

Project Whitekey

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Table of Contents

1. Executive Summary	Pg 3
2. The Vision	Pg 4
3. Gap in the Market	Pg 4
4. Meeting the Market's Needs	Pg 5
5. Implementation	Pg 5
6. The Problems	Pg 6
7. The Solution	Pg 6
8. We Provide the Solution	Pg 6
9. Industry Need for our Technology	Pg 7
10. Market Analysis	Pg 7
11. Primary Market	Pg 7
12. Market Size	Pg 7
13. Secondary Market	Pg 8
14. Competition	Pg 8
15. Marketing Strategy	Pg 8
16. Developing Strategy	Pg 10
17. Barriers	Pg 10
18. Critical Risks	Pg 10
19. Customer Interviews	Pg 11

1. Executive Summary

In this day and age, millions of people have adopted the smartphone and tablet computer into their inventory of everyday electronics. As a result, there has been an increasing market for mobile applications, or “apps”, that have been a driving force for sales of these devices. It is not uncommon to see some apps with over ten million downloads in a variety of genres (e.g. Entertainment, Utility, Music, Business). Furthermore, many apps have adopted a sales strategy of charging a very low price (.99 cents), reducing the cost on the user. Thanks to these low prices and a large audience, the app development business allows for considerable revenue.

However, the app stores of each platform are extremely crowded in most categories. Not many apps are able to turn much profit because they are built poorly, don’t perform well, and a lack of standout features when compared to their competitors. Users expect the same caliber of quality from a mobile application that they expect from their desktop cousins.

Our target market is the Android tablet space, which is currently lacking a large number of dedicated applications. Google Play (the service used to distribute applications to users of Android) does not have the same market share as its competitors, meaning many apps in Google Play exist elsewhere. Although Android apps for phones will scale well to tablet sized displays, a dedicated tablet application is better equipped to take advantage of the extra screen real estate that these devices have to offer. Our application will be designed to appeal to users who are looking for quick entertainment, and are curious about music. Because of their low price points, many people will purchase apps on impulse. We aim to initially launch with a free ad supported version of the application, alongside a “premium” version of the application for only \$0.99. The advertisements embedded in the app will not be intrusive, and they will provide a source of revenue at no cost to the user. The feature set of the premium version and the ad-supported version will not be the same, but there will be enough in the free model to attract users and give them an idea of whether this is an app that they will use or not.

Currently, the piano applications that are offered in the Google Play Store have cumbersome user interfaces and are too intimidating and complicated to use for the average user. Our software will address these pain points by simplifying the user interface and make playing our piano easy enough to where anyone can do it, with or without musical knowledge of any kind.

2.The Vision

As more and more users migrate to the world of mobile computing in the form of tablets or smartphones, the potential to reach an audience of millions becomes greater and greater. Our plan is to enter a market that is currently not as saturated (mobile music creation, as opposed to games or social networking). We hope to achieve this plan by adapting goals of:

- Making an app that will allow users to explore their musical creativeness without having prior knowledge or experience in the field of music theory.
- Having a user friendly interface that is easy to learn, so that many demographics can enjoy our application.
- Making the app affordable to all users.
- Making everything fun from the outset.

3. Gap in the Market

When it comes to piano applications, or even music creation applications in general, the developers always assume a basic knowledge of music theory and its core concepts. Obviously, not everyone is musically trained, but that doesn't mean a desire to play music is not there. On one hand, we have trained musicians looking for a way to take their talents on the road with them so that they can play a few quick licks. On the other, we have totally untrained (but not necessarily uninterested) regular users who do not yet know the fun you can have playing improvisational music. When these users get the app in their hands, it will feel more like a game than a music creation tool.

Most music-creation applications are only designed to target professional musicians. It's hard to develop such software for those with no music experience, but we intend to target both groups. Instead of separating users into these two wildly different categories, our app will be designed so that musicians will be happy with the ability to practice phrasing and other musical techniques, while regular users will be able to experience the joy of creating music.

In addition, The number of applications on the Google Play Store that are designed specifically with tablets in mind are few in number when compared to Apple's App Store. This creates significant opportunities for well designed, high quality applications to succeed where there aren't any to compete with. Many tablet owners will be looking for cool apps to load onto their device that aren't compatible with phones they might already have. They want something new and exclusive, and we intend to deliver.

4. Meeting the Market's Needs

Our application will meet the needs of the market by allowing users to experience the world of music composition, creation, and the entertainment it can generate without spending many hours and funds to take lessons and practice. Our unique implementation allows the user to play the piano well without any training or practice, which is unmatched by anything that currently exists. We will be the first to get into the market of musically creative yet untrained users. It will be ready to use by any user who wishes to download it immediately upon its first version, and will require no training whatsoever.

5. Implementation

- Marketing and distribution strategy: The product will be marketed to all Android tablet users, because anyone with compatible hardware might be interested in this application. The trouble with catering to such a wide audience lies in the fact that capturing their attention will be difficult. With a limited budget, we will have to depend on some revenue to start out as well. Therefore, our plan will be to gather launch day sales and take out numerous small ad spaces. Like in the local newspaper, buses, and internet sites. Once the awareness of the application spreads, we will be able to depend on word-of-mouth and a stronger advertising budget as sales grow.
- Developing strategy: Our plan is to utilize the spiral model of plan, design, prototype, and repeat in order to obtain a well-tested and implemented product. The work will be difficult due to the fact that the Android framework is new to all members of the team, but by focusing on only a few key features instead the end product will be of good enough quality to sell.
- Financial strategy: We will offer the application free and for a premium price. The difference between the two will be ads. The free model will have ads included with the product, and will ask the user if they want to remove them for a one-time payment of 99 cents. Further down the road in the development process, more incentive features will be added to the “paid” version, including a variety of scales that the piano can be set to play, different colors, et cetera.
- Management: The project will be staffed entirely by three college students using friends and acquaintances for testers. We are also expecting our professor, Dr. Supratik Mukhopadhyay, to act as a mentor on all development related matters from time to time.

6. The Problems

The majority of piano applications that are currently being offered in the Google Play Store are hindered by cumbersome and uninspiring user interface designs. Three of the most popular keyboard programs - xPiano, Perfect Piano, and Piano Pro, all require the user to pan the viewport side-to-side to access all of the keys on the board. This means that in order to play many pieces the user must actually stop playing for a moment in order to slide the keyboard's view over. This requires a great deal of dexterity to reliably slide the keyboard to the correct area without introducing a significant delay into the song being played. A full-size keyboard can't be accurately reproduced within the size constraints of a tablet device without significant trade-offs, as implementing more keys that can span the screen introduces significant usability issues.

The biggest issue with most piano applications is that they assume that the user possesses an ability to play piano from the outset. It's not unusual for there to be some presumptions about the user when building an application, but in a musical context this can present substantial issues. Playing piano is not like reading a manual; it requires a large amount of time and energy to learn, and it creates a barrier that hinders the enjoyment for every user that can't make these investments. To make matters worse, most implementations of a piano keyboard suffer ergonomics issues by attempting to cram an excessive amount of keys onto a small screen. Poor user interface design threatens to drive away customers before they can become comfortable and proficient in using the product.

7. The Solution

In order to solve the user interface problems that arise from attempting to implement a full sized piano on a mobile device, our product reduces the keyboard to only enough keys to span the user's screen, which early testing suggests is about an octave and a half. In addition, the keyboard layout is simplified as far as possible by completely eliminating the black keys. This design decision maximizes accessibility of the application to new users and eliminates the high learning curve introduced by our competitors' products.

The software works by using the same rules that improvisational jazz musicians utilize. Everyone assumes that musicians just go on stage and somehow know what to do. However, this is not the case at all, as there are predefined rules for what sounds good and what doesn't. The rules involve a 12-bar blues, a jazzy beat and a pentatonic scale in a similar key. The result of this has set the foundations for many famous musicians like Chuck Berry and just about anyone that's ever played jazz. In short, we plan to address the poor design that has been present in piano applications and open up music to accept the unskilled. We will enable them to start creating where they couldn't before.

8. We Provide the Solution

Our application's simplicity enables it to succeed where others have failed. By stripping down the keyboard interface and providing instant gratification to users of any skill level, retention rates will be improved. Mobile applications that provide immediate value to consumers are far less likely to be uninstalled. We also provide a unique method of improving the keyboard layout. By removing the black keys and providing only the notes in a given scale, music will be efficiently created without missing out on anything necessary for the target audience.

9. Industry Need for our Technology

There is an endless demand for entertainment. Millions upon millions of users distract themselves throughout the day using bite-sized applications built for mobile devices, and the market is huge. Likewise, many people love music, and have a desire to experiment with basic composition. Games such as Guitar Hero have shown us that users enjoy feeling like they can play music. Our app helps to fulfill both of these needs. The app itself is a music based game, providing both entertainment and a creative outlet for those who do not have the means to learn through traditional methods.

10. Market Analysis

The primary competition that we will be dealing with in the current market are the existing music creation apps (e.g. Perfect Piano, Piano Pro, xPiano, myPiano). Our main task will be marketing our app as different from the rest in that it is not a pure “piano”, but a modified version that is intended for improvisational music creation, instead of a catch-all keyboard.

11. Primary Market

Our primary market is the users of Android tablet devices with screen sizes of 7 inches or higher. The larger screen sizes offered by tablets are more conducive to the usage of piano applications, as on smaller displays the key width would be too small to play comfortably. These users would need to have enough musical interest to download the application, but the application’s simple and inviting design will ensure that they are not required to have any real musical proficiency. Thus, any musically interested android tablet owner is the intended target of our application.

But, to make things better, due to music being a universal “language”, the product can be launched globally on the Google Play Store without problems. Piano applications would require minimal or no translation, as adoption would not be hindered by language barriers.

12. Market Size

Over 500 million activations of Android devices have been logged by Google’s servers as of September 2012, with 1.3 million activations occurring daily. ([source](#))

Although Google Play does not provide the exact number of installs or active installations of a given application to anyone except its development team, a rough estimation is provided.

- between 10 and 50 million users have installed Perfect Piano, making it the most popular piano application on the Play Store.
- Piano Pro, xPiano and myPiano, which are all similar to Perfect Piano, have achieved between 5 and 10 million installations each.

13. Secondary Market

Large-screen smartphones, known colloquially as “phablet” devices, are sufficiently large enough to use a piano application with a minimal impact to the user experience when compared to a tablet. It would be possible to run the application on these devices with little to no modification, making them an excellent secondary target.

- Samsung’s Galaxy Note II is equipped with a 5.5 Inch screen with a 16:9 aspect ratio, placing it just outside what is normally considered to be tablet territory.
- This category is expected to expand dramatically in the short term due to an ongoing shift in the industry to devices with larger screens. Samsung’s upcoming Galaxy S4 is also expected to provide a 5 inch 1080p display, and the current 4.7 inch Galaxy S3 is a market leader in terms of sales.

There are many mobile platforms that our app can target, given more time and capital resources. As the app evolves and the code is maintained, provided the product generates a sufficient stream of revenue, there isn’t a real reason that any platform should be out of reach.

14. Competition

- [Perfect Piano](#) attempts to implement a full-sized keyboard, at the expense of the user needing to slide the view from side-to-side. This requires the user to stop playing for a moment in order to pan the view over.
- [Piano Pro](#) is another variant of Perfect Piano, which also requires a side-to-side scroll.
- [xPiano](#) is one of the oldest piano applications on the Play Store, and although it is fairly popular due in part to its age, its implementation is poorer than the rest of the competition. The swiping motion is triggered over the piano keys themselves instead of on a dedicated bar, making accidental swiping and panning a common occurrence in our own usability test.

15. Marketing Strategies

Marketing Overview: Our primary marketing goal is to gain exposure on the Play Store as quickly as possible, in order to maximize both our revenue stream and market penetration. We will offer our application for free supported by ads, in order to generate reviews of the software and jumpstart our market share. We will offer our premium version for only 99 cents after the initial push, which offers our customers exceptional value while providing us with revenue via a large number of downloads. After our initial deployment on the Play Store and further quality assurance testing, we will enable the application for download on phones with displays of about 5 inches and larger. This category of devices stands to grow dramatically in the short term, making it an ideal secondary target for our software.

Entry strategy: Because there are so many apps in the Google Play Store, obtaining sufficient exposure for a new developer is difficult. Since we have the unusual advantage of a very low cost to get our app on the market (\$25), we will take advantage of this opportunity by offering deals for the first one hundred to one thousand users including a premium version at no extra cost with lifetime updates. This will allow for positive ratings to come in, which would boost the app's visibility on the Play Store. Once a presence has been established, we will continue with our proposed price (.99 cents) for the premium app, alongside the free ad-supported version.

Core competency: Our application's core competence will be its easy to use interface, which will enable anyone to improvise music on the spot regardless of their talent level. The software will be simple enough in design such that anyone will feel comfortable enough to try it.

Expansion strategy: The software could be made visible in the Google Play Store for "phablet" devices and large screen phones as this category is expected to expand further over the next several quarters. Offering the application to these devices would require little or no modification to the code, making them a very attractive choice for market expansion. Also, if there is enough consumer interest, we can expand on the audience to include similar mobile platforms such as iOS and other upcoming mobile platforms.

Sales strategy:

1. Pricing: We will offer a premium version for \$0.99, alongside an Admob-supported free version. Also, there will be a limited time premium version at no extra cost to the early adopters. We would not implement advertisements in a way that is intrusive or annoying to the user. They must not interfere with or hinder the user experience of the application; if the advertising is perceived as annoying it will lose its potential to provide gains in revenue.

2. Positioning: We are positioning our product as both highly accessible and easy to use. It will be able to be appreciated by both improvisational performers and everyday users that want to have fun with music creation without a substantial knowledge prerequisite.

3. Promotion: Viral marketing has seen much success in recent years, such as Blendtec's "Will it Blend?" campaign. A funny or amusing Youtube video that is created using the application could significantly impact market penetration. Social destinations such as Reddit would likely assist in propagating the campaign to the user base. Interactive public performances using the application could also improve exposure if they were staged at locations with a high amount of pedestrian traffic, such as Jackson Square in New Orleans, or Central Park in New York City.

16. Developing Strategies

For this project, we will utilize the tried and true spiral model of development. The spiral model was created in response to the proliferation of failures in the software development projects floundering in the Department of Defense. It takes place in 4 repeating steps:

1. Determine objectives: We discover what the customer wants through market research and customer discovery. We will be researching the reactions from both trained musicians in high school jazz classes, and untrained acquaintances of ours. By sampling a wide variety of skill levels in the customer base, we can get a fuller idea of where we should set our focus for each iteration.
2. Identify and resolve risks: We estimate costs anywhere we can and strategize on how to handle specific issues that the product must address.
3. Development and Test: Create either an initial prototype or another iteration. Prototype versions will be tested extensively.
4. Plan the next iteration: Use the results of the prototype to create the next iteration!

The actual software will be event based. Each object is able to send messages (events) to one another which they respond to. For example, when a key is pushed, it sends a message to an audio processor that plays a sound.

17. Barriers

Our team does not have the benefit of an existing presence on the Google Play Store, and this places us at a competitive disadvantage to other companies who can easily obtain a large amount of exposure if they achieve the “Top Developer” status. The burden will be upon our team to build trust with the user base, and as a result the number of API permissions that the application will request access to should be minimized as much as possible.

- Development with the Android SDK represents uncharted territory for every member on the team, and a considerable up-front time investment will need to be made in order to become proficient with the library.
- We do not currently have the funding to allow for a marketing budget, and all of our initial advertising will need to be done via word of mouth and social media websites.

18. Critical Risks

Fragmentation remains a problem in the Android ecosystem despite the tablet/phone interface unification that Android 4.0 Ice Cream Sandwich and later have introduced. A wide variety of device configurations exist in terms of screen size, pixel density, and audio capability, and care must be taken to ensure that the application performs as expected on these devices. However, targeting only the tablet segment will considerably reduce the risk of issues due to a lower level of variance in display hardware as compared to phones.

Software patents represent a serious threat to software development, and mobile applications are no exception to this. Without the budget for a dedicated legal team it will be impossible to determine if our product infringes the intellectual property of other companies, and we will be poorly equipped to defend ourselves in the face of a baseless legal threat without additional resources.

19. Customer Interviews

Chris P. - 10+ years of music experience

Do you have any music experience (e.g. ever played an instrument, studied music theory?)

yes. all of the above.

Do you have any experience with pianos in particular? If so, how would you rate your experience?

yes. I can play basic songs and have an understanding of basic music theory and scales.

What would make learning a new instrument difficult for you?

tunings are different from different instruments, learning the physicality of it would be challenging as muscle memories differ between instruments.

What do you know about music improvisation?

usually improvisation is more accessible if you really know what you're doing. Without the music theory knowledge to know where you are, music improv doesn't make any sense and it just sounds like noise.

If you have tried mobile piano applications in the past, what did you like about them?

Yes I have. I didn't like that much about them. They were pretty basic. At least the one I used on iOS was.

What didn't you like?

I didn't like the process of changing octaves - I had to do this in a dropdown menu.

What is the most important feature a piano application should have, or what feature would you most expect to see?

Having 88 easily accessible keys and a decent synth. Extremely intuitive controls are a must, that would make it more playable. The ability to record would be nice. Layouts of scales and being able to have a reference ie. be able to play in D minor would be great, so that the scale layout could be displayed on the keyboard. Keyboards are laid out such that every 8 keys and every 5 black keys it "repeats". Maybe make each scale a different color? Say that you wanted to play in D minor, have it display which note that is and highlight the keys of a specific color.

Do you feel that learning to play the piano is intimidating?

no. it is one of the most accessible instruments.

Matt D. - A typical user in terms of music knowledge

Do you have any music experience (e.g. ever played an instrument, studied music theory?)

I played the saxophone in 5th grade. played the "recorder" in 4th grade but that's all.

Do you have any experience with pianos in particular? If so, how would you rate your experience?

I've tinkered with them, but my ability level is essentially nonexistent.

What would make learning a new instrument difficult for you?

not understanding what its chording structure or basic note structure is.

What do you know about music improvisation?

I really like the art form, and the fact that jazz music is almost all thought up on the spot. I very much appreciate the flow of music from a non-structured sense.

If you have tried mobile piano applications in the past, what did you like about them?

I have never played with one of them. If it was easy to use I'd be interested in trying one.

What didn't you like?

<not applicable due to previous answer>

What is the most important feature a piano application should have, or what feature would you most expect to see?

A tutorial function for someone who has no experience.

Do you feel that learning to play the piano is intimidating?

Yes, the amount of keys and the giant space of it all is daunting.

Morgan J. - A typical user in terms of music knowledge

Do you have any music experience (e.g. ever played an instrument, studied music theory?)

I played a recorder in elementary school, but that's it. so no, not really.

Do you have any experience with pianos in particular? If so, how would you rate your experience?

I have, but I'm not proficient - I had a keyboard when younger and messed around with it.

What would make learning a new instrument difficult for you?

I don't know how to read music, so that would be pretty hard. Knowing what note is what on a piano or guitar is intimidating.

What do you know about music improvisation?

For people with no musical experience, improv is all they can do. an app that makes that more fun would be a definite good thing.

If you have tried mobile piano applications in the past, what did you like about them?

I tried one that was a small portion of the keyboard; one with only has one octave. Nothing stood out, but it was fun to just play with.

What didn't you like?

It was nothing special or complicated, and it didn't really teach me anything. It was very limited, and didn't have any guidance at all. I couldn't customize it at all - I couldn't change the sound style. Even on an electric piano, you can change the sound or type of piano.

What is the most important feature a piano application should have, or what feature would you most expect to see?

One that labels keys for learning, with a simple song like mary had a little lamb would be cool.

Do you feel that learning to play the piano is intimidating?

Piano at first appearance seems scary, but its almost culturally ingrained - every kid sits down and just presses keys at some point. It's not like the guitar where you can't make a good sound without some training. Even without musical knowledge you can make something up that sounds a little right on the piano. Every note has its own button and you don't have to think about it as much.

Dustin H.- High school music teacher and professional musician

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

Yes

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

Yes, basic piano at about an 8.

3. What would make learning a new instrument difficult for you?

It's not like anything done before, so there's no reference point. It also requires both the left and right side of the brain, to which no other activity does.

4. What do you know about music improvisation?

I have a fairly wide knowledge of it. I know mainly the theory. I improve professionally.

5. If you have tried mobile piano applications in the past, what did you like about them?

Yes, I like how accessible it is. Portable. Easy to take out music if I need it for something.

6. What didn't you like?

a. Limited range

b. Lack of polytonality (most keyboard apps can play 1 or 2 notes at a time.)

7. What is the most important feature a piano application should have, or what feature would you most expect to see?

I would mainly want polytonality.

8. Do you feel that learning to play the piano is intimidating?

It depends on the person. A lot of people go into it with unrealistic expectations.

Extra Tips about the app:

- I think there's a large market for that. If you play this, you can't play a wrong note.
- I think that a lot of people will like this because it takes the effort out.
- I also think it can help musicians be more creative with their phrasing. It removes different factors from the equation that make it easier to learn.

Internet Collected Responses:

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

Yes, for multitudes of years, with multiple instruments.

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

I do. I would rate myself beginner/intermediate

3. What would make learning a new instrument difficult for you?

The incorporation of the left hand in piano is my limiting factor in mastering the instrument.

4. What do you know about music improvisation?

Enough to get by. Depending on style of music, pentatonic scales (major or minor) or a blues scale are the standard.

5. Have you ever tried a Mobile Piano app in the past?

Yes

6. If you have tried mobile piano applications in the past, what did you like about them?

Not much, actually

7. What didn't you like?

They were terribly designed. The keys were so small that any chance of accuracy is just thrown out of the window. The sound options outside of 'grand piano' were gritty and didn't have any element of realistic sound at all (Specifically things like Brass Section, or String Section). Some versions wouldn't allow the player to strike keys simultaneously.

They would have cool arrangements for the keys, like in spiral, but its practicality wasn't present, and it was more for five year olds to trace circles and listen to pretty noises.

8. What is the most important feature a piano application should have, or what feature would you most expect to see?

Realistic sound, a large enough keyboard to be functional. As extras you could add different sound options that don't sound like garbage, but keep it in the range of the piano and its predecessors and children (for example, an organ option or a harp). The farthest you should stray should be a strings setting, because fuck yea, strings. A cool feature that would set you miles apart from other piano settings is key responsiveness, or your electric piano's ability to differentiate between a hard and soft key press. Or, for those who wish to write out their own solos, an option to have a chord progression played in the background (12 bar blues, for instance) so the player can solo over it. Include an option to vary the tempo as well. Include a recording software that will take the played solo, and put it down as standard notation on the staff and make it an exportable file, so it can be printed and the solo, if good, can be recreated.

9. Do you feel that learning to play the piano is intimidating?

At first it is, but with a little of hard work and elbow grease, any person can learn how to play at least a basic piano piece.

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

In High School and Middle School, I played the flute, the piccolo, and tenor saxophone.

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

I have very little experience with a piano. I know the basic layout, but I couldn't play one if my life depended on it.

3. What would make learning a new instrument difficult for you?

If it were in bass clef; I'm more of a treble clef kinda person.

4. What do you know about music improvisation?

Music improvisation, to me, is a talent in of itself. It takes a certain skill, and seems to be the highest form of music you can make. It comes from inside. It also isn't something I'm fantastic at.

5. Have you ever tried a Mobile Piano app in the past?

No

6. If you have tried mobile piano applications in the past, what did you like about them?

N/A

7. What didn't you like?

N/A

8. What is the most important feature a piano application should have, or what feature would you most expect to see?

Something that would tell you what keys you were hitting, and one where you were able to hit multiple keys at once.

9. Do you feel that learning to play the piano is intimidating?

Only slightly; it's the second hand that gets me

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

Yes

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

No

3. What would make learning a new instrument difficult for you?

Time

4. What do you know about music improvisation?

That you need to keep everything in the same key.

5. Have you ever tried a Mobile Piano app in the past?

No

6. If you have tried mobile piano applications in the past, what did you like about them?

N/A

7. What didn't you like?

N/A

8. What is the most important feature a piano application should have, or what feature would you most expect to see?

Tips on helping you to learn?

9. Do you feel that learning to play the piano is intimidating?

Slightly

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

Yes. I'm proficient on a trombone. I've attempted drums and piano. I also know how to mix music together through the use of computer software such as Virtual DJ and Serato.

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

I attempted piano lessons for a year. It was enjoyable, I would have continued under different circumstances.

3. What would make learning a new instrument difficult for you?

Lack of time.

4. What do you know about music improvisation?

I know a good bit considering my history of mixing music.

5. Have you ever tried a Mobile Piano app in the past?

No

6. If you have tried mobile piano applications in the past, what did you like about them?

N/A

7. What didn't you like?

N/A

8. What is the most important feature a piano application should have, or what feature would you most expect to see?

The ability to play it and it still sound good.

9. Do you feel that learning to play the piano is intimidating?

It is a difficult concept.

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

played clarinet, 3 years, in middle school

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

No

3. What would make learning a new instrument difficult for you?

lack of time

4. What do you know about music improvisation?

Very little, but find it interesting

5. Have you ever tried a Mobile Piano app in the past?

Yes

6. If you have tried mobile piano applications in the past, what did you like about them?

Convenience

7. What didn't you like?

not very many keys, we more for playing around / would have been nice to incorporate a few lessons

8. What is the most important feature a piano application should have, or what feature would you most expect to see?

accuracy with the actual sound of a piano

9. Do you feel that learning to play the piano is intimidating?

No, just time consuming. I would love to learn if I had the time!

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

Yes, i play keyboard

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

Yes, 6/10

3. What would make learning a new instrument difficult for you?

My inability to read sheet music

4. What do you know about music improvisation?

I play improve on my keyboard alot, there isn't much to "know" that can be taught, seems more of the ability to be creative, on a scale.

5. Have you ever tried a Mobile Piano app in the past?

No

6. If you have tried mobile piano applications in the past, what did you like about them?

N/A

7. What didn't you like?

N/A

8. What is the most important feature a piano application should have, or what feature would you most expect to see?

multi-touch

9. Do you feel that learning to play the piano is intimidating?

Yes

1. Do you have any music experience (e.g. ever played an instrument, studied music theory?)

Yes, trombone and tuna

2. Do you have any experience with pianos in particular? If so, how would you rate your experience?

No

3. What would make learning a new instrument difficult for you?

Wind instruments wouldn't be too difficult, but I have issues moving my hands differently for guitar/piano

4. What do you know about music improvisation?

Very very little

5. Have you ever tried a Mobile Piano app in the past?

Yes

6. If you have tried mobile piano applications in the past, what did you like about them?

I liked the sound quality, and volume/range controls

7. What didn't you like?

To get a decent range the keys are too small, when the keys are the right size you have no range

8. What is the most important feature a piano application should have, or what feature would you most expect to see?

The full range of the keyboard

9. Do you feel that learning to play the piano is intimidating?

Yes