ACTION AND ADVENTURE GAMES DEVELOPMENT AS AN INTRODUCTION ON INDONESIA TRADITIONAL WEAPONRY ANDROID BASED

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ABSTRACT

Traditional weapons are tools that are used to defend themselves from attack/threat of everything and the completeness of the identity that way, its forms, and their use was inherited hereditary. Now, traditional weapons less media was introduced, which helps to introduce them is very limited. Required revitalizing of tradition value by actualize in formats and new forms. In the age of technology, information technology is expected to help introduce traditional weapons as well as the interest of the community especially the young generation in adding knowledge about Indonesia traditional weapon. One of them could be through the media of games, because games are very popular by people especially youngsters nowadays.

Model used in the development of this game is to model the GDLC (Game Development Life Cycle) and designing system using UML (Unified Modeling Language). This game has a genre of action and adventure, information and knowledge about traditional weapons will be presented when playing this game.

Based on the results of the evaluation users from 100 respondents obtained the results of the overall attitude of respondents towards this game there are very positive on the category, meaning that overall the respondents looked at this game is very helpful to introducing diversity Indonesia traditional weapon.

***Keywords** : Game, Traditional Weapon, Indonesia, Action, Adventure*

1. INTRODUCTION

One of the objects preservation of culture is the traditional weapons listed in the Regulation of the Minister of education and culture of the Republic of Indonesia number 10 Year 2014, about guidelines preservation of tradition. Traditional weapons i.e. tools that are used to defend themselves from attack/threat of everything and the completeness of the identity that way, its forms, and their use was inherited hereditary [2]. At this time the traditional weapons has become the identity of a nation that also enriches the cultural treasures of the archipelago should be respected and maintained as well as it needs to be preserved so as not to be forgotten.

In the preservation of traditional weapons, required efforts in its development. It can be done through the revitalization of Traditional Weapons traditions value [2]. The revitalization of its realization can be interpreted in various forms of activities one of which back strengthening traditions [3]. To get the results of those activities, the first step that must be done is introduced.

Agus Heryana [3], a researcher in the House of culture of preserving West Java cultural values, the declared purpose is absolutely essential to introduce traditional weapons to the public especially the young generation, because Indonesia has a variety of traditional weapons such as for each province. Currently the weapon is introduced in less traditional school education, media that helped introduce the diversity of Indonesia traditional weapon is extremely limited. Needed to revitalize the values of tradition, maintaining the values and spirit that exists in the traditional Weapon then actualize new forms and formats. In the age of technology, information technology is expected to help introduce traditional weapons as well as the interest of the community especially the young generation in adding knowledge about Indonesia traditional weapon. One of them could be lifted through the games, because games are very popular by people especially youngsters nowadays.

Based on these problems then it can be inferred that the need for a media form an interesting game to help introduce the diversity of Indonesia traditional weapon. Based on survey results obtained by disseminating a questionnaire to 100 respondent stated that the respondent as much as 89.6 percent of gaming is the most suitable media and interesting to introduce the diversity of traditional weapons, 59 percent expressed interested and as much as 33.3 is excited to play the game as a medium to introduce traditional weapons. As many as 80.8 percent of the respondents expressed the usual devices they use for playing games is a smartphone-based Android operating system, with 82.1 percent of the vote as the genres of action and adventure games of interest. Based on the results of the survey, then it can be inferred that the Android-based game with action and

adventure genres are the most suitable media and attractive for the media introduction of the Indonesia traditional weapon.

Based on the results of such research, then taken the topic thesis under the title "development action and Adventure Games as a Media introduction of the Android-based Indonesia traditional weapon", in hopes of helping introduce traditional weapons as well as cultivate a young generation interest in adding to the knowledge of the traditional weapons of Indonesia.

2. THE CONTENT OF RESEARCH

2.1 Traditional Weaponry

It is the traditional weapon used to defend dariserangan/threat of everything and the completeness of the identity that way, its forms, and their use was inherited hereditary [2]. In addition to being used for shelter from the attacks of enemies, weapons are also used in traditional tillage activities and hunting. More of its functions, the traditional weapon is now the identity of a nation that also enriches the cultural treasures of the archipelago.

2.2 Games

The games is derived from the English word meaning a basic game. The game in this case refers to the sense of intellectual agility (Intellectual Game Playability) which can also be interpreted as a decision and action arena players. In the game, there are targets to be achieved to his players. The game is a complex activity which contained rules, play and culture. A game is a system where players engage in an artificial conflict, here the players interact with the system and conflict in the game is engineered or handcrafted, in the game there is a rules that aim to limit the behavior of players and determine the game [6].

2.3 Android

Android is an operating system for cell phones are Linux-based. Android provides an open platform for developers to create their own applications and is used by a wide variety of mobile devices. In this world there are two types of distributors operating system Android. First got full support from Google or Google Mail Services (GMS) and the second is right – free distribution without the direct support of Google or known as the Open Handset Distribution (OHD) [9].

2.5 Construct 2

Construct 2 is a 2D game engine for HTML 5 developed by Scirra Ltd., a start-up company based in London. The game engine was developed with the concept of behavior so that attachment event & logic in-game can be built without having to type a single line of code (simply drag-and-drop only).

Since the beginning Construct 2 is indeed designed to maximize game development process without having to do the scripting/coding. The aim is to speed up the process of making games and helping non-programmers to create games of their dreams. Setting logic to Construct 2 presented in Event Sheet which contains various methods and basic functions of the typical construction of a game. The end result of games built by Construct 2 is HTML 5 based games which can be run in various browsers such as Chrome, Firefox, Internet Explorer, Safari and Opera [13].

2.4 The Analysis Of The Games Will Be Built

The games will be built has the name "Pusaka Raja". Based on the results of a survey that has been done by disseminating a questionnaire to 100 respondents stated that 82.1 percent liked the game with action and adventure genres, so the game will be built has a genre of action and adventure with the display side scrolling (display sideways). Application of the in-game description is as follows :

1. *Control characters using the keypad that is run by means of touch screen smartphones. There are several control buttons that is running towards the right (forward), ran towards the left (backwards), jump, attack, and removing the kick.*
2. *Submission of materials/information on traditional weapons will be delivered by a character during play and more details can be seen in the menu of the encyclopedia.*
3. *Has 12 stage with different levels of difficulty.*

2.5 Gameplay

In this game the player plays the role of the main character i.e. Brama in the Pusaka Raja. Before entering the main menu, in the insert a intro content which tells the early story of this game. After that the game will feature a small village, where it is as in-game main menu the Pusaka Raja. The menu consists of:

a. Pusakapedia

Pusakapedia is a menu in which there is information education of traditional weapons.

b. Besalen

Besalen is a menu to change the weapon used by the character.

c. Portal

The portal is a menu to enter the arena game, which consists of several islands and stage as follows:

***Tabel 1.** Analysis of Stage*

Ilands	*Stage*	*Province*
Sumatera	*1*	*Aceh – Sumatera Utara – Sumatera Barat*
	2	*Riau – Kepulauan Riau – Jambi – Bengkulu*
	3	*Sumatera Selatan – Bangka Belitung – Lampung*
Jawa	*1*	*DKI Jakarta – Banten – Jawa Barat*
	2	*Jawa Tengah – Jawa Timur – Yogyakarta*
Kalimantan	*1*	*Kalimantan Barat – Kalimantan Tengah – Kalimantan Selatan*

Ilands	Stage	Province
	2	Kalimantan Timur – Kalimantan Utara
Sulawesi	1	Sulawesi Barat – Sulawesi Utara – Sulawesi Tengah
	2	Sulawesi Selatan – Sulawesi Tenggara – Gorontalo
Maluku	1	Maluku – Maluku Utara
Nusa Tenggara	1	Bali – Nusa Tenggara barat – Nusa Tenggara Timur
Papua	1	Papua – Papua Barat

2.6 Analysis of The Game Components

Analysis of the components of the game are a part describing each component of the game.

2.6.1 Analysis of The Character

In this section described the characters found in the game the King's inheritance.

***Tabel 2.** Characters in the Game will be built*

No	Name	Pictures	Descriptions
1	Bramawijaya		Merupakan karakter utama yang memiliki kemampuan melompat, menghindari musuh, menebas, dan menembak menggunakan senjata, serta jurus tenaga dalam untuk mengalahkan musuh

2.6.2 Analysis of The NPC

In this section are explained in-game NPC heirloom King.

***Tabel 3.** NPCS in the Game will be built*

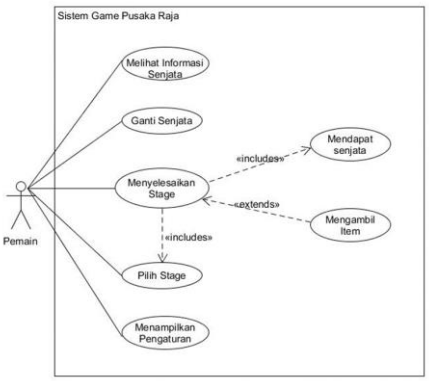
No	Name	Pictures	Descriptions
1	Gongba		The enemy using the weapon of wooden bats to attack. Gongba has the ability as follows: HP: 750 Attack power: 20
2	Rengga		The enemy that uses stone thrown for strikes. Gongba has the ability as follows: HP: 450 Attack Power: 50
3	Tuyul		Enemies can detonate himself. Toyol has the following capabilities: HP: 400 Attack power: 115
4	Palasik		Boss on the island of Sumatra. Supernatural beings is Palasik became legends or beliefs of the Minangkabau people. Palasik has the ability as follows: HP: 2000 Attack Power: 70
5	Babi Ngepet		Boss on the island of Java. babi ngepet stealth is a pig. Babi Ngepet has the following capabilities: HP: 3500 Attack power: 90
6	Kambe		Boss on the island of Borneo. Kambe is stealth-shaped half-goat and half-man known in Kalimantan. Kambe had the ability as follows: HP: 5000 Attack power: 100
7	Asu Panting		Boss on the island of Sulawesi. Dog Panting is the demon Wolves of the bugis. Panting dog has the ability as follows: HP: 6000 Attack power: 100

2.7 Story Line

A young man named Bramawijaya who do the adventure to reclaim the inheritance-inheritance of Indonesia which has been stolen by stealth.

2.8 Use Case Diagram

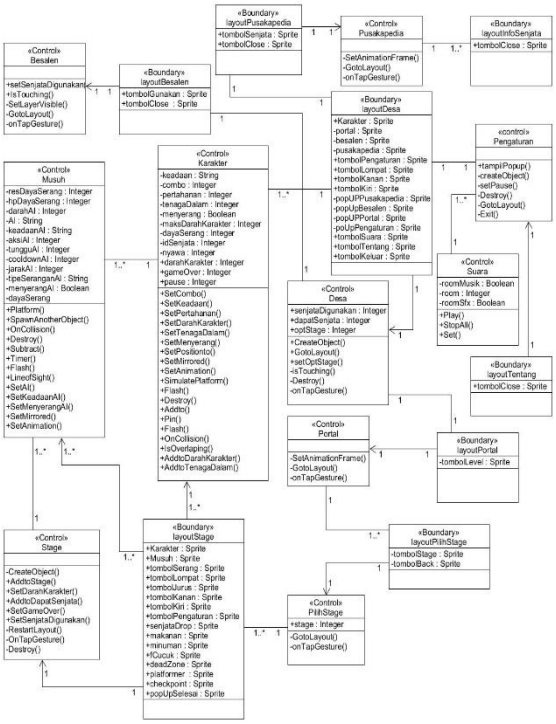
Use case diagram is a diagram to describe relationships that occur between actors with activity that is present on the system. The target use case modeling such as defining the functional needs and operational systems by defining a system deployment scenarios will be built. In General, the interaction between the player with the game application is described on a Use Case diagram in picture 1.



***Picture 1.** Pusaka Raja Game Use Case Diagram*

2.9 Class Diagram

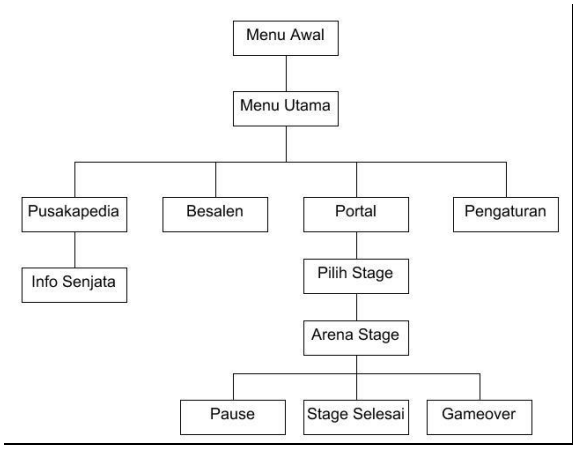
Class Diagram on the game King's Heritage can be seen in Picture 2.



Picture 2. *Pusaka Raja Game Class Diagram*

2.10 The Design Of The Menu Structure

For ease in making systems, required the design of the program menu structure will be built. The design of the menu structure the program helps in designing the parts of the system and to find out which parts that will be accessible to first after the program is completed. The design of the architecture menu on the game King's Heritage can be seen in Figure 3.



Picture 3. *Pusaka Raja Game Menu Structure*

2.11 Implementation Of Interface

Following are the results of the implementation of the interface of the previously created design:

2.11.1 Menu Awal Interface



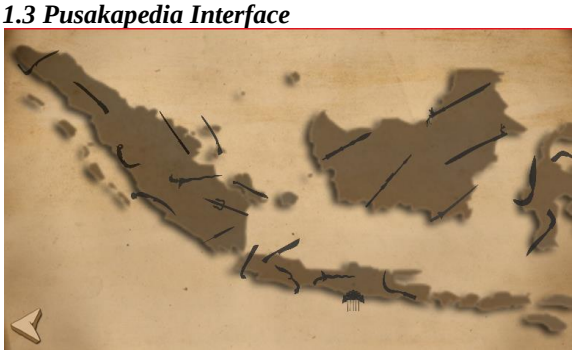
Gambar 4. *Menu Awal Interface*

2.11.2 Menu Utama Interface



Picture 5. *Menu Utama Interface*

2.11.3 Pusakapedia Interface



Picture 6. *Pusakapedia Interface*

2.11.4 Informasi Senjata Interface



Picture 7. *Informasi Senjata Interface*

2.11.5 Besalen Interface



Picture 8. *Besalen Interface*

2.11.6 Pengaturan Interface



Picture 9. *Pengaturan Interface*

2.11.7 Portal Interface



Picture 9. *Portal Interface*

2.11.7 Pilih Stage Interface



Picture 10. *Pilih Stage Interface*

2.11.8 Arena Stage Interface



Picture 11. *Arena Stage Interface*

2.11.9 Gagal Interface



Picture 12. *Gagal Interface*

2.11.10 Berhasil Interface



Picture 13. *Berhasil Interface*

2.12 System Testing

System testing done to find errors or bugs in the game that tested as well as to find out which games are made already meet the criteria in accordance with the purpose of designing a game.

2.12.1 Black Box Testing

Black box testing is conducted to find out whether all functions of the game has been running properly in accordance with the functional requirements.

Table 5. *Menyelesaikan Stage Testing (Case and Test Results)*

Input	*The expected results*	*Observations*	*The Test Results*
The attack on the enemy	*The blood of the enemy attack power reduced by weapons used*	*The system displays the animated enemies hit*	*[√] Success [ ] Not Success*
Kick on the enemy	*The blood of the enemy reduced by 150 + attack*	*The system displays the affected enemy*	*[√] Success [ ] Not Success*

Input	The expected results	Observations	The Test Results
	power weapons used	animation style	
Attack the enemy about the character	Blood characters reduced by attacking the enemy	The system displays the animated characters affected by the moves	[√] Success [ ] Not Success
		The system displays the character reduced blood	[√] Success [ ] Not Success
Kick the enemy about the character	Blood characters reduced by attacking the enemy's fighting style	The system displays the animated characters affected by the moves	[√] Success [ ] Not Success
		The system displays the character reduced blood	[√] Success [ ] Not Success
The affected character thorn	Blood characters reduced by 20 points	The system displays the animated characters affected by the moves	[√] Success [ ] Not Success
		The system displays the character reduced blood	[√] Success [ ] Not Success
The characters fall into the abyss	The lives of the characters are reduced to 1 points	The system displays the character's life is reduced	[√] Success [ ] Not Success
	The characters go back to checkpoint		[√] Success [ ] Not Success
Enemy Blood < = 0	The object of the enemy destroyed	Enemy objects missing from arena stage	[√] Success [ ] Not Success
	Drop weapon object appears	The system displays the object drop weapons	[√] Success [ ] Not Success
Tenaga dalam < tenaga dalam maximal	Every 1.5 seconds increase of 1 point tenaga dalam	The system displays the character increases in power	[√] Success [ ] Not Success
The distance of attack the enemies reach characters	Enemy attack	The system displays an animated enemy attack	[√] Success [ ] Not Success
Blood characters < = 0	The lives of the characters are reduced to 1 points	The system displays the character's life is reduced	[√] Success [ ] Not Success
The lives of characters = 0	Display a pop up "Game Over"	The system displays a pop up "Game Over"	[√] Success [ ] Not Success

2.12.2 Black Box Testing Conclusions

From the results of testing a black box has done, it can be concluded that the game is functionally can already produce the expected output.

2.13 User Evaluation

To know the response and assessment users against the Pusaka Raja game. It has been distributed questionnaires to 100 respondents. Calculations for questionnaire using likert scale. As for the question asked to the user as follows:

1. *Do you agree this game help you better get to know the diversity of Indonesia traditional weapon?*
2. *Do you agree with the play of this game add to your knowledge about Indonesia traditional weapon?*
3. *Do you agree this game can introduce and preserve the values of the traditional weapons of Indonesia?*
4. *Do you agree that this game is an interesting medium to introduce Indonesia traditional weapon?*
5. *Do you agree that the concept as well as the appearance of this game interesting?*

For the answers to the questionnaire will be used a scale of 1 to 5 with answers does it weigh each can be seen in table 6.

Table 6. *Likert Scale Table*

Weights	Description
5	Strongly Agree
4	Agree
3	Hesitation
2	Do Not Agree
1	Strongly Disagree

a. Assessment Of The Attitude Of Each Respondent

Based on that data, steps that can be taken to find out how the attitudes of each of the respondents against the Pusaka Raja:

1. Determine the maximum score, that score the biggest answer multiplied many items.

5 x 5 = 25

2. Determine the minimum score, i.e. the smallest answers score multiplied many items.

1 x 5 = 5

3. Determine the value of the median, namely the results of calculations of maximum score with a score of at least halved.

(25 + 5) / 2 = 15

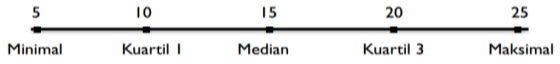
4. Determine the value of quartile 1, i.e. the results of calculations with a median score of at least halved.

(5 + 15) / 2 = 10

5. Determine the value of quartile 3, i.e. the results of the calculations of the maximum score with the median is divided in two.

(25 + 15) / 2 = 20

6. A scale score of at least, describes the value of 1, the median quartile quartile 3, and a maximum score.



7. Limits score for each category the attitude can be seen in table 7.

Table 7. *Limits Score each attitude category*

Strongly Positive	*3rd quartile ≤ x ≤ The Maximum Score*	*20 – 25*
Positive	*Median ≤ x < 3rd quartile*	*15 – 20*
Negative	*1st quartile ≤ x < Median*	*10 – 15*
Strongly Negative	*The Minimum Score ≤ x < 1st quartile*	*5 – 10*

8. Frequency distribution of each respondent's attitude towards the Pusaka Raja game can be seen in table 8.

Table 8*. Frequency Distribution Of Respondents*

Attitude Categories	***Score Categories***	***Frequency***	***Percentage***
Strongly Positive	*20 – 25*	*82*	*82%*
Positive	*15 – 20*	*18*	*18%*
Negative	*10 – 15*	-	-
Strongly Negative	*5 – 10*	-	-
		100	*100%*

9. Conclusion

Based on table 4.18 appears that attitude every respondent about Heirloom games King spread on a very positive attitude category 82% and 18% positive attitude.

b. Assessment Of The Attitude Of The Entire Respondent

To see the attitude of respondents overall against the Pusaka Raja game, the stride is:

1. Determine the maximum score, that score the maximum obtained each of respondents multiplied by the number of respondents.

(25 x 100 = 2500)

2. Determine the minimum score, that score at least obtained each of respondents multiplied by the number of respondents.

(5 x 100 = 500)

3. Determine the value of the median, namely the results of calculations of maximum total score with a total score of at least halved.

(2500 + 500) / 2 = 1500

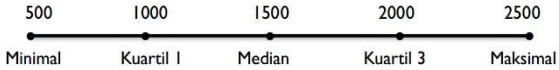
4. Determine the value of quartile 1, i.e. the results of the calculations of total score of at least with median split in two.

(500 + 1500) / 2 = 1000

5. Determine the value of quartile 3, i.e. the results of the calculations of the maximum score with the median is divided in two.

(2500 + 1500) / 2 = 2000

6. Scales depicting total minimal score, the value of 1st quartile, the median, 3rd quartile, and the maximum total score.



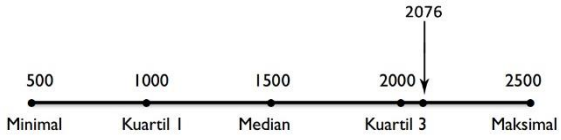
7. Limits score for each category the attitude can be seen in table 9.

Table 9. *Limits Score each category Attitude*

Strongly Positive	*3rd quartile ≤ x ≤ The Maximum Score*	*2000 – 2500*
Positive	*Median ≤ x < 3rd quartile*	*1500 – 2000*
Negative	*1st quartile ≤ x < Median*	*1000 – 1500*
Strongly Negative	*The Minimum Score ≤ x < 1st quartile*	*500 – 1000*

8. Based on the distribution of the results of the tally score of each respondent as in table of distribution of the results of the data collection respondents, then obtained a total score for all respondents is 2076.

9. Many score total respondents to the scale at the point.



10. Conclusion

Based on the total score of many respondents then the overall attitude of respondents towards Pusaka Raja game there in category a positive attitude. This is shown by a total score of respondents located between score 2000 (3 quartile) and 2500 (maximum), which is the limit score in the category of very positive attitude.

3. CLOSING

3.1 Conclusion

From the results of the evaluation of the users each respondent obtained the results of as many as 82

people (82% of all respondents) looked at a game King's Inheritance is very helpful in introducing Indonesia traditional weapon. Then as many as 18 people (18% of all respondents) looked at a Pusaka Raja game helped in introducing the traditional weapon of Indonesia. While for many the total score of respondents obtained a total score of respondents score between 2000 (3 quartile) and 2500 (maximum), which is the limit score in the category of very positive attitude, meaning that overall the respondents viewed the Pusaka Raja game is very helpful in introducing Indonesia traditional weapon.

Based on the results of the implementation and testing of the game King's Inheritance can be drawn the conclusion that the game King's Inheritance is very helpful in introducing diversity Indonesia traditional weapon to the public especially the young generation.

3.2 Advice

The Pusaka Raja game still has a lot of lack. For that, there are a few suggestions to support the development of this game:

1. *Each stage represents a province.*
2. *There are weapons upgrade feature.*
3. *The characters have a level that will improve the ability of every level up.*
4. *Every weapon has a different skill.*

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