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2/12/18
CMSI 402
Assignment #2

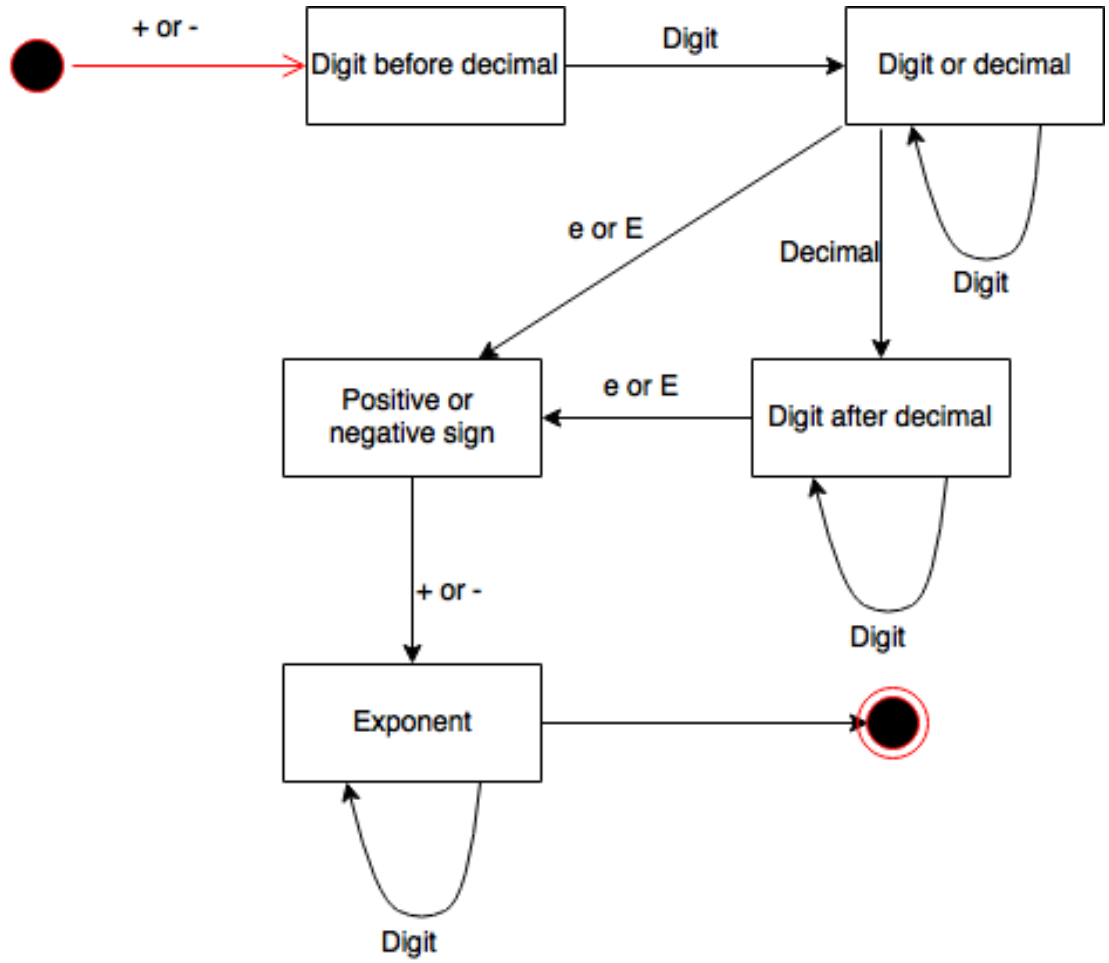
5.1 Component-based architecture treats the system, "as a collection of loosely coupled components that provide services for each other" (96). All of the components are not separate, and rather are contained in a single program. Service-oriented architecture is similar to a component-based architecture; however, the components are "implemented as services" (96). In this case, the services are not contained in a single program. Instead, a service "is a self-contained program that runs on its own and provides some kind of service for its clients" (96).

5.2 One architecture that would be appropriate is the monolithic architecture. Due to the fact that the application is so simple, it would be appropriate for all pieces to be a part of the same program. Another architecture that would be good is the rule-based architecture. The game of tic-tac-toe can easily be broken down into a set of rules, which makes this architecture appropriate. Furthermore, because of the simplicity of the game, it would be unlikely to have to handle unexpected situations.

5.4 An architecture that would be good is a client/server architecture. This is because in order for the two users to play on separate devices over the Internet, the application would have to connect to a server so that both user interfaces could be updated when one of the users makes a move. It would also be good to couple this with the rule-based architecture. Like tic-tac-toe, the game of chess can easily be broken down into a simple set of rules. Finally, the distributed architecture would be effective because the system involves multiple computers across the network playing the same game.

5.6 Because the ClassyDraw application stores drawings in files, a database is not needed. The files can be saved directly to the device that the application is running on. Furthermore, the classes (objects) could be stored in an object store or object oriented database; however, due to the limited amount of classes and simplicity of the classes, it would make more sense to save them in the program itself. If one was to use a database for the ClassyDraw application, a backup and recovery scheme should be designed for maintenance. That way, files and/or objects saved in the database would not be lost.

5.8



6.1

Shared properties:
-Color
-X-coordinate
-Y-coordinate

Properties shared by all classes except Text and Line:
-Area
-Shade
-Circumference
-Height
-Width

Properties shared by Rectangle and Star:
-Number of sides

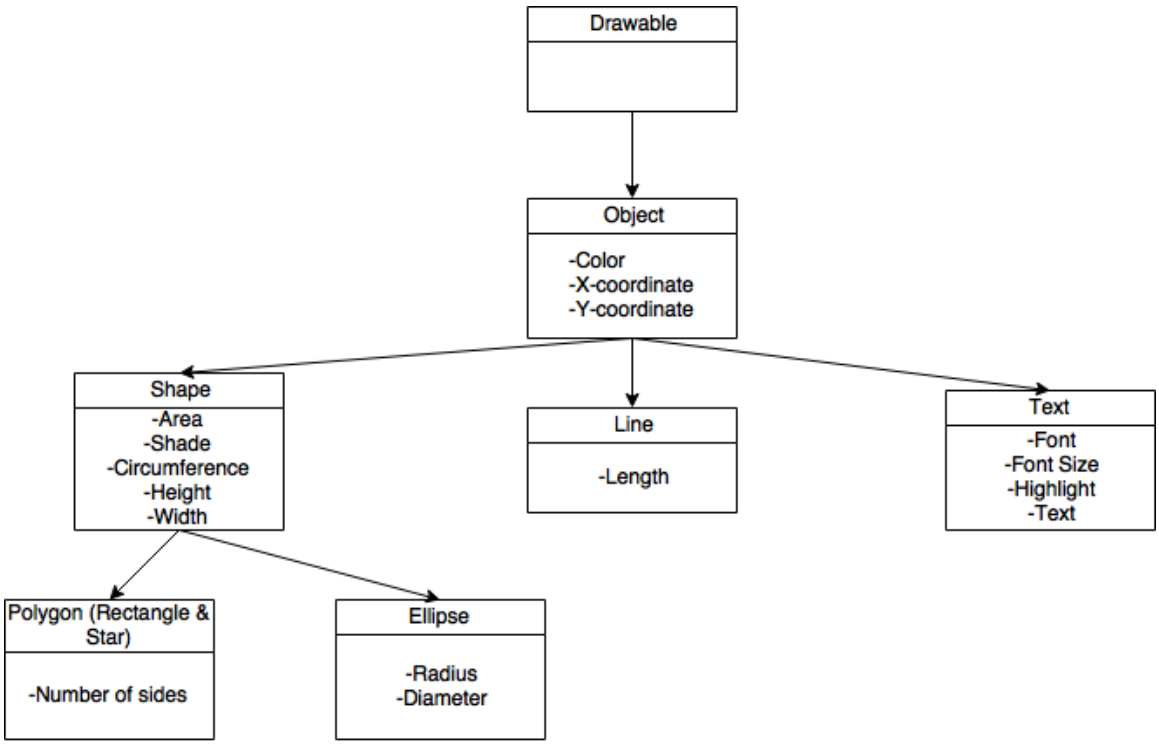
Properties of just Ellipse:
-Radius
-Diameter

Properties of just Text:
-Font
-Font Size
-Highlight
-Text

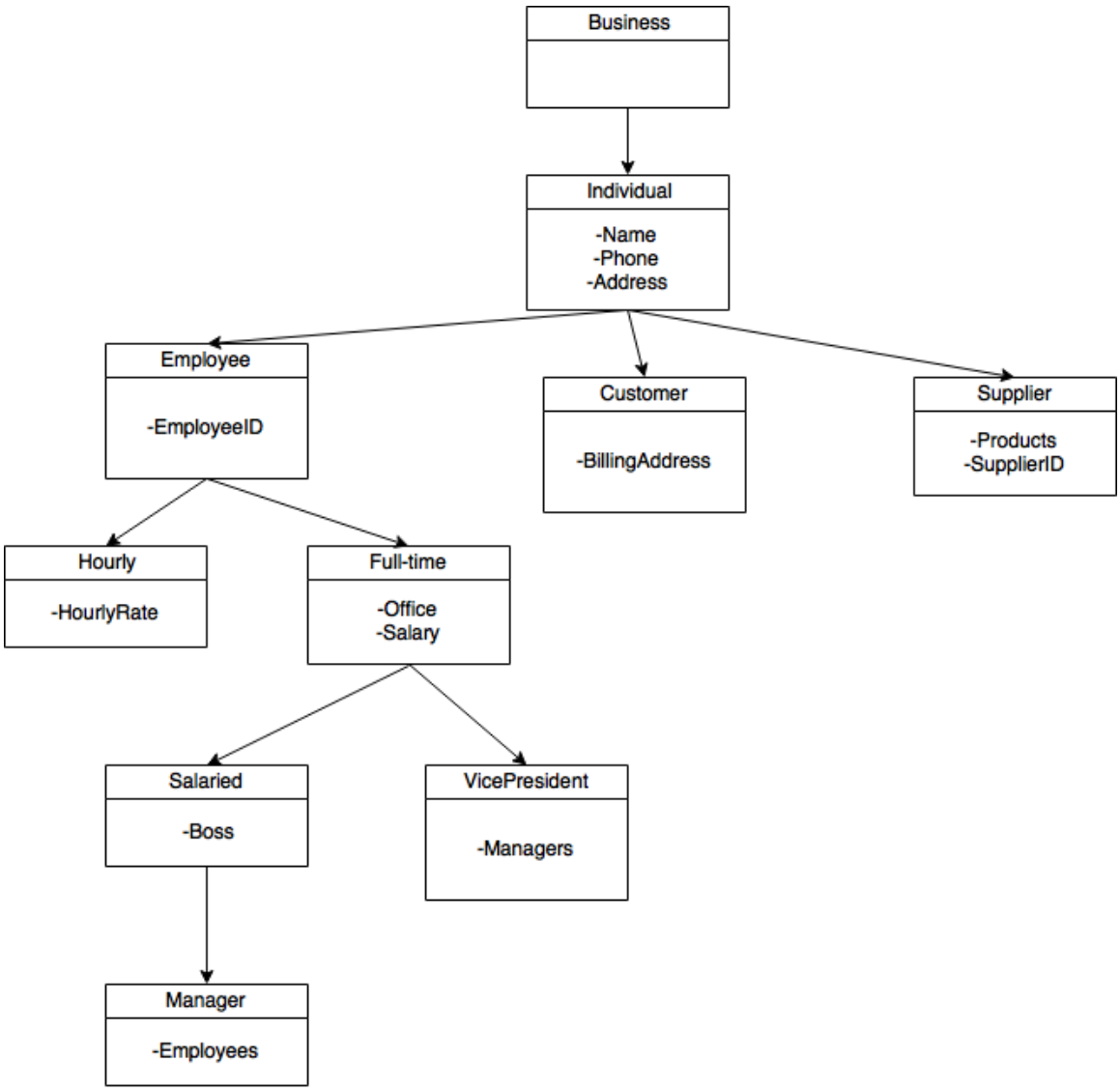
Properties of just Line:
-Length

The shared properties should be implemented in a parent class, while the non-shared properties should be implemented in the individual classes that extend the parent class.

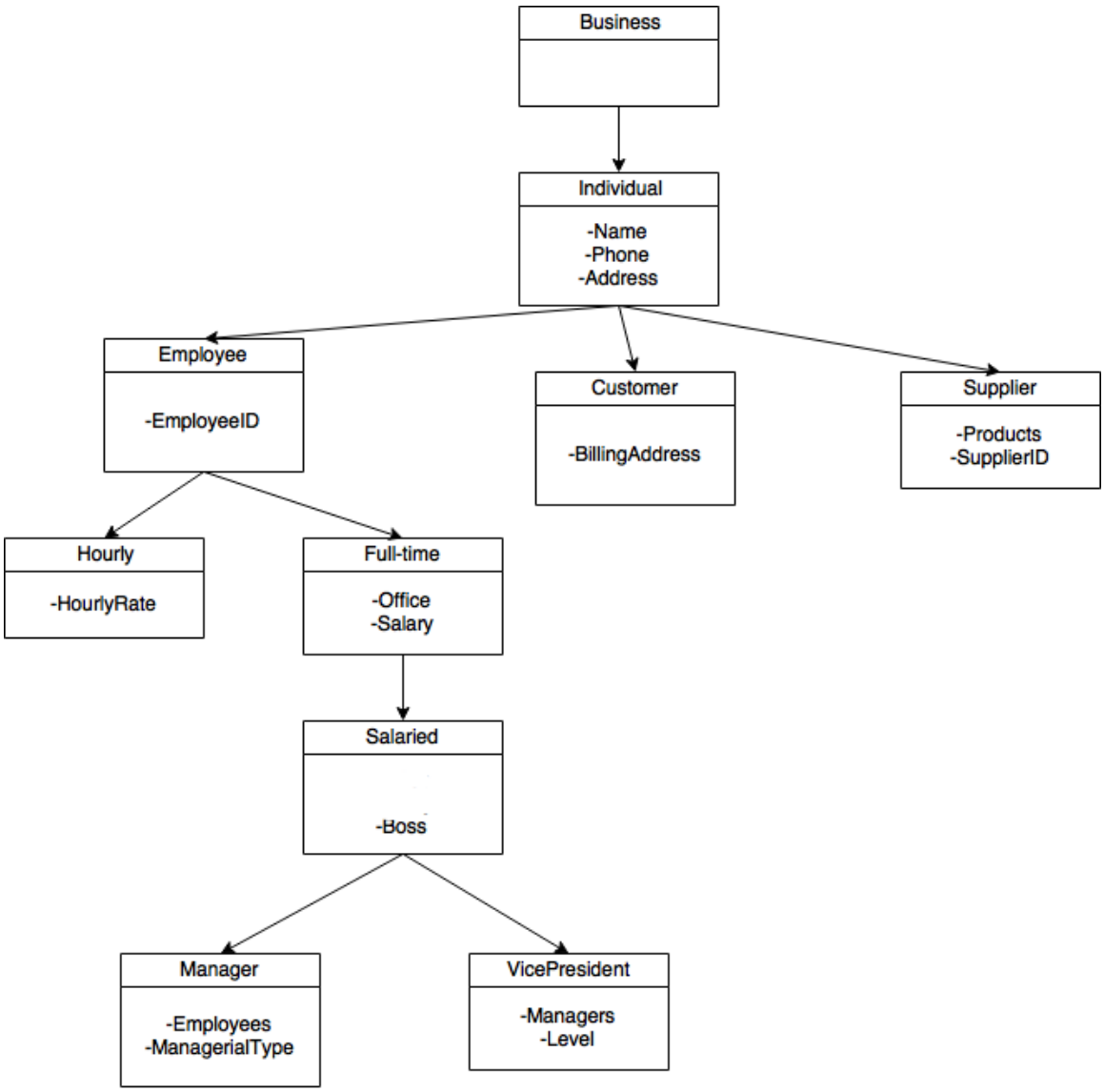
6.2



6.3


Business
Individual
-Name
-Phone
-Address
Employee
-EmployeeID
Customer
-BillingAddress
Supplier
-Products
-SupplierID
Hourly
-HourlyRate
Full-time
-Office
-Salary
Salaried
-Boss
VicePresident
-Managers
Manager
-Employees

6.6



According to the question, two new properties have been added: ManagerialType and Level (the level of the Vice Presidents). Since the different levels of Vice Presidents have to report to certain manger types, they technically have a boss. Therefore, the Vice President class can extend the Salaried class. This means that the Vice President class is also combined with the Manager class, which extends the Salaried class as well.