Capstone Stage 1

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gDoodles

Description

gDoodles is a reference app for retail developers that showcases how to leverage Googles' tools in order to build a well crafted shopping app. In gDoodles the user can look through categories of Google Doodle stickers, save their favorite stickers, and simulate a purchase.

Problem:

Building a successful retail app requires a strategic yet simple UI, utilizing interactions in a useful way for the user, creating a seamless checkout process, as well as being able to market

the app effectively. There's dozens of methods and tools to accomplish these tasks with varying degrees of difficulty and effectiveness.

Solution:

gDoodles showcases the best practices of building a retail app. It showcases how to utilize Material Design to build a user experience that clearly allows the shopper to browse, favorite items, and checkout. Using Firebase, the app is an example for how you can leverage user interactions to customize aspects of the app for the user. Rather than typing in credit card numbers, or logging into a 3rd party payment solution gDoodles guides the user through an easy checkout process.

Solutions Featured:

- Material Design
- Firebase
    - Play Services - Google Login
    - Play Services - Google Analytics
- Android Pay

Intended User

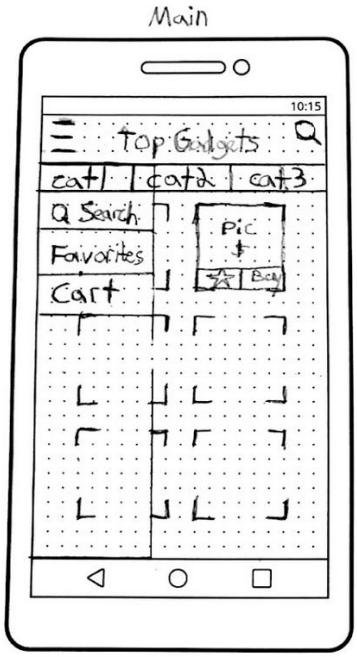
The intended user is either a developer with an existing app looking to improve conversion rates, or for new developers looking to build a retail app from scratch.

Features

- Browsing Doodle stickers by Popular, Recent, and Vintage categories
- Look at detailed information about each Doodle
- Save favorite Doodle stickers to a favorites section
- Add Doodle stickers to a shopping cart
- Checkout shopping cart items

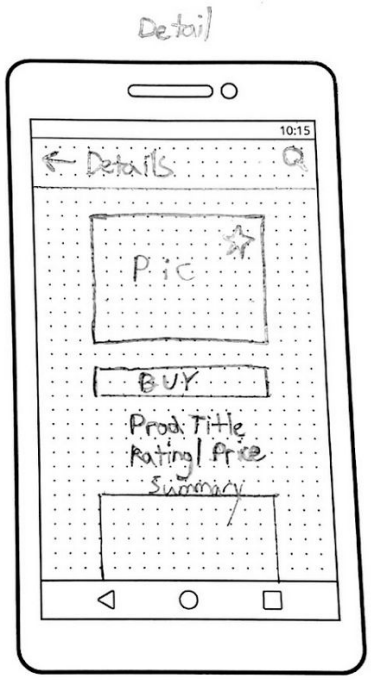
User Interface Mocks

Screen 1 - Main View



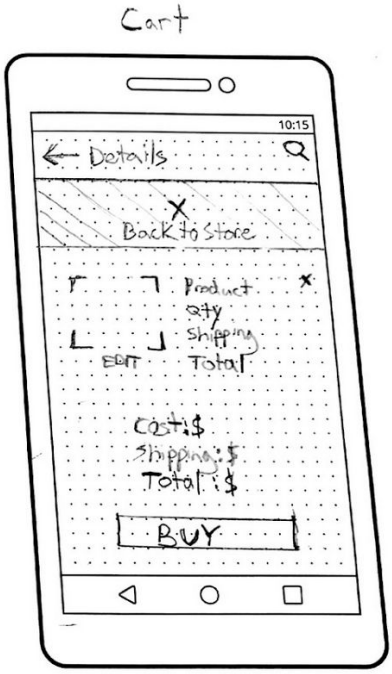
In the main view there are three navigation tabs with Doodle categories for most popular, recent, and vintage as well as a Drawer with various functionalities such as a Favorites section of Doodles selected by the user and a Shopping Cart.

Screen 2 - Detail View



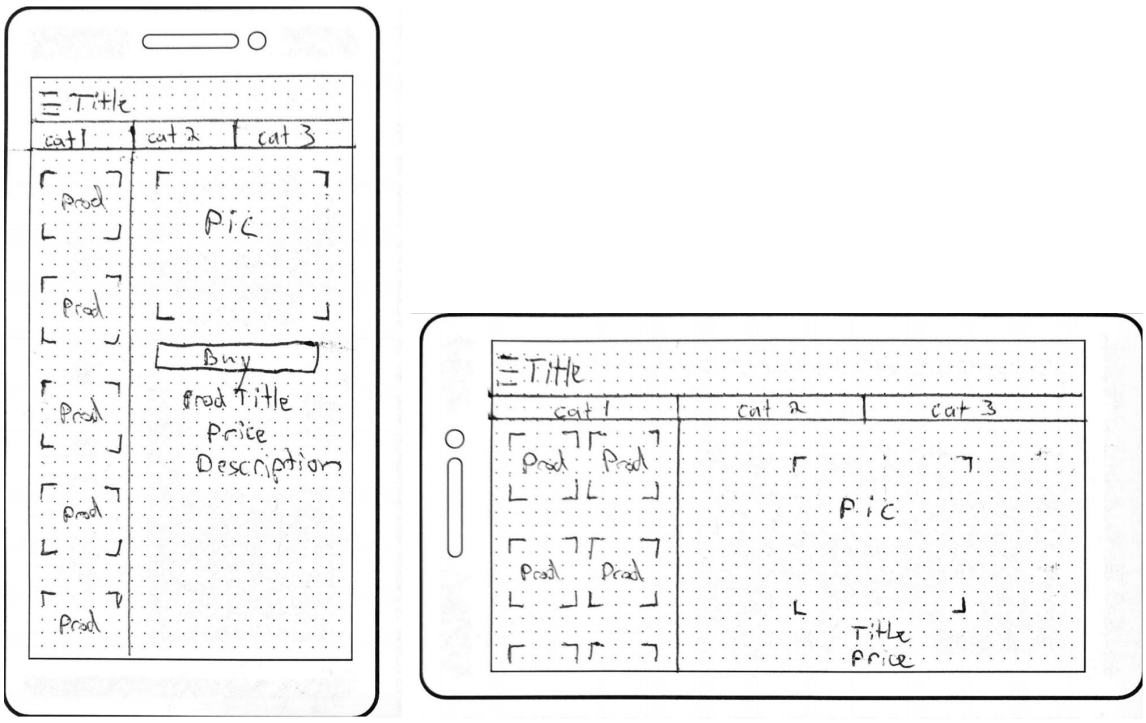
Each Doodle will have a detail view that contains a larger image, title, date released, and description of the doodle with buttons to add the doodle into the saved favorites or shopping cart.

Screen 3 - Cart View



The shopping cart shows each Doodle in a list with the doodle picture, quantity, and cost. The user can adjust the quantity and remove items. At the bottom of the cart the price and quantity totals are displayed and there is a large button to checkout.

Tablet Views



The tablet views use utilize the full space of the device in both vertical and horizontal orientation. In vertical orientation the corresponding Doodles for the category are displayed on the left hand side one per row, and in horizontal orientation two per row, with the majority of the screen showing the Detail View.

Key Considerations

Data Persistence

Data is handled via the Firebase server. Once the call to the Google Doodles Server is made the Plain Old Java Objects (POJOs) of Doodles will be sent to Firebase for each corresponding view (popular, recent, vintage). Each view will query the Firebase objects for the corresponding category. When Doodles are favored and/or added to the shopping cart they will also be added to a new Firebase object for either favorites or the shopping cart. Caching will be used for all of the UI data that needs to be offline.

Corner UX Case: Empty Favorites / Shopping Cart

The user will see a message to add Favorites or Checkout items if either are empty.

Libraries

- AppCompat → Adds support for the Action Bar user interface design pattern. This library includes support for material design user interface implementations.
- Design → Material design components to all developers and to all Android 2.1 or higher devices. You'll find a navigation drawer view, floating labels for editing text, a floating action button, snackbar, tabs, and a motion and scroll framework to tie them together.
- Picasso → Handling ImageView recycling and download cancelation in an adapter, complex image transformations with minimal memory use, and automatic memory and disk caching.
- CardView → Adds support for the CardView widget, which lets you show information inside cards that have a consistent look on any app. These cards are useful for material design implementations, and are used extensively in layouts for TV apps.
- CircleImageView → Adds support for Circular ImageView component.
- Firebase → Store & sync data with a NoSQL cloud database. Data is stored as JSON, synced to all connected clients in realtime, and available when the app goes offline. Authenticate users with email & password and Google.

Next Steps: Required Tasks

Task 1: Build Main View

1. Build DrawerView → Create two sections in the menu that upon click will launch an intent for a Favorites and ShoppingCart Activity.
2. Build Navigation Tabs nested within DrawerView → Create three sections in the Main Activity that will launch a new Fragment for each Doodle category (popular, recent, vintage).

Task 2: Return Data From Server / API

1. Manually build URL in text editor and test in Chrome.
2. Build Service Class that contains AsyncTask building URL calling Server that returns JSON data.

Task 3: Store Data Returned From Server / API

1. Forloop through String JSON response from AsyncTask and create Doodle POJO and add to Firebase.

Task 4: Display Data in the Main Views

1. Create RecyclerView and RecyclerAdapter for Popular, Recent, and Vintage Fragments that connects Firebase Objects to the UI.

Task 5: Build Detail View

1. Create onClickListener in onBindView of RecyclerAdapter to launch Activity for Detail View.
2. Build detail view xml including all relevant Doodle info.
3. Create favorite and shopping cart buttons
    a. Buttons accurately reflect current status for particular Doodle (ie: Not Favorited/Favorited, Not Added to Cart/Added to Cart).
    b. When user clicks button Doodle is added to Firebase Object for Favorite/Shopping Cart.

Task 6: Build Favorites and Shopping Cart Views

1. In Favorites and Shopping Activities implement RecyclerView and RecyclerAdapter connecting to corresponding Firebase URL.
2. Use LinearLayout RecyclerViews
    a. For Favorites have image take up entire row.
    b. For Shopping Cart show circular image of doodle on left, with title, price, and quantity on the right hand side.

Task 7: Add in Deferred User Login And Utilize Data from Firebase Analytics

1. Use Firebase to create User Login when user adds item to Favorites or Shopping cart.
2. When logged in the Popular, Recent, and Vintage views show items Favorited or Added to the cart at the top of the view before other Doodles.

Task 8: Build Splash Screen When App is Opened First Time

1. Splash screen explains how to use the Google Doodle shopping app.
2. Provides optional ability to Login.

Task 9: Refactor MainActivity for Tablet / Large Screen