**Design Documentation**

**Entities:**

* **Company\_Stocks**
  + Holds the Information about a company that sells stock, such as the Industry the company is a part of, the exchange it lists its stock on, its ticker symbol and the initial value of the company as determined during the IPO process.
* **Stock\_Listings**
  + Holds the information about the number of shares the company currently has listed on the exchange. New tuples are created every time this number changes, such as during an IPO, or when a company lists stock it had previously held in reserve in its treasury, or when it repurchases stock to be placed back into its treasury. The last created tuple keeps a running total of listed shares sold which builds upon the value from the previous tuple.
* **Authorized\_Shares**
  + Holds the information about the total number of shares the company is authorized to sell. New tuples are created when this number changes, such as at an IPO or during stock splits.
* **Treasury\_Transactions**
  + Holds the information about a company’s stock treasury transactions. New tuples are added whenever stock is added or removed from the treasury. The last created tuple keeps the running total which is built on the size of the transaction and the running total from the previous tuple.
* **Contact\_Infos**
  + Holds the common information about all entities which may interact with the stock, including buyers, sellers, brokerages, and companies.
* **Stock\_Types**
  + Holds the name and description of each type of stock that a company deals with. Current types to be included are (Common, CommonRestricted, Preferred, PreferredFlat, Unlisted)
* **Holdings**
  + Holds the information about each separate stock holding. A holding is generated for every entity (besides the listing company) who owns shares of the company’s stock. A separate holding is created for each type of stock that is held.
* **Options\_Warrants**
  + Holds information about all stock options and warrants that the company issues. A new tuple is created for every offering and contains the date of issuance, the expiration date, the number and type of shares offered along with how many shares were redeemed.
* **Transactions**
  + Holds information about every stock transaction that takes place involving the company’s stock. A new tuple is created for every transaction and includes which company the stock belongs to, what type it is, when the transaction took place, the price the transaction acted upon, and the number of stocks involved. For every tuple in Transactions, a minimum of two tuples must be created in the Transaction\_Participants association table (one each for the buyer and seller, with an optional one for the brokerage, if involved).
* **Transaction\_Participants**
  + Primarily, an associate table between stock transactions and the entities involved in them (the Contact\_Infos and Transactions entities). Will contain a minimum of two tuples for every tuple in the Transactions table, one with a Role attribute value of Buyer, and one with Seller. An optional tuple may be created when appropriate for each tuple in Transactions with a role attribute value of Brokerage.
* **Stock\_Attributes**
  + Holds the information about the attributes of different types of stock. Contains the name of the attribute and the value associated with it. Currently planned attributes are dividends percentage for different types of stock, voting rights for different stock types, and the base assigned value of preferred stock.
* **Attributes\_By\_Type**
  + An associate table that matches the types of stocks to the attributes that apply to them.