WEB BASED EDUCATION GAME RELATED TO FARMING AND ARITHMETIC MATHEMATICS

NUR ANIS BINTI MOHD KHATIB

Bachelor of Computer Science (Software Engineering)

UNIVERSITI MALAYSIA PAHANG
SUPERVISOR’S DECLARATION

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science (Software Engineering) in ………………………………

________________________________________
(Supervisor’s Signature)

Full Name : 
Position : 
Date :
STUDENT’S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

_______________________________
(Student’s Signature)

Full Name : NUR ANIS BINTI MOHD Khatib
ID Number : CB15090
Date : 7th January 2019
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NUR ANIS BINTI MOHD KHATIB

Thesis submitted in fulfillment of the requirements for the award of the degree of Bachelor of Computer Science (Software Engineering) with honors.

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ABSTRAK

ABSTRACT

Technologies nowadays has advanced so rapidly people depend on it every day. Kids these days have less exposure on farming and mathematics due to the advancement of the technologies. Furthermore, some kids have problems in learning mathematics in conventional way. Thus, web-based education game was developed to focus on solving this problem through exposing children in basic skill farming with arithmetic calculation during the farming activities. This application was developed for kids from 7 to 12 years old. This game consists of three levels; easy, intermediate and hard. All levels have specific goals to be achieved. Each level integrates the skills of farming and learning arithmetic respectively. This game was developed based on Agile by using RPG Maker MV and JavaScript language. Testing was carried out using the method of user acceptance test (UAT) and satisfaction survey. Three randomly selected users have tested the system using UAT method, based on the results, 25 out of 26 functions successfully passed the tests making the project 96% successful. Ten randomly selected users have answered the satisfaction survey and based on the results, 4 over 5 ratings were the average ratings given by them for the project. As a conclusion, this developed application able to help the kids to be exposed and gain the basic knowledge of farming and learn the arithmetic mathematics in non-conventional ways.
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Figure 4.17 Chart for Question #3

Figure 4.18 Chart for Question #4

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## LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRS</td>
<td>Software Requirement Specification</td>
</tr>
<tr>
<td>SDD</td>
<td>Software Design Document</td>
</tr>
<tr>
<td>NPC</td>
<td>Non-Playabe Characters</td>
</tr>
<tr>
<td>EOVG</td>
<td>Edutainment Online Video Game</td>
</tr>
<tr>
<td>RAD</td>
<td>Rapid Application Development</td>
</tr>
<tr>
<td>UI</td>
<td>User Interface</td>
</tr>
<tr>
<td>RPG</td>
<td>Role Playing Game</td>
</tr>
<tr>
<td>2D</td>
<td>Two Dimension</td>
</tr>
<tr>
<td>SDLC</td>
<td>Software Development Life Cycle</td>
</tr>
<tr>
<td>UML</td>
<td>Unified Modelling Language</td>
</tr>
<tr>
<td>CPU</td>
<td>Central Processing Unit</td>
</tr>
<tr>
<td>RAM</td>
<td>Random Access Memory</td>
</tr>
<tr>
<td>TB</td>
<td>Terabyte</td>
</tr>
<tr>
<td>GB</td>
<td>Gigabyte</td>
</tr>
<tr>
<td>MB</td>
<td>Megabyte</td>
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CHAPTER 1

INTRODUCTION

1.1 Introduction

Nowadays, the technology of video games has increased rapidly, attracting the audience from all sorts of ages. Games has the ability to entertain the users in a complete media form which contain the music, animations, videos, texts and graphics. The game’s popularity has boomed its technology to improve rapidly due to the outstanding demands from the users.

Farming is one of the activities in agriculture, it is the activity of growing crops or keeping the animals for food and raw materials. Farming has started thousands of years ago, but no one was sure the exact date when it firstly introduced to the civilization. Having a basic knowledge on farming is important as it has several importance regarding it. One of them is the raw material, many of the materials can be gained from farming certain crops for example cotton, sugar and oils. They are dependent on farming. The next importance is the as a support to the local markets and the economies. Not all people here will be a farmer, so they are all depending on the farmers for the deliverance of raw materials and food. Without the knowledge of farming, there will be less farmers thus the production of the food and materials will be insufficient for the civilization.

In this project, it is having been proposed to make a video game targeted for primary school students that will basically teach them education related to farming and mathematics in a fun way, as known as web-based education game.
1.2 Problem Statement

Although farming is essential to the people, they do not really have the basic knowledge of farming especially the urban folks. This is because they do not see the need to obtain such knowledge since they are all provided with the farm’s product by the people that lives in rural areas. Farming knowledge are important to be gained, at least the basic ones. It is preferably to give the knowledge to the kids so that they can bring the skills in their life for a better lifestyle and future. Information and knowledge such as price or how long a certain crop is needed to be grown fully is unknown to the kids so implementing a web-based education game related to the farming is much needed. This is because the kids are not being taught with the basic of farming in school because it is not in their syllabus.

Same goes to the mathematics, it is one of the difficult subjects ever taught in schools aside from science subjects and many kids are having trouble with it. Even after doing a lot of mathematics homework, the kids still are not good with it because of the way they learn it. Some kids prefer homework over other styles, some kids can learn much more efficient through games that are related to mathematics. So this is where a web-based education game related to the mathematics is needed to provide an effective way to learn mathematics more and at the same time give an entertainment to the players. A basic mathematics knowledge should be taught in the game.

Another problem is that not all the kids, especially the one that lives in the urban areas will have the experience in farming, so the proposed project is to give education, interaction to the kids on how it is to farm through a web-based education game. This project can also provide the alternate ways to learn maths to the kids which certain kids may enjoy and efficiently make use of it.
1.3 **Objectives**

1. To identify the requirements and features that will be implemented in the web-based education game.
2. To develop web-based education game for children in learning farming and mathematics.
3. To validate the user’s acceptance of the objectives in the web-based education game.

1.4 **Scope**

Table 1.1 below shows the Project Scope of Web-Based Education Game Related to Farming and Mathematics.

<table>
<thead>
<tr>
<th>Scope</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>• Kids (7 years old to 12 years old)</td>
</tr>
<tr>
<td>Technology</td>
<td>• 2D Video Game RPG style technology in RPG Maker MV</td>
</tr>
<tr>
<td></td>
<td>• Web-Based Education Game</td>
</tr>
<tr>
<td>Tools</td>
<td>• RPG Maker MV - v.1.6.1 Beta</td>
</tr>
<tr>
<td></td>
<td>• JavaScript</td>
</tr>
<tr>
<td>Features</td>
<td>• Allow the players to farm in the game.</td>
</tr>
<tr>
<td></td>
<td>• Allow the players to solve mathematics questions in the game.</td>
</tr>
</tbody>
</table>
REFERENCES


