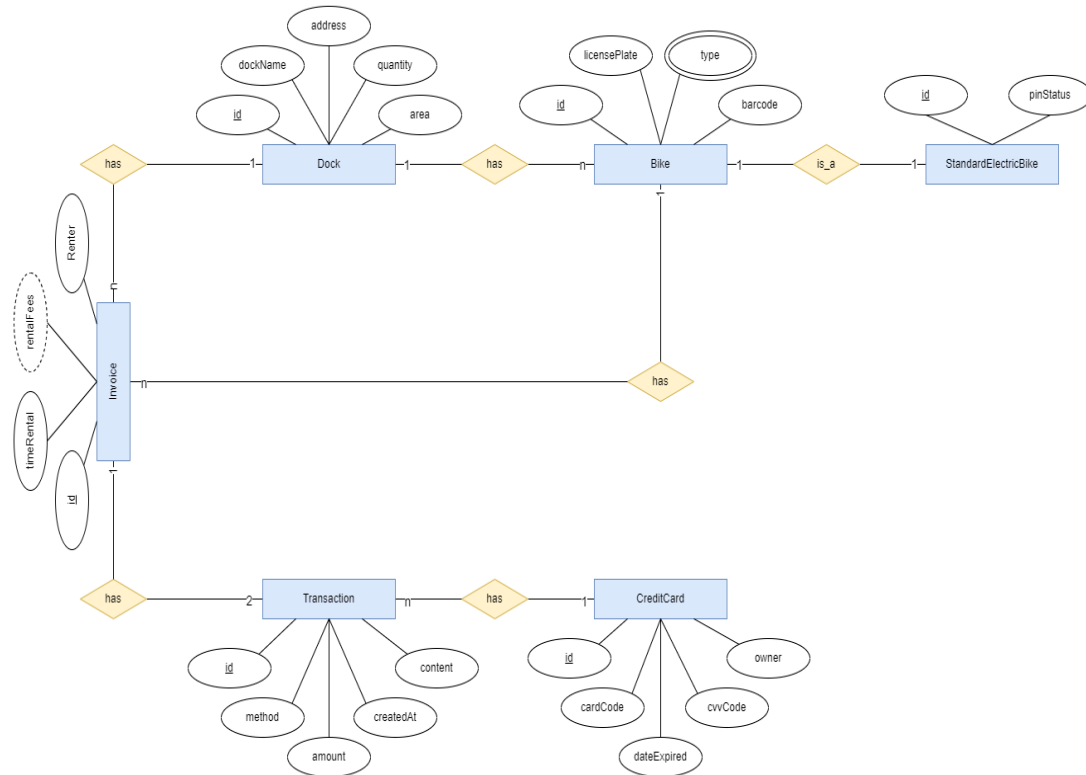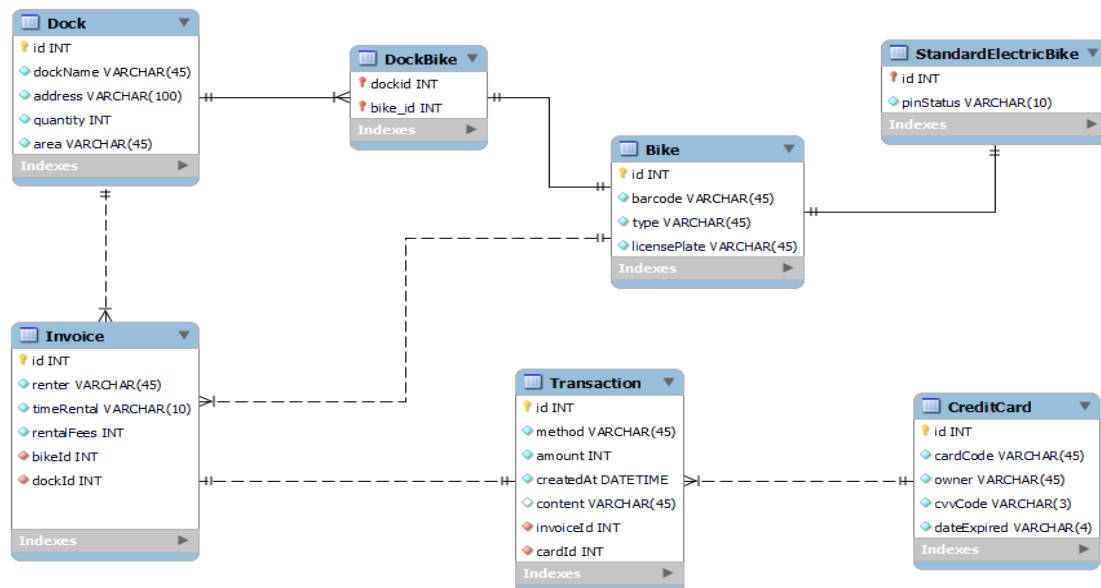# LAB07 – DATA MODELING

1. CONCEPTUAL DATA MODEL

2. DATA DESIGN

2.1 Logical data model

2.2 Physical data model

- Dock

#	PK	FK	Dock	Data Type	Mandatory	Description
1	x		id	Integer	Yes	ID of dock
2			dockName	VARCHAR(45)	Yes	Name of dock
3			address	VARCHAR(45)	Yes	Address of dock
4			quantity	Integer	Yes	Quantity of bikes at the dock
5			area	VARCHAR(45)	Yes	Area of dock

- DockBike

#	PK	FK	DockBike	Data Type	Mandatory	Description
1	x	x	dockId	Integer	Yes	ID of dock
2	x	x	bikeId	Integer	Yes	ID of bike

- Bike

#	PK	FK	Bike	Data Type	Mandatory	Description
1	x		id	Integer	Yes	ID of bike
2			barcode	VARCHAR(45)	Yes	Barcode of bike
3			type	VARCHAR(45)	Yes	Type of bike: standard bike, standard e-bike, twin bike
4			licensePlate	VARCHAR(45)	Yes	License plate of bike

- CreditCard

#	PK	FK	Column Name	Data Type	Mandatory	Description
1	x		id	Integer	Yes	ID
2			cardCode	VARCHAR(45)	Yes	Card code
3			owner	VARCHAR(45)	Yes	Cardholder
4			cvvCode	VARCHAR(3)	Yes	CVV code
5			dateExpired	VARCHAR(4)	Yes	Expiration date

- Invoice

#	PK	FK	Column Name	Data Type	Mandatory	Description
1	x		id	Integer	Yes	ID
2			renter	VARCHAR(45)	Yes	Name of renter
3			timeRental	VARCHAR(10)	Yes	Rental time
4			rentalFees	Integer	Yes	Rental fees
5		x	bikeId	Integer	Yes	ID of the bike
6		x	dockId	Integer	Yes	ID of the dock

- Standard e-bike:

#	PK	FK	Column Name	Data Type	Mandatory	Description
1	x	x	id	Integer	Yes	ID, same of the ID of Bike of which type is Standard e-bike

#	PK	FK	Column Name	Data Type	Mandatory	Description
2			pinStatus	VARCHAR(10)	Yes	Current battery percentage of e-bike

- Transaction

#	PK	FK	Column Name	Data Type	Mandatory	Description
1	x		id	Integer	Yes	ID
2			method	VARCHAR(45)	Yes	Method: pay or refund
3			amount	Integer	Yes	Amount
4			createdAt	DATETIME	Yes	Date of creation
5			content	VARCHAR(45)	No	Transaction content
6		x	invoiceID	Integer	Yes	ID of the invoice
7		x	cardId	Integer	Yes	ID of the used card