1. Discuss the entities, attributes, and the relationship cardinalities presented in the Crow's Foot ERD

- 5 entities exist: CUSTOMER, INVOICE, LINE, PRODUCT, VENDOR
  - All 5 entities are considered strong entities due to having a PK.
- CUSTOMER contains the following attributes: CUS_CODE (this attribute is the PK – primary key – the PK can be accessed by any foreign key(FK)), CUS_LNAME, CUS_AREACODE, CUS_INITIAL, CUS_BALANCE, CUS_PHONE, CUS_FNAME.
- INVOICE contains the following attributes: INV_NUMBER (this attribute is the PK – primary key – the PK can be accessed by any foreign key(FK)), INV_DATE, CUS_CODE.
- LINE contains the following attributes: INV_NUMBER (composite PK) & LINE_NUMBER (this attribute is the PK – primary key – the PK can be accessed by any foreign key(FK)),
  - Cannot have more than one primary key, but having multiple is fine as candidates so long as you normalize the table while figuring out which key is going to end up being the PK and which will just be the surrogate.
- PRODUCT contains the following attributes: P_CODE (this attribute is the PK – primary key – the PK can be accessed by any foreign key(FK)), P_QOH, P_DISCOUNT, V_CODE, P_PRICE, P_MIN, P_DESCRIPTION, P_INDATE.
- VENDOR contains the following attributes: V_CODE (this attribute is the PK – primary key – the PK can be accessed by any foreign key(FK)), V_NAME, V_CONTACT, V_PHONE, V_ORDER, V_STATE, V_AREACODE.
- Cardinalities:
  - CUSTOMER and INVOICE – one and only one (customer) to zero or many (invoice). Customer has mandatory participate, while Invoice is optional participation.
  - INVOICE and LINE - one and only one (invoice) to zero or many (line). Invoice has mandatory participate, while Line is optional participation.
  - LINE and PRODUCT – zero or many (line) to one and only one (product). Line is optional participation, while Production has mandatory participation.
  - PRODUCT and VENDOR - one and only one (product) to zero or many (vendor). Product has mandatory participate, while Vendor is optional participation.

2. Write the business rules that are reflected in the following Crow's Foot ERD.

- Every customer can have many invoices, but invoices are optional.
- Many invoices can only have one customer, and a customer is required.
- Every invoice can have many lines, but lines are optional.
- Many lines can only have one invoice, and an invoice is required.
- Many lines can only have one product, and a product is required.
- Every product can have many lines, but lines are optional.
- Every product can have many vendors, but vendors are optional.
- Many vendors can only have one product, and a product is required.