Gamecock Mobile

Increasing Student Engagement Through Mobile Applications

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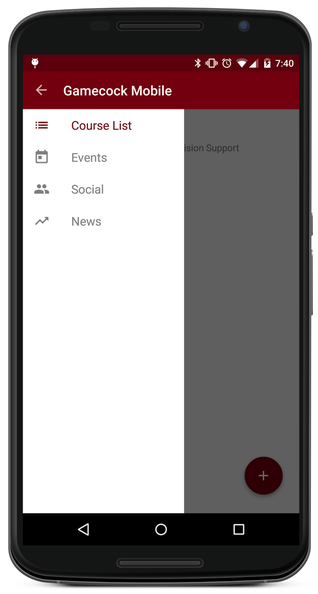
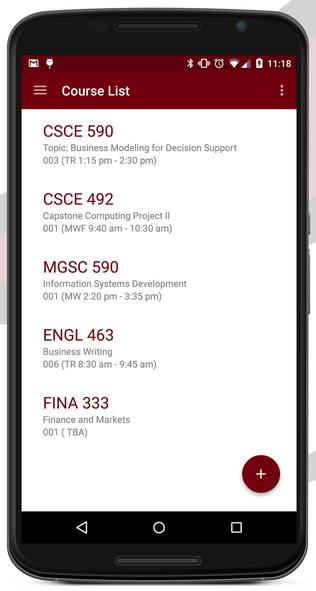
Introduction

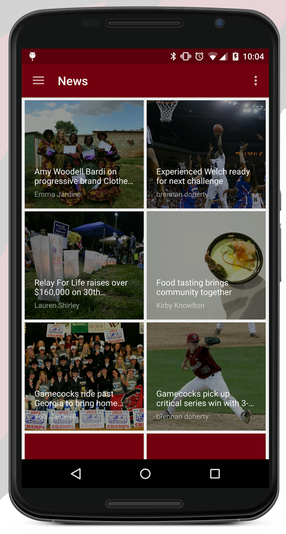
Currently, there is a major lack of mobile applications that provide college students with a comprehensive assortment of their university's resources. Gamecock Mobile is a prototype Android app that solves this demand by incorporating many university resources that improve both organization and student engagement. The app utilizes web scraping, relational database management, and data parsing to provide features that include: course schedule management, student calendar, and Daily Gamecock top stories. All mobile apps must employ good design in order to provide both usability and appeal to the app. Gamecock Mobile incorporates the latest Material Design elements to provide an overall enjoyable experience to the user. The main goal of this project is to demonstrate different ways universities can provide mobile functionality to their student population and kick-start the improvement of the University of South Carolina's mobile presence.

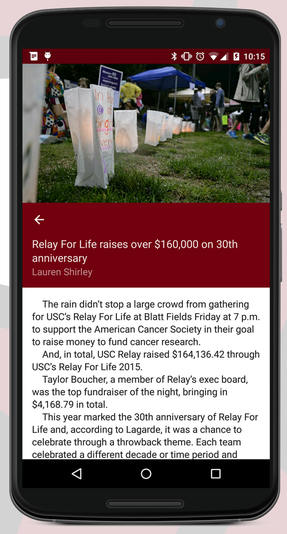




Application Development

Gamecock Mobile was developed for the Android operating system and all development was done using Google's new integrated development environment (IDE), Android Studio. Android development utilizes the Java programming language paired with a small amount of XML. Last year, Google released a new version of their operating system called Lollipop. Lollipop features Google's new Material design which is a comprehensive guide for visual, motion, and interaction design across all platforms. Gamecock Mobile features many of these new design concepts in order to provide a user experience that is both functional and appealing.





Data Collection

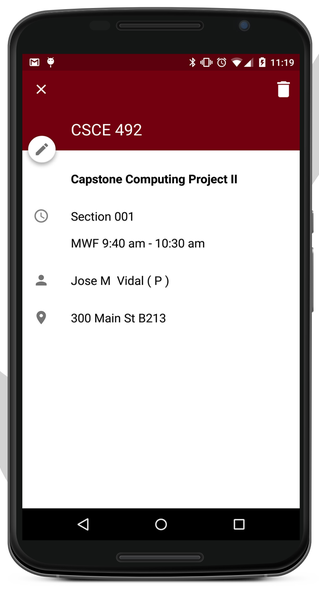
The app utilizes web scraping, relational database management, and data parsing to provide features that include: course schedule management, student calendar, and Daily Gamecock top stories. Using a web scraping Python program, developed by Dr. Jose Vidal, all course information is parsed from HTML (Figure 1) into JSON (Figure 2). This data is then retrieved from the server via a GET request and then stored in a SQLite database. The Daily Gamecock feature uses an RSS feed parser from the Daily Gamecock website and allows the user to browse articles and keep up-to-date on University activities.

```
<table class="datadisplaytable" summary="This table lists the scheduled meeting times and
    assigned instructors for this class..">
    <caption class="captiontext">Scheduled Meeting Times</caption>
    <tbody>
        <tr>
            <th class="ddheader" scope="col">Type</th>
            <th class="ddheader" scope="col">Time</th>
            <th class="ddheader" scope="col">Days</th>
            <th class="ddheader" scope="col">Where</th>
            <th class="ddheader" scope="col">Date Range</th>
            <th class="ddheader" scope="col">Schedule Type</th>
            <th class="ddheader" scope="col">Instructors</th>
        </tr>
        <tr>
            <td class="dddefault">Class</td>
            <td class="dddefault">9:40 am - 10:30 am</td>
            <td class="dddefault">MW</td>
            <td class="dddefault">Sumwalt College 305</td>
            <td class="dddefault">Jan 12, 2015 - Apr 27, 2015</td>
            <td class="dddefault">Lecture</td>
            <td class="dddefault">James Paul  O'Reilly (<abbr title="Primary">P</abbr>)
                <a href="mailto:oreillyj@email.sc.edu"target="James P. O'Reilly">
                <img src="/wtlgifs/web_email.gif" align="middle" alt="E-mail" class="headerImg"
                title="E-mail" name="web_email" hspace="0" vspace="0" border="0" height="28"
                width="28"></a></td>
        </tr>
```

Figure 1: HTML from Class Schedule Search site (https://ssb.onecarolina.sc.edu/BANP/bwckschd.p_disp_dyn_sched)

```
{
    "instructors": "James Paul  O'Reilly ( P )",
    "number": "101",
    "credits": "3.000",
    "semesteryear": "201501",
    "name": "Introduction to Computer Concepts",
    "section": "003",
    "days": "MW",
    "id": 6621,
    "dept": "CSCE",
    "location": "Sumwalt College 305",
    "time": "9:40 am - 10:30 am",
    "identifier": "201501CSCE101003"
}
```

Figure 2: JSON data created from the HTML using Dr. Vidal's web scraping program



Future Work

In the future, I plan to continue adding more features to the app including a bus schedule, Gamecock Athletics scores, and Carolina Dining menus. I also want to begin development on an Apple iOS version of this app in order to accommodate all students. Then I will begin to have users beta test the app in order to gain feedback on design and functionality because this app is for the students and should cater to their needs. The ultimate goal is to get the University of South Carolina on board with this mobile push, so that eventually students can do everything from register for classes or request football tickets, all from one easy-to-use mobile app.