Footpon

Design Proposal
Version 1.0
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Team J^3

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Product Concept

Description of Technology

1. Hardware
    a. Poly server for backend support
    b. G1 phone for testing
2. Software
    a. Linux for the server
    b. Android SDK for programming
    c. Java Eclipse for programming
    d. C++ for the server
    e. PHP and HTML for the website
    f. MySQL for the database

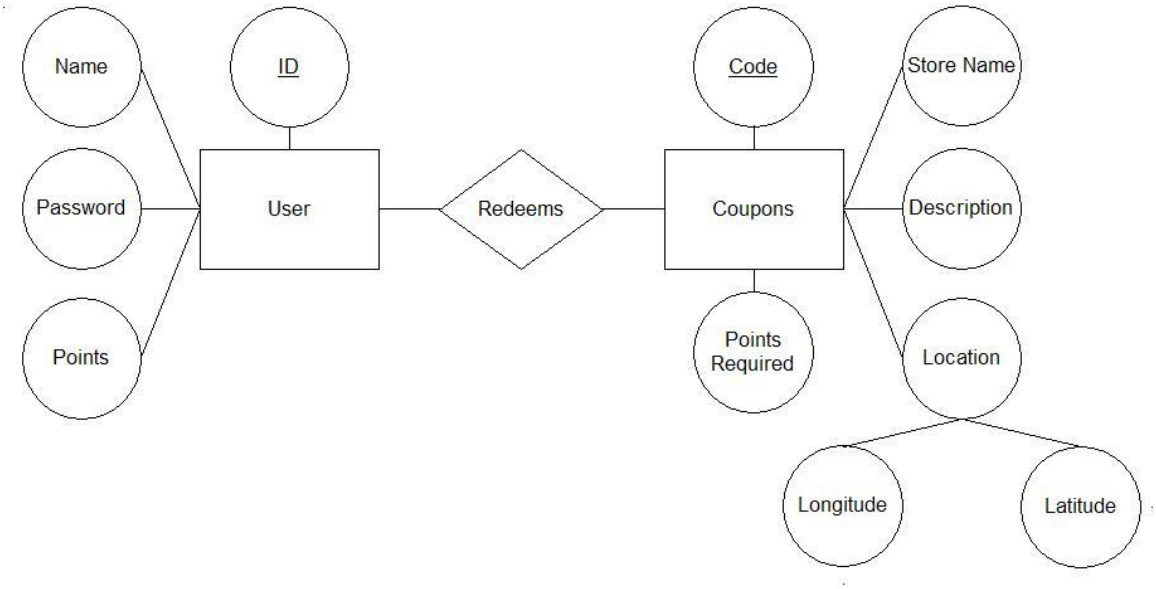
Working Principle

1. The application needs to be easy to use.
2. All information, especially coupons, should be readable on the device.
3. The user can conveniently check on their account from the device and on the web.

Product Form

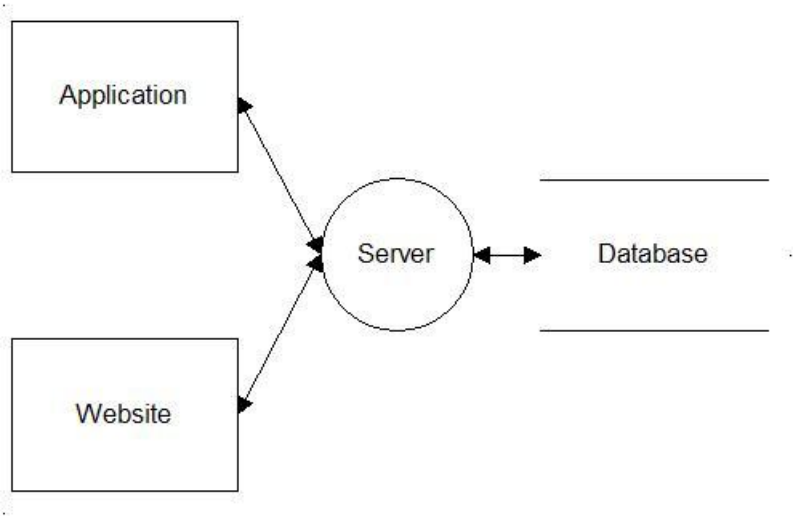
1. Android Device/Application
    a. This is where the user collects points, view coupons, redeems them with points, and uses them in stores.
2. Website
    a. This is where the user can check on their account.

ER Diagram



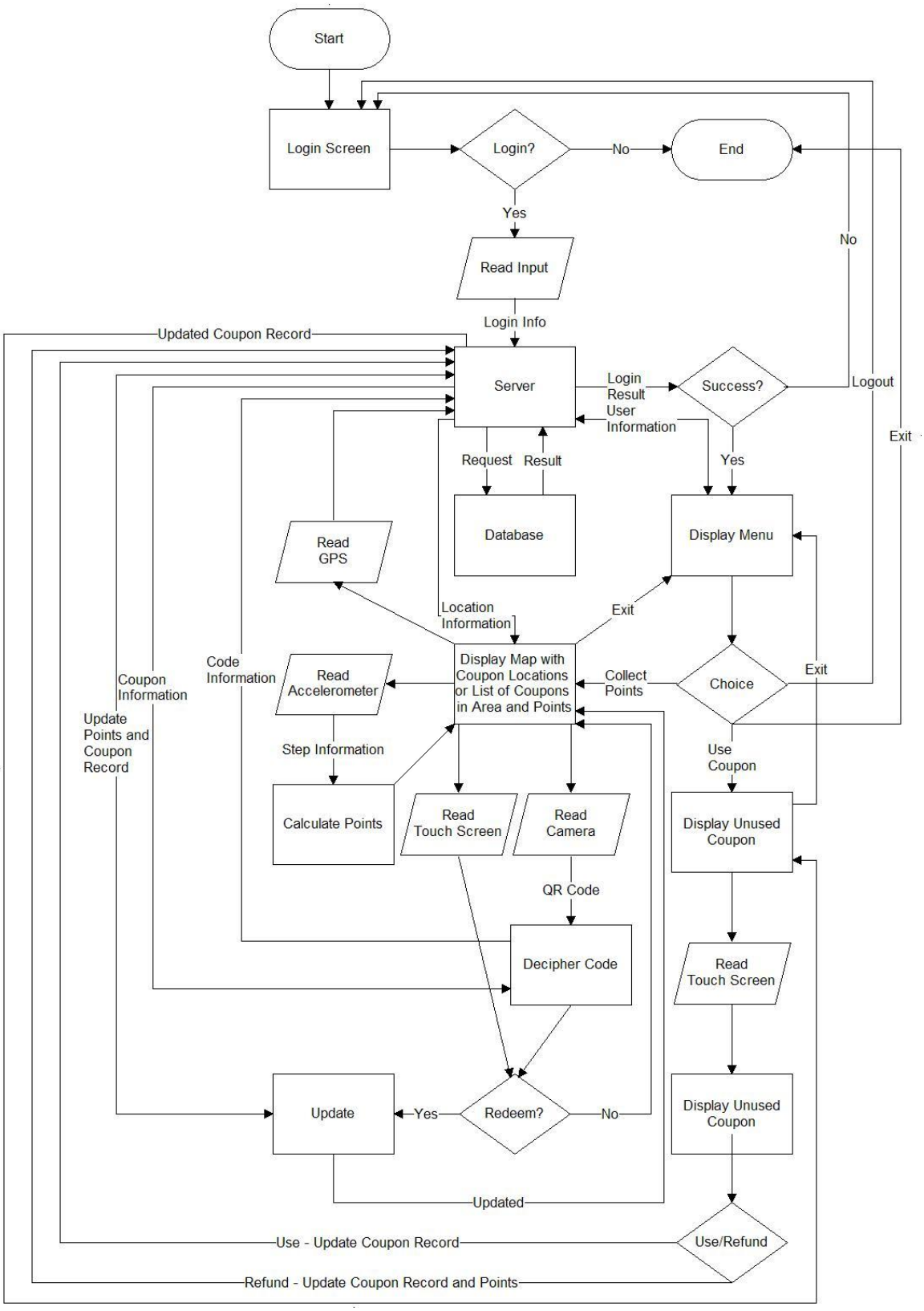
There are not a lot of variations for the database diagram because it has to hold the same type of information for each entity.

Data Flow Diagram Level 0



There isn’t any variation for the data flow diagram because it is a three tier architecture where the user interacts with the application or the website and information is sent to the server which handles requests to the database.

Flowchart


Start
Login Screen
Login?
No
End
Yes
Read Input
Login Info
Updated Coupon Record
Server
Login Result
User Information
Success?
Logout
No
Exit
Request
Result
Yes
Database
Display Menu
Read GPS
Location Information
Exit
Code Information
Read Accelerometer
Display Map with Coupon Locations or List of Coupons in Area and Points
Collect Points
Choice
Exit
Coupon Information
Update Points and Coupon Record
Step Information
Use Coupon
Calculate Points
Read Touch Screen
Read Camera
Display Unused Coupon
QR Code
Decipher Code
Read Touch Screen
Update
Yes
Redeem?
No
Display Unused Coupon
Updated
Use/Refund
Use - Update Coupon Record
Refund - Update Coupon Record and Points

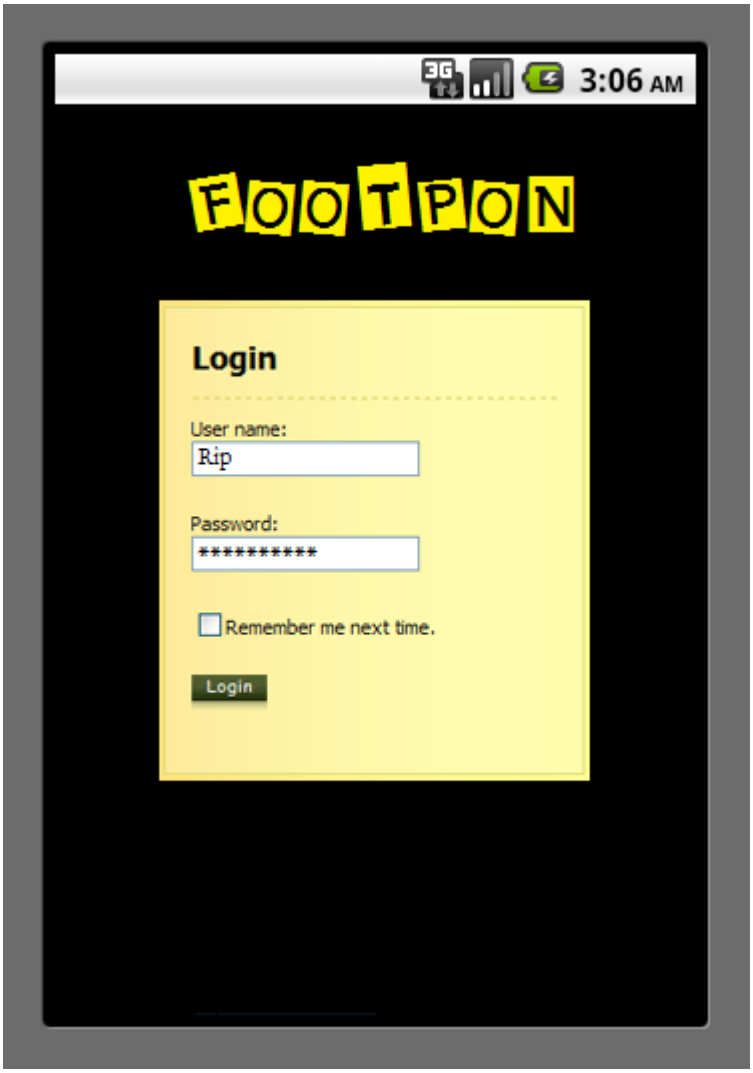
This diagram shows in detail how the user will interact with the application and how information will flow within the application and to the server and database. There are many variations for this diagram, but this one was chosen because it fulfills all necessary functions and lessens the strain on the server and the device.

The strain on the server is lessened because it is only contacted when it is necessary. For example, points are not updated immediately with the server. If the points were updated constantly, this would put more strain on the server due to the increased traffic and would deplete the device's battery faster. The downside to this is that the user will lose their current progress if their information is not uploaded to the server, but this should only happen if the user exits improperly or if their device powers off while using the application.

The strain on the device is lessened further because it uses as few of its capabilities as possible at the same time. For example, if the device is using the GPS to retrieve the location information, it is not reading the accelerometer and calculating points.

Screen Design

Login View



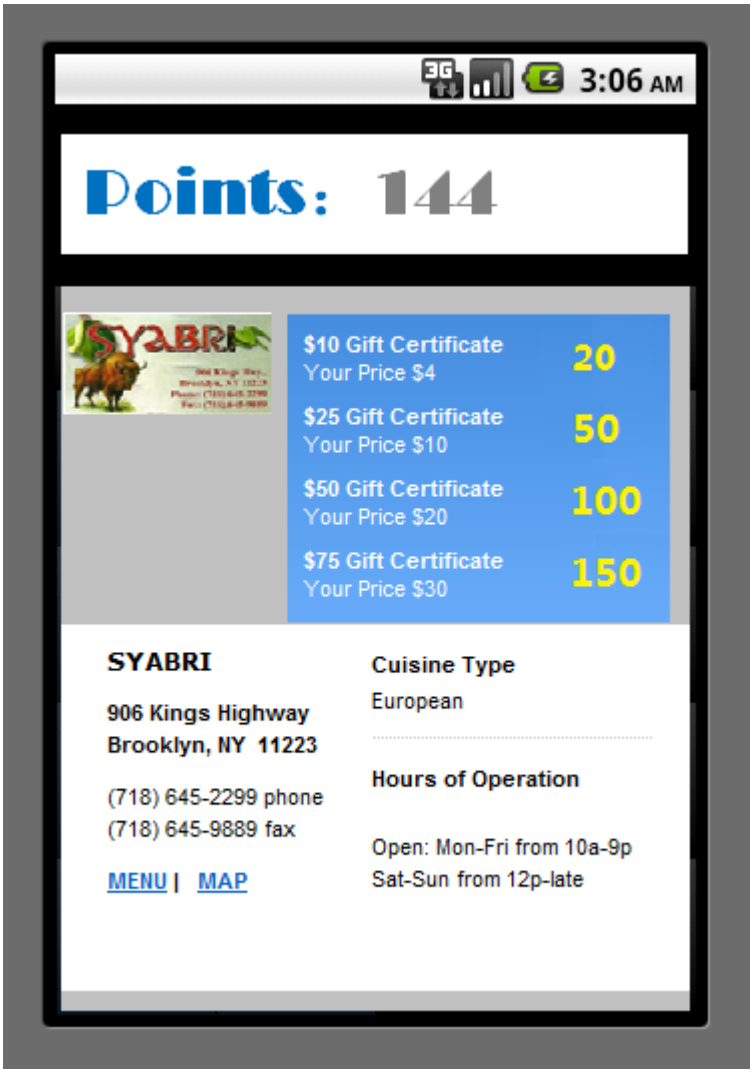
Map one (shopping street; open)

1. Mark places that offer coupons with symbols such as "**%**".
2. The picture contains basic coupon information that will show up after the user touches that symbol.
3. If the user touches the picture again, it will navigate to the coupon's redeem screen with detailed information displayed.

Map two (block; open)

Map three (shop; inside)

Detailed coupon screen



1. Shows up after the user touches the picture on the map screen.
2. The user can go the redeem screen by touching a particular coupon or back to the map screen.

Redeem coupon screen

Use coupon screen