



Application Development for Mobile and Ubiquitous Computing

Seminar Task - Adaptation Concept Presentation

Group: 18

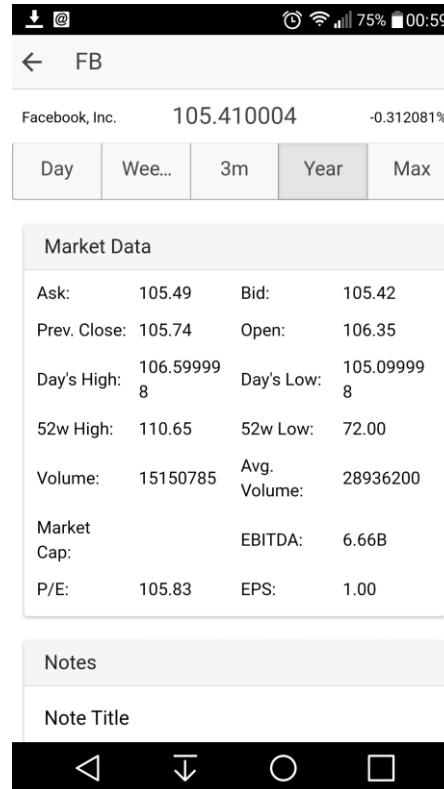
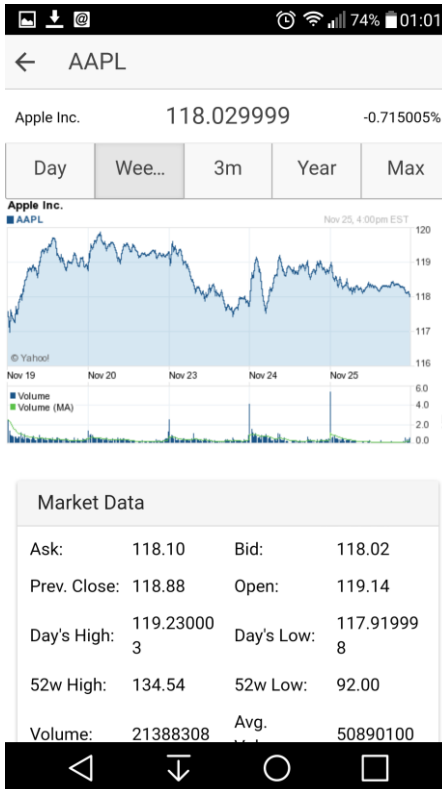
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Dresden, 18.12.2015

- **StockMarkt**

- Stock market portfolio application
- Analyse and track Stock prices
- Search for particular Stocks indices
- Create a portfolio of Stocks you want to track
- Add necessary notes, comments for the stock
- Use friendly graphs for the historic stock data for predictions





1. Make a Call to Yahoo Finance API with AngularJS with required parameters
(stock code, pricing, volume Market data)

2. Fetch the data from the API for specific parameters for particular stocks based on portfolio.

Stock code: AAPL

Stock name: Apple Inc.

Body Cookies Headers (13) Tests (0/0) Status 200 OK Time 157 ms

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3. The PhoneGap framework displays the data responsively as per the screen size.

4.. User will be displayed the stock performance chart details and can check for particular timeframe.

5. The user is now able to swipe through the fetched data and analyse the performance of the stock in the portfolio by adding specific notes/comments.

- **Form Factor Challenge**

Context : detect device size

Adaptation:

- Adaptation to different screen sizes for both iOS and Android phones
- Semantic grid layout styled using custom css media queries

- **Usability Features**

- Ease of use to search for stocks by means of stock codes
- Interactive analysis graph of stock performance for certain timeframe

- **Offline/Network challenge:**

Context: Ability to detect if app has/doesn't have connectivity to internet using Angular plugin ngcordova-network

Example Response:

```
document.addEventListener("deviceready", function ()  
    { var type = $cordovaNetwork.getNetwork()  
    }
```

Notify the user when there is a change in the connection type or when there is loss of connectivity.

Returns Connection type Object value as follows:

Connection Type	Description
Connection.UNKNOWN	Unknown connection
Connection.CELL_2G Cell	2G connection
Connection.CELL_3G Cell	3G connection
Connection.CELL_4G Cell	4G connection
Connection.NONE	No network connection

Adaptation:

- Cache User stock data using angular cache to give faster load times and to provide offline usage
- Store user data (stocks followed by user, user notes) in local storage always and sync with remote database in firebase when user is online
- Use local data in case of no connectivity
- Update Cache when user refreshes the view in app or periodically after cache time to live (measured in milliseconds) - default value set to 3600000ms

- **Connectivity challenge** (Reduce network traffic, Increased load time)

Adaptation of Application data:

- Reduction: Compute the complex stock data into user readable values using math shrink JavaScript at client side in real time.
- Transformation
Structural: Convert xml to JSON RSS feed data on the fly using xml to JavaScript as JSON has easier data processing and reduced bandwidth usage than XML.
- XML structure received from Yahoo news feed is converted JSON format at Client side.


```
1 {
2   "query": {
3     "count": 1,
4     "created": "2015-12-18T09:53:24Z",
5     "lang": "en-US",
6     "results": {
7       "quote": {
8         "symbol": "YHOO",
9         "Ask": "33.27",
10        "AverageDailyVolume": "17218500",
11        "Bid": "32.90",
12        "AskRealtime": null,
13        "BidRealtime": null,
14        "BookValue": "29.94",
15        "Change_PercentChange": "-0.55 - -1.63%",
16        "Change": "-0.55",
17        "Commission": null,
18        "Currency": "USD",
19        "ChangeRealtime": null,
20        "AfterHoursChangeRealtime": null,
21        "DividendShare": null,
22        "LastTradeDate": "12/17/2015",
23        "TradeDate": null,
24        "EarningsShare": "0.25",
25        "ErrorIndicationreturnedforsymbolchangedinvalid": null,
26        "EPSEstimateCurrentYear": "0.59",
27        "EPSEstimateNextYear": "0.57",
28        "EPSEstimateNextQuarter": "0.14",
29        "DaysLow": "33.11",
30        "DaysHigh": "34.08",
31        "YearLow": "27.20",
32        "YearHigh": "51.68",
33        "HoldingsGainPercent": null,
34        "AnnualizedGain": null,
35        "HoldingsGain": null,
36        "HoldingsGainPercentRealtime": null,
37        "HoldingsGainRealtime": null,
38        "MoreInfo": null,
39        "OrderBookRealtime": null,
40        "MarketCapitalization": "31.38B",
41        "MarketCapRealtime": null,
42        "EBITDA": "477.08M",
43        "ChangeFromYearLow": "6.03",
44        "PercentChangeFromYearLow": "+22.17%",
45        "LastTradeRealtimeWithTime": null,
46        "ChangePercentRealtime": null,
47        "ChangeFromYearHigh": "-18.45",
48        "PercentChangeFromYearHigh": "-35.70%",
49        "LastTradeWithTime": "4:00pm - <b>33.23</b>"
```

- Sample calling request from Yahoo API:

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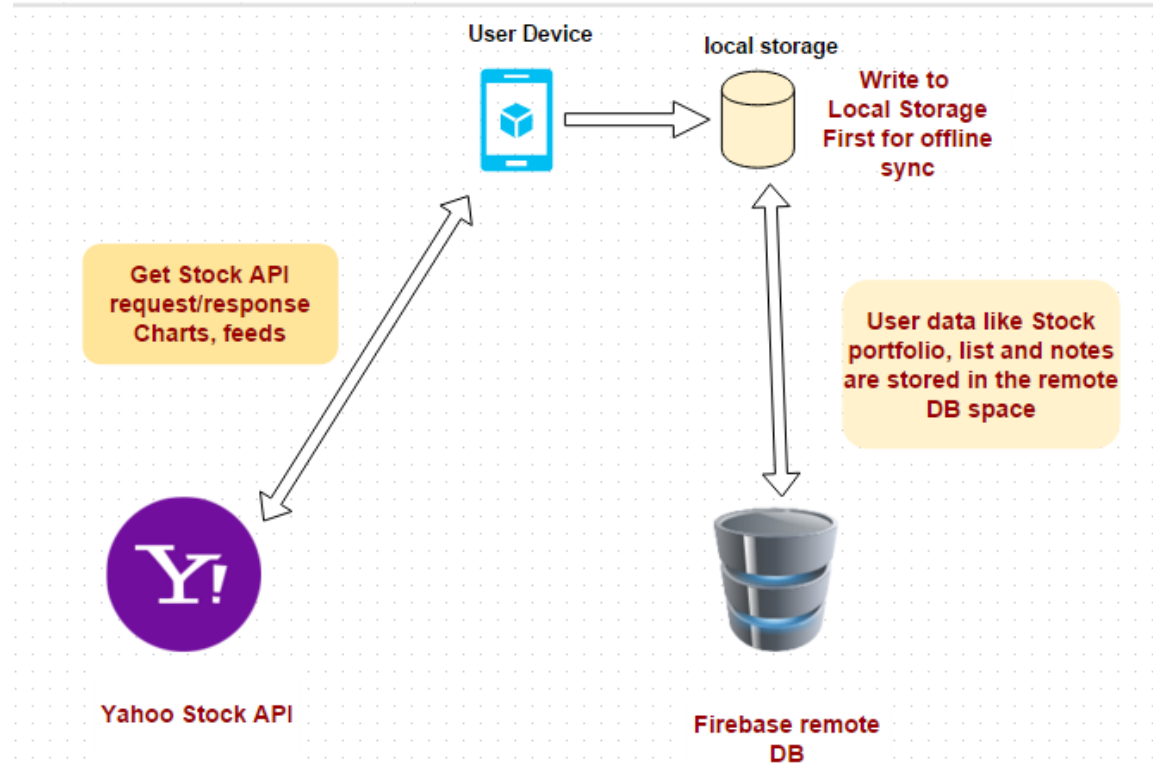


- Sample Yahoo API response:

Example:

Fetch data for Apple Inc. Stock and historic charts about the stock with details. User profile details are stored in Firebase DB.

```
{
  "query": {
    "count": 1,
    "created": "2015-12-19T09:56:20Z",
    "lang": "en-US",
    "results": {
      "quote": {
        "symbol": "YHOO",
        "Ask": "33.60",
        "AverageDailyVolume": "17162400",
        "Bid": "32.95",
        "AskRealtime": null,
        "BidRealtime": null,
        "Currency": "USD",
        "DaysValueChangeRealtime": null,
        "StockExchange": "NMS"
      }
    }
  }
}
```



- Open tasks
 - Offline challenge - Changes are to be synced with the Firebase db server
 - Enhancements in User Interface for responsiveness
 - Bulk data testing for multiple stock quotes and charts.