Science, Technology, Engineering, and Mathematics (STEM) Summer Education Kit Grant

Santa Cruz County Secondary Education Coalition (SCCSEC)

Organization Mission Statement

The mission of the Santa Cruz County Secondary Education Coalition (SCCSEC) is to educate students in grades 9-12 in multiple disciplines to better prepare them for professional careers.

Grant

This grant aims to facilitate creative, hands-on learning to select students of grades 9-12 in STEM-related fields. Up to $5,000 may be offered to undergraduate students in STEM fields attending the University of California Santa Cruz and Cabrillo College. The main objective of this grant is to create project kits for 6-week long summer programs that will demonstrate a unique specialization in the STEM fields. Such projects will not be the sole focus of these summer programs, but they will serve as a central component.

A. Cover Page

Applicant Name: Armando Silva

Partner's Name (if applicable):	
Faculty Sponsor:	University of California, Santa Cruz
Project Title:	Rent-A-Dog
Total Grant $ requested	100.15

B. Project Title and Summary

Submit a descriptive Program Title.

Android Mobile Application to rent out dogs to the city of Santa Cruz!

Include a Program Summary describing your project in fewer than 300 words. Be sure to include how you intend to use the possible grant award as it relates to the Mission Statement of the Santa Cruz County Secondary Education Coalition.

The students will contribute to a solution of an ongoing problem not only in Santa Cruz county, but in many other states; which is what to do with stray dogs without a home. The project will teach students to develop an Android mobile application for Santa Cruz county to rent out these dogs. The application will consist of easy to use front-end software languages, such as Java and XML, however it will also include back-end languages, like MySQL. By using these simple, yet efficient languages, the students will learn valuable programming skills that will benefit not only themselves, but the community as well. This project will help the students give the community an accessible form of a mobile application to help rent out dogs.

C. Problem Statement

Describe the specific subject this project will address. Explain the central concept that you are attempting to teach through this project and why this knowledge or experience is valuable.

There has been a dilemma in many counties that dogs been caged in animal shelters without any daily activities. Without any direct solution to this continual problem, Rent-A-Dog will give an opportunity for stray dogs to find comfort in rented owners. As well, as technology continues to advance the students need to be aware of the new technologies that are available. The students need to be able to produce products that relevant to the modern day technologies. By programming this Android mobile application, it gives the students experience that are used outside of school and allows them to understand modern day technology.

D. Methods

Provide a clear description of your program kit and how you intend it to be put to use. Explain how you plan to demonstrate the success of your project. Provide relevant details on any necessary hardware, software, or other equipment.

> The programming kit is about the students using software programming languages to produce a mobile application for the city of Santa Cruz to rent out dogs. These students will use the software languages, Java, XML, and MySQL, to develop the application and download it onto Google Play store. Once the product is fully functional and tested, we will be able to demonstrate the success of the project through Google play.
>
> To further explain the details of the project, first the students will be downloading the Android Studio IDE, which will offer them a platform to code their application. In order for them to use Android Studio, they must also download Java Development Kit 8 and allow for 2 GB of available disk space. Once they successfully download Android Studio package, they should familiarize themselves with the packages and APIs Android Studio has to offer. Once the students download and familiarize themselves with the functionalities of Android Studio, they must implement a graphical interface for the users to use. These functionalities will be written in Java and handled by XML in order to translate into the activity pages Android devices use to display for users. Once the interface has been set up, then the students will be working with the back-end information. This information will consist of user log-in, email, and dogs that are offered to be rented. The students will use MySQL, using POST and GET requests, to input and store this valuable information on to the Google cloud database.
>
> Once both ends of the project are finished, students will need the Samsung phones, provided in the kit, to download the software mobile application for testing. Here, students will find software bugs that had not been found while statically coding on Android Studio IDE. Once students have secured as many flaws as possible, we will upload the mobile application on to Google Play, where it is to be ready for users to download and use the application.

E. Expected Deliverables

What, precisely, will you deliver to SCCSEC once your project is completed? This should include both any physical components and an outline of any instructions or teaching plan that would accompany your project.

I am offering an organized and structured project on Android mobile applications. Once the project is completed, the deliverable product is an application that can be downloaded through Google Play store. As for the students, they will be trained using programming languages in Java and MySQL, which will be valuable experience. The students will also familiarize themselves with new functionalities that Android Studio offers, which benefits them for other projects.

Week	Project Goal	Person Responsible	Completion of Date
1	Help students setting up Android Studio and teaching them the basic functionalities.	Instructor	Week 1
2	Allow the students to expand the skeleton code for the mobile application and help guide them fix errors in their code.	Instructor	Week 3
3	Assisting students to use the Firebase database to store information.	Instructor	Week 4
4	Help students out with their finalized application and fix any critical errors.	Instructor	Week 5
5	Test the application before demoing.	Students	Week 5

F. Timeline

Provide a detailed schedule for each element of your project.

Week	Project Goal	Person Responsible	Completion of Date	
0	Download Android Studio IDE and Java Development Kit, and order parts listed in G section below.	Instructor	Week 0	
2	Program a skeleton product of mobile activities for students to use.	Instructor	Week 1	
3	Set up the back end database on Firebase	Instructor	Week 3	
4	Test and debug	Instructor	Week 4	
5	Upload to Google Play to demo and present.	Instructor	Week 5	

G. Itemized Budget and Budget Justification

In table format, list the cost and source of each item in your budget. Include the exact item, quantity, vendor, price per unit, and any sales tax.

Part	Supplier	Unit Price	Quantity	Total Cost
Samsung Galaxy Centura Android Prepaid Phone	Amazon	$12.99	5	$64.95
Google Compute Engine Cloud (per GB/Month)	Google	$2.04	5	$10.20
Google Play	Google	$25	1	$25
Total				**$100.15**

Explain the necessity of major items listed in your budget, and describe the disposition of any purchases after the program has ended.

In order for students to debug and test their code, they will need to use an Android device that is compatible with the version SDK. By providing them with Samsung Galaxy Centura Android Prepaid phone, the students will be able to achieve this. Secondly, in order to access or insert data into a database, we must pay for a cloud database. This makes the project much more efficient and easier for students to program on, in case a crash was to ever occur. Lastly, any application has a cover fee in order to upload it for others to download. Google play's cover charge is $25, this will help students demo and display their work.

H. Relevant Experience

Describe any personal history that qualifies you to design this project, including job experience, educational background, past projects, and relevant skills.

I have background in mobile applications; I have taken relevant courses during my undergraduate studies at the University of California Santa Cruz. Along with the course I have taken, I have been experienced in teaching Introduction of Computer Science to students; where they learn the basic principles of programming.

I. References

(n.d.). Retrieved May 3, 2016, from
http://rentcats.pythonanywhere.com/welcome/default/index