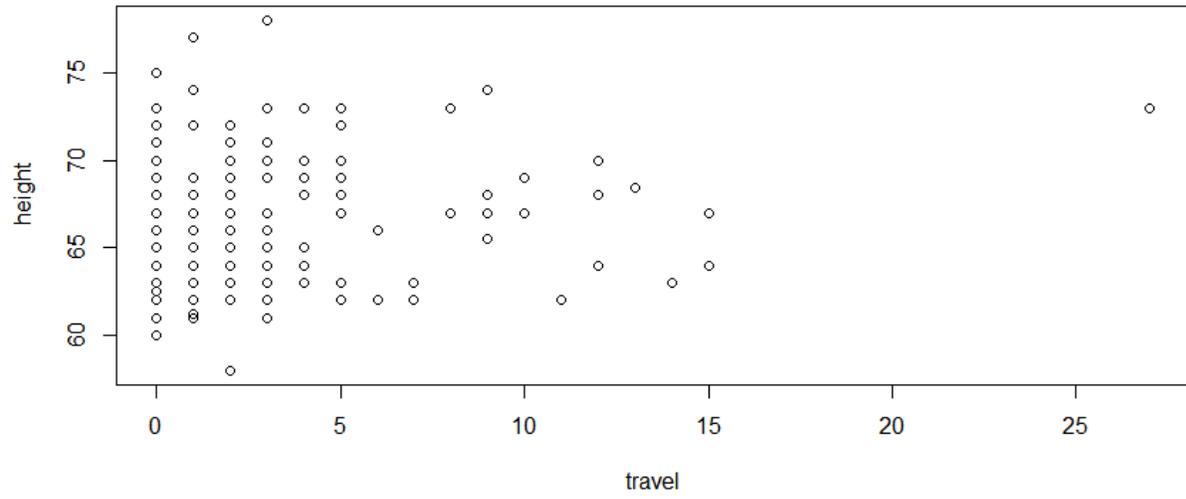
b. Correlations

```
Table 1

Means, standard deviations, and correlations with confidence intervals


  Variable  M      SD    1
  1. travel 3.27   4.16

  2. height 66.39 3.88 .14
                        [-.02, .28]


Note. M and SD are used to represent mean and standard deviation, respectively.
values in square brackets indicate the 95% confidence interval.
The confidence interval is a plausible range of population correlations
that could have caused the sample correlation (Cumming, 2014).
 * indicates p < .05. ** indicates p < .01.
```

c. Yes, I used na.omit() function to omit any missing data points.

Question 4

a).

```
> alpha(cons , keys = 26:35)

Reliability analysis
Call: alpha(x = cons, keys = 26:35)

  raw_alpha std.alpha G6(smc) average_r S/N   ase mean   sd median_r
      0.82      0.82    0.84      0.31 4.5 0.019  3.7 0.64      0.3

 lower alpha upper       95% confidence boundaries
0.78 0.82 0.86

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
cons_12      0.81      0.81    0.83      0.32 4.2   0.020 0.027  0.33
cons_22      0.82      0.81    0.83      0.32 4.3   0.020 0.025  0.32
cons_32      0.80      0.80    0.83      0.31 4.1   0.021 0.026  0.29
cons_42      0.80      0.80    0.82      0.30 3.9   0.021 0.027  0.27
cons_53      0.82      0.81    0.83      0.32 4.3   0.019 0.026  0.33
cons_63      0.82      0.82    0.83      0.33 4.5   0.019 0.022  0.32
cons_73      0.78      0.79    0.80      0.29 3.8   0.024 0.013  0.30
cons_83      0.78      0.79    0.80      0.29 3.7   0.024 0.013  0.30
cons_93      0.79      0.80    0.82      0.30 3.9   0.023 0.018  0.30
cons_103     0.81      0.81    0.84      0.32 4.3   0.020 0.026  0.31

 Item statistics
          n raw.r std.r r.cor r.drop mean   sd
cons_12  172  0.54  0.58  0.50   0.43  3.9 0.80
cons_22  172  0.50  0.56  0.48   0.39  4.0 0.82
cons_32  172  0.64  0.62  0.54   0.51  3.1 1.18
cons_42  172  0.65  0.67  0.62   0.55  4.0 0.93
cons_53  172  0.54  0.56  0.48   0.39  3.8 1.00
cons_63  171  0.44  0.50  0.42   0.32  3.8 0.80
cons_73  171  0.77  0.71  0.73   0.68  3.2 1.27
cons_83  172  0.77  0.72  0.74   0.70  3.6 1.16
cons_93  172  0.72  0.68  0.65   0.62  3.6 1.26
cons_103 172  0.56  0.56  0.48   0.45  3.9 0.90

Non missing response frequency for each item
         1    2    3    4    5 miss
cons_1  0.00 0.10 0.09 0.64 0.17 0.00
cons_2  0.00 0.07 0.11 0.54 0.28 0.00
cons_3  0.06 0.31 0.16 0.33 0.13 0.00
cons_4  0.01 0.08 0.12 0.48 0.31 0.00
cons_5  0.01 0.15 0.19 0.42 0.24 0.00
cons_6  0.00 0.05 0.28 0.48 0.19 0.01
cons_7  0.11 0.25 0.16 0.32 0.16 0.01
cons_8  0.04 0.19 0.17 0.36 0.24 0.00
cons_9  0.09 0.15 0.14 0.37 0.26 0.00
cons_10 0.01 0.03 0.27 0.38 0.30 0.00
> |
```

The internal consistency reliability for the cons scale is 0.82.

b).Yes, since it is greater than 0.7.

raw_alpha: Cronbach's α (values ≥ .7 or .8 indicate good reliability; Kline (1999))

Question five

a.

vars   n mean   sd median trimmed mad min max range skew kurtosis   se

X1   1 172 3.68 0.64   3.7   3.69 0.74 2.1   5   2.9 -0.11   -0.58 0.05

From the table above the mean level of overall cons is 3.68

b.

Table 2

Means, standard deviations, and correlations with confidence intervals

Variable	*M*	*SD*	1	2	3	4	5	
1. cons_1	3.89	0.80						
2. cons_2	4.03	0.82	.38** [.24, .50]					
3. cons_3	3.15	1.19	.28** [.14, .41]	.22** [.07, .36]				
4. cons_4	3.99	0.93	.33** [.18, .45]	.39** [.25, .51]	.34** [.20, .46]			
5. cons_5	3.76	1.00	.30** [.16, .43]	.30** [.16, .43]	.30** [.15, .43]	.36** [.22, .48]		
6. cons_6	3.80	0.80	.28** [.13, .41]	.42** [.29, .54]	.14 [-.01, .29]	.37** [.23, .49]	.41** [.28, .53]	
7. cons_7	3.19	1.28	.27** [.12, .40]	.15* [.00, .30]	.43** [.30, .54]	.41** [.28, .53]	.22** [.08, .36]	[
8. cons_8	3.56	1.17	.23** [.08, .37]	.17* [.02, .31]	.43** [.30, .55]	.38** [.25, .51]	.26** [.11, .39]	[
9. cons_9	3.57	1.27	.27** [.12, .40]	.23** [.09, .37]	.35** [.22, .48]	.35** [.21, .47]	.15 [-.00, .29]	[
10. cons_10	3.94	0.90	.25** [.11, .39]	.19* [.04, .33]	.32** [.18, .45]	.22** [.08, .36]	.14 [-.01, .28]	
11. neatness	3.04	1.28	.30**	.09	.34**	.31**	.17*	

			[.15, .43]	[-.06, .24]	[.20, .47]	[.17, .44]	[.02, .31]	[
12. travel	3.29	4.18	-.14	-.12	-.13	-.08	-.00	
			[-.28, .01]	[-.26, .04]	[-.28, .02]	[-.23, .07]	[-.15, .15]	[

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$.

C
Scatterplot for all the correlations
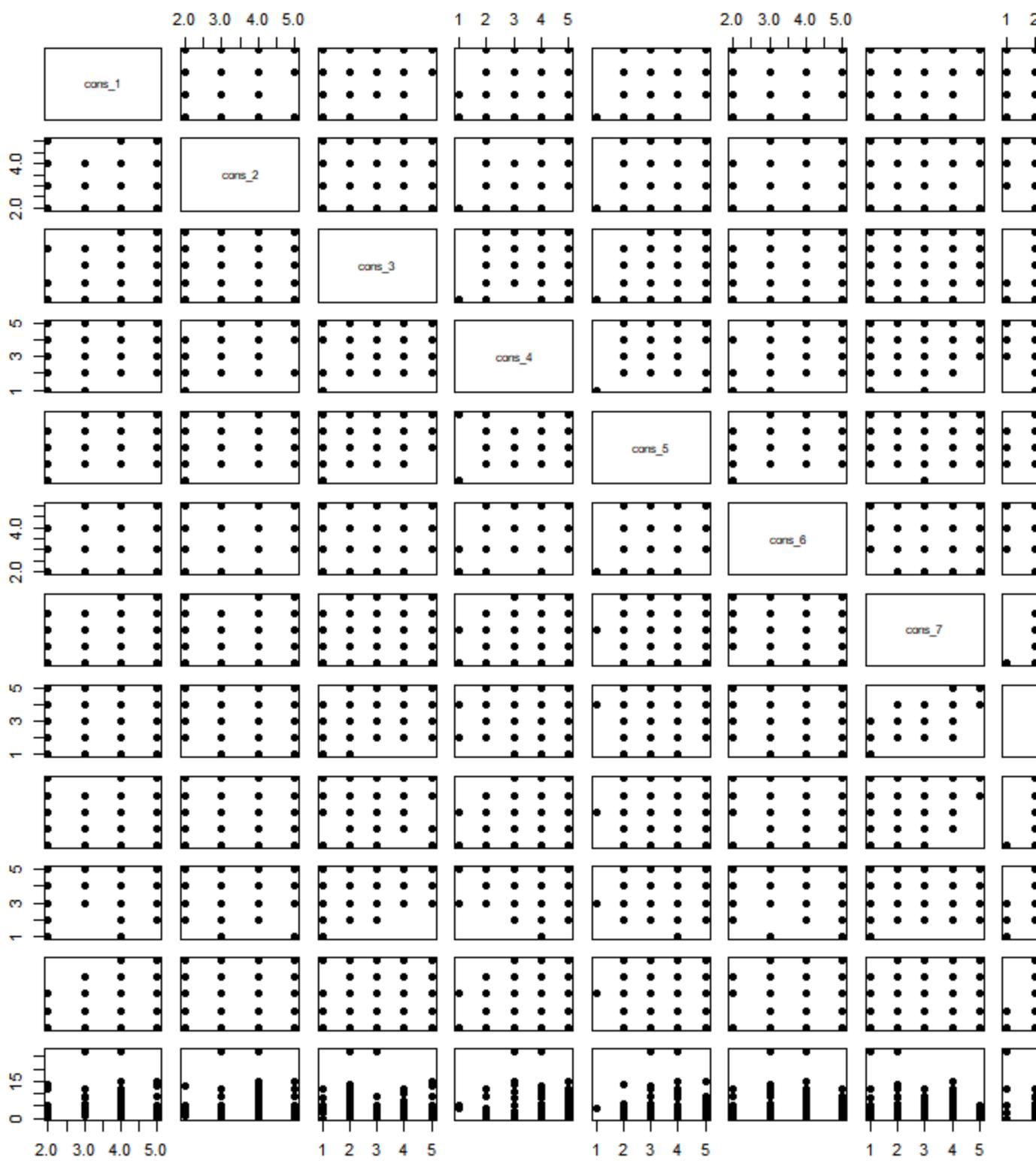
The needed screenshot

```r
30  #converting to numeric
31  interest<-as.numeric(interest)
32  year<-as.numeric(year)
33  x<-data.frame( year,interest)
34  #Question two
35  # getting the descriptive statsistics
36  apa.1way.table(iv = year, dv = travel, data = PSY_350_Class_Survey,
37                 filename = "Table5_APA.doc",
38                 table.number = 5)
39  #pirateplot, question two
40  pirateplot(formula = travel~PSY_350_Class_Survey$year,
41             point.o = .1,
42             data =PSY_350_Class_Survey)
43  yarrr::pirateplot(formula = travel~ PSY_350_Class_Survey$year, # dv is year, iv is interest
44                 data = x,
45                 main = "Pirateplot of year and countries visited",
46                 xlab = "travel",
47                 ylab = "year")
48
49
50  #scatter plot
51  scatter.hist(height,y=travel,smooth=TRUE,ab=FALSE,correl=TRUE,density=TRUE,ellipse=TRUE,
52               digits=2, method,cex.cor=1,title="Scatter plot + histograms",xlab=NULL,ylab=NULL)
53  plot(height~travel)
54  #correlations
55  frame<-data.frame(travel,height)
56  frame<-na.omit(frame)
57  apa.cor.table(frame, filename="Table1_APA.doc", table.number=1)
58  #internal consisteny
59  #data preparation
60  library(dplyr)
61  cons <- select(PSY_350_Class_Survey, 26:35)
62
63  alpha(cons , keys = 26:35)
64
65  #aggrated score
66  keys <-(26:35)
67  scores <- scoreItems(keys,cons,min=1,max=6)
68  summary(scores)
69
70  #to get the response frequencies
71  scores <- scoreItems(keys,cons,min=1,max=6)
72  scores
73  #The scores themselves are available in the scores$scores object.  I.e.,
74  describe(scores$scores)
75
76  #correlations
77
78  frame2<-data.frame(cons,neatness,travel)
79  frame2<-na.omit(frame2)
80  cor<-apa.cor.table(frame2, filename="Table2_APA2.doc", table.number=2)
81  cor
82
83  #scatter plot of the correlations
84
85  pairs(frame2, pch = 19)
86
```

65:16   (Top Level) ⇕

Console

.

References

Kline, P. (1999). The handbook of psychological testing (2nd ed.). London: Routledge.