

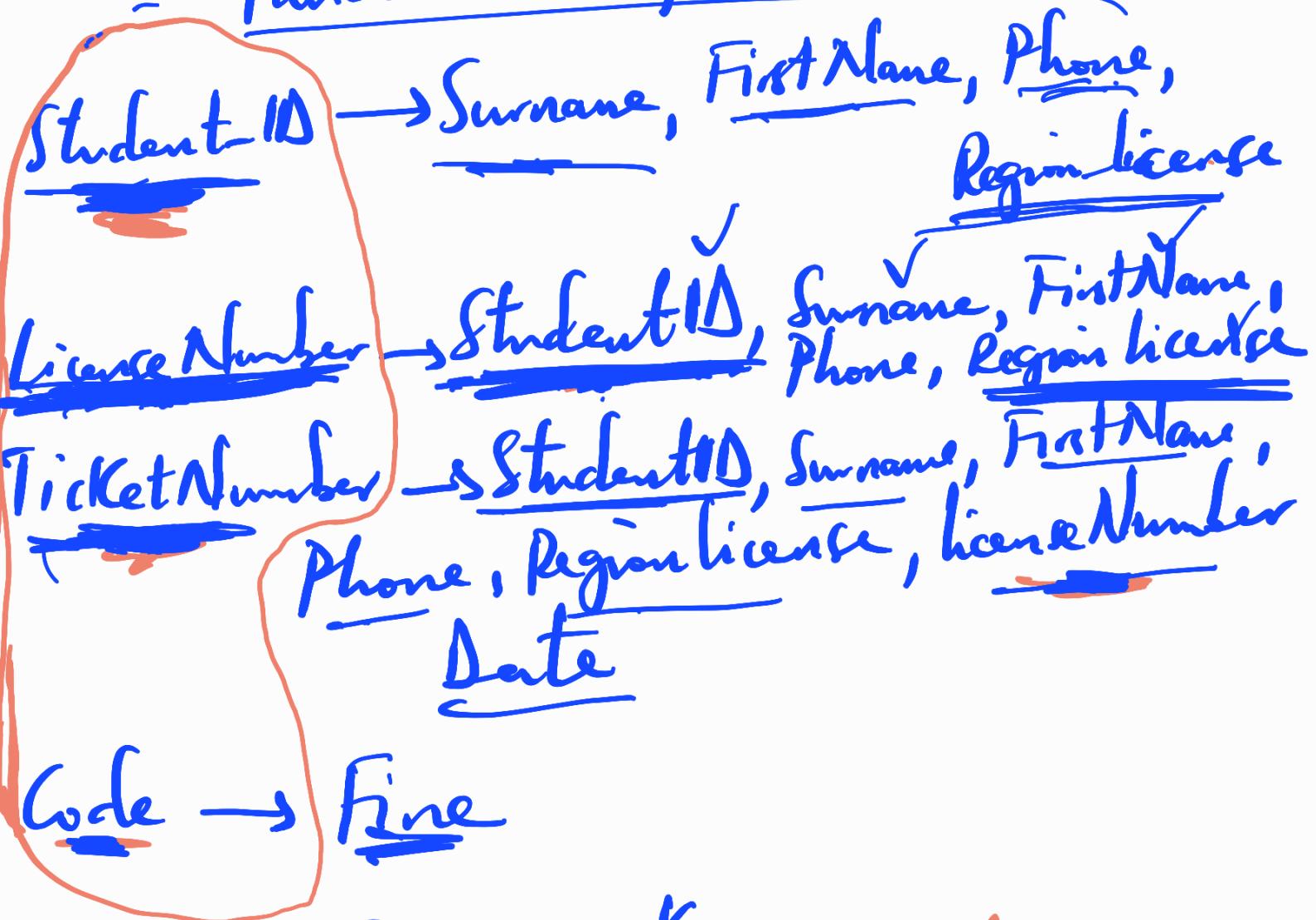
Normalization

StudentID	Surname	First Name	Phone	Region	License Number	Ticket Num	Date	Code fine
3451	Chequer	Claude	12345	CE	345 T	1004	22/01	2 500
3111	Telke	Faith	51134	NW	123 S	1017	19/01	3 100
						1005	29/01	1 250
						1141	27/01	2 500
						1214	30/01	1 250

1NF (Normal Form)

StudentID	Surname	First Name	Phone	Region	License Num	Ticket Num	Date	Code fine
3451	Chequer	Claude	12345	CE	345 T	1004	22	2 500
3451	Chequer	Claude	12345	CE	345 T	1005	29	1 250
3111	Telke	Faith	51134	NW	123 S	1017	19	3 100
3111	Telke	Faith	51134	NW	123 S	1141	27	2 500
3111	Telke	Faith	51134	NW	123 S	1214	30	1 250

Functional Dependencies

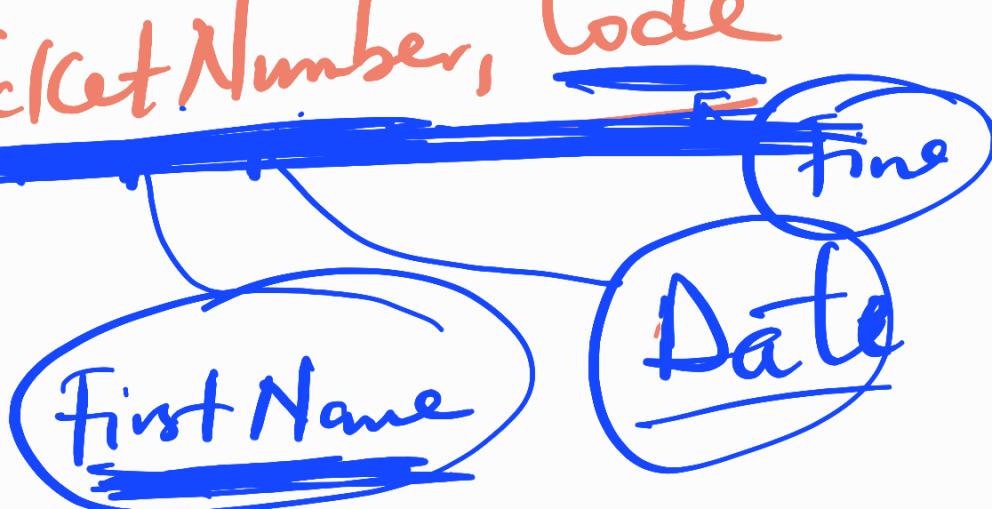


Primary Key

Candidate Keys: ~~Student ID~~, licenseNumber,
TicketNumber, Code

Primary Key = Ticket Number, Code

Partial
FD

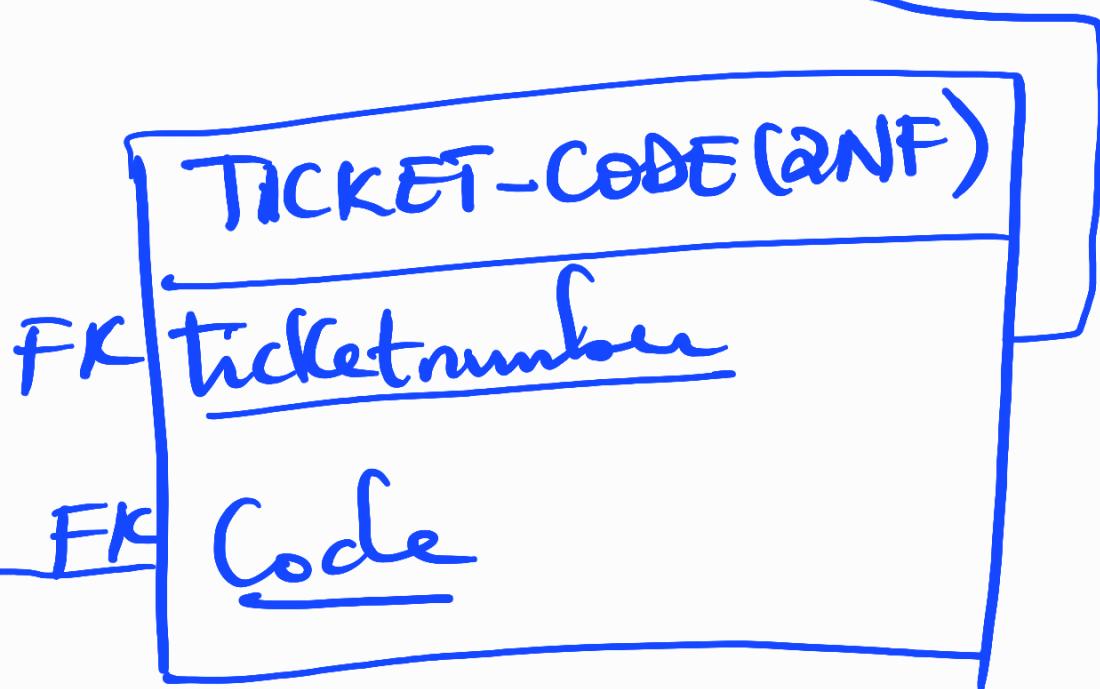
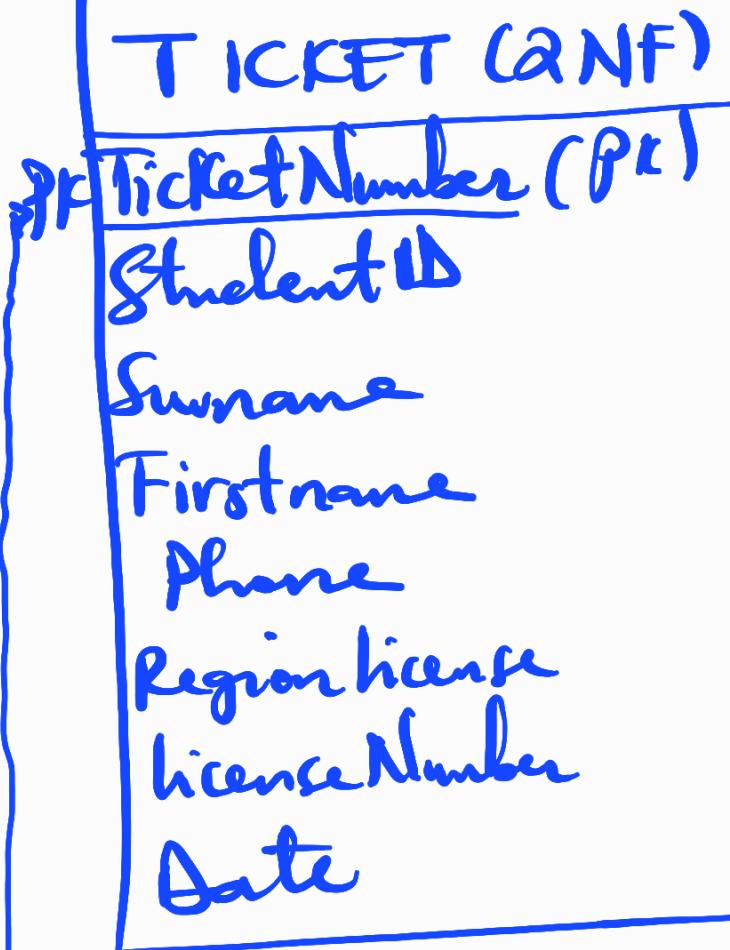
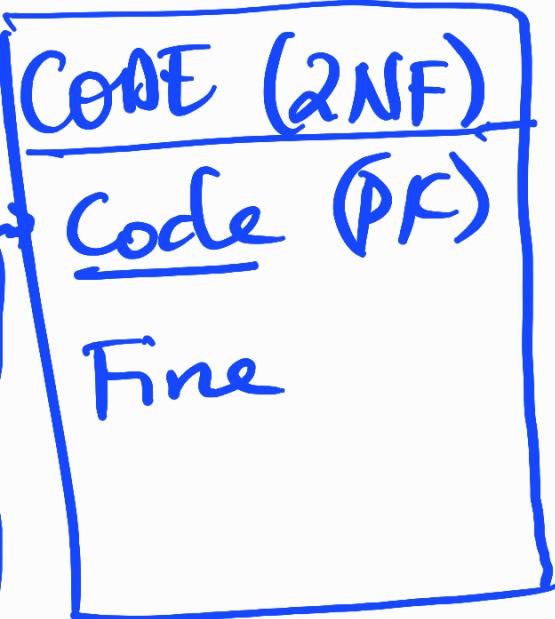


Ticket - Code (1NF)	
<u>PK</u>	<u>Ticket Number</u> : INT
	<u>Code</u> : INT
	Student ID : INT
	Surname : VARCHAR
	First name : VARCHAR
	Phone Num: INT
	Region license: CHAR
	License Number: VARCHAR
	Date: DATE
	Fine: INT

2NF

- * 1NF
- * No Partial FD

many to many relationship



3NF

→ 2NF

→ No transitive FD

$A \rightarrow B, B \rightarrow C$

$A \rightarrow C \quad X$

LicenseNumber → StudentID

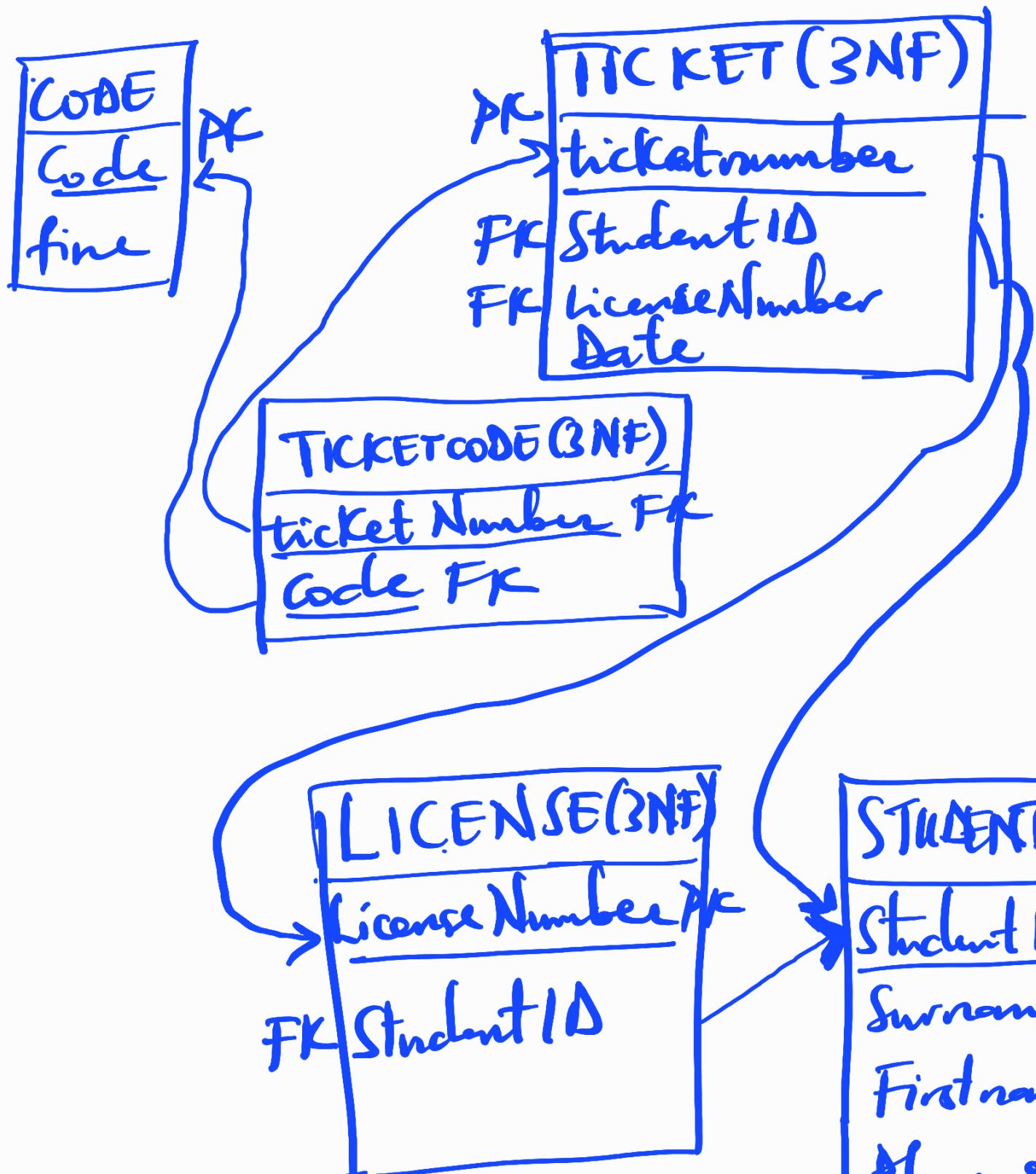
StudentID → SurName, ---

X

Conceptual data Model

logical data Model





may to many relationship
 One to many relationship