Software Engineering Final Exam

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**PERCUSSION PAL: MAINTENANCE PLAN**

**BeatLuvers Inc. May 2016 Report**

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**INTRODUCTION**

The purpose of this document is to detail a plan of maintenance for BeatLuvers Inc.'s “Percussion Pal,” (hereon identified as “the Pal”) a web-based drum machine inspired by the Roland TR-808 percussion kit. BeatLuvers' ambition is to reach a wide audience of professional and amateur musicians with this product by providing high-quality samples of common musical instruments with a timed tempo kit. By providing a non-physical replica of the TR-808, BeatLuvers gives musicians a drum kit that is available wherever they go, so long as they have internet access. With the Pal, BeatLuvers aims to usher in a new, younger generation of musicians who may be skeptical about using a physical drumkit made three decades ago, and may be more attracted to a digital version of the timeless instrument. This document will explain the various costs and professionals that will be required to maintain the Pal, as well as plans of action for its maintenance.

**BACKGROUND**

BeatLuvers is a privately-owned software development firm based in Lawrence, Kan. The founding fathers of the company are Audrey Evans, John McCain, Hari Ramanan, and Alan Wang. The fathers are undergraduate students studying various disciplines of engineering at the University of Kansas. BeatLuvers has diverse experience in software development, working with an array of programming languages and IDEs. The company’s most recent project was the development of a console-based alarm clock, with a fully functioning year-long calendar and stopwatch and timer functions.

The reason for BeatLuvers’ original formation could be best be given as necessity in order to complete group projects for an upper level computer science course at the University, but the company prefers to believe that its formation was inspired by the legendary computer scientist Dr. J.W. Gibbo, who taught the company’s founding fathers various concepts in software engineering. BeatLuvers fully intends to continue with the development of innovative and aesthetic applications for its loyal customer base.

**COSTS**

At the time of initial deployment of the Pal, the core staff on the project consisted only of web developers(1) and web designers(2). These positions will be retained, mostly for the purposes of modifications to the product. Beyond this, the company has decided that the following positions are vital to the longevity of the Pal: An accountant(3), to manage company finances; a part-time secretary(4), who will assist in day-to-day activities at the company office at the discretion of the developers; a marketing consultant(5), whose aim will be to increase awareness of the Pal; and a musical consultant that specializes in percussion(6), who will assess the technical validity of the Pal. Additionally, the team has foreseen the following miscellaneous costs in maintaining the product: rent for office space and equipment (7), costs of hosting a server (8), as the company's current free domain hosted by the University of Kansas Department of Electrical Engineering and Computer Science (eecs.ku.edu) will no longer be available once team members graduate from the department, and costs to distribute the application on the Apple App Store (9). The above discussed costs are listed in the table below.

**Table 1:** List of foreseeable costs in maintenance of the Pal.

|  |  |
| --- | --- |
| **STAFF POSITION/MISC. COST** | **SALARY/PRICE (in dollars per year)** |
| Web Developer (2) | 63,000 |
| Web Designer (2) | 50,000 |
| Accountant | 46,000 |
| Part-time Secretary | 15,000 |
| Marketing Consultant | 20,000 |
| Musician Consultant | 10,000 |
| Office space rent | 2,400 |
| Server hosting | 20 |
| Web hosting | 12 |
| App Store Developer Fee | 99 |
| **Total** | 319,531 |

**MARKETING**

Effective marketing will be vital in making the Pal a worthwhile business venture. It will be the responsibility of the marketing consultant to spread awareness of the Pal to its target demographic. This includes plugs for the product on various music industry websites, such as guitarcenter.com, as well as more affordable ads on the websites of local radio stations and local brick-and-mortar drum stores. Additionally, with the help of user data on social media websites, BeatLuvers hopes to advertise to musicians and music fans via Facebook and Twitter.

**MODIFICATION**

Modification of the product is an inevitable process that will be necessary to meet the demands of customers as the life cycle of the Pal progresses.

**Analyzing Customer Requests**

Customer requests are a major reason to make modifications to the product; among the potential requests that the company expects are a wider selection of instruments on the machine, more functionality from the knobs on the user interface, a wider array of tempo options, as well as the ability to save and compile a multitude of custom-made beats. These features can be implemented by the team’s web developers, who have experience implementing similar features in the original product. For the addition of new instruments to the panel, developers will need to retrieve new sound files but will be able to implement these files in a similar manner as before.

Customer requests will be routed from the customer to the product owner; the owner is then responsible for disseminating the details of the customer request to the team’s developers. As developers create new functionality for the product, available test engineers will have the responsibility of writing unit tests for each new module of the application. It is important to plan for adequate time for both development of new aspects as well as testing of these features before the new product is deployed.

**Transition and Implementation**

As modifications are made it will be important to abide by the agile methodology, with implementation of new features to the product made on a sprint-by-spring basis. Regular scrum meetings will be necessary during periods of modification, and each member of the team will be responsible for a set amount of work during the sprint. The product owner will be responsible for being aware of the product backlog, and ensuring team members are regularly “burning down” their workload throughout the sprint.

**Rejection of Requests**

It is important for the team to keep in mind that there will exist customer requests that are too large or complex to handle, or simply lack the potential revenue to be seen as worthy of pursuing. As the product owner confers with the team, it must be taken into consideration whether the potential modification is a worthwhile business venture based on the resources available. For example, a request for a new instrument to be available on the Pal would be a request that the company should be fully be capable of fulfilling, and the monetary reward would likely justify its implementation due to potential new customers that this feature could attract. On the other hand, a request for a Pal with a picture of Joe Biden on the temp knob would, aside from being a ridiculous request, probably not bring the revenue to warrant its implementation.

**PERCUSSION PAL Premium**

The company currently has plans underway to release a premium version of the Pal for paying customers. A premium version would be highlighted with enhanced music production ability with respect to tempo and instrument choice. Premium would also provide higher quality samples of the instruments available. A premium version would reward paying users with significantly less or no advertising at all. Due to the increased potential cost of maintaining a premium version, it would be important to ensure that the revenue generated from paying users is greater than the lost advertising revenue.

**RETIREMENT**

The Percussion Pal, like the drum machine from which it was inspired, is seen as timeless musical technology; its predecessor, the TR-808 drum kit has been used by hundreds of A-list musicians over the past three decades. However, as with all products, it is important to forecast what should happen if the product’s customer base should deteriorate and it is no longer viewed as economically viable. In all likelihood, there will come a time when BeatLuvers will no longer consider the Pal a worthwhile venture. Should this happen, there are parts of the project that may be worth archiving. For example, sound files used for each instrument ought to be saved, as they could be used in the implementation of a future project. The framework that is used to play the sound files is also an important codebase should the company choose to pursue another similar project. Portions of the code that were highly Pal-specific include the styling of the application, and likely are not worth archiving.

Regardless of when the retirement process is to begin, it is the responsibility of the company to notify remaining users well in advance of retiring the product.

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Note: This source was used as a guideline for writing a software maintenance plan. Not all parts of the template were used as they do not all apply in this situation.