GAME LEARN TO CALCULATE FOR KIDS

Compiled as a condition completing Strata study Program at the Department of Informatics, Faculty of Communication and Informatics

Oleh:

MUHAMMAD ROSYID RIDHO

L200102017

DEPARTMENT OF INFORMATICS

FACULTY OF COMMUNICATION AND INFORMATICS

UNIVERSITAS MUHAMMADIYAH SURAKARTA

2017

PAGE APPROVAL

GAME LEARN TO CALCULATE FOR KIDS

SCIENTIFIC PUBLICATION

by :

MUHAMMAD ROSYID RIDHO

L200102017

Have been inspected and approved to be tested by :

Supervisor

Husni Thamrin, Dr., S.T., M.T.

NIK . 706

ENDORSEMENT PAGE

GAME LEARN TO CALCULATE FOR KIDS

BY

MUHAMMAD ROSYID RIDHO

L200102017

It has been maintained in front of Board Examiners

Faculty of Information and Informatics

Universitas Muhammadiyah Surakarta

On the day Saturday, 17 June 2017

And declared eligible

Broad Examiners:

1. **Husni Thamrin, Dr.,S.T.,M.T** (.....)
   (Supervisor)
2. **Heru Supriyono, ST, M.Sc, PhD** (.....)
   (Examiner I)
3. **Dr. Fajar Suryawan, M.Eng.Sc** (.....)
   (Examiner II)

Dean of

Faculty of Communication dan Informatics

Nurgiyatna, S.T.,M.sc.,Ph.D.

NIK . 881

Head of Study Program

Informatics

Dr. Heru Supriyono, M.sc.

NIK. 970

DECLARATION

I hereby declare that this publication article there are no works that have been proposed to obtain a degree at a university and all my knowledge also does no have work or opinions even written or published another person, except in writing referred to in the text and are mentioned in the list library.

If it is found there is untruth in my statement above, and I will fully accountable

Surakarta, 7 Oktober 2017

Author

MUHAMMAD ROSYID RIDHO

L200102017

GAME LEARN TO CALCULATE FOR KIDS

Abstrak

Game adalah media hiburan yang sangat umum di era zaman sekarang, dimana semua kalangan dari anak-anak hingga dewasa dapat dengan mudah mengakses game baik dari personal computer, telefon genggam, maupun dari media lainnya. Dengan mudah mengakses game dan minat masyarakat yang tinggi terhadap game maka bermunculan berbagai platform maupun genre game yang sangat bervariasi. Bermain game sendiri tak terlepas dari dampak positif dan negatifnya. Masyarakat luas berpandangan bahwa game dapat menyebabkan kemalasan secara intelektual maupun kemampuan bersosialisasi gamers dengan lingkungan sekitar namun sebuah penelitian dari *Universitas of Rochester* di New York menyebutkan bahwa proses belajar melalui game. Salah satu alasan dari pembuatan game ini adalah karena anak-anak suka bermain game, adapun tujuan dari pembuatan program ini adalah membuat game berbasis scratch, penulis berharap program ini membantu dalam mencerdaskan anak-anak khususnya anak berusia sekitar 7 tahun.

Kata kunci : Game, Pembelajaran, Scratch, hiburan

Abstract

Game is a very common entertainment media in the era of today, where all circles from children to adults can easily access games either from personal computers, mobile phones, or from other media. With easy access to games and high community interest in the game then popping up various platforms and game genres are very varied. Play the game itself can not be separated from the positive and negative impacts. The general public holds that games can cause intellectual laziness and sociability gamers with the environment but a study from the University of Rochester in New York mentions that the process of learning through games. One of the reasons for this game is because children like to play games, while the purpose of making this program is to make scratch based game, the author hopes this program helps in educating children, especially children around 7 years old.

Keywords: Game, Learning, Scratch, entertainment

1. INTRODUCTIONS

In this modern era more and more activities are done by children, starting from school and playing with their friends. This is what sometimes makes children feel bored and want something different to entertain themselves. As an alternative to media saturation is a game or game play on the computer. Game is a structured or semi-structured activity that is usually done for fun or as a medium of learning.

Educational games are very interesting to develop. There are several advantages of educational games compared to conventional educational methods. One of the main advantages is the educational games on the visualization of real

problems. Massachussets Insitute of Technology (MIT) has proved that games are very useful for improving the player's logic and understanding of a problem through a game project called Scratch.

Simulation-based educational games are designed to simulate existing problems to obtain the essence or knowledge that can be used to solve the problem.

Simulation games with educational purposes can be used as a medium of education that has the learning patterns of learning by doing. Based on the pattern possessed by the game, players are required to learn so as to solve existing problems. Game status, instructions, and tools provided by the game will guide players actively to explore information so as to enrich knowledge and strategy while playing. As psychologist Joan Freeman and Utami Munandar (1996) describe play as an activity that helps the child achieve full development, whether physical, intellectual, social, moral and emotional.

Educational games are one part of a serious game. Based on the results of previous research studies, no doubt that educational games can support the educational process (Marsh, et al, 2005; Clark, 2006). Educational game excels in some aspects when compared to conventional teaching methods. One of the significant advantages is the animation that can improve memory so that children can store the material lessons in a longer time compared with conventional teaching methods (Clark, 2006).

Educational games for children already widely developed. Educational games for children are usually designed to stimulate motion (motor), as well as stimulate intelligence (cognitive) according to Papalia (1993). Among the cognitive abilities are reading, writing and arithmetic.

Educational games to stimulate numeracy have also been widely available. On the internet, there are more than 20 calculating games. But most of these games teach counting using numbers. Which means the child must recognize the number first. For children who do not know numbers and numbers, learning counting becomes difficult. Therefore we are working to create games for seven-year-olds to teach the concept of arithmetic without using numbers.

2. METHOD

2.1 System design

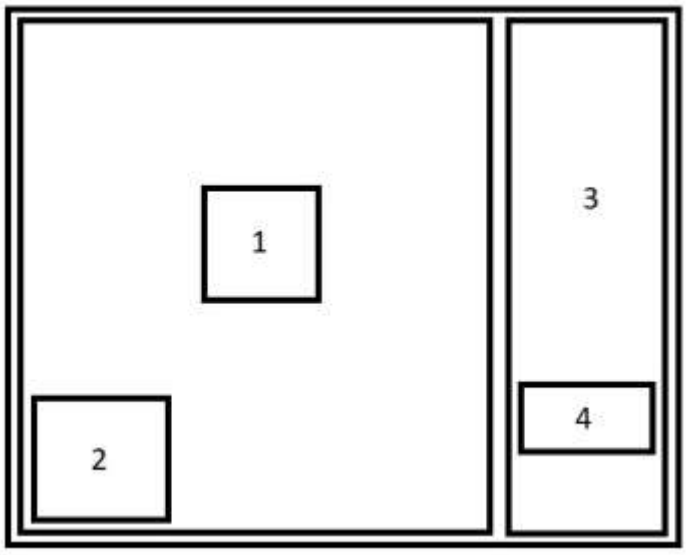
Designing games is not an easy matter. To design a good game certainly takes a long time. That is the reason why game designer takes time that could be years just to gather ideas from a game that will be created later. In designing games, a designer collects ideas first for some time. The idea is; what kind of game it will be, can be played by how many people, genre of the game, using score system or not, the characters, game rules, system level, character behavior at each level, the environment in which the character is in action, the final type of game, game engine to be used, and so on.

The method I use to create this game is an evaluation method, which examines how this program works and describes complex facts and is involved in the program, here are the tools used in its game creation: blender, gimp, scratch, and, microsoft word.

The following are the steps of making the design of the game: determine the object to be created, such as cubes and boxes. Edit the image size using Gimp, to fit the desired one. Import the object image into the Scratch app. Determine the game algorithm in order to run accordingly. Apply the code block on each object. Checking for bugs and errors.

Design of game template

Level 1



Information:

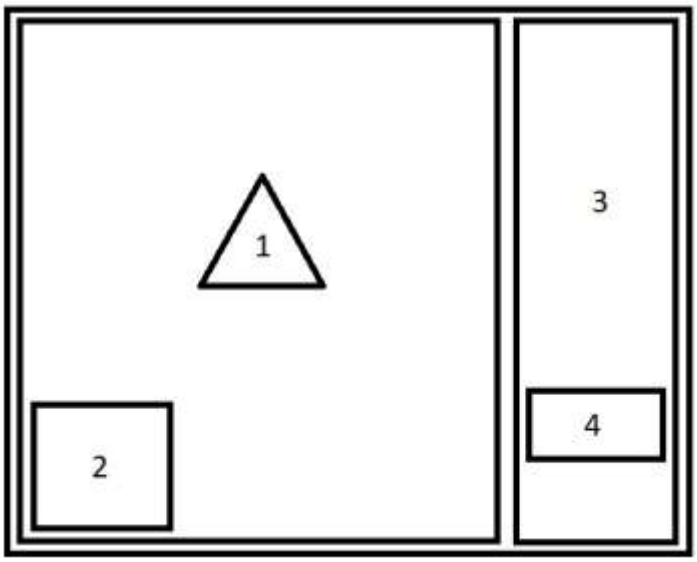
1 = Object Cube

2 = Character Cat

3 = Box to answer question

4 = Jawab Button to process answer

Level 2



Information:

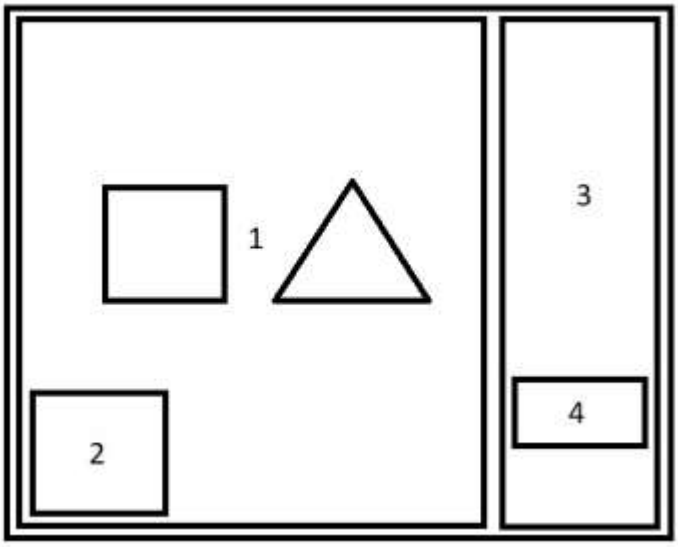
1 = Object Triangle

2 = Character Cat

3 = Box to answer question

4 = Jawab Button to process answer

Level 3



Information:

1 = Object Cube and Triangle

2 = Character Cat

3 = Box to answer question

4 = Jawab Button to process answer

2.2 Implementation

After explaining how the system design now I will try to explain how to implement the design system. Game learning calculate the amount of two dimensional figure. This game is for kids, about how to calculate the amount of two dimensional figure. There are two sections in the game screen, right and left. The left is a question, a two dimensional figure. The right is the answer option in the form of a box which if clicked will change color. If the number of objects requested Flat five, then the box should click on the answer is five, and if the answer is correct then it will be the voice and views about the characters the way over to all the objects in question eg cubes or triangles. Counting the Number of Cubes, Variables are cubes. Counting Yellow Amount, Variable is yellow. Counting the number of blue, Variable is blue.

Table 1

Level 1	Kubus 1	Kubus 2	Kubus 3	Kubus 4	Kubus 5
Kuis 1	1	1			
Kuis 2	1				
Kuis 3	1	1	1		
Kuis 4	1	1	1	1	1
Kuis 5	1	1	1	1	

Level 1

Kuis 1 = jKubus Number of objects 2

Kuis 2 = jKubus Number of objects 1

Kuis 3 = jKubus Number of objects 3

Kuis 4 = jKubus Number of objects 5

Kuis 5 = jKubus Number of objects 4

Table 2

Level 2	Piramida 1	Piramida 2	Piramida 3	Piramida 4	Piramida 5
Kuis 6	1	1	1		
Kuis 7	1	1			
Kuis 8	1	1	1	1	
Kuis 9	1				
Kuis 10	1	1	1	1	1

Level 2

Kuis 6 = jpiramida, Number of objects 3

Kuis 7 = jpiramida, Number of objects 2

Kuis 8 = jpiramida, Number of objects 4

Kuis 9 = jpiramida, Number of objects 1

Kuis 10 = jpiramida, Number of objects 5

Table 3

Level 3	Jk 1	Jp 1	Jk 2	Jp 2	Jk 3	Jp 3	Jk 4	Jp 4	Jk 5	Jp 5
Kuis 11	1	1	1	1	1	1				
Kuis 12	1	1	1	1	1	1	1	1	1	1
Kuis 13	1	1	1	1	1	1	1	1		
Kuis 14	1	1	1	1	1	1	1			
Kuis 15	1	1	1	1	1	1	1	1	1	

Level 3

Kuis 11 = Jkubus + Jpiramida, Number of objects 6

Kuis 12 = Jkubus + Jpiramida, Number of objects 10

Kuis 13 = Jkubus + Jpiramida, Number of objects 8

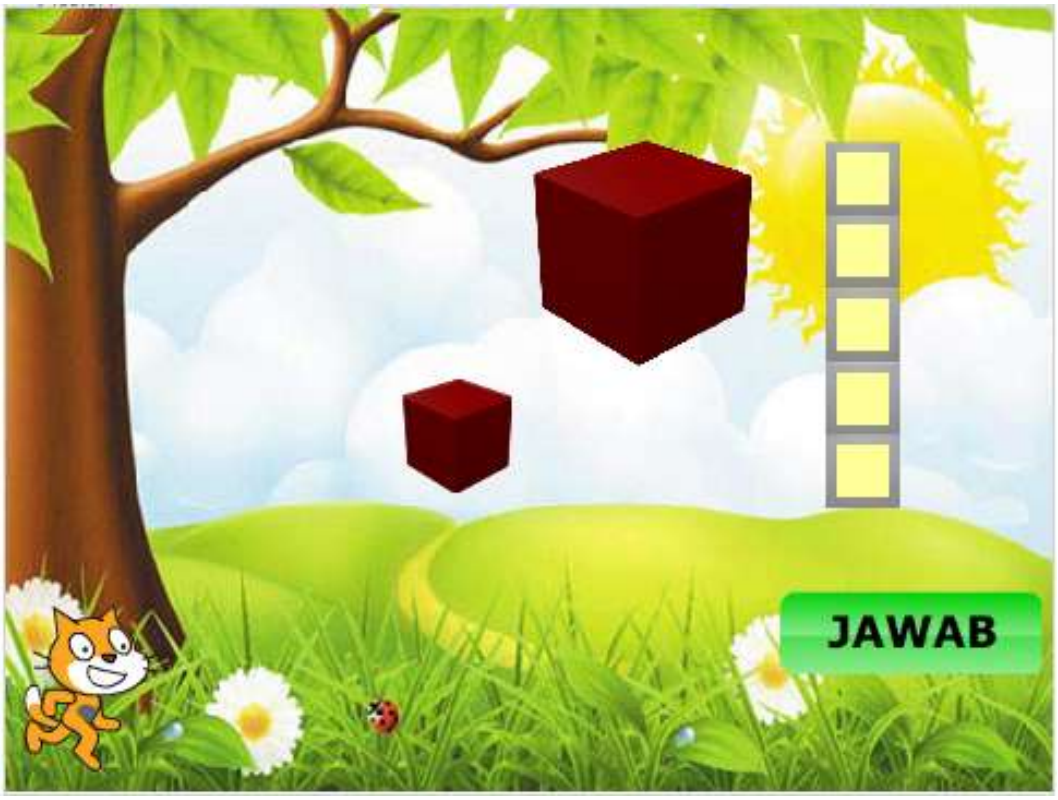
Kuis 14 = Jkubus + Jpiramida, Number of objects 7

Kuis 15 = Jkubus + Jpiramida, Number of objects 9

3. RESULT AND DISCUSSION

3.1 Research result

Research result is produce a game for guiding player. The result of the implementation of the design system is the view where there is a cat that is ready to approach the object when the player managed to answer how many objects by clicking the answer box in accordance with the number of objects.



3.2 Testing

In testing this study used black box method. Black-box testing is a method of software testing that examines the functionality of an application without peering into its internal structures or workings. This method of test can be applied virtually to every level of software testing: unit, integration, system and acceptance. It typically comprises most if not all higher level testing, but can also embody unit testing.

Checks if the cat's character approaches the object just as the sound of the game goes off making sure the cat's character goes to the exact coordinates where the object is located. Making sure every object that the cat's character encounters disappears after the cat's character touches the object. Making sure each object appears at the right time. Ensure every time the answer button is clicked will give the correct response. Make sure if the player finishes with one level then it will go to the next level. Ensure that every player finishes answering the game will give the correct response, if the answer is true then the game will display the screen with new problems, if the answer is wrong then the sound will signal that the player to try to reply

3.3 Analysis

This game have advantage and disadvantage, the advantage of game counting objects with this scratch is the player will know the position where the object resides with the cat character that approached the object, the interface is very simple and easy to use for children. children are easier to learn logic counting with no number, the disadvantage of this game is this game only playable on the computer.

4. CONCLUTION

Game learn to calculate for kids is a solution for children who want to learn to count objects without having to use a number

REFERENSES

Riyad and, Bana Handaga. (2016). Guiding Training In Gym Application For Beginner Based On Android Mobile. *Research Paper.* Universitas Muhammadiyah Surakarta.

Abdul Kadir and, Aditya Kurnia Putra. (2015). *Bermain Program & Robot Menggunakan Scratch*

Vitianingsih, Anik Vega. (2016). Game Edukasi Sebagai Media Pembelajaran Pendidikan Anak Usia Dini. *Journal of Universitas Dr. Soetomo Surabaya*

Septian, Eka Dyta. (2013). Rancang Bangun Aplikasi Game Edukasi Anak Untuk Mengenal Bentuk dan Warna Benda. *Journal of Universitas Dian Nuswantoro Semarang*