Generate sufficient Sample Data

Customer	Age	Salary	Item #1	Item #2	Item #3	Item #4	Item #5
John Doe	30	50000	TV	BluRay			
Jane Doe	29	55000	TV	X-BOX	iPAD	iPHONE	ZUNE
Abe Lincoln	42	52000	ZUNE	iPAD	iPHONE		
Michael Jordan	53	100000	X-BOX	iPAD	iPHONE	TV	
Fred Flinstone	19	47000	TV	BluRay	X-BOX		
Judge Judy	75	40000	iPHONE	iPAD	ZUNE		
Betty Crocker	26	35000	TV	BluRay	X_BOX		
John Wayne	38	62000	X-BOX	TV	BluRay		

Find the Frequent Item Sets (Using Apriori Method)

Min-Sup = .375 = 3 of 8 transactions

Min-Conf = .80 = 80%

** ** See R Code Below ** **

1-Itemsets	Sup_Count
TV	6
BluRay	4
X-BOX	5
iPAD	4
iPHONE	4
ZUNE	3

3-Itemsets	Sup_Count	3-Itemsets	Sup_Count
TV - BluRay - X-BOX	3	TV - BluRay - X-BOX	3
TV - BluRay - iPAD	0	iPAD - iPHONE - ZUNE	3
TV - BluRay - iPHONE	0		
TV - BluRay - ZUNE	0		
TV - X-BOX - iPAD	1		
TV - X-BOX - iPHONE	1		
TV - X-BOX - ZUNE	1		
TV - iPAD - iPHONE	2		
TV - iPAD - ZUNE	1		
TV - iPHONE - ZUNE	1		
BluRay - X-BOX - iPAD	0		
BluRay - X-BOX - iPHONE	0		
BluRay - X-BOX - ZUNE	0		
BluRay - iPAD - iPHONE	0		
BluRay - iPAD - ZUNE	0		
BluRay - iPHONE - ZUNE	0		
X-BOX - iPAD - iPHONE	2		
X-BOX - iPAD - ZUNE	1		
X-BOX - iPHONE - ZUNE	1		
iPAD - iPHONE - ZUNE	3		

2-Itemsets	Sup_Count	2-Itemsets	Sup_Count
TV - BluRay	4	TV - BluRay	4
TV - X-BOX	5	TV - X-BOX	5
TV - iPAD	2	BluRay - X-BOX	3
TV - iPHONE	2	iPAD - iPHONE	4
TV - ZUNE	1	iPAD - ZUNE	3
BluRay - X-BOX	3	iPHONE - ZUNE	3
BluRay - iPAD	0		
BluRay - iPHONE	0		
BluRay - ZUNE	0		
X-BOX - iPAD	2		
X-BOX - iPHONE	2		
X-BOX - ZUNE	1		
iPAD - iPHONE	4		
iPAD - ZUNE	3		
iPHONE - ZUNE	3		

4-Itemsets	Sup_Count
TV - BluRay - X-BOX - iPAD	0
TV - BluRay - X-BOX - iPHONE	0
TV - BluRay - X-BOX - ZUNE	0

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The Apriori Method of Frequent Itemset Mining is often used for Market Basket Analysis. So a Retailer like Best Buy could use the results to identify purchase behavior of the customers in which data was collected. Some possibilities would be to create more effective marketing plans, sales promotions and discounts, and design store layouts & shelf placements more efficiently. Using the data found in this Midterm Exam, Best Buy might:

a. **Product Placement**: Organize their store set up by placing frequent itemsets like TV's, X-BOX's, and BluRay players very close to each other so customers can easily find all three. OR, Best Buy might spread these frequent itemsets across the store, so customers have to spend more time walking throughout the store to get to each item in hopes that the customer sees and buys something else as well. The same could be said for any of the above frequent itemsets.

b. **Advertising**: Create marketing material that promotes a discount on X-BOX video games when a TV is purchased, since TV's and X-BOX's are regularly purchased together. This would allow for Cross-Selling/Up-selling of video games on top of this frequent itemset. Similarly, Best Buy could send coupons for Apple products (like the iPHONE and iPAD) to customers who have purchased ZUNES, since they now know that these items are often purchased together. These are just a few examples of how Best Buy might take advantage of the information obtained through this Data Mining Method.