## Ch10 Homework

1. From random sampling, 25 out of 120 public university graduates got hired at high-tech companies while 32 out of 110 private university students got hired. Test the claim that the proportion of public university graduates who got hired at high-tech companies is less than the proportion of private university graduates who got hired at high-tech companies.

H0: P1=P2 H1:P1<P2

Hypothesis test results:

| Difference | Count1 | Total1 | Count2 | Total2 | Sample Diff. | Std. Err. | Z-Stat | P-value |
|---|---|---|---|---|---|---|---|---|
| $p_1 - p_2$ | 25 | 120 | 32 | 110 | -0.082575758 | 0.056991435 | -1.4489152 | 0.0737 |

7%>5% there's no enough evidence to claim P1>P2 at 95% IC

2. A simple random sample of 100 CSU recent graduates reveals a mean income of $65,000 and a standard deviation of $12,000. A simple random sample of 160 UC recent graduates reveals a mean income of $79,000 and a standard deviation of $11,000. Test the claim that the mean income of U[illegible]n the mean income of CSU recent graduates.

H0:u1=u2 H1:u1>u2

Hypothesis test results:

| Difference | Sample Diff. | Std. Err. | DF | T-Stat | P-value |
|---|---|---|---|---|---|
| $\mu_1 - \mu_2$ | 14000 | 1481.975 | 196.53801 | 9.4468528 | <0.0001 |

P-value<<5% we have enough ecidence to claim u1>u2 at 95% IC

3. A new roadway is designed to increase traffic flow. Test the claim that program is effective in increasing the traffic flow.

| drivers | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| before rating | 88 | 70 | 73 | 89 | 79 | 72 | 93 | 85 | 85 | 75 | 69 | 81 |
| after rating | 88 | 75 | 87 | 97 | 99 | [illegible] | | 8 | 85 | 85 | 78 | 90 |

Summary statistics:

| Column | Mean |
|---|---|
| var3 - var4 | -7 |

a) Find $\bar{d}$ and interpret the its meanin[illegible]

The traffic deceases 7units after rating

b) Hypothesis test results:

| Difference | Mean | Std. Err. | DF | T-Stat | P-value |
|---|---|---|---|---|---|
| var3 - var4 | -7 | 1.8627123 | 11 | -3.757961 | 0.0016 |

p-[illegible] [illegible]nd the test statistic and p-value. Then interpret [illegible]all conclusion.

P-value<5% we reject H0 so roadway decreasing traffic after

4. Determine which hypothesis test to use: one sample Proportion Stats, two sample Proportion Stats, one sample T stats, two sample T Stats, or paired T Stats.

a) Test the claim that the mean weight of newborn baby in San Jose is more than 7 lb.
b) Test the claim that the mean weight of new born baby in San Jose is more than the mean weight of newborn baby in San Francisco.
c) Test the claim that the drug is effective in increasing amount of weight loss in children.

| Subjects | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Before taking drug | 91 | 75 | 87 | 97 | 95 | 81 | 90 | 88 | 85 | 85 | 76 | 90 |
| After taking drug | 70 | 70 | 73 | 80 | 79 | 72 | 81 | 85 | 85 | 75 | 69 | 81 |

d) Test the claim that the proportion of San Jose workers who dislike Bay Area traffic to work is less than 60%.
e) Test the claim that the proportion of San Jose workers who dislike Bay Area traffic is less than the proportion of San Francisco workers who dislike Bay Area traffic.

a: one sample T test
b:two sample T test
c:paired T stat
d:one sample proportion T stat
e:two sample proportion T stat