Gam-Eco

Gaming e-Commerce Database

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Basic Overview of Store

- E-Commerce video game digital store

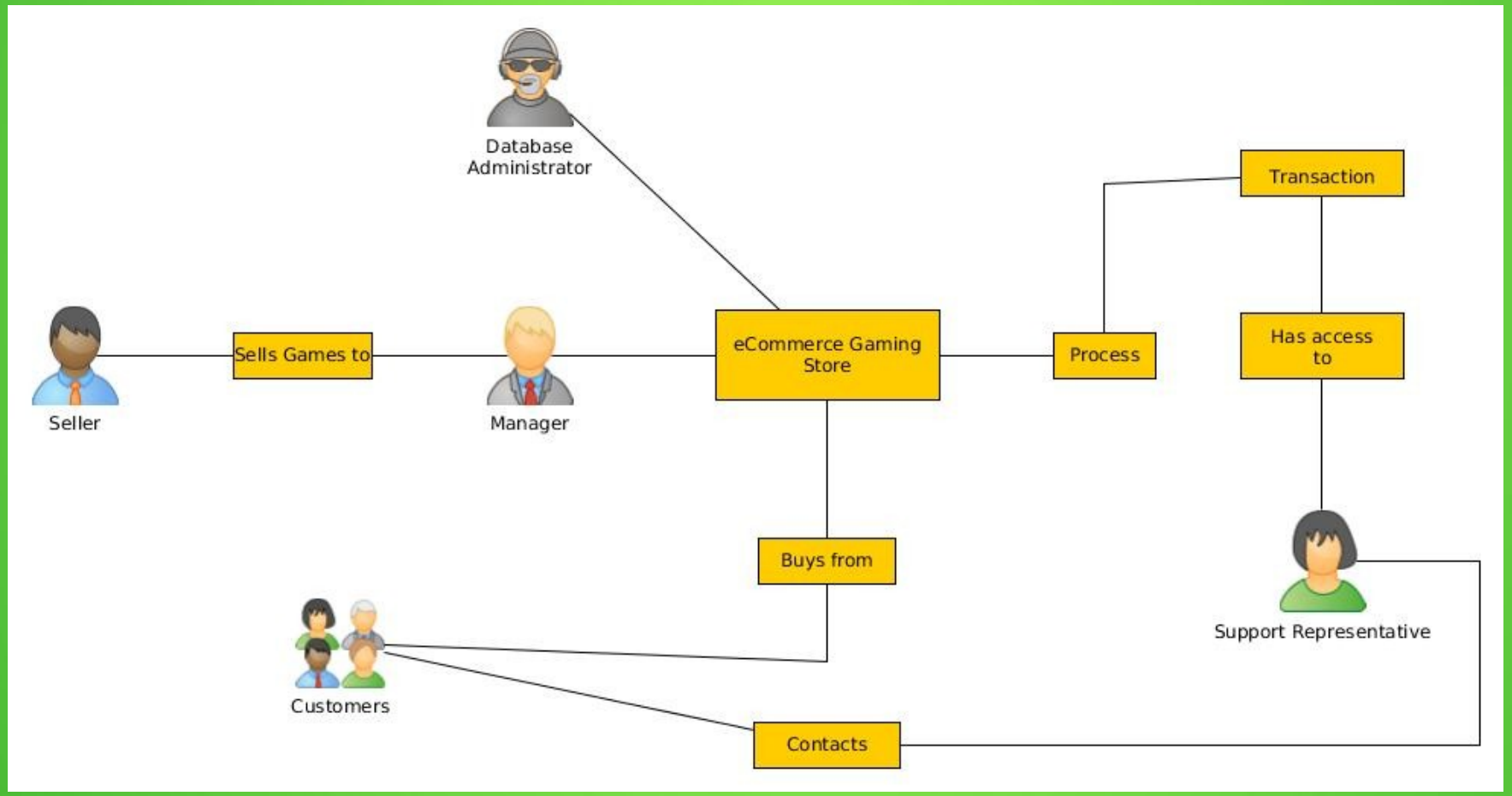
- The products are video games in the form of redeemable codes

- The customer will be able to purchase a digital game
  - redeem the code online from the relative platform (Xbox, Playstation, etc.)

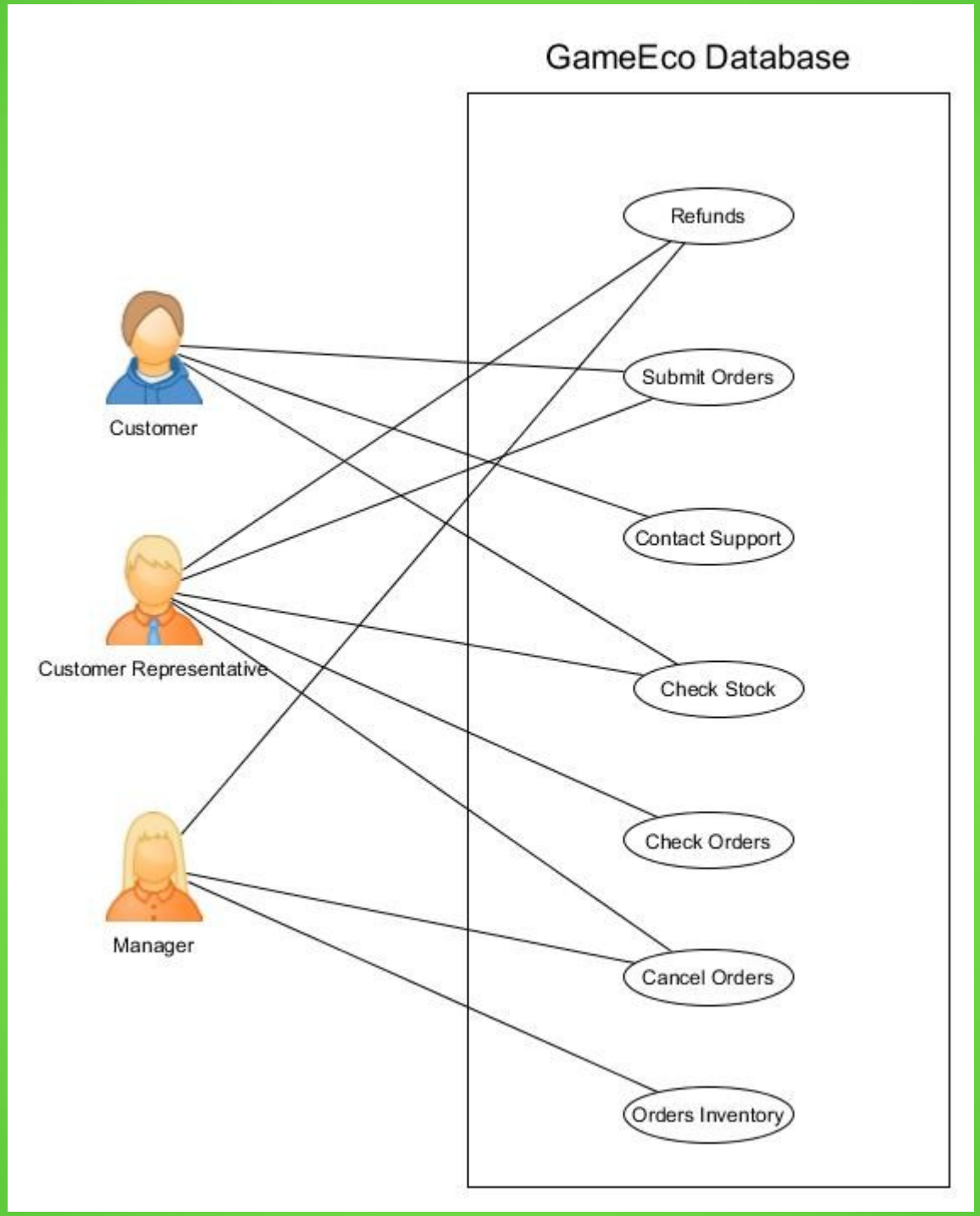
- Content is entirely digital
  - no shipping of products
  - distribution by email
    - sent to the customer immediately after purchase
    - Email contains the order confirmation and redeemable code.

- The codes are provided by multiple sellers who will receive royalty on each purchase

ORGANIZATION SNAPSHOT



Three Main Users of the Gam-Eco Database



Several Actions the Users will perform

Conceptual Schema Description

- PERSON: This entity contains customer and employee information. ID is the primary key for each person.

- EMPLOYEE: Information about employee such as title, department, etc. Manager and customer service rep are employees.

- CUSTOMER: Contains personal information about the customer such as street, name, state, phone#. Can purchase from the e-Commerce store as well as contact customer service.

- SUPPLIERS: Suppliers have a m to n relationship with our company; many suppliers and supply multiple games to the company. Manager interacts with the supplier to retrieve new orders. SID is the primary key for suppliers.

- MANAGER: Places orders for new game inventory.

Conceptual Schema Description

- CUSTOMER SERVICE REPRESENTATIVE: Employee who interacts with the customer when problems arise. Has access to the customers' order history and basic personal information.

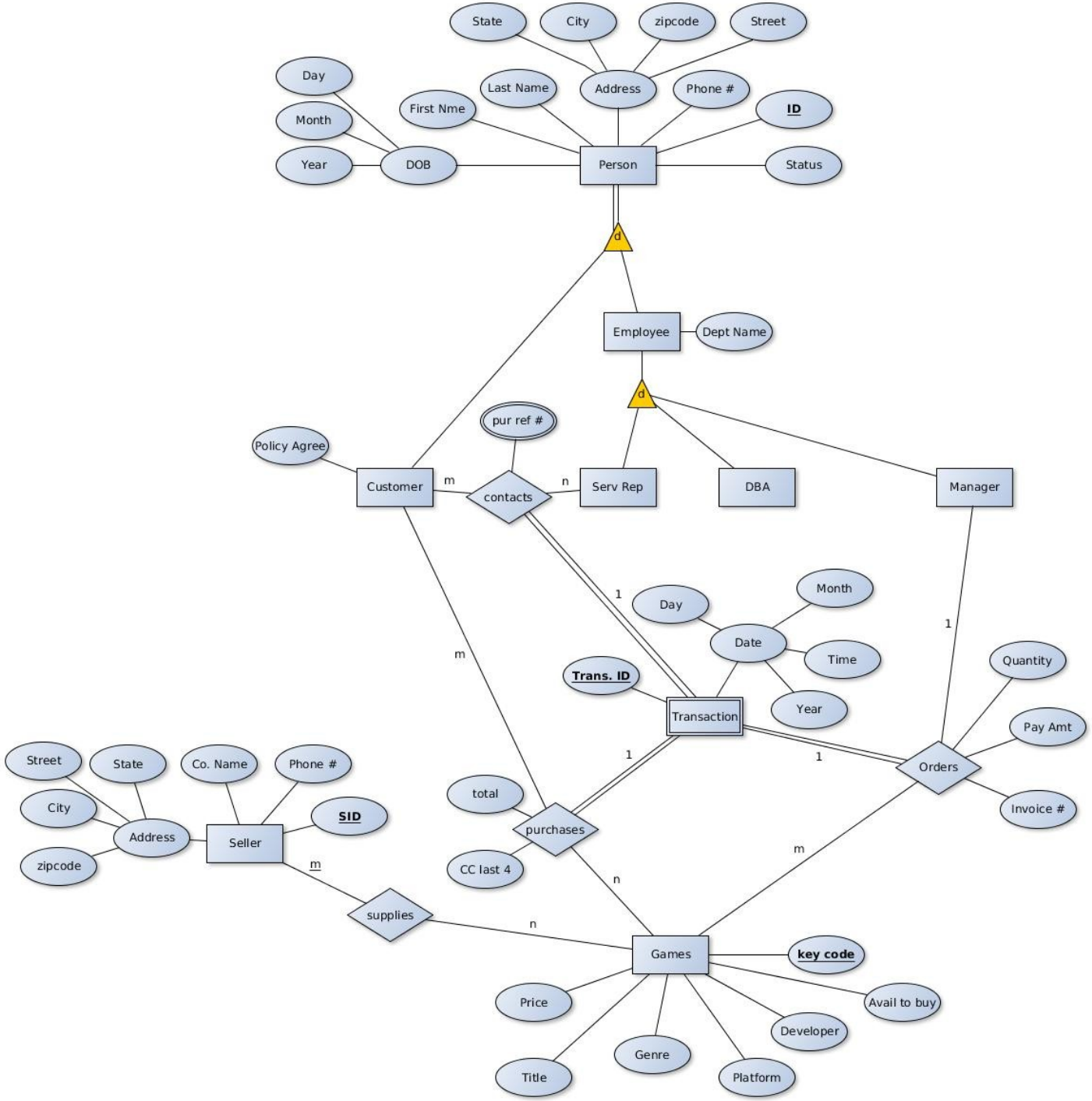
- GAMES: Contains information about the game such as price, title, genre, platform, and key code. Key code will be unique to each game and will serve as the candidate key. Also contains inventory account and availability.

- TRANSACTIONS: Information about customer transactions. Each transaction has a unique transaction ID.

Actions

- CONTACTS: Many customers are able to contact many customer service representatives to resolve issues.
- SUPPLIES: Many suppliers supply multiple games to the company.
- PURCHASES: Many customers can purchase multiple games.
- ORDERS: One manager is in charge of ordering multiple games.

ER Diagram


State
City
zipcode
Street
Day
Last Name
Address
Phone #
First Nme
ID
Month
Person
Year
DOB
Status
d
Employee
Dept Name
d
pur ref #
Policy Agree
Customer
m
contacts
n
Serv Rep
DBA
Manager
1
Day
Month
Date
Time
Quantity
m
Trans. ID
Year
Transaction
Pay Amt
1
1
1
Orders
Street
State
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Phone #
total
City
SID
Address
Seller
purchases
Invoice #
zipcode
m
CC last 4
m
n
supplies
n
Games
key code
Price
Avail to buy
Developer
Genre
Title
Platform

Relational Schema

Person (ID, Status, Phone#, Street, ZipCode, City, State, LastName, FirstName, DOB_Day, DOB_Month, DOB_Year)

FDs:
ZipCode,State → City
ID → Status,FirstName,LastName,DOB_Day,DOB_Month,DOB_Year
Phone#
Street

Normal Form: BCNF/3NF

Employee (DeptName, EID)

FDs:
EID → DeptName

Normal Form: BCNF

Customer (PolicyAgree, CID)

FDs:
CID → PolicyAgree

Normal Form: BCNF

ServRep (SRID)

FDs:
SRID

Normal Form: BCNF

Relational Schema

Data Base Administrator (DID)

FDs:
DID

Normal Form: BCNF

Manager (MID)

FDs:
MID

Normal Form: BCNF

Transactions (TransID, Day, Month, Time, Year)

FDs:
TransID → Day,Month,Time,Year

Normal Form: BCNF/3NF

**Orders (Quantity, PayAmt, Invoice#, MID, Trans_ID, KeyCode)
**original table converted to two tables to increase normalization

Orders_Invoice (Quantity, PayAmt, Invoice#, Trans_ID)Trans_ID ref TransID

FDs:
Invoice# → Quantity,PayAmt, TransID
TransID → Invoice#

Normal Form: 3NF

Orders (Trans_ID, KeyCode, MID) MID ref MID, Trans_ID ref TransID, KeyCode ref Key_Code

FDs:
TransID → Key_Code,MID
Key_Code → TransID,MID

Normal Form: 3NF

Relational Schema

Supplier (SID, Phone#, Co_Name, State, Street, City, Zipcode)

FDs:
Zipcode,State → City
SID → Co_Name, Phone#
Street

Normal Form: BCNF/3NF

Purchase (CID, Key_Code , Trans_ID, Total, Last4_CC#)

FDs:
Trans_ID → Total,Last4_CC#,CID, Key_Code
Key_Code → CID,Trans_ID

Normal Form: 3NF

Supplies (SID, Key_Code)

FDs:
Key_Code → SID

Normal Form: 3NF

Contacts (TransID, CID, SRID, purchase_ref_#)

FDs:
purchase_ref_# → CID (purchase_ref_# not part of any candidate key)
TransID → CID,SRID

Normal Form: 2NF

Games (Key_Code, Avail_To_Buy, Developer, Platform, Genre, Title, Price)

FDs:
Key_Code → Developer,Platform,Genre,Title,Price, Avail_To_Buy (superkey)
Platform → Developer (trivial)

Normal Form: 3NF