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9.41 a) $np = x$, $nq = x$

field of study	after HS	later
trades	320.28	621.72
design	274.48	309.52
health	2034	3051
media/IT	975.88	2172.12
service	486	864
other	1172.60	1082.40

b) analysis

enrolled after HS % = $\frac{5263.24}{13364} = 39.38\%$ enrolled after HS

enrolled later % = $\frac{8100.76}{13364} = 60.62\%$ enrolled later

c) H_0 : There is no relationship between field and time of enroll

H_A : There is a relationship

$$\chi^2 = \sum \frac{(\text{observed} - \text{expected})^2}{\text{expected}}$$

expected = $\frac{\text{row} \times \text{col}}{n}$

$\alpha = 0.05$

$\chi^2 = 275.94$

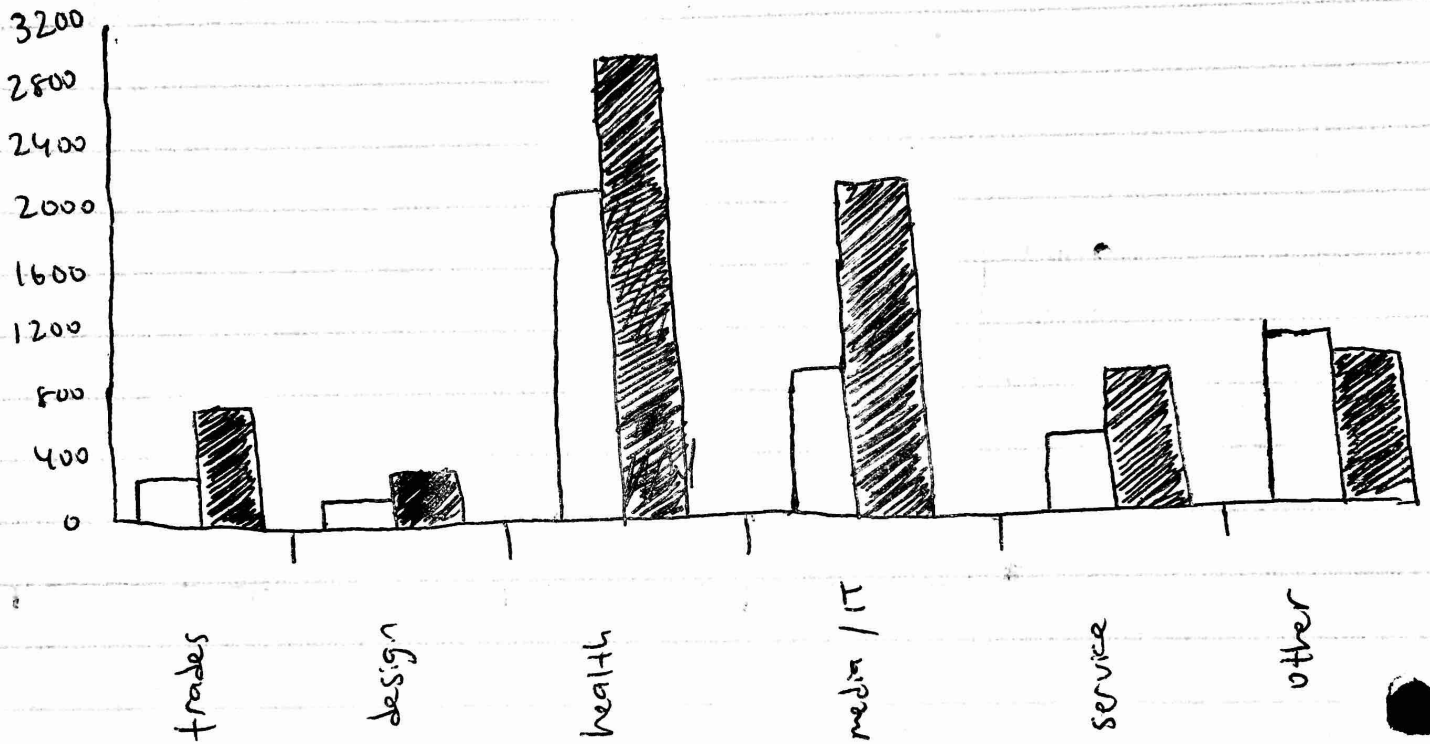
df = 5

$P(\chi^2 > 275.94) = 0$

reject H_0

There is sufficient evidence that the time of entering college varies with field

□ = after HS ■ = later



9.42

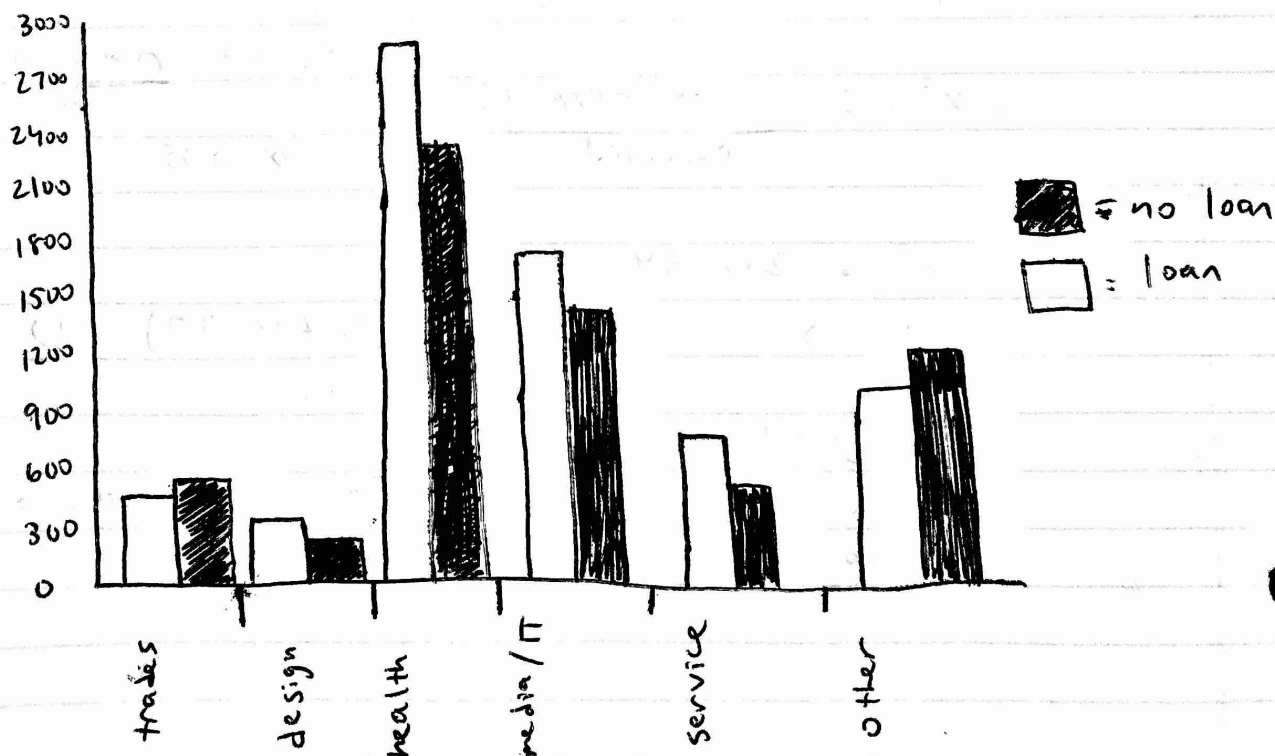
a) field	with loans	without loans
trade	424	518
design	318	281
health	2879	2355
media/IT	1781	1457
service	827	551
other	1081	1219

- b) H_0 : students % ~~that~~ are using loans does not vary with field
 H_A : students % that are using loans does vary with field
 $\alpha = 0.05$

$\chi^2 = 97.5$
 reject H_0

$$P(\chi^2 > 97.5) = 0.0001$$

- c) reject H_0 , so there is sufficient evidence that the % using loans does vary with field.



- d) 9.41 = 13,364
9.42 = ~~13,364~~ 13,691

People that waited to go to college felt uncomfortable stating so because of the stigma surrounding not going to college right away, so less people answered

9.43

field	using family	not using family
trades	188	754
design	222	377
health	1361	3873
media/IT	518	2720
service	248	1130
other	943	1357

- b) H_0 : % of students using family money doesn't vary with field
 H_A : % of students using family money does vary with field

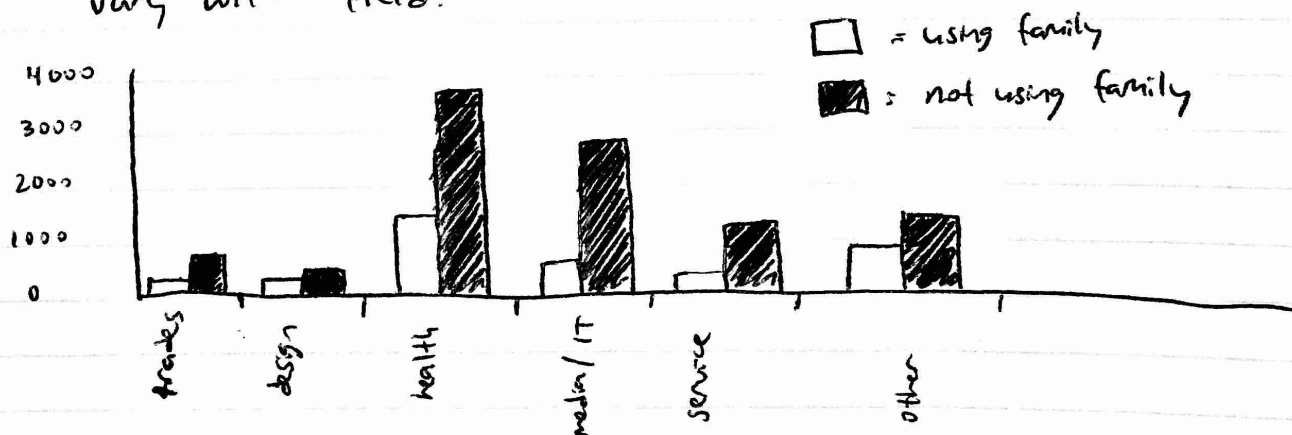
$\alpha = 0.05$

~~test statistic~~ $\chi^2 = 544$

p-value = $P(\chi^2 > 544)$ = very small

- c) reject H_0

there is sufficient evidence that using family money does vary with field.



- d) less people answered because these people are probably wealthier and don't wait the survey to know that.