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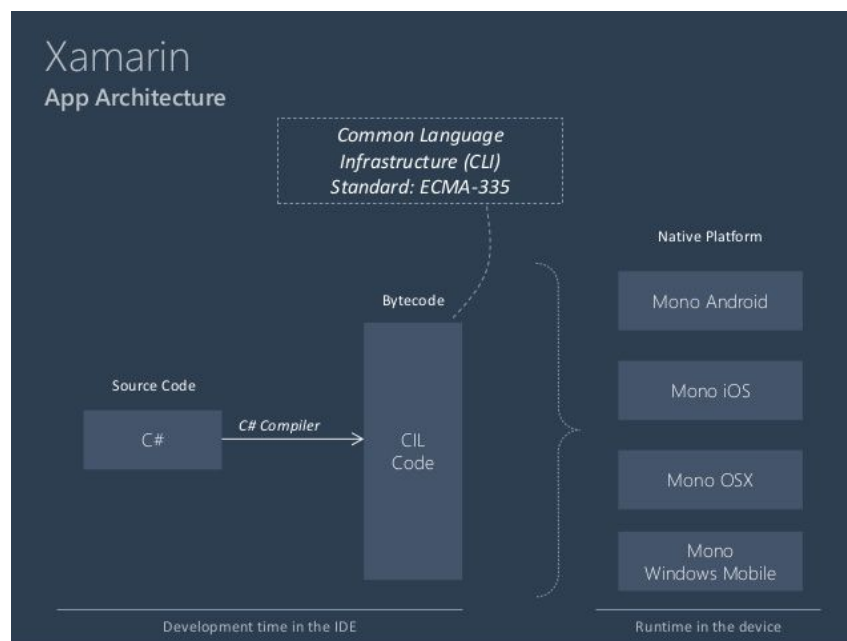
Glimpse Iteration 1

Glimpse is a location based application that aims to provide its users with the most up to date information related to local promotions and sales. Local businesses often have small scale promotions or one-day deals that are communicated to clients in person as they enter the store. This app will give these businesses a platform to advertize such sales to a wider audience. Buyers will be able to see the sales that are taking place in the stores or businesses close by. Glimpse will help businesses by giving them exposure to potential clients who are passing by.

Velocity

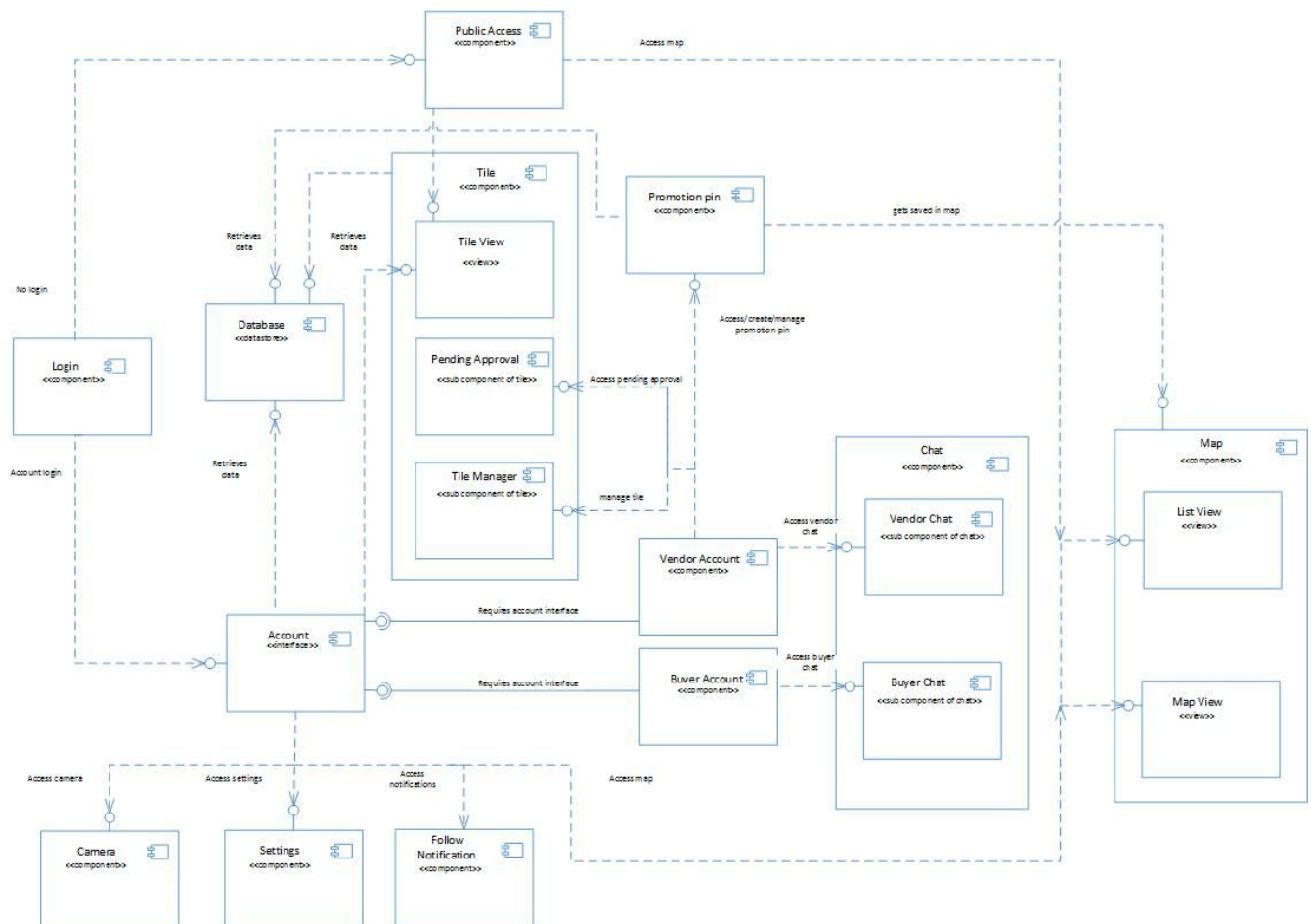
Velocity does not apply in our iteration 1, as no user stories were completed.

Architecture and Diagrams



Xamarin

App Architecture



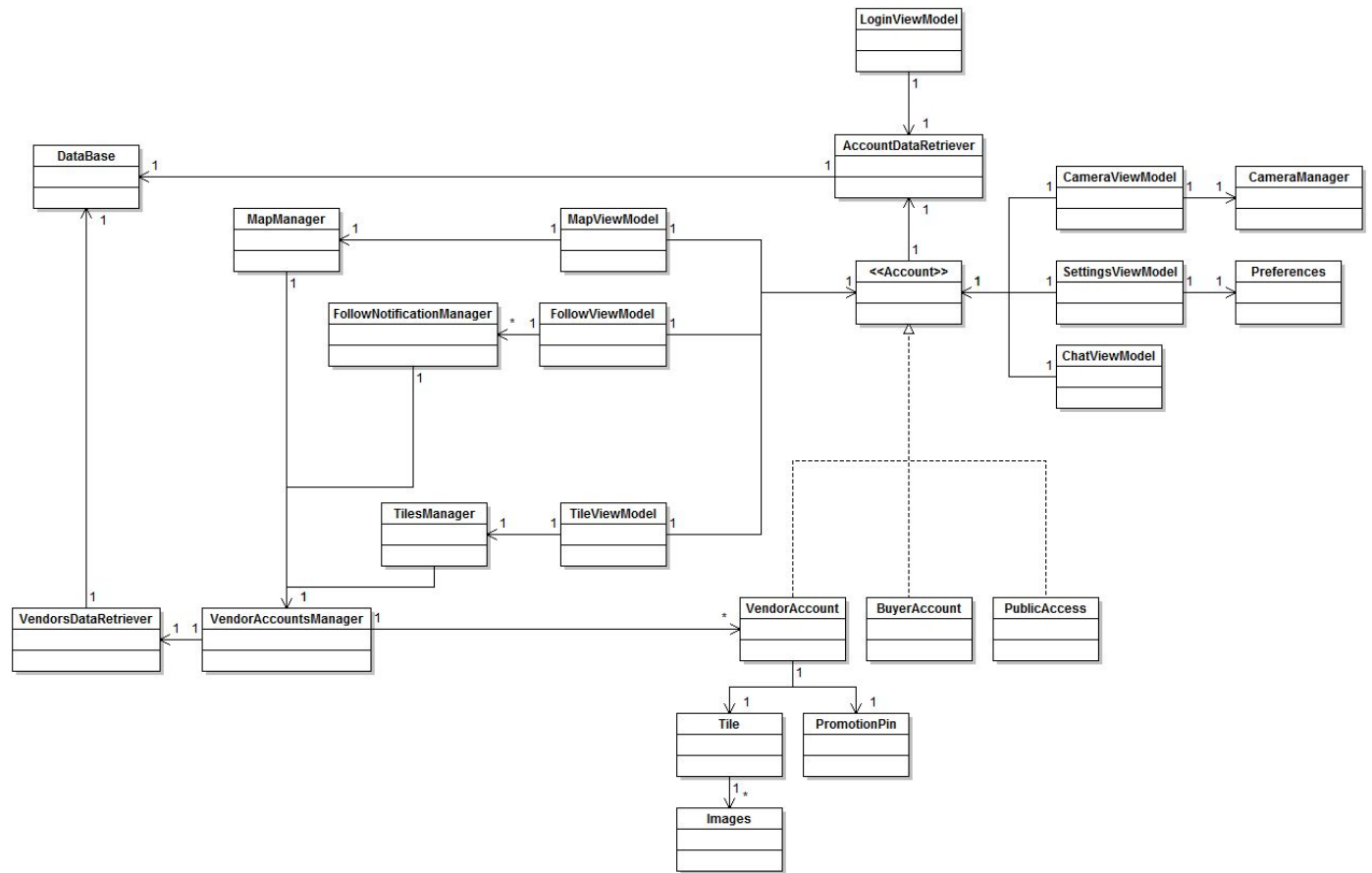
¹ <http://www.slideshare.net/PrabhaKularathna1/xamarin-beyond-thebasics>

The business logic of the system will revolve around the account type used in the login phase. Each system component will behave differently depending on the type of account logged in. The components include the following: login, map, tile, notification, settings, and chat. The user interface views will be coded differently using mono and mono for android. However, each component will reference a view model which will contain the properties that will bind to different control elements of the view. The properties of the view models will perform business logic that will be common to both views coded in mono and mono for android.

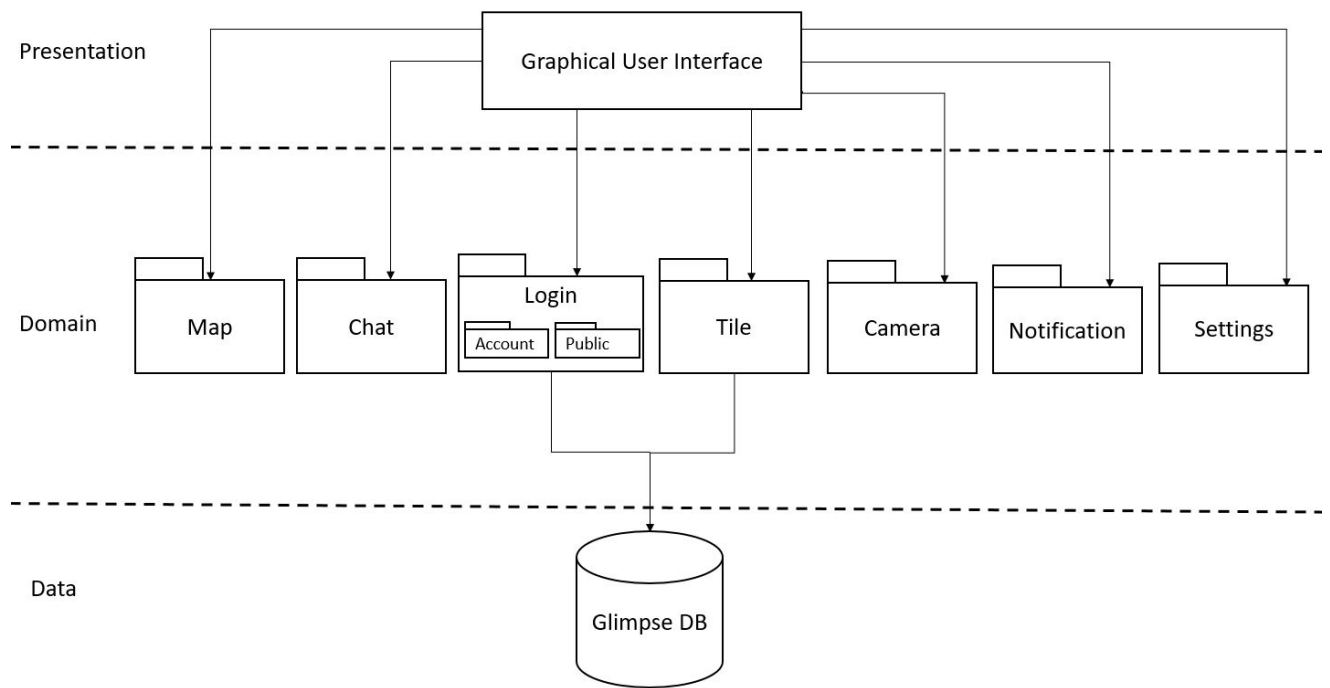
The different account types will be the *VendorAccount*, the *BuyerAccount* and the *PublicAccess*. Vendor accounts contain a the *PromotionPin* and the *Tile* objects.

The map, follow notification and tile components will use a *VendorDataRetriever* to access the vendor's account information from the database.

Moreover, the camera, settings, and chat components will not use the database to retrieve data. The camera will be able to access the photo library of the user's phone. The settings will store the user's settings locally on their phone and finally the chat will simply manipulate data loaded on the app.



The layer diagram of our application is represented below and separates Glimpse into 3 tiers: user interface, domain logic, and data tier. The user will interact with the application through the presentation layer. Information related to the Account will be stored and retrieved through the database. The logic tier coordinates the application and is composed of 7 main concepts: the map, the chat feature, the tile display, the camera, notifications, and the login process. Moreover it processes information between the data layer and the presentation layer.



Plan to Release 1

[Iteration 1](#) (0 points)

During this iteration, we focused on the planning and preparation of the project. Therefore, we set up our GitHub page, planned our architecture, carefully selected our frameworks and focused on the goals of our application. We also did several low level prototypes in order to have a better picture of our application and how we can come up with something different than some of the competitors out there.

[Iteration 2](#) (32 points)

Before we tackle on the main functionalities of the application, we want the app to have its functional menus as well complete the high risk high reward stories. The user story "Create vendor account" is a high priority user story that will dictate how we will build this application and tell us whether or not our project idea is feasible. The reason why there is a lot of emphasis on this user story is because we need to determine a method to verify vendor accounts. We want only true vendors (registered business owners) to register to give our users the feeling that our application is a reliable & trustworthy product.

Iteration 3 (Release 1) (42 points)

During this iteration, we are focused on implementing the main functionality of our application. This includes the all-important map which is focus of the application that will show the user the promotions around them as well as implementing the ability for vendors to drop their promotional pin on the map. These two user stories are closely related and of high importance which is why they are included this iteration. Once these are implemented, vendors will be able to create their accounts and start posting their promotions and at the same time buyers will be able to view these promotions.

Infrastructure

	Apache Cordova	Xamarin (Selected choice)	Native	Ionic
<u>Performance</u>	Good	Good	Best	Good
<u>Cross-Platform</u>	yes	yes	no	yes
<u>Difficulty based on our skills</u>	Medium	Easy	Hard	Medium
<u>Open source</u>	yes	yes	Yes for android, No for iOS	yes
<u>Plugins compatibility</u>	Medium	High	High	Medium
<u>IDE</u>	Mainly Netbeans	Visual Studio	Android Studio	Mainly Atom,WebStorm
<u>Testing</u>	Jasmine	Automated. Xamarin.UITest (C#)	Android -JUnit iOS - KIF	Jasmine
<u>Language</u>	HTML, JS,CSS	C#	Java	AngularJS, HTML, JS,CSS
<u>Documentation</u>	Medium	High	High	Medium

To determine what technology we should pursue for our application, we considered several important factors. First and foremost, we had to consider options that were open source. With that being our primary focus, we were able to limit our options to four technologies (Cordova, Xamarin, Ionic, Native*). To be efficient, we want to develop using a technology that supports cross-platform development. All our options support that except native solutions. Although they are superior in performance, we would be losing time to be proficient in each platform thus diminishing returns. Cordova and Ionic are both web-based technologies & based off the individual skills on our team, we are most proficient using C# which makes Xamarin a better choice. Xamarin also has the superior documentation and testing frameworks.

*Our platform focus for native applications are Android & iOS. Android being open-source while iOS closed.

Database (Selected choice: SQLite)

SQLite

For our database, we have chosen SQLite as it is very simple to use and integrate with our Xamarin Mono Applications (Android and iOS). iOS and Android both have the SQLite database engine "built in" and access to store and retrieve data is simplified by Xamarin's platform. It allows us to save and retrieve objects from database without writing SQL statements. It is efficient in the sense that it contains a thin wrapper on SQLite which is very fast and won't cause any performance bottleneck of our queries. It also features simple methods for executing CRUD operations and queries safely. It also works with our data model without forcing us to change our classes using a reflection-driven ORM layer.

ADO.NET

This uses SQLite database and is available for iOS and Android however it uses the ADO.NET-like syntax. It requires us to write SQL statements which can become tricky if the queries become complex. Many of our team members do not have expert SQL knowledge therefore we decided this is a risky technology to go with.

Realm Xamarin

It does not use ORM, Realm data models are defined using traditional C# classes with properties. However it is very easy to use and setup, similar to SQLite. In terms of speed, Realm claims they are faster however depending on how SQLite is used it can match the speed of Realm. Both Realm and SQLite work nicely with Cross platform applications. Realm is still new in the market and SQLite has been there for very long, therefore in order to be safe SQLite would be our selected choice.

Testing Framework (Selected choice: NUnit)

For the unit testing, we are presented with possible libraries to test with: NUnit and XUnit.

By looking at the advantages and disadvantages of each library, we have reached the conclusion that it doesn't really matter which one we use. They both give the tools for the developer to write good tests and the quality of the test won't change based on which library we use but rather on our skill at testing. We have chosen to go with NUnit since it seems more of a standard within C# and Xamarin. Xamarin provides tools for better UI tests which are implemented with NUnit. Also, tools such as Resharper provide better support for NUnit and run well within Visual Studio, so we are satisfied with it.

For UI testing, Xamarin has an internal library called Xamarin.UITest to validate the ui of iOS and Android devices. We are not planning to release on other devices such as Windows Phone so this will do the job for us. This library will be useful since it can be used to test the UI on all different versions of iOS and Android as well as being used as Acceptance tests. It can also be automated which is great to be able to do daily tests at night after everyone commits their code for example.

Name Conventions

Standard C# Coding Convention:

<https://msdn.microsoft.com/en-us/library/ff926074.aspx>