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DEMUSE: RELEASING STRESS USING MUSIC MOBILE APPLICATION

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ABSTRACT

It can be seen that, conflicts, negative revolution, suicides, and other crimes becoming more common worldwide. Several studies and investigations have been conducted due to this case. Thus, it has been found that one of the root cause is stress, especially among the youth. Although stress can improve work performance and awareness for those who can manage it properly, however if someone is unable to cope with the stressful situation when it becomes excessive, the reaction might be disastrous. In tackling this unfavourable situation, several lifestyle changes have been prescribed such as listening to music, physical activities, doing desired activities, surfing, and others. This study uses the power of music to reduce stress. A mobile application named as "DeMuse" was developed and in its development, Mobile-D step-by-step methodology was applied. At explore phase, a number of existing applications have been compared. At the second phase, the initialize stage, a quantitative analysis was carried out to study the music and mood categories respectively. During the third and fourth phases, which were Productionize and Stabilise, the completion of Data Flow Diagram and Entity Relationship Diagram were established based on the quantitative analysis done. In the final phase, the System Test and Fix, the prototype were reviewed by 148 potential users. DeMuse showed to be one of the alternative ways to relieve stress. From this finding, DeMuse highlight the main feature which is the music and mood categories. In conclusion, DeMuse is a valid mobile apps that could be used to help reduce stress of its user. With this app, it hopes greatly to help in decreasing and eliminating the tension, dissatisfaction, and others negative feelings of users in their daily life.
Keywords: *Mobile Application, Stress, Music, Mood.*

1 INTRODUCTION

In this fast growing and steampunk era of innovation, stress is always the main concern for every community and country. Stress is situation of fear or negative feelings such as anxiousness and frustration [1]. It happens to make us know that stress and mood could affect each other at the same time, concluded from the statistical models about the stress effects on mood in daily life [2]. With this relationship, [3] stated that a positive emotion in daily life is enough to moderate the major and minor stress from reactivate. Hence, a study was carried out to determine how far the music capable of constructing a positive mood by using a mobile phone.

Stress can be felt or experienced from the environment, physiological, social stressors, and thoughts. Some of stressor's example, there are financial demands, conflicts among people, family issues, and others that could influence all aspects of human daily behaviour and human functioning respectively. In order to decrease the stress level among the society, music is one of the choices. Listening to different types of music can decrease health issues that caused by high level of stress hormones [4]. However, one music is not enough to satisfy everyone. [5] mentioned that how could someone from different cultural background listening to the same music in moods that are different with others. Hence, the relationship between music and moods that are acceptable will be the main concern in this study.

In conclusion, stressors mainly raise up from the aspects of environmental, physiological, social stressors, and mind thoughts. It can be summarised that positive thinking or emotion is urgently required for every single individual to reduce the

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stress level. To maintain a peaceful, positive mood or convert a negative mood to positive one, music will be the medicament in this healing process. This study aimed to match music with the right mood type, and thus create a favourable music mood application, DeMuse to verify this relationship. The result will be collected after tested by the selected samples. The selected sample will be the university student from Universiti Malaysia Sabah (UMS).

2 Related Studies

As an individual, the sources of negative stress are mainly come from several fields such as academic, relationship problems, and career exploration [6]. This negative stress would give a great impact on three individual's aspects which are behavioural, physical, and psychological problems. [7] stated that an individual with a positive thinking is enough to cope with the stress faced in their daily life more efficiency. [8] had defined that, "positive thinking is a term of overall attitude that is reflected in behaviour, thinking, feeling, and speaking." Many researchers found out that the positive thinking, positive behavioural qualities, positive feelings and emotion is great enough to provide some beneficial effects in solving the personal physical and psychological problem [9,10].

There is a relationship between the stress and the positive thinking. [7] defined the positive thinking as the experienced positive emotion frequently, with optimism, a bright hope, and happiness. According to [3], an individual stress reactivity could be moderated and determined by the number of daily positive emotions occurrences. Meanwhile, positive emotion able to neglect the negative effect of negative emotion on individual cardiovascular function [11]. [12] also made a further explanation that there is the existence of strong bond among positive thinking and affect with distress and prediction of health outcomes. Hence, compare to negative thinkers, a positive thinker able to look at a stressful situation in less threatening and thus handle it in more effective ways.

To maintain a positive mood and to cope with the stressful situation, music is one of the choices to get rid of negative mood. Obviously, music often used to change the emotion status or become better, and also afford to make certain people in accomplishing the current works [13]. Based on several studies, [14] found out the ability of music to function as a stress management tools. Patients were deceasing the anxiety and stress level, and a lower blood pressure result was showed during the patients listening to music in order to wait for surgery subjectively [14].

After the 4th computer revolution in which originates a tremendous impact to the society nowadays, a by-product named "stress" has been given rise in more negative and threatening way from everywhere. According to Australian Psychological Society (APS), "Stress is often described as a feeling of being overloaded, wound-up tight, tense and worried [15]". If a situation's demands yet beyond an individual personal skill, this particular situation that need to deal with is just a label of "stressful" and only if a person tends to handle this sort of situations in a negative way, individual lifestyle in daily life might drop to a harmful health's level.

Stress can be experienced from the environment, physiological, social stressors, and thoughts. In the instance of stress, there are excessive job demands, bankruptcy, conflicts among people, being abused or neglected, etc. Although a moderate level of stress can increase the performance and awareness, stress's degree that out of range might develop into several mental and psychological illness such as post-traumatic stress disorder [16]. Hence, there are several methods have been found to get rid of the stress, such as playing game, sports, meditation, surfing Internet, listening to music, and others.

Many studies showed different methods in handling the stress level. However, most of the results depend on the samplings taken. According to the study conducted by [17], common stressors that affect the university students are normally came from education, financial problems, and surrounding environment. As university students frequently expose to these kind of negative stressors, this greatly twisted a student's daily lifestyle, in which the bonding among family members and friends, academic and physical performance could be ended up in negative way. A research conducted by [17] which is a cross sectional study among study samples in Pakistan, which include Pharm-D junior students (1st year students) and senior students (5th year students). The questionnaire applied considered two parts, demographic characteristics, and perceived stress scale (PSS) that consists of 14 questions about stressors and strategies to cope the stressors.

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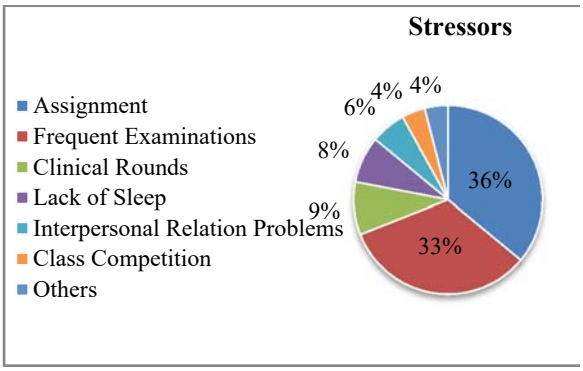

Figure 1. Frequencies Of Stressors [6]

The result in Figure 1 shows that most of the students willing to share and discuss the problems with their family or friends in order to relief stress. According to the observation and result of PSS, [17] concluded that different stressors is handled with different strategies. Hence, the students' responses towards some coping strategies would be different than others in Figure 2.

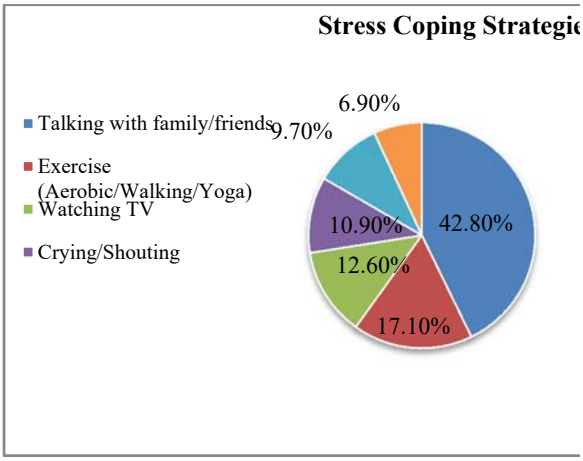

Figure 2. Stress Coping Strategies [6]

According to the study of [18], the stressors that university students in UMS are mainly came from academic studies that are tremendously high in workload. A set of questionnaires had been distributed among the study samples of 30 students. It comprises three parts, which includes demographic, symptoms of stress, and stress management techniques. The related result had shown in the following Figure 3 and 4.

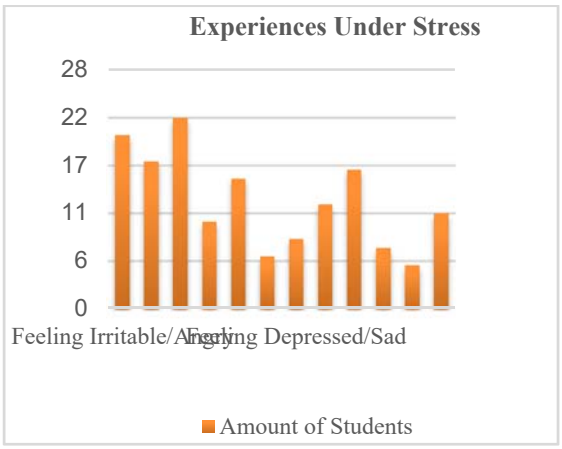

Figure 3. Stress Symptoms Among 30 Study Samples [19]

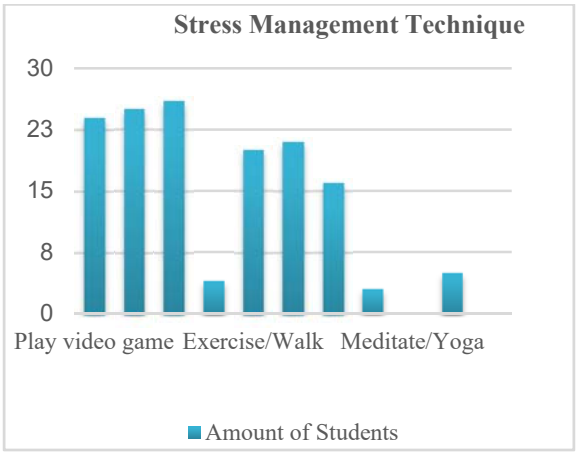

Figure 4. Stress Management Technique [19]

Based on the result analysed, a large number of study subjects would feel tired and fatigued since this particular symptom ranked top among others with 22 (Figure 3). According to figure 4, most of the sample subjects chose surfing Internet and go online as their primary stress management technique, which achieved 26. Listening to music and playing video game have achieved 25 and 24 respectively in which makes both ranked second and third place.

One of the related study is done by [20]. This study aimed to show that listening to music is greatly enhancing and increasing the ability of athletic performance, motivation level, arousal regulation, and also the emotion level. Focusing on the relationship between music and moods, music is enough to draw the attention of athlete away from the feelings of fatigued, at the time that athlete is listening to the music in personal physical activities. Similar to the finding from [21], which is about the music type of increasing upbeat or fast tempo per

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minute was able to lower the feelings of fatigued, anger and irritable, and depression and sadness. By lowering these negative feelings, the exercise performance of participants could increase significantly. [22] also found out that most of the sport psychologists would like to advise athletes listening to music for mood regulation during the preparation of the competitions. From the aspect of arousal regulation, [23] suggested that if likely to increase the arousal level, then listening to music that could encourage in releasing out and competing at a high, intense level. Whereas listening to music that makes someone to feel relaxed or calm down would lower the arousal level.

A method applied by [20] was triangulation method. It is a great method that combine several methods of data to increase the reliability or credibility of study. The study samples were five Caucasian and two African American descents of National Collegiate Athletic Association (NCAA) Division I collegiate athletes, among aged group of 18 to 23. One of the method known as "Interview Protocol" section, which asking the experience of athletes of the relationship between music, and sport or competition (before, during, and after). To decrease the error, another method was applied, the "transcribing". This is a method that require an audio tape to record the conversation section. A "Phenomenological reduction" method was used to eliminate the irrelevant information throughout the conversation. And a method named "verifying the elimination of the data" has been applied in order to provide the final edited version of conversation to participants for validation. After that, a method named "Releasing meanings", which included several smaller methods such as "Forming categories", "Identifying the themes", and "Describing the themes" has been applied to separate and categorise the relevant information obtained. Figure 5 described the thematic structure of listening to music in sport, which based on the phenomenological perspective of study subjects.

THEMES	SUBTHEMES
Arousal -	Upbeat or fast tempo music
	Slow tempo music
Focus -	Block out distractions
	Concentrate
	Mental imagery
Mood -	Enhance mood
	Decrease tension and stress
Team -	Team unity
	Create team compilation (CD's)

Figure 5. A Brief Description Of Themes And Sub-Themes [20]

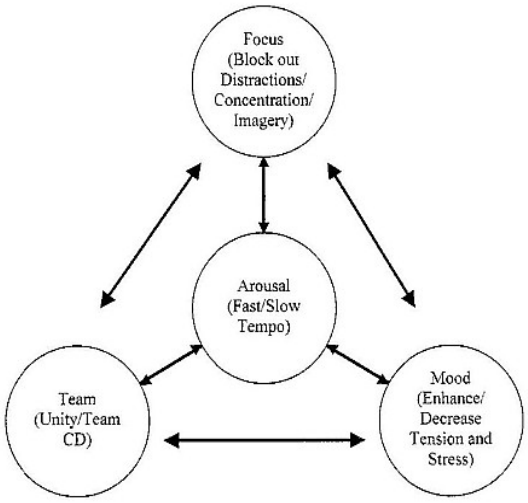

Figure 6. Thematic Structure Of Athlete's Experience Of Utilise Music In Sport [20]

Figure 6 shows the four themes named "Arousal", "Focus", "Mood", "Team", and the respective sub-themes. The clear interrelationships had showed in the meaning of influencing among the themes. [24] mentioned that "What we expected in listening to a specific music then our emotion levels toward that music would be determined by these expectations". Different variation of tempo and rhythm would affect how an individual to feel [24].

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Based on the result of the study conducted by [20], athletes would like to listen the music in order to regulate arousal level, concentrate, enhance the level of mood, and strengthen the relationship among team members. Hence, the relationship between music and mood levels were recognised by those professional.

According to Google, the most popular mobile application in the year of 2014 was the category in terms of health and fitness [25]. This is a concluded result after collected the data from Google Play Store, and health and fitness categorised applications have been chosen after conducted an end-of-year rundown. Since the meditation and stress relieved type mobile application is being categorised in the theme of health and fitness, a mobile application named DeMuse would be developed throughout this study, with the analysed result of features and relationship between music and mood.

In summary, listening to music would be the key of this study. This decision had made based on some reasons. First, the target sample subjects applied. The target study subjects were university students from UMS and it is equal same as the study sample of [18] research. Since the characteristics such as aged group, cultural background, and academic environment are same; it would greatly increase the accuracy if the identification of stress management technique refers to the result provided. According to the result of stress management techniques [18], listening to music is a choice after the surfing Internet. [18] stated that many Internet users enjoy with its positive aspects, such as informative stuff, convenient, entertainment, and resourcefulness. As the result, surfing Internet or go online might be an action that is too general or common, and this atmosphere causes hard to focus in studying. As an individual listening to music, it could assist in alleviate the anxieties and stress, and thus relief the pain [12]. Furthermore, anyone who listen to the music able to regulate their emotion and get rid of stress [19]. Hence, the case that "listening to music" has become the primary option in this study.

3 Methodology

To comprehend and determine the suitable music and mood categories, the quantitative method was applied in order to collect the related data among university students in UMS. In this study, questionnaires were designed in purpose and disseminated to study their habits, relationship between music and emotion, and the influences level of their favourite genre of music in daily life.

A set of questionnaires is quantitative method used on the target samples to obtain and record some useful information on the particular issue of interest [26]. Based on the view of [27], the reason questionnaire known as one of the effective analytic way is that the condition of face-to-face and target sample to complete the questionnaire section independently could be achieved. Hence, this condition turns to construct a structured interview basis. Indeed, this would promise a list of worded and structured questions in the priority of balancing the requirements asked, either in paper or electronic form.

Based on study in [28], the "piloting questionnaire" will be the most qualified and suitable questionnaires' style. This is because the only target was come from a university, named UMS. At the same time, the samples that stayed in the range among 19 to 24 aged groups will be an element that takes into consideration. Thus, these specifications were the meaning of piloting properties doubtlessly, which consider small group of respondent samples. This method will be operated in paper form. In the process of face-to-face reviews, the rate of misunderstanding error would be minimised as well as responding time. In addition to increase the accuracy of result, a number of different faculties in UMS will be involved.

3.1 Participants

The study samples will be taken randomly from university students of UMS. The number of study samples had achieved 148 students, which consists of 71 male and 77 female. Among these students, there are 34 first years, 49 second year, 43 third years, and 22 fourth year students respectively had participated in this questionnaire section.

4 Analysis and Results

According to the results of the quantitative methods applied on 148 study samples, almost all respondents felt that music greatly affects respective emotional status. Target samples believed that music only would benefits daily activities and life. This phenomenon also could be explained by the study of [4] on the relationship among different music types and different mood status based on the Personal Feelings Survey (PFS) results, which indicated that a same person could be stayed in different varieties of emotional status after listened to different music genre.

Meanwhile, respondents would like to listen to certain music in order to switch respective emotional status to the positive level. Since [3] stated the existence of the relationship between positive emotion and the way in minimising negative stress level, related questions would be applied on the study samples to understand respective musical behaviour.

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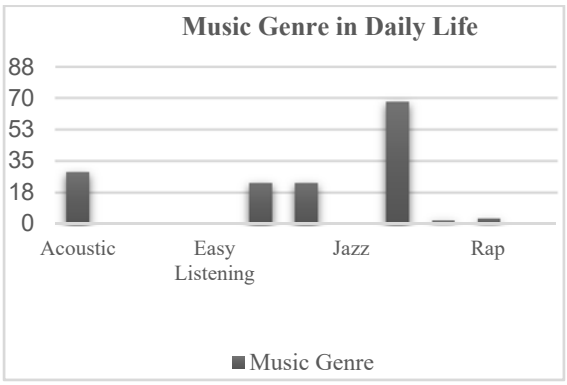

Figure 7. Statistical Result Of Music Genre That Listening Most In Everyday Life

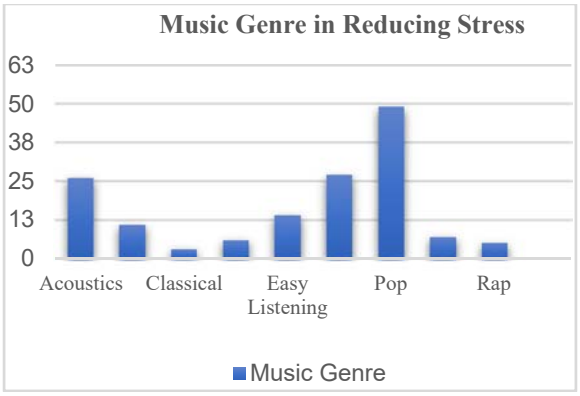

Figure 8. Statistical Result Of Music Genre That Listening Most In Relieving Stress

According to the analysed results shown in figure 7 and 8 respectively, pop music took the highest popularity among the study samples, in corresponding of 68 numeric numbers or 46% study samples listening to pop music daily, and 49 numeric numbers or 33% study samples listening to pop music for stress relieving purpose. These results certainly define the pop music as the master key in increasing the positive level of emotion and mind behaviour, and directly decrease the level of negative stress. This might respond to the reason that most of the UMS students listening to the pop music in daily life. Based on the study of [28], two thirds of local students experienced stressful life as long as educate in the local university. Thus, there is no doubt that UMS student using the power of music in the purpose of reducing stressful life respectively. According to the study result of [4], the reports mentioned that adult of the 25 – 54 aged group would likely be listening to the music genre of country and new age in increasing relaxation and decreasing tension purpose. Thus, the variation of music genre would occur according to the changing trend of aged group.

Although the target samples highly voted the pop music, music still can be categorised into various ways. One of the ways is the lyrics song and the vocal on or off does matter in listening. The related question had been applied in this quantitative method. After interview conducted well, 70% of respondents prefer music with lyrics and hence vocal music as presented in Figure 9.

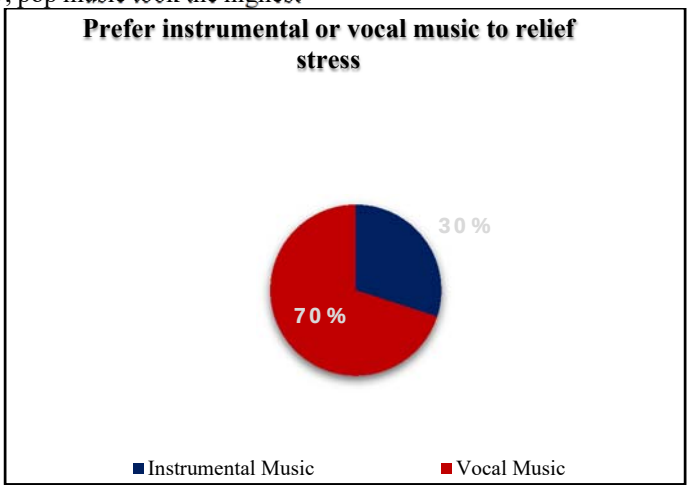

Figure 9. Determination Of Instrumental (Without Lyrics) And Vocal (With Lyrics) Music

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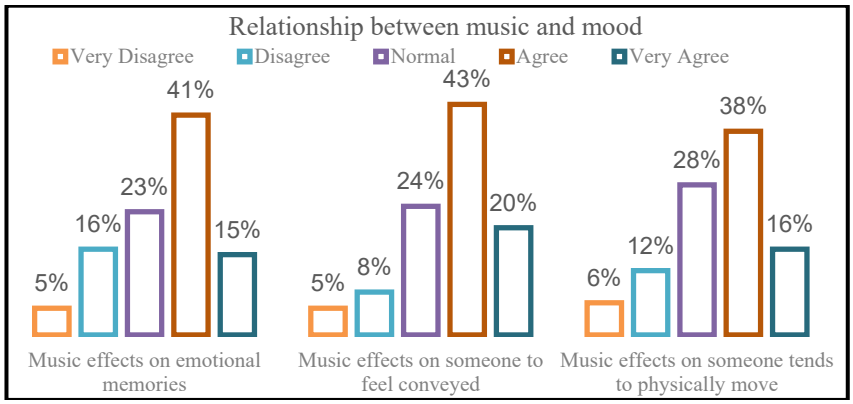

Figure 10. Relationship Between Music And Mood

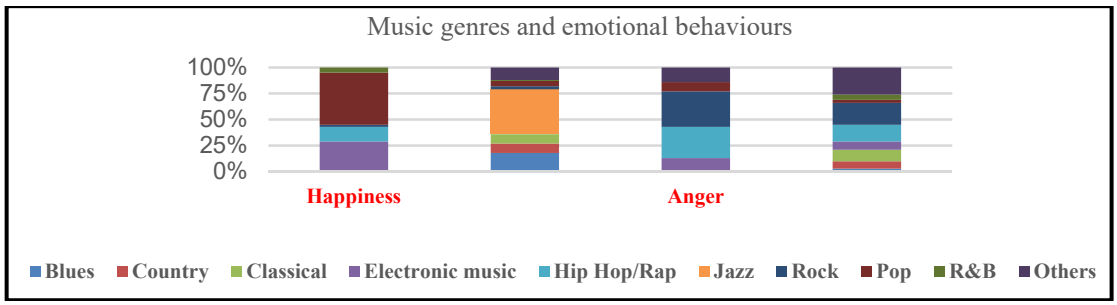

Figure 11. Effects Of Music Genres Towards Emotional Behaviours

Based on study in [4], the study samples could affect respective emotional status when listening to the music. According to the figure 9 and 10, the effects of the relationship between music and mood in the aspect of emotional memories, someone to feel conveyed, and someone tends to physically move; the similarity is that the agree option voted as the highest number. In this case, these trends are greatly showed that different music types with different tempo or beats per minute (bpm) would affect the level of physiological effects applied on the body. Music with fast tempo, 120 to 130 bpm could increase heartbeat rate and blood pressure, whereas music with slow tempo, 50 to 60 bpm could decrease heartbeat rate and blood pressure [29]. In the aspect of physical movement, previous research recommended that the higher the music tempo, the higher the physiological arousal level and hence causes an increment of active rate [30].

Furthermore, [4] stated that different variation of music genre could cause different emotional status. Based on Figure 11, there are four different mood behaviour stated, which are happiness, sadness, anger, and frustration. In the aspect of happiness status, most of the study samples chose pop music, which are 74 out of total 148. In the sadness aspect, jazz music occupied the highest number, which is 64 out of total 148; and then blues music in second, which are 27 out of total 148. Next, in the aspect of anger status, rock music achieved 50 out of total 148, in which ranked top. Lastly, there are quite a lot of respondent does not aware which music genre would annoy the feeling respectively. However, some respondent's feels that rock, and hip hop or rap music genre quite disturbing. Figure 12 showed the demographic among study samples, which consists of gender, number of different year's students and number of students among different faculty.

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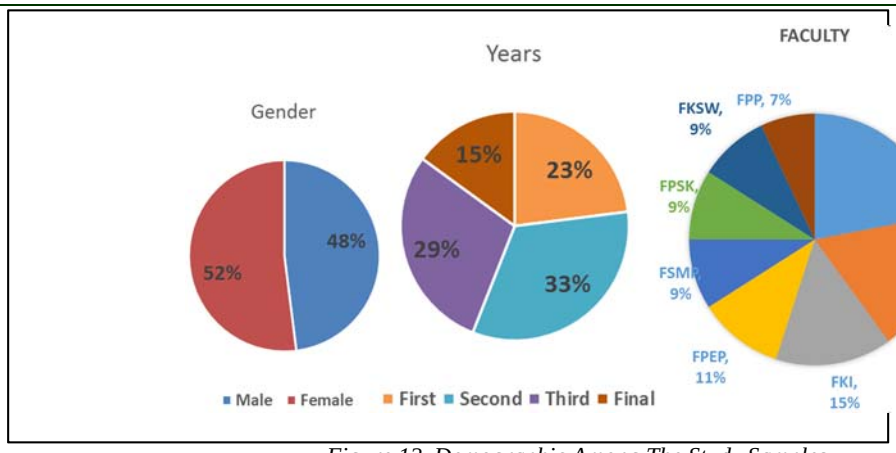

Figure 12. Demographic Among The Study Samples

5 DEVELOPMENT OF MUSIC MOOD APPLICATION (DEMUSE)

5.1 Mobile-D Method

Mobile-D method would be the guidance throughout this development. Based on [31], Mobile-D is a new methodology applied with a number of elements as a result of well-established agile method and well-specified for mobile software development.

The first phase of the Mobile-D approach was Explore phase. In this phase, the establishment will be defined here ~~in order~~ to decrease the stress level among the subjects, which are university students in UMS through an application. A content based analysis was conducted ~~in order~~ to obtain the features that are valuable enough as the properties usage in the development of prototype. In this content analysis, a number of related, existing application have been compared, which are "Relax Lite: Stress Relief", "Calm", "Relax & Rest Guided Meditations", "MindShift", and "Pacifica: Stress & Anxiety".

Initialize phase, a second phase of Mobile-D methodology. A quantitative analysis method was used to study the music and mood categories respectively. It also determined the relationship between music and emotion, and the outcome to adjust the stress level among the subjects. The quantitative analysis method applied is a set of questionnaires. The questionnaire will be distributed among the sample size of study. The music and mood categories were analysed based on the readings taken from study sample and result were obtained. The overall result will be documented for the guideline purpose.

During the third and fourth phases, which were Productionize and Stabilise, will develop a working prototype. The information obtained from the previous phase can be applied in designing the prototype of DeMuse. Based on the information, it guides and encourage the completion of Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD). Indeed, these diagrams give lots of support and assist in the development of prototype. The main integrated development environment (IDE) employ here will be the android studio. In the process of prototype development, the user interface and its related system will be considered. This development will be divided into several subparts ~~in order~~ to meet an easy-understanding and convenient to handle purposes. After these two phases, the prototype would release for the intention of collecting feedback from users.

In the final phase, it is known as System Test and Fix. During this phase, the prototype is reviewed by the users and presentation about this prototype will be shown for the purpose on increasing the understand ability. The user perception and feedback will be considered and collected to modify a satisfied product.

5.2 The Features and Functions of DeMuse

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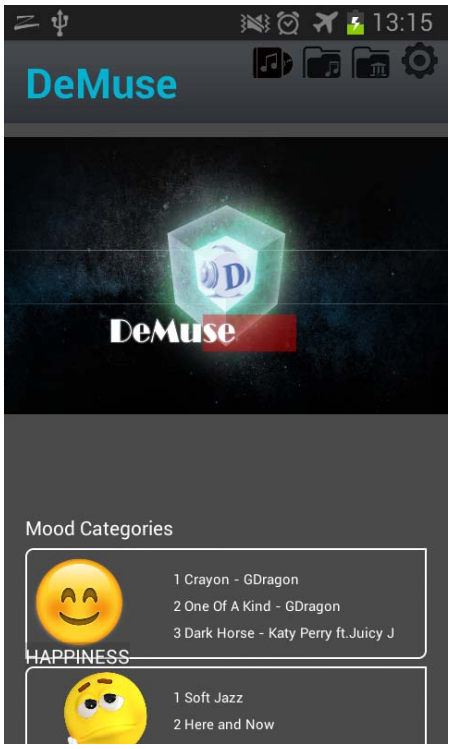

Figure 13. The Main Homepage Of Demuse

Figure 13 shows the main homepage of DeMuse. This page consists of a scroll view of mood category options. This section holds up four emotion representatives, which are categorised into happiness, sadness, anger, and frustration. Each of these categories contains those particular kinds of music that referred to the opinion of target subjects. These categories bring users to the specific interface that belongs to the emotion label respectively. For example, if users selected "Happiness" category, it will switch to the interface with the text written "DeMuse/Happiness" as shown in the figure 13.

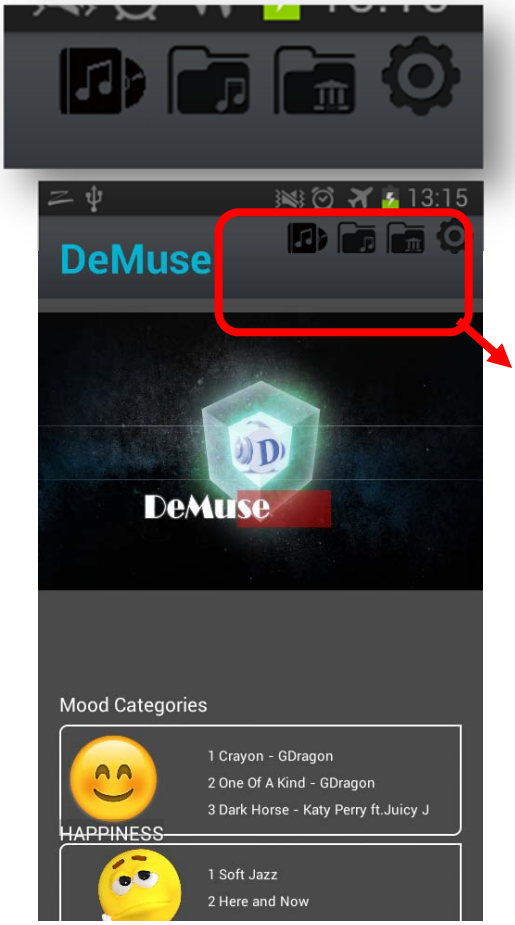

Figure 14. Four Main Buttons Of Homepage, Personal Playlist (Leftmost), Music Playlist (Second), Package Option (Third), And Settings (Rightmost)

Homepage of DeMuse contains four major buttons. Figure 14 shows the main four buttons, which are the "personal playlist", "music playlist", "package option", and "settings". These four buttons will switch different interface respectively. For example, after users selected this "music playlist", it will bring users to another interface which contains a list of music, as shown in the figure 15.

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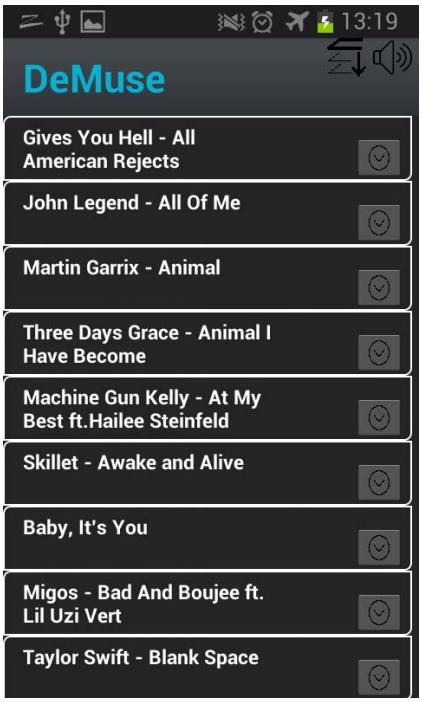

Figure 15. Demuse's Music Menu Interface

Figure 15 shows a list of music. This list allows users to click one of them for listening to the selected music. The first click on the music would be the command of playing, and again next click on the same music would be the command of pausing (Figure 16).

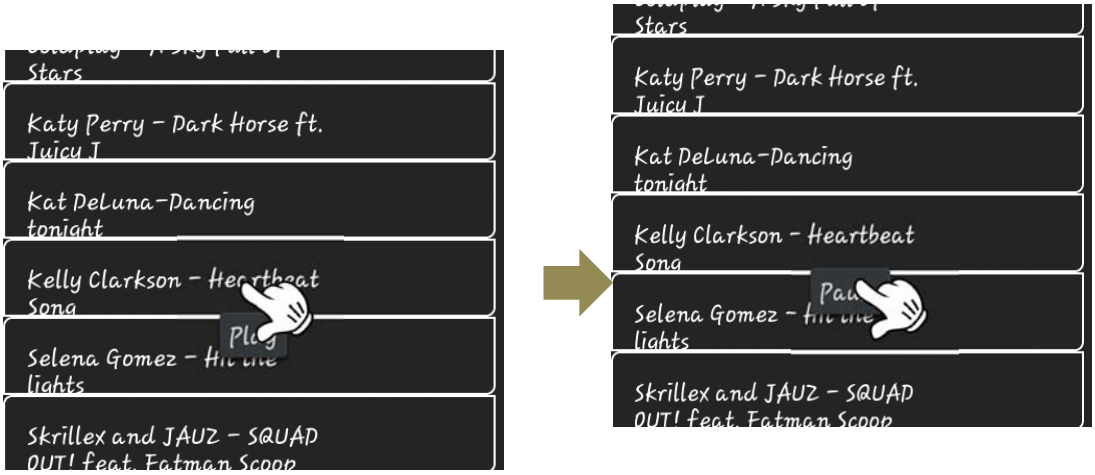

Figure 16. Process Of Playing (First Click), And Pausing (Second Click)

If users would like to interact with an interface that arranged in specific music category, users were demanded to click on the button that located on the top right of interface, as shown in the figure 17.

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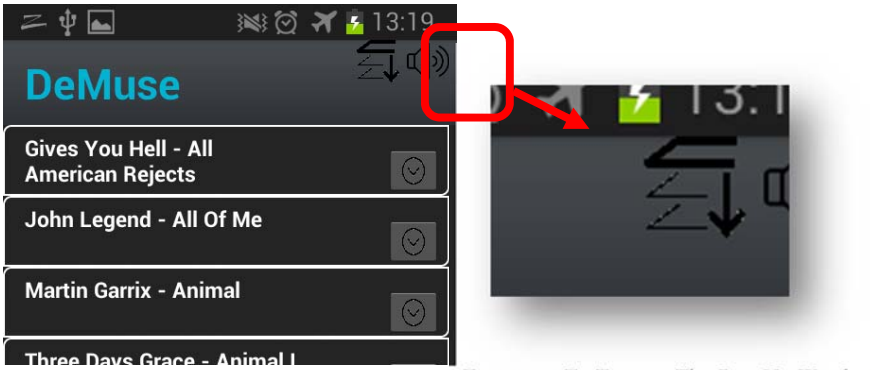

Figure 17. The Button Functions To Trigger The Pop Up Window

Figure 18. Pop Up Window Of The Music Categories

After clicked, there will be a pop up window with some buttons that labelled by different music genre (Figure 18). If users selected one of these buttons, such as pop category, then it will bring the users to another interface that contains music under pop category only (Figure 19).

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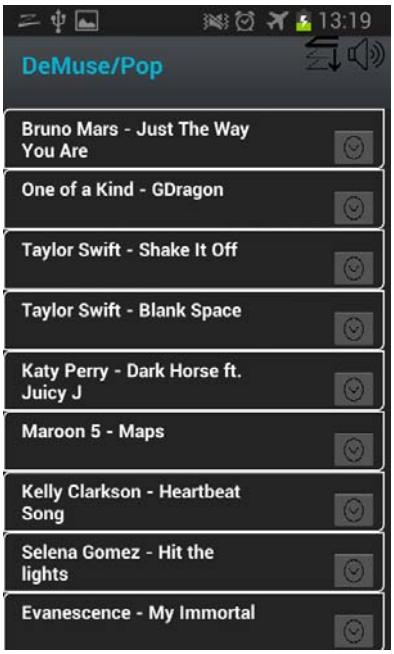

Figure 19. Demuse's Pop Music Menu Interface

However, users can tap on the screen outside of the pop up window and return back to the previous interface, only if users tend to cancel out the pop up action. If users would like to return back to the homepage, users need to click on the text that written "DeMuse" on the top left, as shown in the figure 20.

Figure 20. Music Menu Interface With Text "Demuse" That Trigger The Function Of Returning Back

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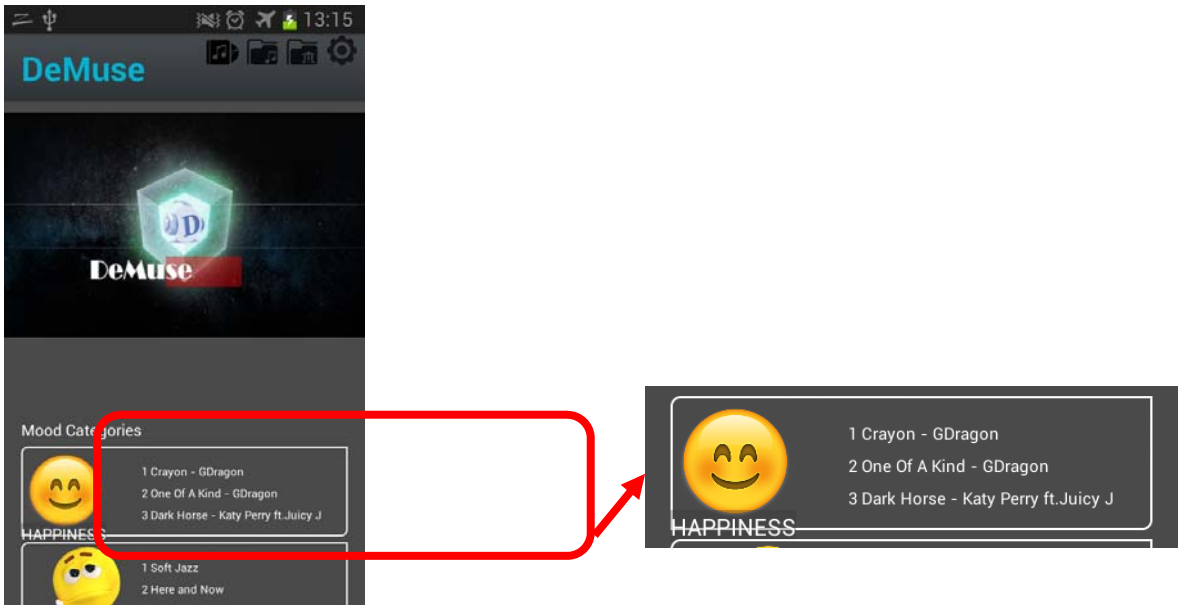

Figure 21. "Happiness" Category Among The Four Mood Categories In The Homepage

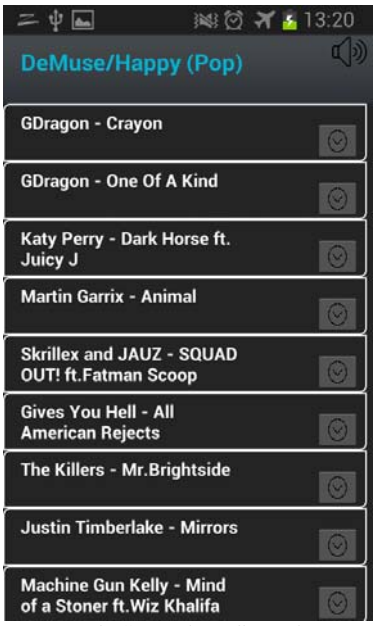

Figure 22. Demuse's "Happiness" Music Menu Interface

If users would like to choose music based on the mood category, users are required to select one of the four mood categories that labelled "Happiness", "Sadness", "Anger", and "Frustration" at the main homepage. Take an example, after users clicked on the category labelled "Happiness" that shown in figure 21, it will switch users to another interface that music under "Happiness" emotion status. If users tend to return back to main homepage from the chosen mood category interface, users are demand to click on the text that written "DeMuse/(mood category)". If users start from "Happiness", users need to click on "DeMuse/Happiness" (Figure 22).

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Figure 23. Insert Button In Demuse's Music Menu Interface

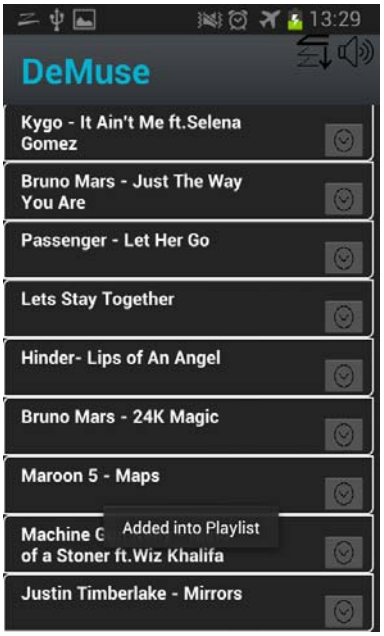

Figure 24. Selected Song Added Into Playlist After Clicked Insert Button

DeMuse allows user to add their favourite song into personal playlist offered. User needs to click on the insert button which appear at the right hand side of every single song. The insert button is shown in Figure 23. After clicked, DeMuse will tell user that the selected song is added into the playlist successfully. This insert button is not just exist in the music menu interface, but also every interface that is song lists provided. After finished the inserting activity, user needs to turn back to the main homepage and click on the "Personal playlist" button to access into the offered personal playlist as shown in Figure 24. However, user allows to delete the added song in the personal playlist interface (Figure 25). To delete a song, user just need to click on the trash button, which is at the right of the particular song shown in Figure 26.

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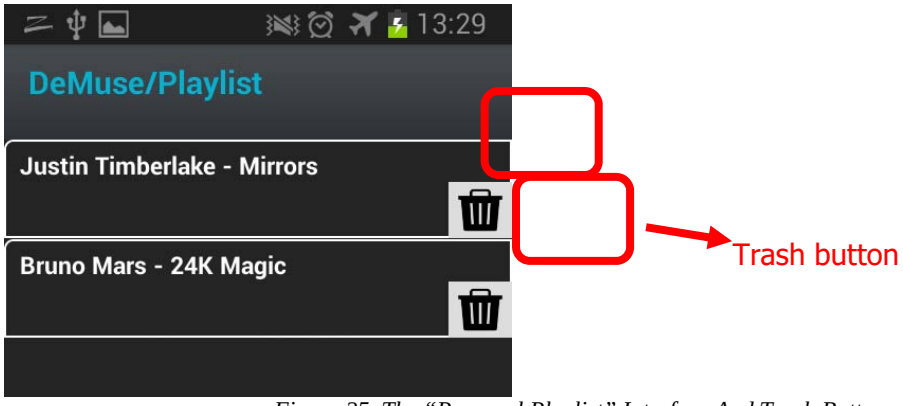

Figure 25. The "Personal Playlist" Interface And Trash Button

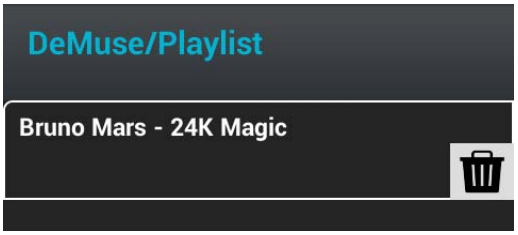

Figure 26. The "Personal Playlist" Interface After Clicked On The Trash Button

Every music and mood category interfaces, there is a Volume button provided at the top right location (Figure 27). It is a shortcut button for user to access into volume settings page ~~in order~~ to adjust the volume of DeMuse, which is showed in ~~the~~ Figure 28.

Figure 27. Volume Button Of Music Menu Interface

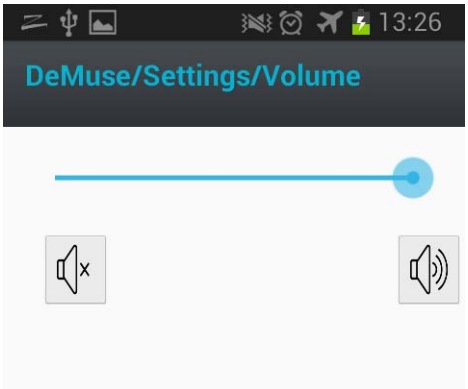

Figure 28. Volume Settings Interface

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Besides that, user can click on the settings button and access into settings menu page which is showed in figure 29 ~~in order~~ to reach the volume settings interface.

Figure 29. Clicked On Settings Button And Access Into Settings Menu Page

User can click on the first button within the settings menu page, which is labelled "Volume". After clicked, user could access into the volume settings page. If user clicked on the second button which is labelled "Quote", user could access into the quote menu page (Figure 30). This page allows user to select any of the inspired quote and then appears at the top of this page and the main homepage. User could select another quote in order to replace the previous selected (Figure 31). However, user is allowed to delete the quote selected through the delete button on top of this page.

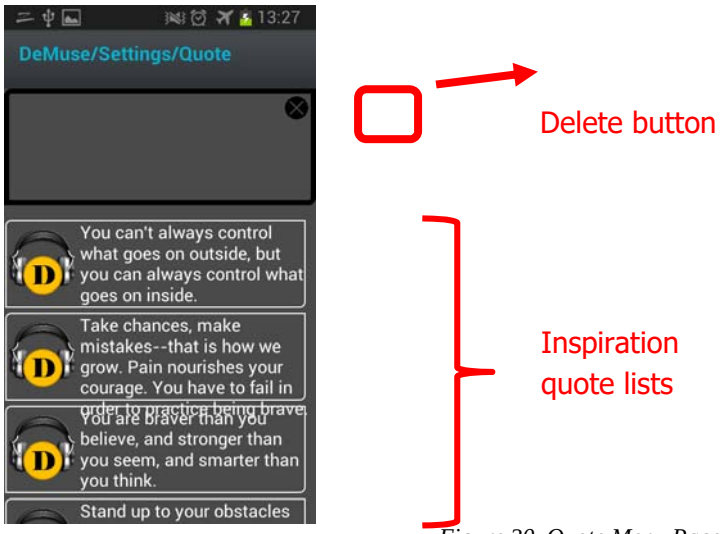

Figure 30. Quote Menu Page

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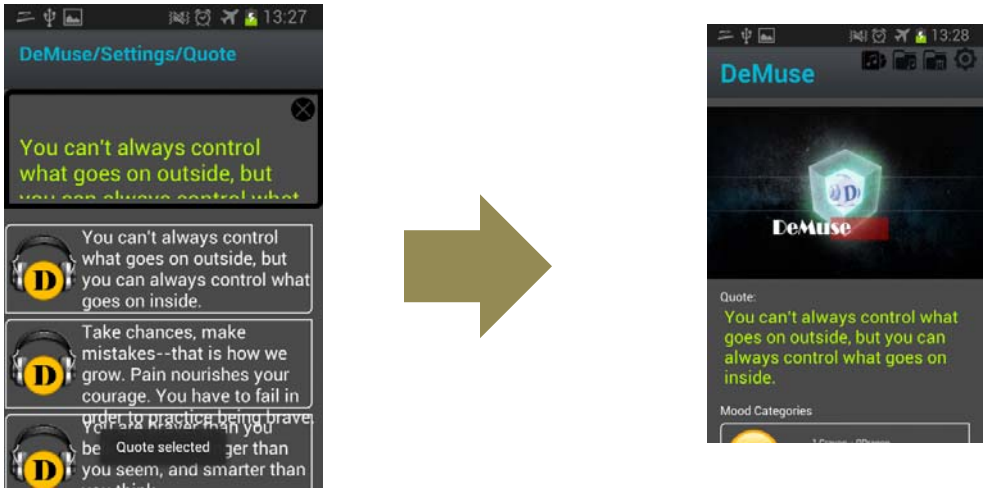

Figure 31. Selected Quote Will Be Showed At The Top Of Quote Menu Page, And The Main Homepage

User may click on the "Package" button ~~in order~~ to follow the relieving stress activities (Figure 32). One of the activity is a quick breathing step, in which allow the user to settle down and clam their emotion and mind in a specific time. Based on [32], this activity is developed from the concept of mindfulness-of-breathing. It said that in-and-out breathing is a purpose to achieve concentration on emotion and mind. It recommended that in-and-out breathing should be complete in a count of eight. This counting manner able to aid user to develop concentration

.

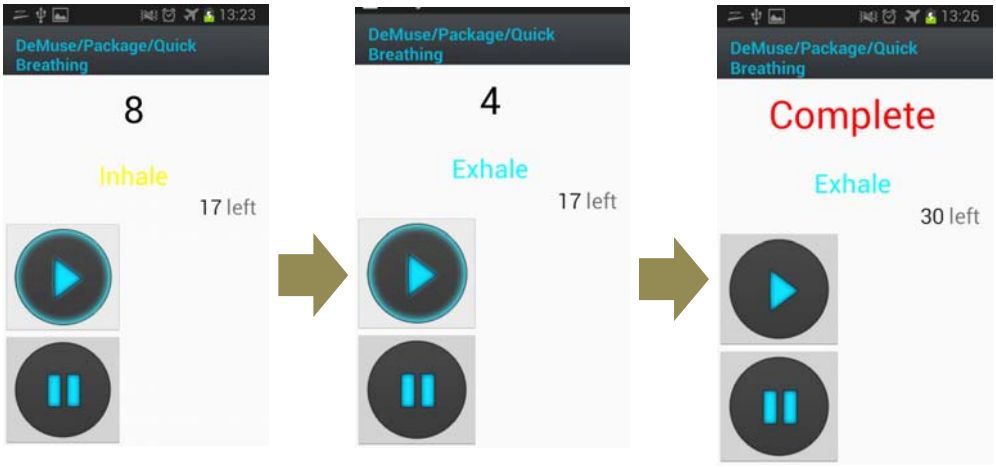

Figure 32. *Inhalation And Exhalation Process*

Figure 32 shows the inhalation process (8 to 5) seconds, and exhalation process (4-0) seconds, and complete after user achieve 30 times of in-and-out breathing homepage. Lastly, users are allowed to click on the text "DeMuse" at the top left of the main homepage in order to activate the quit out function as presented in Figure 33.

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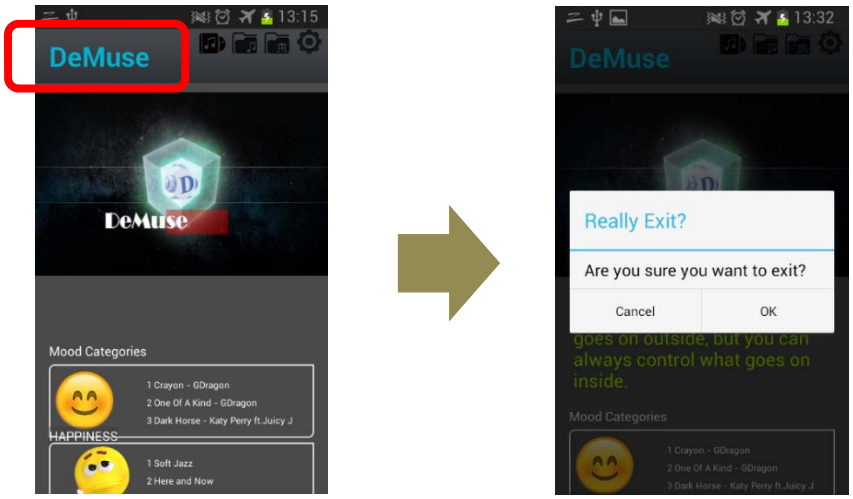

Figure 33. "Quit" Button Of Demuse In Main

5.3 Users' Perception

After the system testing, users will be selected randomly to complete the acceptance testing. The purpose of this acceptance testing is to make sure whether the DeMuse is fit to the objectives planned [33]. The target sample will be participated a quantitative method, which is a set of suitable questionnaire paper. This questionnaire was considered and involved the aspect that contribute to experience people make when testing with the product, and hence meCUE questionnaire that accesses these aspects has been applied [34]. MeCUE includes the dimensions that consists of the intention to use a product (consequences), the perception of instrumental and non-instrumental qualities of a product (product perceptions), and the emotions that a product evokes (user emotions).

Table 1. Gender In Term Of Aged Groups

Gender	**Age Group**			
	20	**21**	**22**	**23**
Male	1	2	4	3
Female	2	2	5	1

The target subjects that participated in this feedback are same as the previous data collection, which are UMS students. The purpose of this questionnaire is to know the feelings of users after used DeMuse, and whether it is suitable to the objectives planned. There are total 20 UMS students participated, which are 10 male students and 10 female students. These 20 study subjects are chosen randomly (Table 1).

At the beginning, a brief presentation and guideline will be provided to participants to ensure DeMuse is being used in a correct manner. After that, users will listen to the suitable song that had been arranged based on the music and mood categories. Users can follow the steps that provided in the package and select the inspired quote to encourage them in facing the problem and stress.

User's feedback towards DeMuse was received through distributed questionnaires. This overall structure of this distributed questionnaire is based on analytical component model of user experience, since it is adapted from meCUE, which is a modular evaluation of the key components of user experience [35]. This questionnaire consists of four modules, there are product perceptions, user emotions, consequences of use, and overall evaluation. The first three modules are

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based on how agree is the user towards DeMuse. "Strongly Disagree" here is considered as 1, while "Strongly Agree" is 5. However, the last module is based on the last statement of questionnaire, which is "Overall, how would you rate this product?".

Table 2. Representative Among Module

Module 1: Product Perceptions	**Module 2: User Emotions**	**Module 3: Consequences of Use**
A = Usefulness	PD = Positive emotions	F = Intention of use
B = Usability	ND = Negative emotions	G = Product loyalty
C = Visual aesthetics		
D = Status		
E = Commitment		

Table 3. Questionnaire's Statements And Id Code

Statements	**ID Code**
The product is easy to use.	B, 1
The overall product is designed attractively and creatively.	C, 1
The functions of product is suitable in achieve my aims.	A, 1
The product is good in relieving my stress.	D, 2
It is quickly apparent how to use the product.	B, 2
Disappearance of this product will annoy me.	E, 1
The product makes me relax.	PD, 1
The product makes me feel tired.	ND, 1
The product makes me feel happy.	PD, 2
The product makes me feel sad.	ND, 2
The product makes me feel angry.	ND, 3
The product makes me feel frustrated.	ND, 4
If I could, I would use this product daily.	F, 1
The product enhances my standing among stress and tensions.	F, 2
The product improves my other abilities.	F, 3
It is hardly to swap this product.	G, 1

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Statements	ID Code
I will recommend this product to my family and friends.	G, 2
I prefer this product as the top choice in relieving stress.	F, 4
Overall, how would you rate this product?	overall

Each of the questionnaire's statements would be assigned or classified to the suitable modules as shown in the table 2 and 3. The result received from the 20 participants will be interpreted into numeric values as well as shown in Table 4.

Table 4. Feedback Towards Demuse

	Representative value
Strongly Disagree	S1
Disagree	S2
Normal	S3
Agree	S4
Strongly Agree	S5

Statements	S1	S2	S3	S4	S5
The product is easy to use.	0	1	6	7	6
The overall product is designed attractively and creatively.	0	1	4	9	6
The functions of product are suitable in achieve my aims.	0	1	3	6	10
The product is good in relieving my stress.	0	0	2	10	8
It is quickly apparent how to use the product.	0	2	9	6	3
Disappearance of this product will annoy me.	1	1	12	3	3
The product makes me relax.	0	0	1	10	9
The product makes me feel tired.	12	4	4	0	0
The product makes me feel happy.	0	3	8	7	2
The product makes me feel sad.	2	5	8	4	1

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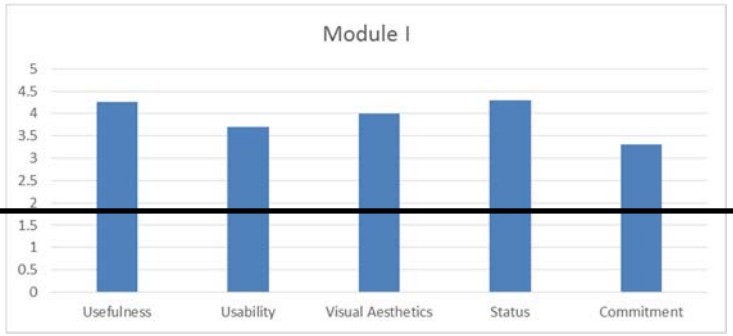
The product makes me feel angry.	15	3	2	0	0
The product makes me feel frustrated.	13	6	1	0	0
If I could, I would use this product daily.	0	1	5	12	2
The product enhances my standing among stress and tensions.	0	2	3	9	6
The product improves my other abilities.	1	2	4	13	0
It is hardly to swap this product.	0	2	7	9	2
I will recommend this product to my family and friends.	0	1	0	11	8
I prefer this product as the top choice in relieving stress.	0	2	5	9	4



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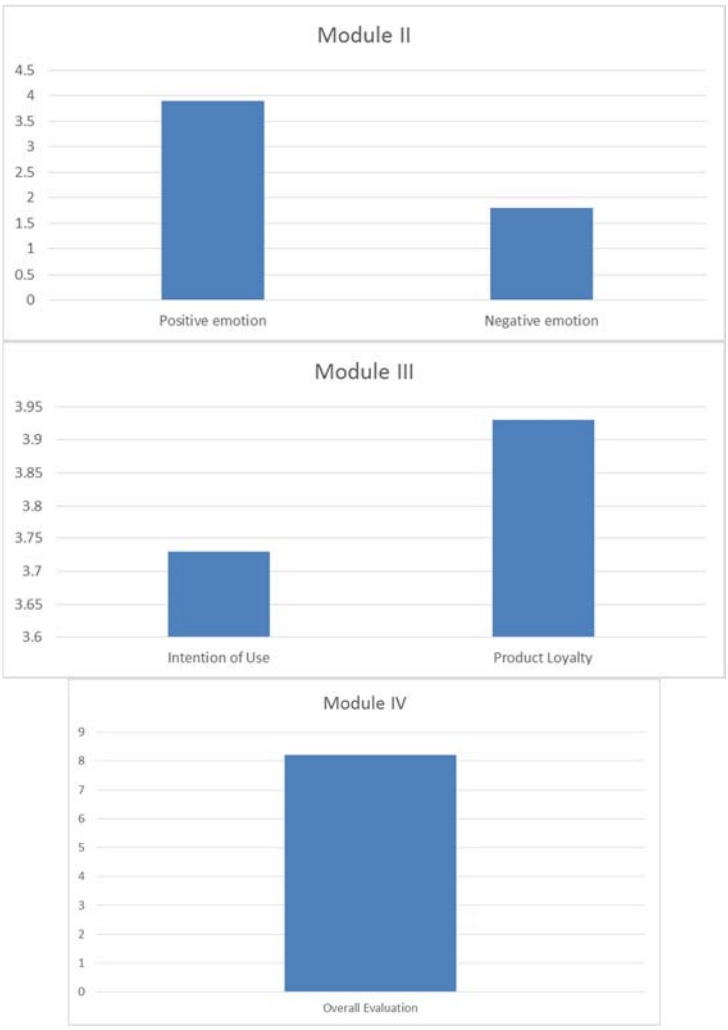

Figure 34. Statistics Of Each Module For Users' Perception

Based on the statistics shown in Figure 34, status shown a highest mean value, 4.3 among the five items in module I, which is product perceptions. In module II, which is user emotions, the positive emotion is beyond the negative emotion in which achieved 3.9 as positive emotion mean value. While for the consequence of use named module III, the product loyalty showed the higher mean value, which is 3.93, and the intention of use achieved 3.73. Lastly, the overall evaluation is achieved average 8.2 out of 10.0, which means that most of the users is satisfied by this DeMuse.

6 Discussion

It could be summarised that listening to the pop, vocal music would be the favour of UMS students in coping daily stressful life. Hence, a representative app, which is known as "DeMuse" will be developed for the target users.

Indeed, [13] defined that, "Stress is often described as a feeling of being overloaded, wound-up tight, tense and worried". This statement had informed that stress would be anywhere, anytime as long as people moving toward negative emotion status. Ironically, this phenomenon will always be

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there only if certain situations occurred had altered the emotional behaviour of somebody. Normally, these kinds of situations are tougher enough to handle. Most of these conditions able to depress an individual and turns to become a stressful obstacle. If any high authorisation, jurisdiction, government or even a smaller scale of societies, family and personal individual are try shutting eyes to these sickness, it will be not a stranger anymore but a fallen angel that could threaten the pure Mother Nature's humanities and life.

However, many studies have found that a number of ways to calm down the outrage of "stress", such as regular exercise, communicating with family and friends, shouting, playing video games, watching television, surfing Internet, and listening to music [16-17]. Since there are numerous ways to relief stress, "listening to music" will be the bible of this study to proof its value of authenticity. In order to maintain a positive mood to cope with the stressful situation, music is one of the choices to get rid of negative mood. Obviously, music often used to change the emotion status or become better, and also afford to make certain people in accomplishing the current works [26]. Based on several studies, [12] found out the ability of music to function as a stress management tools. Patients were deceasing the anxiety and stress level, and a lower blood pressure result was showed during the patients listening to music while waiting for surgery subjectively [12].

After the quantitative method had released and interviewed a total 50 students of Universiti Malaysia Sabah (UMS), many respondents believed that listening to suitable music able to soothe personal individual's feelings and hence degrade the level of negative stress. Meanwhile, this quantitative method also finds out that people in 19 to 24 aged groups were likely to enjoy the pop music genre with vocals on. This will be the key element in this application's development. It is hope that DeMuse, which is a distress product could give a great help for those victims that troubled or tortured by negative stress.

7 Conclusion

In summary, based on the previous studies, increasing trend of health problem mainly came from stress faced in daily life. These negative symptoms can be minimized through several ways such as surfing Internet, playing video games, exercising, and listening to music. A Mobile application, namely as "DeMuse" has been developed as an alternative way of de-stressor that in the theme of music. DeMuse consists of meditation properties, some sentences of guidance instruction applied to ease users in understanding the steps. Variety of different relaxation employed for users to choose as the relieving stress purposes. A sentence of inspiration quote would show at the bottom position of DeMuse application. Hence DeMuse is a music mood application, the general features of a music media player such as option lists of music, and create personal playlists should be added. Through the development of DeMuse, users may able to reduce their stress in everywhere. The overall music and emotion categories are mainly concern with the UMS students, these arrangements and relationships will be obtained from users as further improvement purpose. Moreover, the features applied in "DeMuse" will be modified to ensure users experience it in more simple way. Thus, it is hopes that "DeMuse", which is the product of this study would be an alternative way in coping with this negative stress.

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