Project 4 report

The table shows the joint probabilities of dataset "ouData"

	Blue Shell (Bs)	Red Shell (Rs)	Banana (B)
1st Place (F)	0	0.03	0.57
2nd Place (S)	0.015	0.21	0.075
3rd Place (T)	0.02	0.08	0

1.What is the probability the OU team is in first place?

P[F] = P[FBs] + P[FRs] + P[B] = 0 + 0.03 + 0.57 = 0.6

2.What is the probability the OU team obtained a blue shell?

P[Bs] = P[BsF] + P[BsS] + P[BsT] = 0 + 0.015 + 0.02 = 0.035

3.Given the OU team obtained a blue shell, what is the probability they are in 2nd place?

$P[S|Bs] = \frac{P[SBs]}{P[Bs]} = \frac{0.015}{0.035} = \frac{3}{7}$

The table shows the joint probabilities of dataset "txData"

	Blue Shell (Bs)	Red Shell (Rs)	Banana (B)
1st Place (F)	0	0.01	0.19
2nd Place (S)	0.015	0.21	0.075
3rd Place (T)	0.1	0.4	0

4.What is the probability the Texas team is in second place?

P[S] = P[SBs] + P[SRs] + P[SB] = 0.015 + 0.21 + 0.075 = 0.3

5.What is the probability the Texas team obtained a blue shell?

P[Bs] = P[BsF] + P[BsS] + P[BsT] = 0 + 0.015 + 0.1 = 0.115

6.Given the Texas team obtained a blue shell, what is the probability they are in 3rd place?

$P[T|Bs] = \frac{P[TBs]}{P[Bs]} = \frac{0.1}{0.115} = \frac{20}{23}$

7.From a statistical perspective do you think there is evidence that the OU team could beat the Texas team? Why or why not?

OU team could beat the Texas team because since there were no players of both team who could obtain the blue shell in the first place, the probability of OU team in the first place and obtained

the Red Shell was greater than Texas team (0.03 > 0.01). Also, the probability of OU team in the first place and obtained the Banana was greater than Texas team (0.57 > 0.19). Besides, we can observe that the probability of the OU team in the first place was greater than Texas team (0.6>0.2). Hence, since the players of OU team obtained more items than the players of the Texas team in the first place, they can disrupt the players of Texas team more times. Then the chance to win also increases.