# SPSS

# LIFE STYLE REPORT

Your name here

Student number

# ASSIGNMENT

Instructions:
Following is the assignment to be done.

1. You are required to choose minimum 4 and maximum 6 from the link below and analyze the data in the most innovative manner. Innovation carries
marks. https://rpadgett.butler.edu/ps310/classdata.php

2.Innovation could be in manipulating the data and coming up with a unique and out of the box results. The results should be supported with reasons to choose a particular analysis and intuitive explanations to come up with solutions.

3. The assignment should have at least 5 analyses and at most 8 analyses. The analysis could be both descriptive and inferential in nature but inferential analysis would attract more marks.

4. The assignment should be submitted in a form of a report and it should not exceed the 6 pages inclusive of everything.

# LIFE STYLE REPORT

Two things define Liam's life: the passion for music and his pets: a dog, a cat, and a couple of spiders. This report discusses topics of interest for Liam, trying to clarify his vision upon the two topics. The report was specifically requested by Liam, but 231 users manifested their intentions to join the audience of the study. And their number is growing every minute!

## ANALYSIS 1: INDEPENDENT LABEL LP SALES AND RADIO ADVERTISING IN MUSIC INDUSTRY

The first question asked by Liam was about the impact of advertising in creating musical taste. The file **Record1.sav** included evidences for 200 LPs issued in the same week, two months by independent labels. They include the budget for of advertising in the last four months on national radio stations and the number of sales nationwide. Since independent labels pay less for advertising, there is highly unlikely they had advertised anything earlier than two months as compared to the moment of releasing the album, but still, the exact weekday of release may matter for the number of sales to date. However, since such information was not collected, this report takes into consideration only variation given by minutes of advertising. Considering Liam preferences, the sample of 200 LPs includes only rap music. Nevertheless, prior notoriety of the band/singer is important, but such confounder was unfortunately not considered in this analysis.
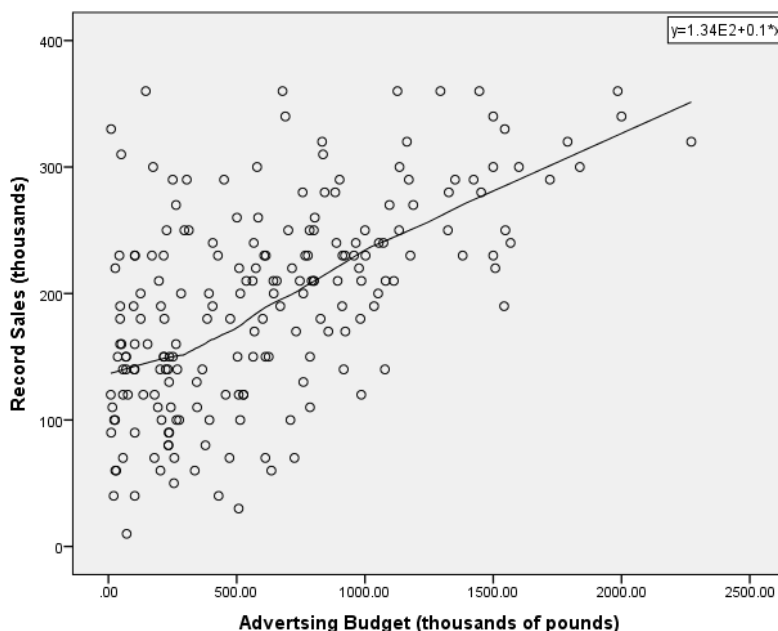


**Figure 1. Dependency of sales on advertising in music industry**

The scatterplot indicates a linear relation between the two, as suggested by the loess line, but the relation is heteroscedastic: there are higher prediction errors for low levels of advertising. The Pearson correlation between the two variables is .578 (p<.0005) indicating that indeed advertising drives sales for rap LPs released by independent labels. People like Liam should be careful in

choosing according to their preferences not to advertising! Or maybe not, if they want to be trendy…

## ANALYSIS 11: INDEPENDENT LABEL LP SALES IN MUSIC INDUSTRY

A further development is to provide more refined insights into the sales of independent label rap music using the **Report2.sav** datafile. 200 LPs were scrutinized in their first two months after being issued. Sales, advertising, airplay minutes and an index of attractiveness were considered. A multiple linear regression (OLS) model was considered, having sales as output variable, and advertising, attractiveness, and airplay as predictors. Table 1 displays the main findings. All three factors are significant at p<.0005, which means that if any 200 records would be selected, the results would be roughly the same in at least 99.95% such samples. The model explains 67% in the differences in record sales.

| | Unstandardized Coefficients | | Standardized Coefficients | | | 95,0% Confidence Interval for B | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | t | Sig. | Lower Bound | Upper Bound | Tolerance | VIF |
| (Constant) | -26.613 | 17.350 | | -1.534 | .127 | -60.830 | 7.604 | | |
| Advertsing Budget (thousands of pounds) | .085 | .007 | .511 | 12.261 | .000 | .071 | .099 | .986 | 1.015 |
| No. of plays on Radio 1 per week | 3.367 | .278 | .512 | 12.123 | .000 | 2.820 | 3.915 | .959 | 1.043 |
| Attractiveness of Band | 11.086 | 2.438 | .192 | 4.548 | .000 | 6.279 | 15.894 | .963 | 1.038 |

**Table 1. Regression model for Record Sales (thousands)**

Considering the advertising budget, on average, 1000 pounds bring extra sales of 85 records. This means that, in order to be efficient, advertising should be used when the margin of profit for one record exceeds 1000/85=11.77 pounds.

Every play on Radio 1 is likely to increase sales with 3400 units. The increase is quite high, but when one considers variation in the levels of the three predictors (and computes the standardized regression coefficients), the impact is basically the same as in the case of the advertising budget. This happens because advertising budgets have a very large range (from 9,000 to 2.2 million pounds) as compared to number of plays per week (between 0 and 63). One may understand the impact of the two factors in simple language: an increase of one sixth on the scale of airplays (that is about 13 extra plays per week) is equivalent to the impact of an increase of one sixth on the scale of advertising budgets (that is roughly 400,000 pounds). Both changes increase record sales with roughly 35. One may understand the result in the sense that the two increases (400,000 pounds or 13 airplays) bring the same exposure to the record when considering the behavioral answer of the consumer.

Attractiveness of the band plays a less important but still significant role. The index varies from 1 to 10, with an average of 6.33 (SD=1.40). There are 11 more records sold on average when attractiveness increases with one point. To make a comparison with the above increase of one

sixth of the scale, it results that if a band is more attractive with one sixth of the scale (i.e. 1.5 points) as compared to another, its records will sale on average with 1.6 units more, which is much less than the above-discussed increase for advertising budgets or no of plays at Radio 1.

## ANALYSIS III: SINGING AND PERSONALITY

Members of a band may have different personality. To inform Liam about people he idolizes, one may use the **Band personality.sav** data set. The file contains information about 426 band members with respect to four personality traits - Neuroticism, Extroversion, Agreeableness, and Conscientiousness, as well as about the instrument they play. Out of the 426 cases for which is data for at least one personality trait, there are **408** with full information (no missing values). Within the dataset, there is a negative correlation between Neuroticism and Extroversion ($\rho=-.31$, $p<.0005$), while Neuroticism is positively related to Agreeableness ($\rho=.121$, $p=.014<.05$). Extroversion is negatively related to both Agreeableness ($\rho=-.217$, $p<.0005$) and Conscientiousness ($\rho=-.162$, $p=.001$). Agreeableness and Conscientiousness are quite well connected: when one increases, the other increases as well ($\rho=.524$, $p<.0005$). There is no significant association between Neuroticism and Agreeableness.
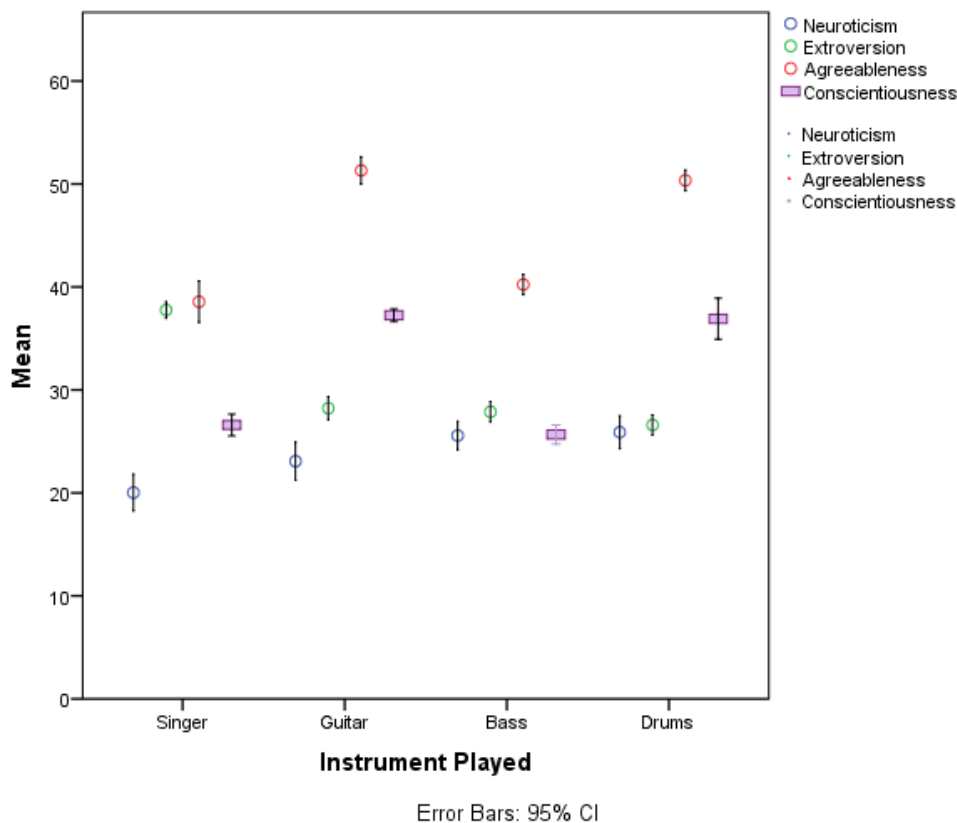


**Figure 2. CI-plots for band members and personality traits**

With respect to band members various significant differences can be observed. Oneway ANOVA models allow observing the differences. One may depict the situation using post-hoc tests (Tukey for Neuroticism, Tamhane for all other three traits; for Neuroticism the groups are homogeneous, while for the other three traits, singers, drummers, guitar players, and bass players show non-homogeneous distributions, according to the Levene test considering a significance level of.05).

Singers are significantly less neurotic as compared to all others – which are alike. Singers are also more extroverted as compared to all others. In terms of Agreeableness, Drummers and Bass players score significantly higher as compared to the others. Finally, Drummers and Guitar players have significantly higher scores of Conscientiousness as compared to Singers and Bass players.

# ANALYSIS IV: SPIDERS

Liam loves his two spiders, and wants to know to which extent he can show his pets to friends and acquaintances. more exactly, Liam is interested to learn if spiders per se generate anxiety o the idea of "spider" is the one to produce fear. The SpiderBG.SAV dataset allows to answer his questions.

In an experimental design, 12 subjects were shown pictures of spiders and 12 saw real spiders. Levels of anxiety were measured, and thereafter compared. The distributions in Figure 3 suggest that real spiders raise more anxiety than their pictures, but the result is unlike to generate significant differences if generalization is considered.
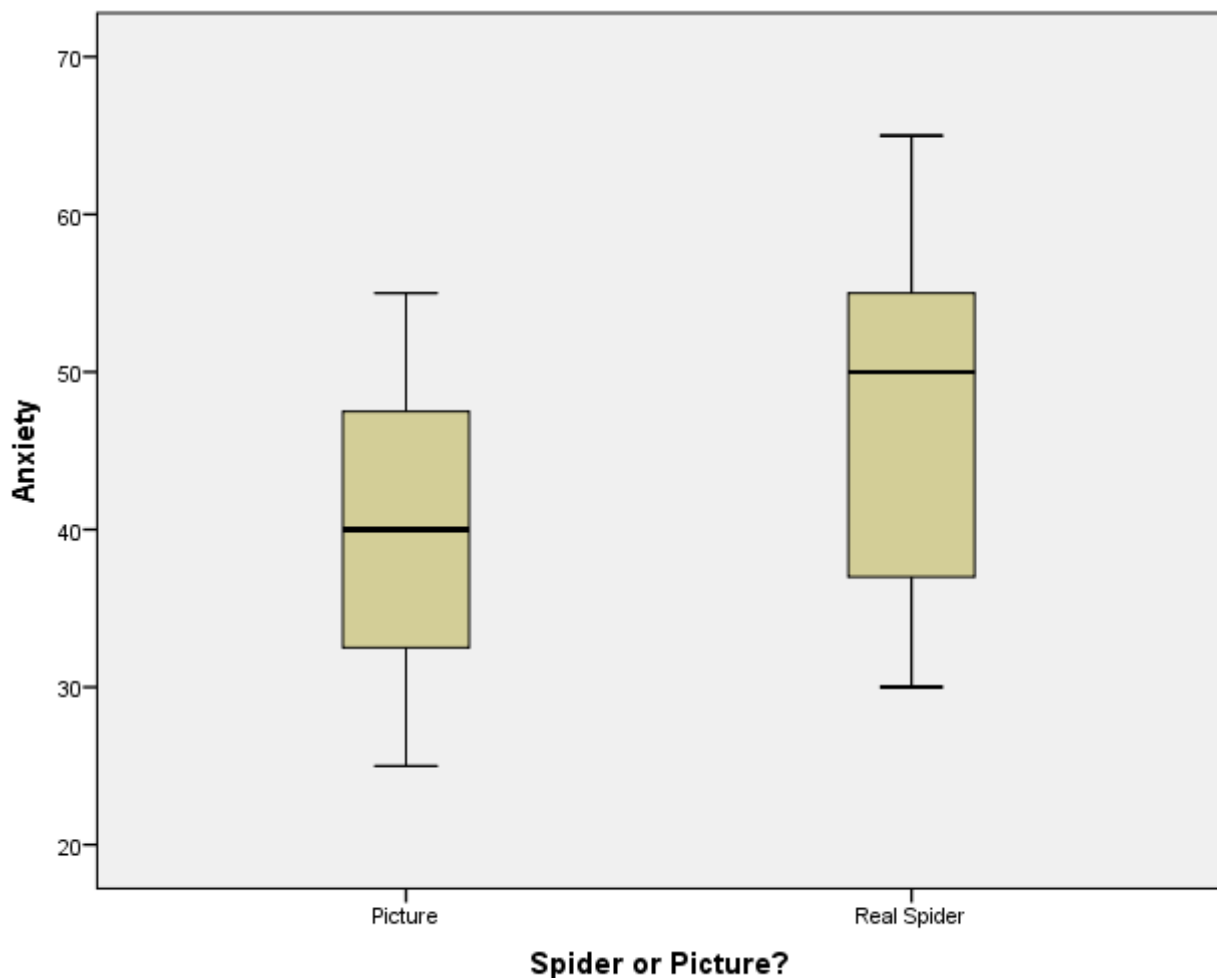


**Figure 3. CI-plots for band members and personality traits**

An independent sample t-test prove to be insignificant (t(22)=1.681, p=.107:.05). However, one would need a larger sample, and it might be preferable to have the same subjects exposed once to an real spider, once to the picture. the randomization of the subsamples is useful, but it might fail to provide the same structure of the two subsamples when small number of cases are involved. However, for the time being, one concludes spiders and their pictures generate the same anxiety. Liam should consider that anxiety from spiders is rather real than imagined.

## ANALYSIS V: CATS AND DOGS

One may wonder to which extent cats and dogs can be taugh to dance. Data from the file CatsandDogds.sav allows providing an answer. 200 cats and 70 dogs were subject to training in order to learn dancing. Part received food as reward, others received affection as reward.

**Type of Training * Did they dance? Crosstabulation**

% within Training Type of Training

| Animal Animal | | | Did they dance? Yes | No | Total |
|---|---|---|---|---|---|
| Cat | Training Type of Training | Food as Reward | 73.7% | 26.3% | 100.0% |
| | | Affection as Reward | 29.6% | 70.4% | 100.0% |
| | Total | | 38.0% | 62.0% | 100.0% |
| Dog | Training Type of Training | Food as Reward | 58.8% | 41.2% | 100.0% |
| | | Affection as Reward | 80.6% | 19.4% | 100.0% |
| | Total | | 70.0% | 30.0% | 100.0% |

**Table 2. Training strategies and their outcomes: the case of dogs and cats**

As Table 2 shows, in the case of cates, 74% of those receiving food as reward ended up dancing, while the success rate is only 30% for those receiving affection. The relationship is significant (χ(1,1)=25.4, p<.0005). In the case of dogs, a reversed association is noticed: the success rate is 5(% in case of rewards based on food, and 81% in case of affection. The relation is also significant (χ(1,1)=3.9, p=.047<.05). Cramer's V is .356 for cats and .231 for dogs, indicating a stronger elation for the former.

One may conclude that using food as reward for cats and affection for dogs is the key to teach them dancing.

## ANALYSIS V: CATS AND DOGS

Liam's wife cannot decide whether she wants a dog or a goat. Liam would prefer to help her in such a way that his life satisfaction does not decrease. Dataset "Goat or Dog.sav" provides a potential answer. It includes 12 cases in which the wife has a goat and 8 in which she has a dog.

they also provide information on life satisfaction (range 16 to 72) and love for animals (range 12 to 69) for the husband.
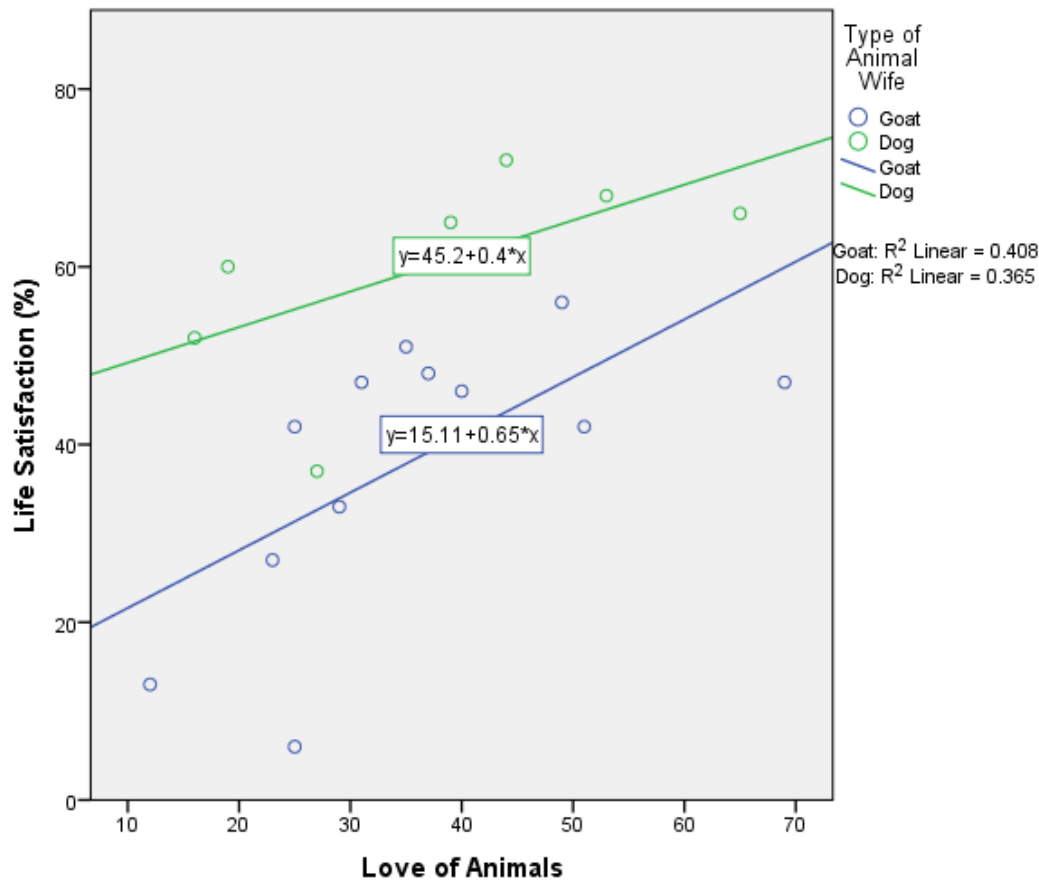


**Figure 4. Relation between love of animals and life satisfaction, conditioned by wife's pet**

The correlation between life satisfaction and love for animals is stronger in case of goats ($\rho=.639$, $p=.025<.05$) as compared to dogs ($\rho=.604$, $p=.113>.05$). On the other hand, unconditioned for animal love, life satisfaction is significantly higher ($t(18)=3.446$, $p=.003<.05$), the mean difference between "goats" and "dogs" being 22.0 (SD=6.37). A One-Way ANCOVA model reveals that actually both animal love ($F=(1,19)=9.3$, $p=.008$) and the type of animal ($F(1,19)=4.9$, $p=.042$) are associated with life satisfaction, but their interaction is not ($F=(1,19)=.5$, $p=.481$). Love for animals explains 37% of the variance in the levels of life satisfaction (power=.815), while the type of pet is less influential ($\eta^2=.23$; power=.545).

Therefore, when it comes to wives, one may conclude dogs are preferable to goats, but animal love prevails.

# DISCUSSION

The analysis in this brief report allow Liam and other people like Liam to better understand their situation. Liam can learn that advertising and number of airplays are more important than attractiveness of the band, and he can consider the costs of pursuing such career. he also leans

about which position in the band can be closer to his profile, from the point of view of average personality traits. Second, regarding his pets, it turns out that fear from spiders is real, food works as better motivator for cats to dance, but dogs prefer affection. Wives with dogs are preferable, but animal love is the essential ingredient for life satisfaction.