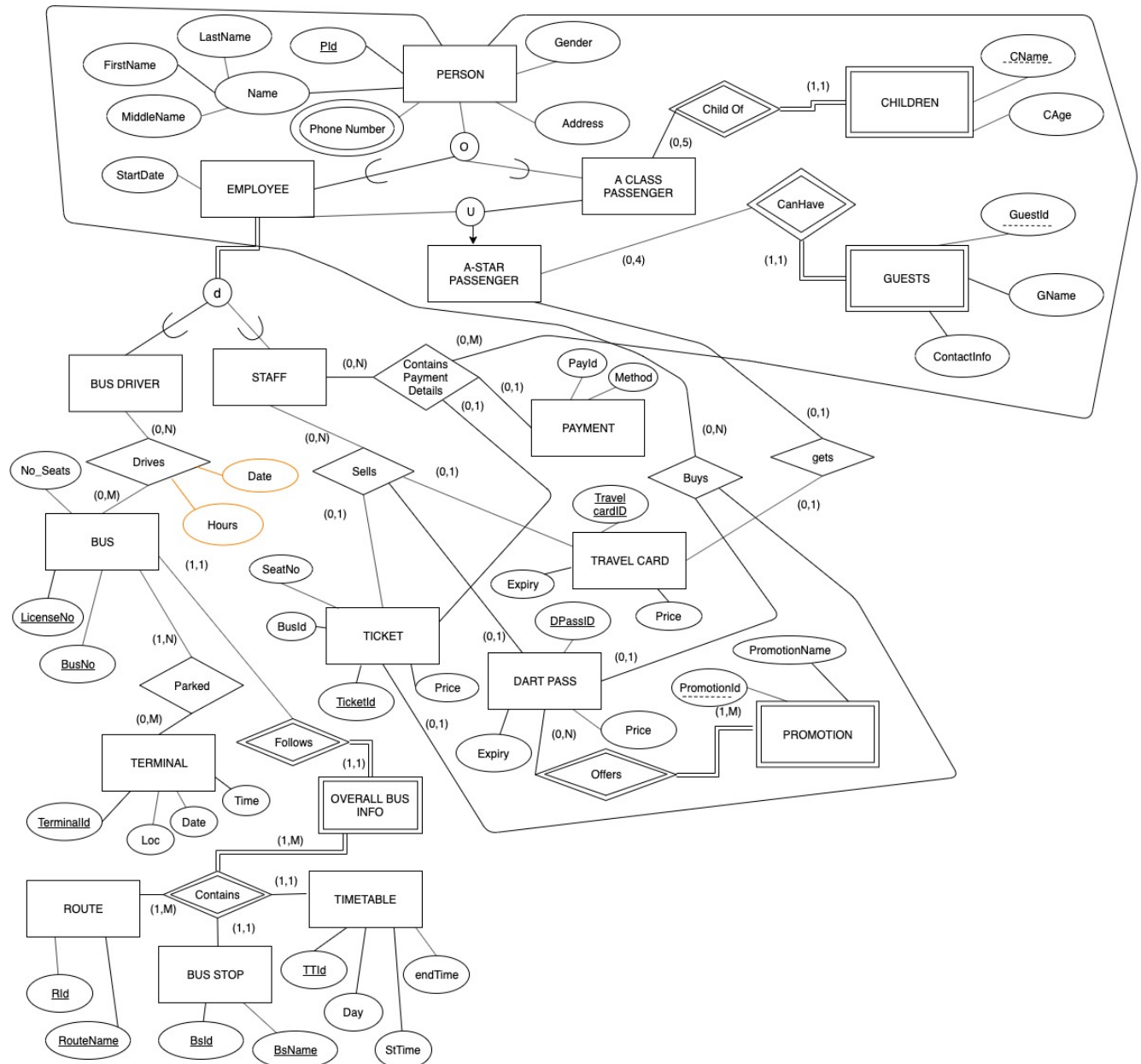


DB PROJECT - PHASE 2

Updated EER:



Assumptions for Aggregation.

1. Assuming that OVERALLBUSINFO IS DEPENDENT ON ROUTE BUSSTOP TIMETABLE BUS ET
2. OVERALLBUSINFO ET Contains information of BUSSTOP ET too.

EER to Relational Mapping:

Step 8: Mapping Specialization or Generalization
8a-Multiple Relations-Super classes and subclasses.

PERSON

<u>Pid</u>	FirstName	LastName	MiddleName	Address	Gender
------------	-----------	----------	------------	---------	--------

EMPLOYEE

<u>EPid</u>	StartDate
-------------	-----------

EPid is mapped from PERSON ET

BUSDRIVER

<u>BEPid</u>

BEPid is mapped from EMPLOYEE ET

STAFF

<u>SEPid</u>

SEPid is mapped from EMPLOYEE ET

ACLASSPASSENGER

<u>APid</u>

APid is mapped from Person ET

Step6 :Mapping of Multi-Valued Attributes

PERSON_PHONENUMBER

<u>Phone_Pid</u>	<u>PhoneNumber</u>
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Phone_Pid is mapped from PERSON ET

Step 9: Mapping of union types.For category whose super classes has the same key , there is no need for a surrogate key.

ASTARPASSENGER

<u>ASEPid</u>	<u>ASAPid</u>
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ASEPid is mapped from EMPLOYEE ET and ASAPid is mapped from ACLASSPASENGER

Step 1: Mapping all the Regular entity types

BUS

BusNo	No_Seats	<u>LicenseNo</u>
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TERMINAL

<u>TerminalId</u>	Loc	Date	Time
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TICKET

<u>TicketId</u>	BusId	SeatNo	Price
-----------------	-------	--------	-------

PAYMENT

<u>PayId</u>	Method
--------------	--------

TRAVELCARD

<u>TravelCardID</u>	Expiry	Price
---------------------	--------	-------

DARTPASS

<u>DPassID</u>	Expiry	Price
----------------	--------	-------

ROUTE

<u>Rid</u>	RouteName
------------	-----------

BUSSTOP

<u>BsId</u>	BsName
-------------	--------

TIMETABLE

<u>TTId</u>	Day	StTime	endTime
-------------	-----	--------	---------

Step 2: Mapping of Weak Entity Types

CHILDREN

<u>CAPid</u>	<u>CName</u>	CAge
--------------	--------------	------

CAPid mapped from ACLASSPASSENGER ET

GUEST

<u>GASEPid</u>	<u>GASAPid</u>	<u>GuestId</u>	GName	ContactInfo
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GASAPid is mapped from ASTARPASSENGER ET

GASEPid is mapped from EMPLOYEE ET

PROMOTIONS

<u>PDPassID</u>	<u>PromotionId</u>	PromotionName
-----------------	--------------------	---------------

PDPassID is mapped from DARTPASS ET

OVERALLBUSINFO

<u>ORid</u>	<u>OBsId</u>	<u>OLicenseNo</u>	<u>OTTId</u>
-------------	--------------	-------------------	--------------

ORid is mapped from ROUTE ET, OBsId is mapped from BUSSTOP and OLicenseNo is mapped from BUS ET and OTTId is mapped from TIMETABLE.

Step 3: Mapping of Binary 1:1 Relationship Types

TRAVELCARD

<u>TravelCardID</u>	Expiry	Price	TCASAPid	TCASEPid
---------------------	--------	-------	----------	----------

↓
ASTARPASSENGER->ASAPid, ASEPId

Step 4: Mapping of Binary 1:N Relationship Types

PAYMENT

<u>PayId</u>	Method	StaffId	PPid
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↓
STAFF.SEPid PERSON.Pid

TICKET

TPid	<u>TicketId</u>	BusId	SeatNo	Price	TSEPid
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TPid from Person ET

TSEPid from Staff ET

TRAVELCARD

<u>TravelCardID</u>	Expiry	Price	StaffId	TCASAPid	TCASEPid
---------------------	--------	-------	---------	----------	----------

↓
STAFF.SEPid ASTARPASSENGER->ASAPid, ASEPId

DARTPASS

<u>DPassID</u>	Expiry	Price	DPSEPid	DPPid
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↓
STAFF.SEPid PERSON.Pid

Step 5: Mapping of Binary M:N Relationship Types

DRIVES

<u>DBEPid</u>	Date	Hours	<u>DLicenseNo</u>
---------------	------	-------	-------------------

DBEPid mapped from BusDriver and DLicenseNo mapped from Bus

PARKED

<u>PTerminalId</u>	<u>PLicenseNo</u>
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PTerminalId mapped from Terminal ET and PLicenseNo mapped from Bus

Contains_Payment_Info

<u>CPISEPid</u>	<u>CPIPid</u>
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CPISEPid is mapped from STAFF ET and CPIPid is mapped from PERSON ET

Step 7: Mapping of N-ary Relationship types

All the N-ary Relationship types are identifying RT and hence not creating a new Relation for it.

FINAL MAPPING OF EER

PERSON

<u>Pid</u>	FirstName	LastName	MiddleName	Address	Gender
------------	-----------	----------	------------	---------	--------

EMPLOYEE

<u>EPid</u>	StartDate
-------------	-----------

ACLASSPASSENGER

<u>APid</u>

ASTARPASSENGER

<u>ASEPid</u>	<u>ASAPid</u>
---------------	---------------

CHILDREN

<u>CAPid</u>	<u>CName</u>	CAge
--------------	--------------	------

GUEST

<u>GASEPid</u>	<u>GASAPid</u>	<u>GuestId</u>	GName	ContactInfo
----------------	----------------	----------------	-------	-------------

BUSDRIVER

<u>BEPid</u>

STAFF

<u>SEPid</u>

BUS

BusNo	No_Seats	<u>LicenseNo</u>
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TERMINAL

<u>TerminalId</u>	Loc	Date	Time
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DRIVES

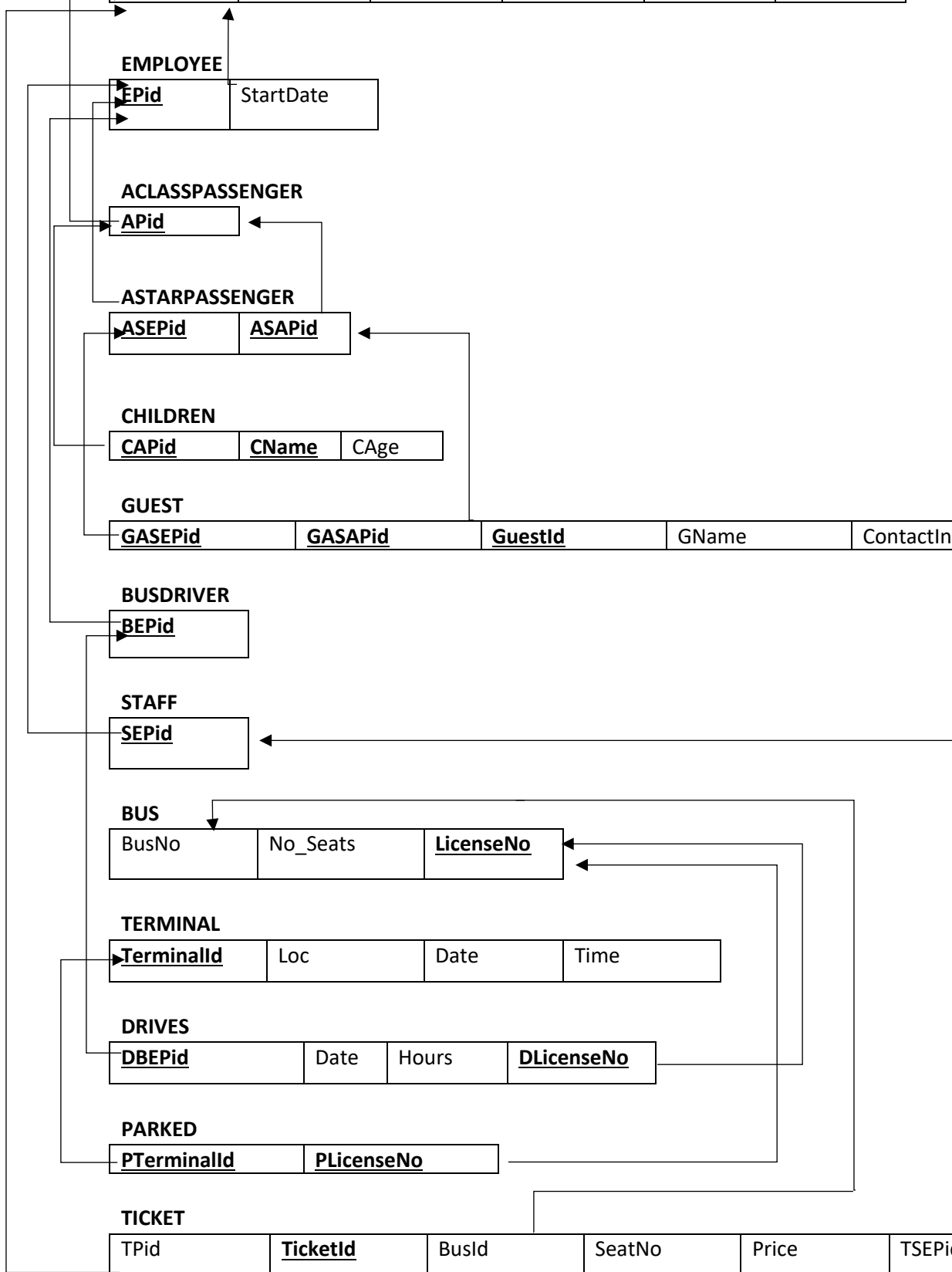
<u>DBEPid</u>	Date	Hours	<u>DLicenseNo</u>
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PARKED

<u>PTerminalId</u>	<u>PLicenseNo</u>
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TICKET

TPid	<u>TicketId</u>	BusId	SeatNo	Price	TSEPid
------	-----------------	-------	--------	-------	--------



DARTPASS

<u>DPassID</u>	Expiry	Price	DPSEPid	DPPid
----------------	--------	-------	---------	-------

STAFF.SEPid

PERSON.Pid

PAYMENT

<u>PayId</u>	Method	StaffId	PPid
--------------	--------	---------	------

STAFF.SEPid

PERSON.Pid

TRAVELCARD

<u>TravelCardID</u>	Expiry	Price	StaffId	TCASAPid	TCASEPid
---------------------	--------	-------	---------	----------	----------

STAFF.SEPid

ASTARPASSENGER->ASAPid, ASEPid

PROMOTIONS

<u>PDPassID</u>	<u>PromotionId</u>	PromotionName
-----------------	--------------------	---------------

ROUTE

<u>Rid</u>	RouteName
------------	-----------

BUSSTOP

<u>BsId</u>	BsName
-------------	--------

TIMETABLE

<u>TTId</u>	Day	StTime	endTime
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OVERALLBUSINFO

<u>ORid</u>	<u>OBsId</u>	OLicenseNo	<u>OTTId</u>
-------------	--------------	------------	--------------

BUS.LicenseNo

Contains_Payment_Info

<u>CPISEPid</u>	<u>CPIPid</u>
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STAFF.SEPID

PERSON.Pid

PERSON_PHONENUMBER

<u>Phone_Pid</u>	<u>PhoneNumber</u>
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PERSON.Pid