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Recitation Section: A5

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### Question 1 (Lecture)

I think, I understood more or less all the topics. But, I do not feel that much comfortable about moment generating functions. Also, in some questions we took some steps specific to independent random variables. I guess, I should review these types of questions. Thank you for everything! ☺

### Question 2 (Recitation)

$X$ : value of the vote  $\rightarrow$  "No": 1  
 $\rightarrow$  "Yes": 0

Each sample has Bernoulli distribution  
with mean  $\theta = 0.52$  and standard deviation

$$\sqrt{\theta(1-\theta)} = \sqrt{0.52 \times 0.48} = 0.4995$$

$$X_1 + X_2 + X_3 + \dots + X_{100} > 50 \quad (\text{Because the majority should be "No"})$$

$$\hookrightarrow \frac{X_1 + X_2 + X_3 + \dots + X_{100}}{100} > \frac{50}{100}$$

$$\hookrightarrow \bar{X} > 0.5$$

$$P(\bar{X} > 0.5) = P\left(\frac{\bar{X} - 0.52}{0.4995} > \frac{0.5 - 0.52}{0.4995}\right) \approx P(Z > -0.04) = 0.5 + \text{table}(0.04) \\ = 0.5160 //$$

