„MY HAPPY PENGUIN” – ANDROID APPLICATION

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Abstract: *This paper describes main featchers of the Android application developed by the first author and available on Play Market.*

Keywords: *Android application, Unity 3D, game rating,iterative algorithms.*

1. Introduction

„My Happy Penguin” is an application on Android developed by the first author and available on Play Market. Penguin can execute verbal commands and replay back to you. At the moment it can execute six verbal commands. If you want to give him verbal commands your phone must have an Internet connection and after that you will have to keep pressed the microphone button and give him the command (fig. 1).

The list of words and voice commands to which Penguin can respond:

1.Jump – “jump”, ”go up”, ”up”, ”penguin jump”;
2.Dancing – “dancing”, ”dance”, ”dance now”;
3.Sing – “sing”, ”play music”, ”play music penguin”;
4.Hello – “hello”, ”hi”, ”hello penguin”, ”hi penguin”;
5.Goodbye – “goodbye”, ”goodbye penguin”, ”bye-bye”;
6.Drink coke – “drink”, ”drink coke”, ”drink cola”.

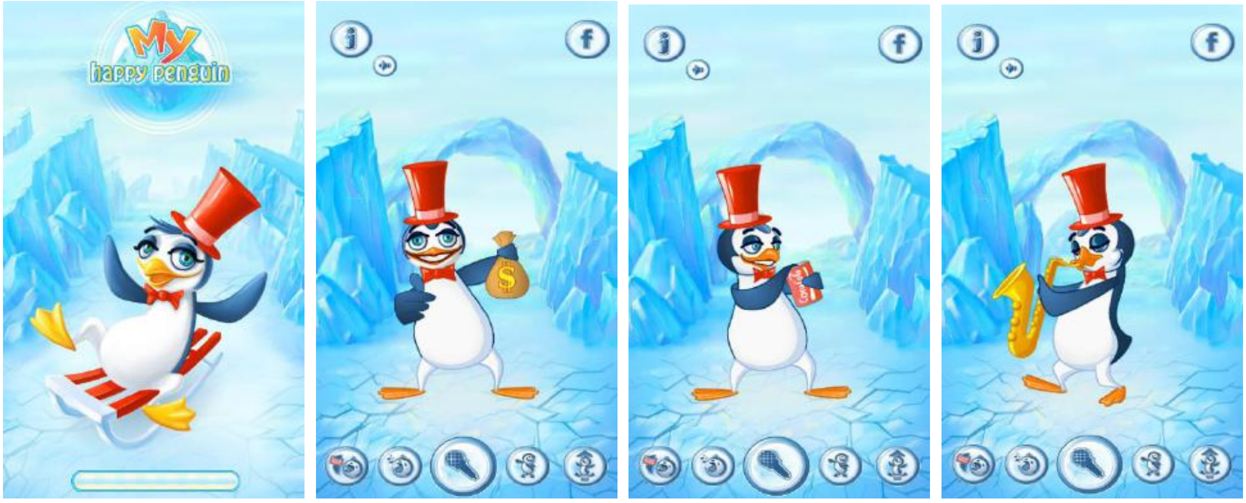


Fig. 1. Screenshots

2. About game creation

The game was made in Unity 3D and by working on it about three months. Have been used C# and JavaScript programming languages. Have been chosen engine Unity 3D, because it’s the most popular game engine and it has a lot of functionalities. Also have been used some namespaces from Microsoft such as System Collocations, System Collocations Generic. From namespace System Collocations Generic have been used classes Dictionary and List. Dictionary was used to store the verbal commands which Penguin can execute.

Why did we choose Unity? Because Unity is a cross-platform game engine with a built-in IDE developed by Unity Technologies (fig. 2). It is used to develop video games for web plug-ins, desktop platforms, consoles and mobile devices. It is a game engine that allows created game to run (hence to be played) in different environments.

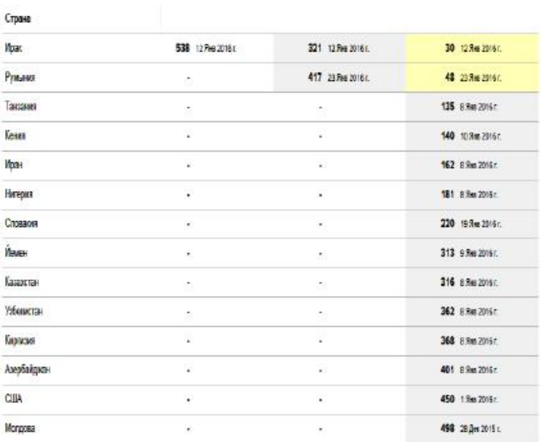
Fig. 2. Unity logo

Fig. 3. Penguin icon

First of all Unity is mostly free as a development tool, and completely royalty free. But it’s clearly making loads of money for its producers – it’s a working ecosystem with over a million developers registered to Unity.

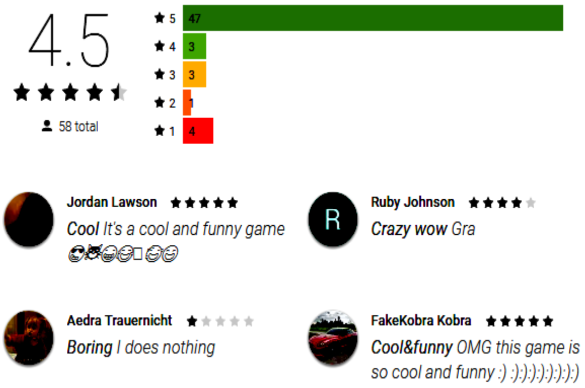
3. Success of the game

What about the success of the game. It was in 30 top arcade games in Irak, 48 in Romain and 450 in USA (fig. 4). And also on the market it has mark 4.5 in comparison with average mark 3.7 on the market (fig. 5).



Страна			
Ирак	538 12 Янв 2016 г.	321 12 Янв 2016 г.	30 12 Янв 2016 г.
Румыния	-	417 23 Янв 2016 г.	48 23 Янв 2016 г.
Танзания	-	-	135 8 Янв 2016 г.
Кения	-	-	140 10 Янв 2016 г.
Иран	-	-	162 8 Янв 2016 г.
Нигерия	-	-	181 8 Янв 2016 г.
Словакия	-	-	220 19 Янв 2016 г.
Йемен	-	-	313 9 Янв 2016 г.
Казахстан	-	-	316 8 Янв 2016 г.
Узбекистан	-	-	362 8 Янв 2016 г.
Киргизия	-	-	368 8 Янв 2016 г.
Азербайджан	-	-	401 8 Янв 2016 г.
США	-	-	450 1 Янв 2016 г.
Молдова	-	-	498 28 Дек 2015 г.

Fig. 4. Rating



4.5

★★★★★

58 total

★ 5	47
★ 4	3
★ 3	3
★ 2	1
★ 1	4

Jordan Lawson ★★★★★
Cool It's a cool and funny game

Ruby Johnson ★★★★
Crazy wow Gra

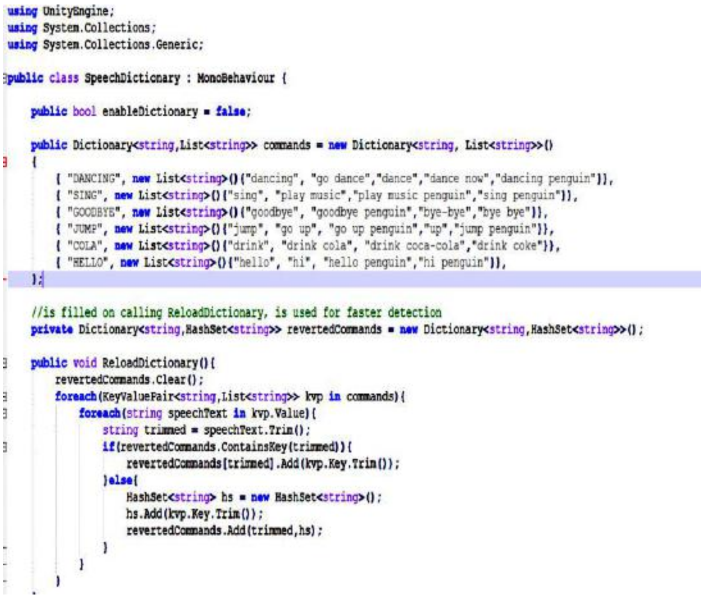
Aedra Trauernicht ★
Boring I does nothing

FakeKobra Kobra ★★★★★
Cool&funny OMG this game is so cool and funny :) :):):):):):):)

Fig. 5. Reviews

4. Alghoritms

Have been Mostly used iterative algorithms, because iteration is the repetition of a subprogram or a process in a computer program. Iterations of subprograms are common in computer programming, since they allow multiple blocks of data to be processed in sequence. This is typically done using a "while loop" or "for loop". These loops will repeat a process until a certain number or case is reached. But in some cases recursive algorithms have also been used (fig. 6).



```
using UnityEngine;
using System.Collections;
using System.Collections.Generic;

public class SpeechDictionary : MonoBehaviour {

    public bool enableDictionary = false;

    public Dictionary<string,List<string>> commands = new Dictionary<string, List<string>>()
    {
        { "DANCING", new List<string>(){"dancing", "go dance","dance","dance now","dancing penguin"}},
        { "SING", new List<string>(){"sing", "play music","play music penguin","sing penguin"}},
        { "GOODBYE", new List<string>(){"goodbye", "goodbye penguin","bye-bye","bye bye"}},
        { "JUMP", new List<string>(){"jump", "go up", "go up penguin","up","jump penguin"}},
        { "COLA", new List<string>(){"drink", "drink cola", "drink coca-cola","drink coke"}},
        { "HELLO", new List<string>(){"hello", "hi", "hello penguin","hi penguin"}},
    };

    //is filled on calling ReloadDictionary, is used for faster detection
    private Dictionary<string,HashSet<string>> revertedCommands = new Dictionary<string,HashSet<string>>();

    public void ReloadDictionary(){
        revertedCommands.Clear();
        foreach(KeyValuePair<string,List<string>> kvp in commands){
            foreach(string speechText in kvp.Value){
                string trimmed = speechText.Trim();
                if(revertedCommands.ContainsKey(trimmed)){
                    revertedCommands[trimmed].Add(kvp.Key.Trim());
                }else{
                    HashSet<string> hs = new HashSet<string>();
                    hs.Add(kvp.Key.Trim());
                    revertedCommands.Add(trimmed,hs);
                }
            }
        }
```

Fig. 6. Example of iterative alghoritm from game code

5. Conclusion

In conclusion, we can say that developing of this game gave to the author a lot of experience and new knowledge in computer programming. For the first time developer worked in a team with a designer from Russia. This game was made when developer was 18 years old and his purpose was that children which are playing this game can learn English language more funny and easily, what is why in the future we want to add in application more verbal commands and other helpful functions. Also for the first time developer received reviews from users who appreciated this game positively. It means that the game is made well and uses like it.