Solution 2.3

June 21, 2017

We need to show that variance of the sum of random variables = sum of the variance of random variables + the covariave of the random variables.
var[X+Y] = E[(X +Y - $\mu_x - \mu_y)^2$]
$= E[((X - \mu_x) + (Y - \mu_y))^2]$
$= E[(X - \mu_x) + (Y - \mu_y) + 2(X - \mu_x)(Y - \mu_y)]$
$= var[X] + var[Y] + 2cov[X, Y]$