Week 2 - Practice with Conditional Probabilities

Instructions: The table below shows accident reports from three different factories over the past month. Four types of accidents are represented. Each cell contains a count of the number of accidents of the given type at the particular factory:

Accidents	*Factory 1*	*Factory 2*	*Factory 3*	
Vehicle	0	6	4	
Spill	6	0	6	
Equipment	6	4	5	
Injury	4	9	0	

1. Add marginal totals to the table above for cross checking with your R results.

2. Recreate the matrix in R using the following code:

```
accMatrix <- matrix(data=c(0,6,4,6,0,6,6,4,5,4,9,0),
                    nrow=4,byrow=T,
                    dimnames=list(c("Vehicle","Spill","Equipment","Injury"),
                                  c("Factory 1", "Factory 2", "Factory 3")))
```

3. Compute a copy of accMatrix that contains proportions instead of counts. One helpful function that can be called on the whole matrix is sum( ).

4. Calculate marginal totals for accMatrix. Two helpful functions that can be called are rowSums( ) and colSums( ).

5. OSHA is auditing the factory that has the worst accident record. Add a comment in your code indicating which factory that is. For that factory, list the raw proportions of each type of accident on the console, using the [ ] subsetting technique. For example, you could show the first column of accMatrix with this command: accMatrix[,1]

6. Putting your focus *solely on accidents at that factory*, what's the probability of vehicle accidents at that factory? Write a line of R code that displays the result and include a comment describing what you see.

7. The insurance company for these factories wants to understand the most prevalent type of accident across all factories. Add a comment in your code indicating which type of accident that is. For that type of accident, list the raw proportions for each factory on the console, using the [ ] subsetting technique.

8. Putting your focus *solely on that kind of accident*, what's the probability of that kind of accident at each factory? Write a line of R code that displays the result and include a comment describing what you see.

9. Post your code and comments to the code share window: Share your code on https://codeshare.io/5vMqK7