Josh Soriano

Homework 2: CMSI 402

Problem 5.1

In a component-based architecture, the system is represented as a collection of loosely coupled, independent components that provided services for each other. Though a service-oriented architecture is similar to a component-based architecture, the difference is that the components are implemented as services, which is a self-contained program that runs on it's own. It is essentially a collection of services that communicate with one another through a protocol over a network.

Problem 5.2

For this tic-tac-toe mobile application, a monolithic architecture would be most appropriate, since it will not be using any external database, which allows for the entire application to be run through a single program. Communication across networks is not necessary for the application, especially since the high scores are stored, accessed, and displayed on the phone. Furthermore, since the game is so simple and well-known, the system of tic-tac-toe and how all the pieces of it fit and work together are all understood from the beginning of the project. The application, in my opinion, is considered to be small enough to where a single programmer or team would work on the code, which fits the criteria for a monolithic architecture. A rule-based architecture could also be integrated for game logic.

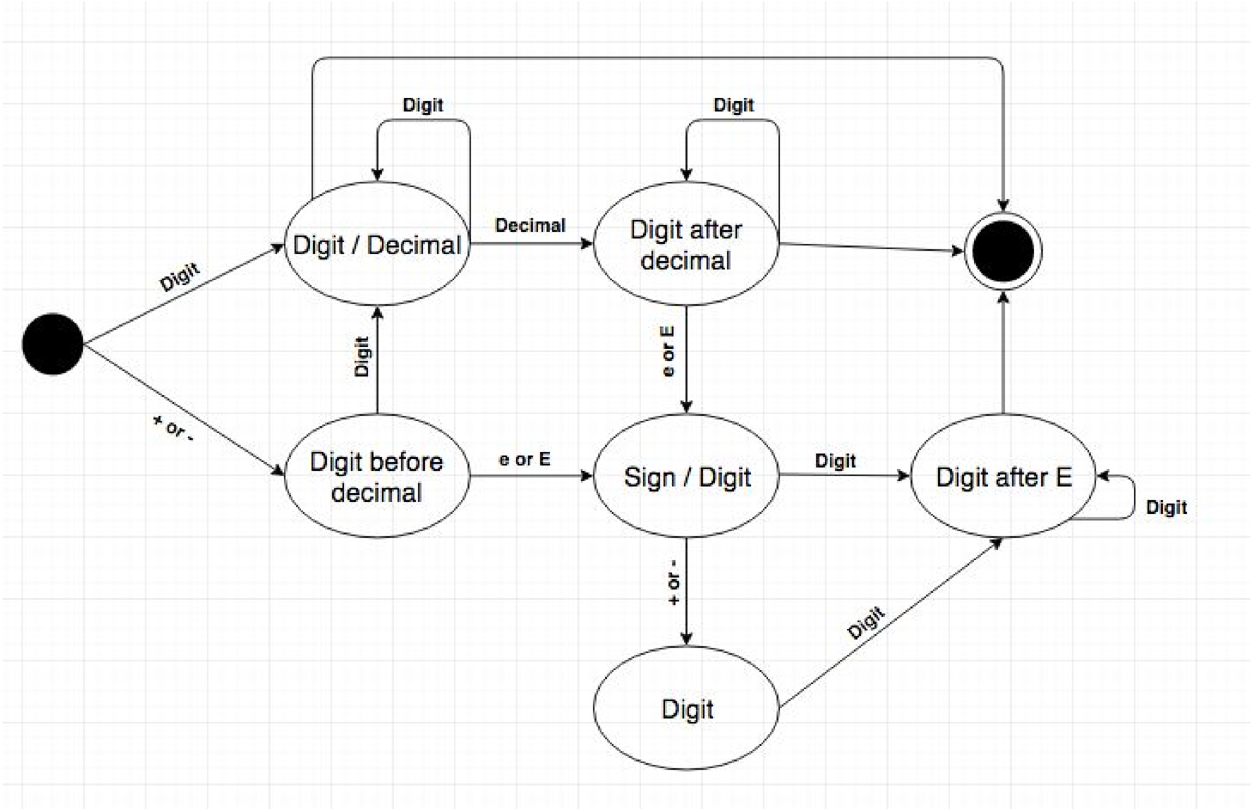
Problem 5.4

For this chess application, a hybrid of a client/server and rule-based architecture, would be most appropriate. The client/server architecture would allow for the two players and their machines to participate through a centralized server. The rule-based architecture would be utilized in implementing game logic in the centralized server. It could take in game states (scenarios) and evaluate what legal moves could be made. After a player makes a move through the UI, the move would be sent through a network to the server, which essentially acts as a validation tunnel, and sends the resulting game state to the next player for him/her to make their move.
It is also possible that the communication between two machines to be facilitated through web services, in which case a monolithic, rule-based, service-oriented architecture would be suitable for the application.

Problem 5.6

According to the text the ClassyDraw application stores drawing in files, so a database would not be necessary. For maintenance, system tools would allow for users to delete files or recover backup files. In the case a system were to ever crash, it could save a temporary “copy” so that a user could recover their work.

Problem 5.8



Problem 6.1

Shared Properties:

- Xcoord
- Ycoord
- Width
- Height

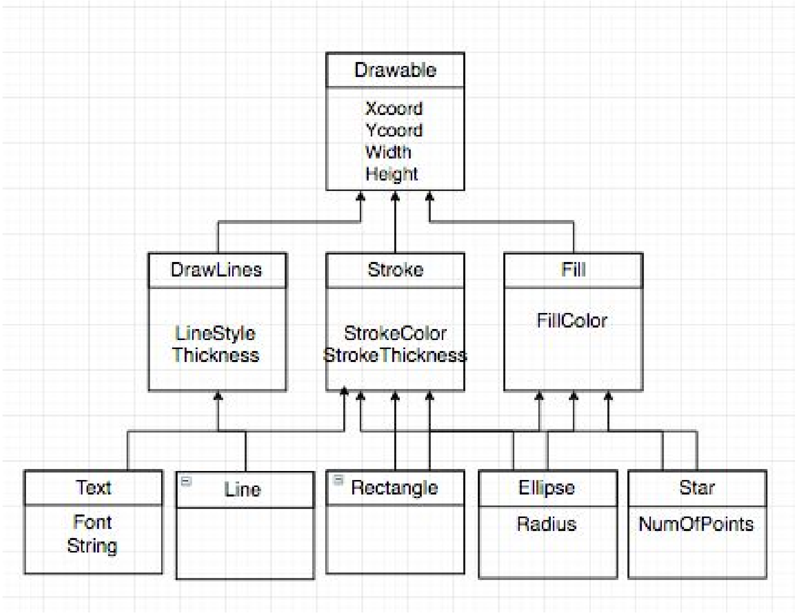
Partially Shared:

- StrokeColor
- StrokeThickness
- FillColor

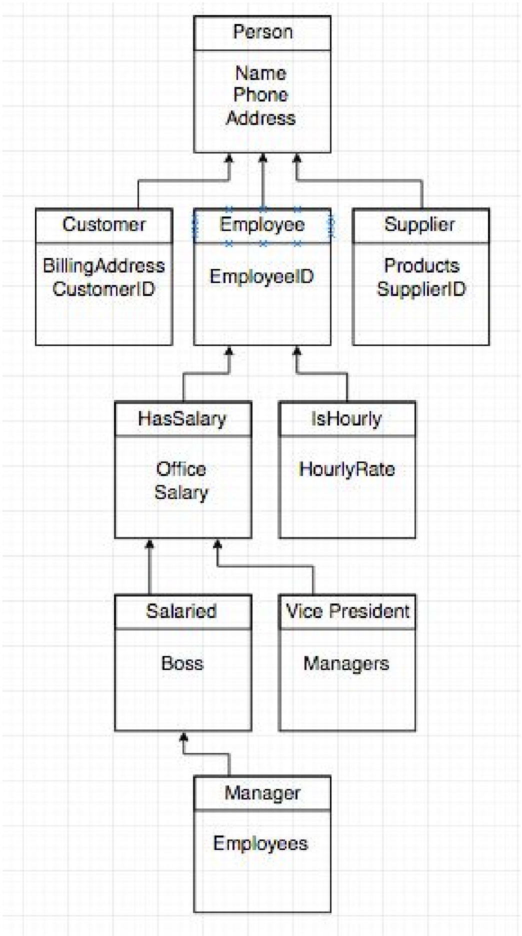
Nonshared Properties:

- **Text:** Font, String
- **Ellipse:** Radius
- **Star:** NumOfPoints

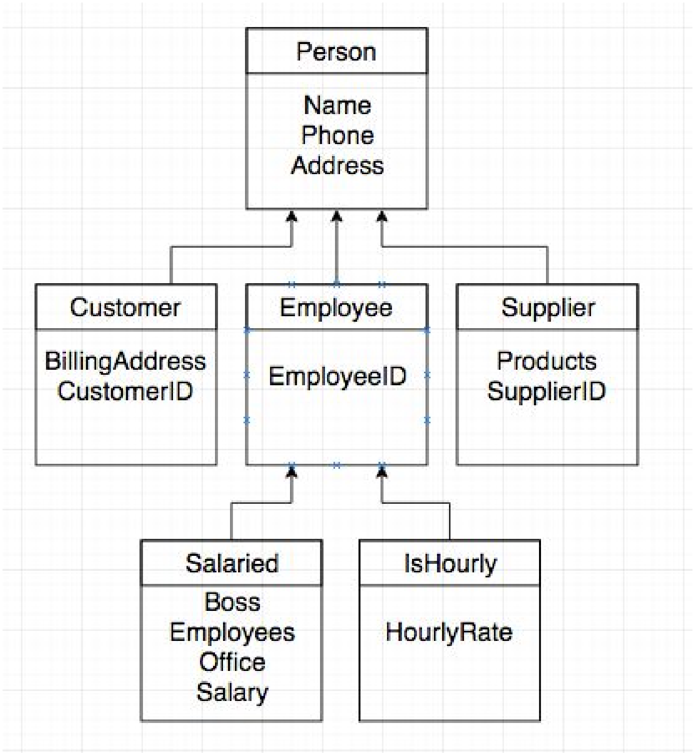
Problem 6.2



Problem 6.3


Person
Name
Phone
Address
Customer
BillingAddress
CustomerID
Employee
EmployeeID
Supplier
Products
SupplierID
HasSalary
Office
Salary
IsHourly
HourlyRate
Salaried
Boss
Vice President
Managers
Manager
Employees

Problem 6.4


Person
Name
Phone
Address
Customer
BillingAddress
CustomerID
Employee
EmployeeID
Supplier
Products
SupplierID
Salaried
Boss
Employees
Office
Salary
IsHourly
HourlyRate