

# Hypothesis Testing

## Chi-sq test(C05) [L3]

**For the following questions compute and see chi square value assume level of significance as 0.05 and check whether features are independent.**

**Implement it in Excel and Python.**

**Q1. In a survey, divided the students' responses into "Urban," "Suburban," and "Rural" school areas.**

Is there an association between the type of school area and the students' choice of good grades, athletic ability, or popularity as most important?

A two-way table for student goals and school area appears as follows:

Goals	School Area			Total
	Rural	Suburban	Urban	
Grades	57	87	24	168
Popular	50	42	6	98
Sports	42	22	5	69
Total	149	151	35	335

Q2. Pre poll result of elections are given below, Is there any association between party and approving or disapproving a candidate.

Obama	Democrats	Republicans	Total	
Approve	842	736	541	2119
Disapprove	16	646	842	2104
Total	1458	1382	1383	4223

Q3.

Franchise businesses are sometimes given an exclusive territory by contract. This means that the new outlet will not have to compete with other outlets of the same chain within its own territory. How does the presence of an exclusive-territory clause in the contract relate to the survival of the business?

A simple random sample of 170 new franchises recorded two categorical variables for each firm: (1) whether the firm was successful or not (based on economic criteria) and (2) whether or not the firm had an exclusive-territory contract.

Observed numbers of firms			
Success	Exclusive territory		Total
	Yes	No	
Yes	108	15	123
No	34	13	47
Total	142	28	170