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Utilization of flashmx for making educational android games

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ABSTRACT

Technology that is increasingly developing has a positive impact on society, especially during a pandemic, in the world of smartphones there are many entertainment media that people can choose to enjoy, one of which is games. Game is currently a popular media, with this the author wants to make a game called crashing into a tree made using Adobe FlashMX software. This game is made for the Android platform. In making it, explained the game design and script used in the game. The methodology used is GDLC (Game Development Life Cycle) which is a game development process that applies an iterative approach. This game has features like game levels and high scores to save scores to database. This tree hitting game is of the 2D type, because it was made using Adobe FlashMX software with the Action Script programming language. The expected output from its creation is the design of a fallen tree game application in the form of a 2-dimensional image, which can be used by all groups ranging from children to adults with the aim of providing entertainment to people who are feeling bored or bored and can fill their time by playing this game.

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1. INTRODUCTION

In the era of technology 4.0, game applications are booming, fans ranging from children to adults. Especially mobile-based games, because they are more practical and can be played anywhere (Fayanto et al., 2021). In research, the age range of 16-64 years around 80 percent of internet users play games every month. So that there are 3.5 billion game fans in the world, according to the news released by Hybrid. (T. Donovan dan R. Garriott, 2020). According to (Papcun & Kajati, 2019) More than 69 percent of internet users play games on cellphones. The remaining 41 percent play games on laptop or desktop media and 25 percent play games on consoles. Given the relatively more affordable prices for mobile devices compared to PC gaming or consoles, it's no wonder that the number of mobile game players is greater than PC and console players. The number of gamers has increased along with the gaming industry market and in Indonesia, games are currently being claimed to have increased during the pandemic (Nuur Wachid Abdul Majid, 2019).

Many people are bored at home and want to find entertainment, with this game crashing into a tree, people who can't leave the house can play this game at home during the pandemic to relieve stress or boredom during activities both outside the home and inside the home. (Pranata Pamoedji, 2023). One game that is currently of great interest to the public is an Android-based game, because Android is free or free to use, modify, repair, and distribute by software makers or developers. (A. Saputro, 2019). Mobile games in this era have become an alternative entertainment in various groups. First, because of the multifunctional advantages of

mobile phone devices, they are different from consoles, which mostly function only for playing games. (Anugerah Bagus Wijaya, 2021)

By the nature of the game, technology companies are free to use it for free. Likewise with making applications, we are free to make applications, especially making Android-based games. With that, android has millions of support for free or paid applications that can be downloaded through the Play Store. (Ridwan Sanjaya, 2023). In other media, games are the only option given to society to reduce boredom. At this time, traditional games have been largely replaced and contrasted with contemporary games. This is due to the rapid advancement of technology (Fiona Grant, 2024). Traditional games are not necessarily comparable to current games. In addition, there are other game features that are not only intended for competitive play, but also have game variations that can help students better understand and retain material, especially young children who are still in school. (Mukti Adi Azhari, 2019).

According to (Mulachela, 2020) The growth of the game industry began with the development of 2-dimensional type games. But in its growth, 2-dimensional games are starting to lose out to 3-dimensional games. Meanwhile, 2-dimensional games have the advantage of lower manufacturing costs and shorter processing time compared to 3-dimensional games. From the explanation of this author, it can be concluded that games are currently in great demand by the public because games can fill spare time or current entertainment. One of the games that will be named is the Tree Crash Game. This game has a level of difficulty that can be chosen, can test concentration and can train hand speed so that according to the author this game is fun to be played among the age of the user (Hasanah, 2019).

The expected research benefits from making games using FlashMX can include several aspects, namely Technical Skills Development, Innovation in Interactive Learning, Contribution to the Games Industry, and Increased Creativity. This research can improve skills in programming and multimedia design, especially in the use of Flash MX which has strong animation and scripting capabilities via ActionScript and demands high creativity in integrating visual and interactive elements, which can help researchers or developers improve creative thinking abilities. It is hoped that these benefits can make a meaningful contribution in the fields of education, technology and creative industries.

2. RESEARCH METHOD

The rapid development of technology from time to time makes it easier for humans to carry out some of their activities (Zuhri, Irwan, Arsip Perangin-Angin, 2022). In computer graphics technology, generally what is known is 2D (two dimensions), for example pictures, posters, advertisements and photos which are often seen on the internet or mass media so that the information obtained from them is not in-depth. (E. Adams, 2021). Another study that focuses on the implementation of the Collision Detection algorithm which is applied to car objects and also to an obstacle or obstacle, the way this algorithm works is when a car hits an obstacle, the car will return to its starting point or starting point because the purpose of this game is to Run the car from starting point to ending point without hitting any obstacles. (Dewi, 2016).

The methodology used by the author in conducting this research is GDLC (Game Development Life Cycle). GDLC is a game development process that applies an iterative approach consisting of 6 development phases, starting from the initialization/concept generation phase, pre-production, production, testing, beta, and release. (A. Rouf dan Kusnawi, 2018). In making the art design game, the Adobe Illustrator and Adobe Photoshop applications were used. The game design is made with isometric projections. Isometric projection is a method of displaying 3-dimensional space into 2-dimensional space while still displaying the 3-dimensional elements (Nabila Nur Maulida, Sukadi Sukadi, 2022). It means that isometric shows each side of the object with a projection, which is 30 degrees from the horizontal line. Isometric is used so that each side of the object/object can be seen in the right, left, top position. (Schell, 2019).

As a replacement for Adobe Flash, Adobe's parent company has launched a new animation tool called Adobe Animate. When used at a professional level, Adobe Flash is a program that can be used to create animated films, interactive media, games, Android applications, websites, and more. Software with the name Adobe Animate CC can function the same as Adobe Flash Professional. (Irmam Maulana, 2019). The latest version of Adobe Flash

CS6 is released as Adobe Animate by the company. By integrating advanced features such as the use of HTML5 Canvas and WebGL, Adobe Animate functions as an anti-virus program and makes up for the shortcomings of Adobe Flash. Adobe continues to develop Flash, changing its name to Adobe Animate CC and encouraging web developers to create HTML5 animations, animated videos, animated billboards, animated educational materials, animated games, and more. (Swasono, 2020). According to (Arikunto, 2019) This design stage is the flow of the process of designing a game application program from idea to completion. The following is an explanation of the process flow of designing an application program.

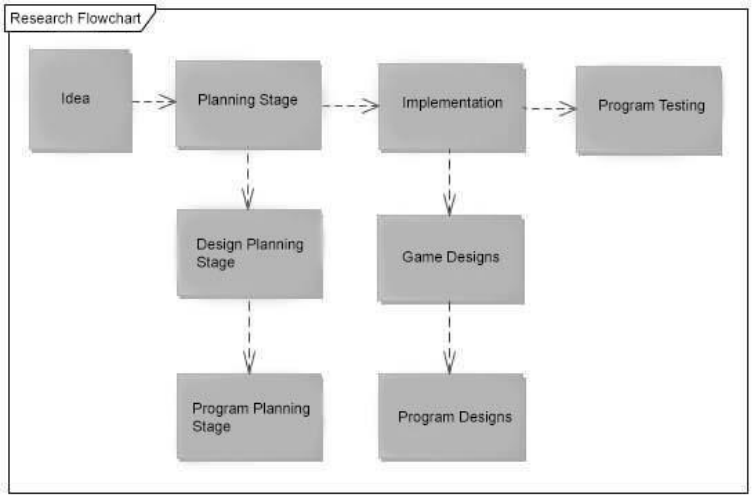

Figure 1. Research flowchart

The following is an explanation of the framework of thought in FigureI, you can see below: a) Idea, first make a design idea that is arranged in the material to be described. (Ullah, 2019); b) Planning Stage, after getting an idea, then the next stage of planning such as: 1. Design Planning Stage, at this stage, planning the game design that will be made later, 2. Program Planning Stage, at this stage, the script for the FlashMX game program that will be made is described; c) Implementation, after planning, the next stage of implementation such as: 1. Game Designs, make game designs as planned beforehand using the application Adobe Flash MX, 2. Program Designs, create a planned game program using the Adobe FlashMX application by using the same action script programming language as java script. (Muhammed et al., 2020); d) Program Testing, program Testing is important in measuring how good the quality of the application is in which the user can use it (login, save data, and so on). Tested to make sure that the app doesn't crash if bad data comes in or something unexpected happens. Typo when entering data, prediction of incomplete or inaccurate information. Apps should be able to easily retrieve, process, and store data, even when only the user actually has access to that data. (Arista Prasetyo Adi, 2020)

3. RESULTS AND DISCUSSIONS

In building a system, it takes supporting equipment consisting of hardware (hardware) and software (software). The devices used are as follows: (Bruce Johnson, 2019), a) Software Specifications: Operating System Windows 10, Adobe Flash MX, Adobe Ilustrator; b) Hardware Specifications: Processor Intel Core i5-8250U CPU @ 1.60GHz, RAM 4 GB, Graphics Card NVIDIA GeForce 930MX, Hard Disk 1TB, Monitor screen 1366 x 768 pixels, Keyboard dan mouse, Headset

Application Design

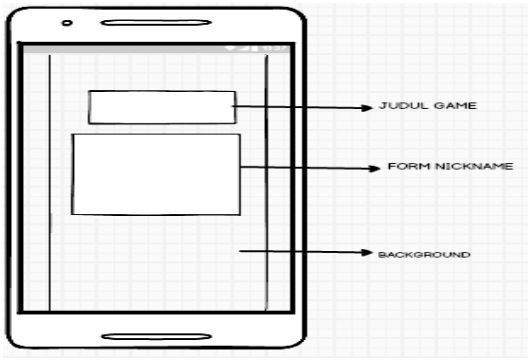

Figure 2. User design

The first box and arrow is the game title, it works for the game title. The second box and arrow, namely the nickname form, functions to create a user name. The third arrow, namely the background, serves to display the game screen.

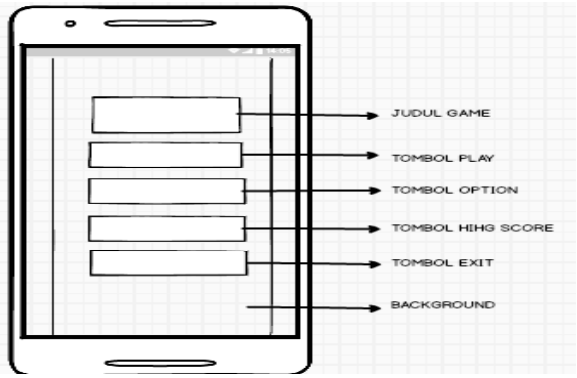

Figure 3. Menu display design

The first box and arrow is the game title, it works for the game title. The second box and arrow, namely the play button, functions to start the game. The third box and arrow, namely the option button, functions to set the game difficulty level and adjust the sound or sound level. The fourth box and arrow, namely the high score button, functions to see the score obtained from the user getting in the game. The fifth box and arrow, namely exit, serves to exit the game. The sixth arrow, namely the background, serves to display the game screen.

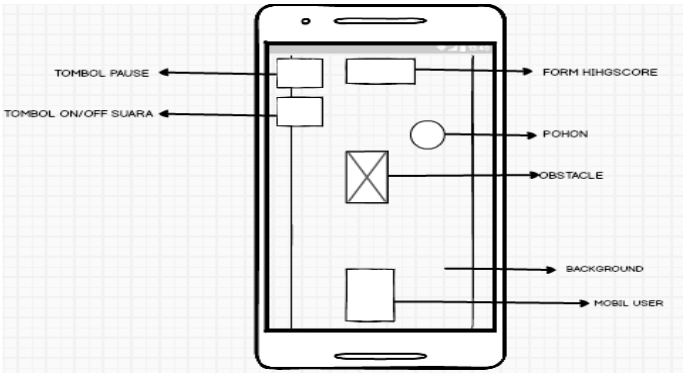

Figure 4. Dashboard design

The first box and arrow, namely the pause button, serves to pause the game temporarily, and you want to continue the game again by clicking the pause button. The second

box and arrow, namely the sound on or off button, functions to turn on or turn off the backsound in the game. The third box and arrow, namely the high score form, serves to display the score that has been collected by the user. The fourth circle and arrow, namely the tree, functions for if the car hits a tree it becomes an additional score. The fifth box and arrow, namely obstacle, functions for an obstacle car if it hits an obstacle it becomes a gameover, if it passes an obstacle it becomes an additional score. The sixth arrow, namely the background, serves to display the game screen. The seventh box and arrow, namely the user's car, functions to be controlled by the user to find a score or get a score (Handayaningsih, R., Hidayanto, E., & Qohar, 2021).

Actionscript is a programming language that can be added to FlashMX documents (whether they be frames, video clips, or buttons) to create more interactive animations. such as C, C++, and Java programming languages. Actionscript rules are quite case sensitive, which means that even writing letters can be very dangerous in rendering objects. (Pramono, 2018). The programming language used in the manufacturing process uses action scripts from FlashMX. The following is the action script design used in making the application.

```
Layer_2: frame 1
stop();
Layer_2: frame 2
stop();
import flash.media.SoundMixer;
      stop();
      var nama="";
      MovieClip(root).namauser.text="";
MovieClip(root).nama="";
      btn_OK.addEventListener(MouseEvent.CLICK,plays);
      function plays(event:MouseEvent):void
      {  MovieClip(root).nama = MovieClip(root).namauser.text
      if (MovieClip(root).nama == "") {
gotoAndStop(2);
      } else {
            SoundMixer.stopAll();
            MovieClip(this.root).gotoAndStop(1, "Menu");
            }
      }

      To localize the name, use the following format for the name element.
            <name>
            <text xml:lang="en">English App name goes here</text>
            <text xml:lang="fr">French App name goes here</text>
            <text xml:lang="ja">Japanese App name goes here</text>
                  </name>
```

Design Implementation

After creating a username, the user immediately enters the home or menu display. Displayed this menu there is play, option, high score, exit. In the play menu, the user can start the game. Users can choose the difficulty level of the game and set the sound or music level before playing the game in the options menu. After the game is finished, the user can see the scores collected while playing on the high score menu. In the exit menu the user can exit the game application.

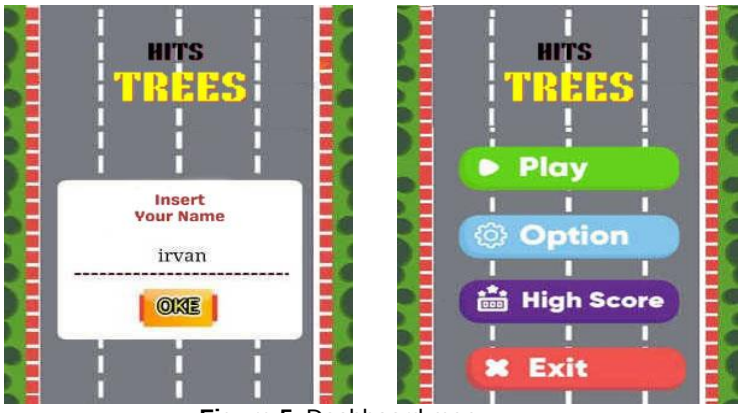

Figure 5. Dashboard menu

Options Menu Display

Options are displayed, before playing the game the user can choose the level of difficulty the game wants, such as easy, medium, hard. The difficulty level of the game is easy, that is, it is easy for the car to run at a slow speed. At the medium game difficulty level, the car can run at normal speed. The difficulty level of game hard is that the car can run at a faster speed. Users can set the desired sound level or game music. Starting from level 100 to level 0.

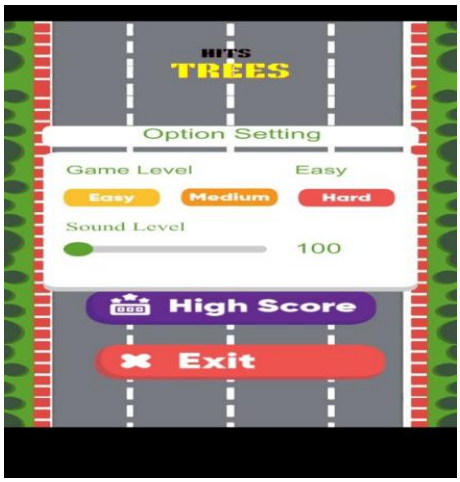

Figure 6. Option menu display

Play View Display

In play, the user controls the car by tabbing it to avoid other cars. When the user passes another car the user gets a score of one, the user crashes into a tree gets a score of five. If the user crashes into another car gameover. Users can pause the game while playing by clicking the button in the top left corner, and users can also turn off the backsound or music while playing by clicking the button in the top left corner (Castellar, E. N. P., 2021).

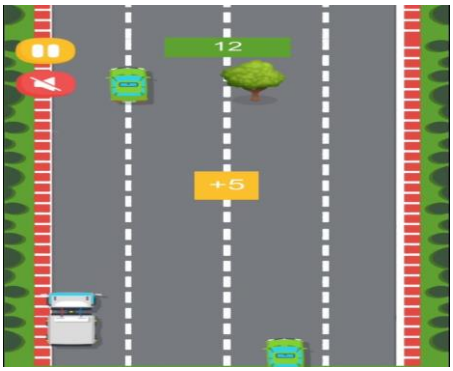

Figure 7. Play menu display

High Score Display

In this high score display, the user can see the score collected after the game is over. And users can see other users' high scores.

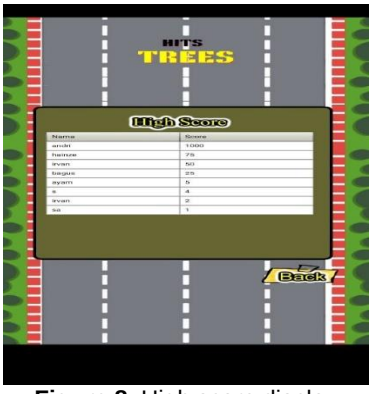

Figure 8. High score display

This Tree Crash Game can be played anywhere and anytime, to get this game is quite easy, namely by downloading it on the playstore. In this tree crash game, users can compete to get the highest score with other users, the more trees they hit, the higher the score they get. In this game the user can also choose the difficulty level of the game to train hand speed and concentration when playing the game. During a pandemic like today, which makes us only do activities at home, this game is perfect to accompany us when we feel bored at home and this game can be a medium of entertainment when we feel tired after doing activities. The following is a user opinion questionnaire about the tree crash game.

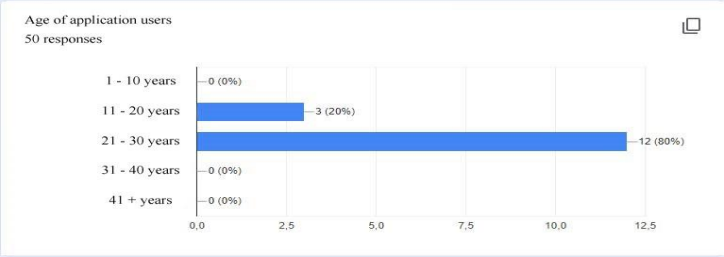

Figure 8. Age questionnaire chart

From the data that the author got, 20% of the 50 votes, the age of game users is 11-20 years old. 80% of the 50 votes, the age of game users is 21-30 years old.

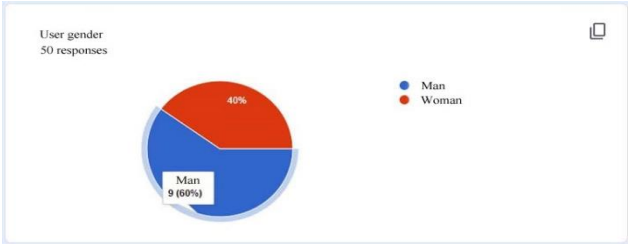

Figure 9. Gender questionnaire graph

From the data that the author got, 40% of the 50 votes, the gender of the game user is female. 60% of the 50 votes, the gender of the game user is male.

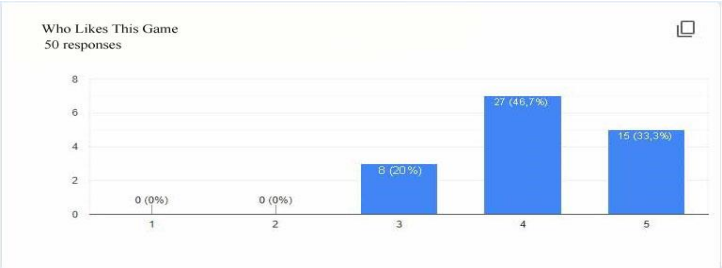

Figure 10. Graphics like app

From the data the author obtained, 33.3% of the 50 questionnaires were neutral with the tree crashing game application. 46.7% of 50 questionnaires like the tree crash game application and 20% of 50 votes, really like the tree crash game application.

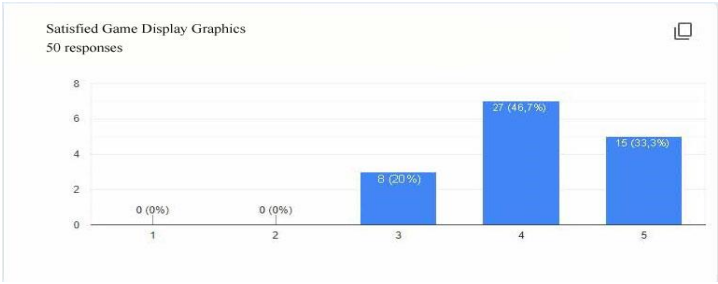

Figure 11. Satisfied game display graphics

From the data that the author gets, 20% of 50 votes are neutral with the appearance of the game application crashing into a tree. 46.7% of 50 votes, satisfied with the appearance of the tree crash game application. 33.3% of 50 votes, very satisfied with the appearance of the tree crash game application. Testing conducted in this context means internal testing to test the usability of the game. Testing is done by direct playtest to assess the functionality of the features and difficulty of the game based on a questionnaire. The results of the playtest test to test this game can be seen from the graph which consists of the age, gender and level of preference of the players. This game is made to measure creativity and concentration at the adolescent to adult age level because in addition to playing media there are also learning methods in it coupled with a soft appearance where there is no element of violence. Ease of use and access are key points for game makers. This application designs a system with a user friendly interface so that users can easily access the application so that many people like it from the results of the questionnaire.

4. CONCLUSION

The tree crash game application is still 2-dimensional and this game is like an animation game. The only way to play is to collect scores. Game crashing into a tree is in the form of an offline game and in a mobile form, when a user plays a game crashing into a tree is not subject to

internet quota. The author made this game application for entertainment when bored. There are still many shortcomings in the tree crashing game that the author made, in the future we will try to develop it again to make it more interesting. This game application is of course far from perfect, for that it needs to be developed to make it even better. The game play of this application is still in the form of tap-tap, the hope is that in the future this game can be played by swiping right or left. The contribution of this research has several perspectives in the form of Technology and Methodology Development, Education and Learning, Creativity Development and Application Innovation in the Games Industry. This contribution is significant in the field of interactive learning, where games can be used to deliver educational material in an engaging and easy-to-understand manner and inspire other developers to create creative multimedia products. The implications of this research have several perspectives, namely the Use of Multimedia in Learning, Economics and Creative Industries as well as the development of educational technology. This is expected to have a positive impact in the fields of education, technology and creative industries, as well as encouraging the use of technology for broader educational and interactive purposes.

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