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**MODS App: Otters At Play**

**Background**

The Museum of Discovery and Science is an institution that provides an exciting and educational service to visitors from all over the nation. As a part of their efforts to provide for and educate the Broward County community, they have taken the initiative to offer aspiring STEM students an internship opportunity to expand their knowledge in technological fields while developing academic mobile applications. These applications are intended to enhance the experience of the museum’s exhibits. Visitors can use the applications on the tablets provided by the museum to immerse themselves in the exhibits in a way never possible before. These applications offer a combination of educational information and interactive activities to keep visitors engaged in their scientific education.

At the Museum of Discovery and Science, the interns were split into groups with different objectives. Each group assigned themselves to one of the nine unfinished applications designed and programmed by the 2015 interns. Our group, consisting of Daniel Camps, Rasheed Miller, Jared Rice, and Charles Levine, decided to redesign and improve upon the Otters At Play application. We chose this application due to our shared interest in animal science and the desire to create an interesting app for the user. The otter exhibit has a lot of potential to spawn an interesting and engaging application due to the sheer popularity of the attraction and all of the enthusiasm it generates at the museum. Our group decided to tap into the potential of the attraction and created an educational, engaging, and entertaining application that visitors of all ages can enjoy. We accomplished this by focusing our energy and development time on interactive activities that enhance the information and research given by last years interns.

Our new activities added to the application include an interactive game, an exclusive behind the scenes video, and a camera filter that you can use to take picture of yourself to share with your family and friends. In addition to creating and implementing these new activities, we reduced the amount of information to create a smoother and easier to digest user experience. Various changes to the visual appearance of the application were also made to improve the experience of the user. However, we made it of utmost importance to not sacrifice the educational value of the application created by last years group, only to refine and improve upon it. The creation and implementation of our new and redesigned app took a total of three weeks of work at Florida Atlantic University, along with prior planning work at the Museum of Discovery and Science. Our work incorporated a wide variety of materials and methods to achieve our end goal of creating a cohesive and interesting app for visitors from all across the country.

**Methods**

Starting at the Museum of Discovery and Science, the interns had to get to know each other first. By the time groups were necessary, we had already established a connection and were more than thrilled to work with each other. Our main task at the Museum was to get familiar with our surroundings and then turn that familiarity to our chosen exhibit. We had Saturday classes at the Museum dedicated to work towards our final app and Tuesday sessions that were used to bring in guest speakers to spread their knowledge with us.We gathered information regarding our exhibit and used our laptops to store this information and come up with ideas in order to further improve on last years version of our app. We were also given homework assignments to get us more in touch with what we would be working on during the summer.

When we arrived at FAU, the expectations were very high. We were supposed to have all of our materials ready, and all groups were more than prepared for the task at hand. We were asked to make a Balsamiq mockup of our app, which is a flat computer generated display of what we plan to achieve in our app and how we plan to make it work. Presenting these made our ideas heard and allowed for constructive criticism to further aid us in our works. We were split into groups based on what we wanted to contribute to the app; Java, UI, and Graphics. Each position had specific instructions and jobs in their designated app. The various programs used to create the app through these positions include Photoshop, Illustrator, and Camtasia for Graphics students. Java and UI used things such as GitHub, Android Studio, and Stack OverFlow. We used these programs for about 2 ½ weeks, giving us time to get familiar with them and also get some work done inside of them. Each teams job was difficult, and no individual could slander another person’s struggle without trying it themselves first. When we were close to being done in the last week of the FAU course, we were asked to create a StoryBoard and shoot a Promotional Video showcasing our app and also our team. This video needed to include our names and jobs, the app running in the video, and credits at the end. Working on this video gave us a better understanding of editing videos and editing software such as Camtasia Studios because prior to this most of us had never even cut up a video to make it run smoothly.

On the last Friday of the program, July 29th, 2016, we made our presentations in front of judges from various backgrounds. We were asked to provide a 12 minute presentation including a demo of our app and playing our video for the judges and be prepared for a 3 minute Q and A period afterwards. It was very nervy for all of us but we made it through in the end. Many groups from this year made significant improvements over those apps from the previous year, leaving the judges in awe at the fact that this was done in only 3 weeks. Overall, it was a great experience and we all learned from it in more ways than one.

**Results**

<https://drive.google.com/open?id=0B8BoBer1OqM6cko4NVZmMEt0S1E>

To find out more about our app, click the link above to watch our Promotional Video!

**Discussion**

The previously demonstrated app, “Otters at Play”, is useful to the museum visitor in a variety of ways. Chief among them, the app is useful in providing visitors with information that would be inaccessible to them without the downloading of our app. For example, the app has personal bios for every otter found in the exhibit and it has a “behind the scenes” video that gives visitors information regarding the relationship between the otters and their caretakers. Furthermore, the app is useful to visitors as a source of entertainment. Embedded within the app, our team was able to develop both a simple yet engaging 2D game along with a trivia quiz which derives its questions from information presented elsewhere in the app. These two mediums of entertainment are aimed at enhancing the museum visitor’s guest experience as well as reinforcing newly learned ideas and concepts. In addition, the app “Otters at Play” also includes various scientific aspects that it teaches museum guests. For example, the app teaches museum guests of the anatomy of North American river otters, common threats to the safety and well being of the otter population, and the North American river otters place within their natural ecosystem. These scientific topics will expand the knowledge base of visitors regarding North American river otters and it will hopefully serve as a source of inspiration to limit threats to the otter population like pollution and human encroachment. With this phase of our internship behind us we now must look towards the future. It is the opinion of our group that in order to improve upon the app along with the overall guest experience the incoming group must accomplish the following tasks. Find a way to make learning about the anatomy of the North American river otter an interactive experience as opposed to having lines of text for the guest to read. Perhaps the next group of students can incorporate an interactive picture of an otter where the user can tap on a specific part of the otter and see a video explaining the necessity behind a certain anatomical feature of the otter. Also, we think it would be beneficial for the next group to improve upon the map feature of our app. Perhaps the incoming group can embed information into the map so that it shows locations of concentrations of North American river otters throughout North America. It is our belief that these improvements, if carried out successfully, will improve the overall quality of our app thus improving the overall quality of the experience the guest has when visiting the Museum of Discovery and Science.

**Conclusion**

We have made an Android application that uniquely complements the Museum of Discovery and Science’s otter exhibit by enriching the visitors’ experience and making the exhibit more interactive. This goal is achieved by delving into the advanced features offered by Android and implementing such things into our app such as fun games to play, a camera to share pictures with friends and easy-to-use graphics to make the app aesthetically pleasing and thus more captivating to the user. All the code and resources for our application are available on Github to be accessed for free to be modified and improved upon and hopefully to allow for further improvement of the museum through the limitless potential of technology.

**References**

**Link to Mock up:**

<https://github.com/MODS16Apps/Otters-At-Play/blob/master/Project%20Assignments/Project%20Assignment%201/ottm.png>

**Link to Github repository:**

<https://github.com/MODS16Apps/Otters-At-Play>

**Link to Promotional Video:**

<https://drive.google.com/open?id=0B8BoBer1OqM6cko4NVZmMEt0S1E>