Unnormalized					
Name	Address	Phone	Purchases(ArtistId, ArtistName, ArtTitle, PurchaseDate, Price)		
Jackson, Elizabeth	123 - 4th Avenue Fonthill ON L3J4S4	(206) 284-6783	Carol Channing, Laugh with Teeth, 9/17/2000, \$7000.00 Dennis Frings, South toward Emerald Sea, 5/11/2000, \$1800.00 Carol Channing, At the Movies, 2/14/2002, \$5550.00 Dennis Frings, South toward Emerald Sea, 7/15/2003, \$2200.00		
Smith, John	123 Main Street New York, NY 10001	(123) 867-5309	Rick Steves, Travels through Europe, 9/01/2002, \$1050.00		

First Normal Form (1NF)							
Customers							
CustomerID (PK)	Name	Address	Phone				
1	Jackson, Elizabeth	123 - 4th Avenu Fonthill ON L3J4S4	(206) 284-6783				
2	Smith, John	123 Main Street New York, NY 10001	(123) 867-5309				
<b>Customer Purchases</b>							
PurchaseID(PK)	CustomerID (FK)	Purchase Date	Artist Name	Title	Price		
1	1	9/17/2000	Carol Channing	Laugh with Teeth	\$7,000.00		
2	1	5/11/2000	Dennis Frings	South toward Emerald Sea	\$1,800.00		
3	1	2/14/2002	Carol Channing	At the Movies	\$5,550.00		
4	1	7/15/2003	Dennis Frings	South toward Emerald Sea	\$2,200.00		
5	2	9/1/2002	Rick Steves	Travels through Europe	\$1,050.00		
1NF							
In 1st Normal Form, no table should contain duplicative columns (purchase 1, purchase 2, purchase n) that one could use							
to get other types of	to get other types of information. Every table is organized in rows with primary keys that uniquely identify it.						

## **Second Normal Form (2NF)**

			,	
Customers				
CustomerID (PK)	Name	Address	Phone	
1	Jackson, Elizabeth	123 - 4th Avenue Fonthill ON L3J4S4	(206) 284-6783	
2	Smith, John	123 Main Street New York, NY 10001	(123) 867-5309	
<b>Customer Purchases</b>				
PurchaseID (PK)	CustomerID (FK)	ArtID (FK)	Purchase Date	Price
1	1	1	9/17/2000	\$7,000.00
2	1	2	5/11/2000	\$1,800.00
3	1	3	2/14/2002	\$5,550.00
4	1	2	7/15/2003	\$2,200.00
5	2	4	9/1/2002	\$1,050.00
Art				
ArtID (PK)	Artist Name	Title		
1	Carol Channing	Laugh with Teeth		
2	Dennis Frings	South toward Emerald Sea		
3	Carol Channing	At the Movies		
4	Rick Steves	Travels through Europe		
2NF				
In 2nd Normal Fo				
Any Non-key Attr	ibute must be deper	ndent on the primary key.		

Third Normal Form (3NF)					
Customers					
CustomerID (PK)	Name	Address	Phone		
1	Jackson, Elizabeth	123 - 4th Avenue Fonthill ON L3J4S4	(206) 284-6783		
2	Smith, John	123 Main Street New York, NY 10001	(123) 867-5309		
<b>Customer Pure</b>	chases				
PurchaseID (PK)	CustomerID (FK)	ArtID (FK)	Purchase Date	Price	
1	1	1	9/17/2000	\$7,000.00	
2	1	2	5/11/2000	\$1,800.00	
3	1	3	2/14/2002	\$5,550.00	
4	1	2	7/15/2003	\$2,200.00	
5	2	4	9/1/2002	\$1,050.00	
Art					
ArtID (PK)	ArtistID (FK)	Title			
1	1	Laugh with Teeth			
2	2	South toward Emerald Sea			
3	1	At the Movies			
4	3	Travels through Europe			
Artist					
ArtistID (PK)	First Name	Last Name			
1	Carol	Channing			
2	Dennis	Frings			
3	Rick	Steves			
3NF					
In 3rd Normal Fo	rm, the table must a	lready be in 2NF.			
There cannot be	any transitive deper	dency between columns (e	e.g. in 2NF Artist	Name was dependent on	
Artist Id which w	as dependent on Ar	(Code)			