CS595 (Saturday and 9:15 am)

COMPUTER SCIENCE CAPSTONE COURSE

Northwestern Polytechnic University, Fremont, CA
FINAL REPORT
Fall 2016
Prof. Ahmed Banafa

MATH FUN GAME

Submission Date

Team Members

SATYAVANI KANURI	13879
ANUDEEP MARELLA	18349
GEETHIKA VALLURI	16030
MONICA PULI	17222

SUMMARY

This document describes the Math Fun game for which application is being developed, it explains the detail functional structure and different gaming zones of the application.

After overview of the game it provides the list of developing environment requirements for developing the mobile application that makes the application to run successfully along with preliminary design.

Math Fun is a game where the player need to answer the mathematical question like addition, subtraction, multiplication, division and combined. The math rain is provided with a great range of number operations which provides the brain teasing and fun to users.

The difficulty of this question lies in finding the correct answer within falling animal having numerical question in their body. To make this game available for everybody, I am implementing this as a mobile game that will be developed in android platform.

The primary focus on creating the game was to give an attractive and fruitful experience to the user, so that the user get addicted to the game and that will result in the increase of mathematical calculation and analytical skill of the user.

Existing Systems

Math rain:

Math rain is a game fully created for kids. It has beautiful user interface that kids will easily get interact with. There will be number showing top we need to find the number and tap it, the number is inside rain drop falling. There are 3 different levels to enhance the skill of the kids and music with sound effect is also included.

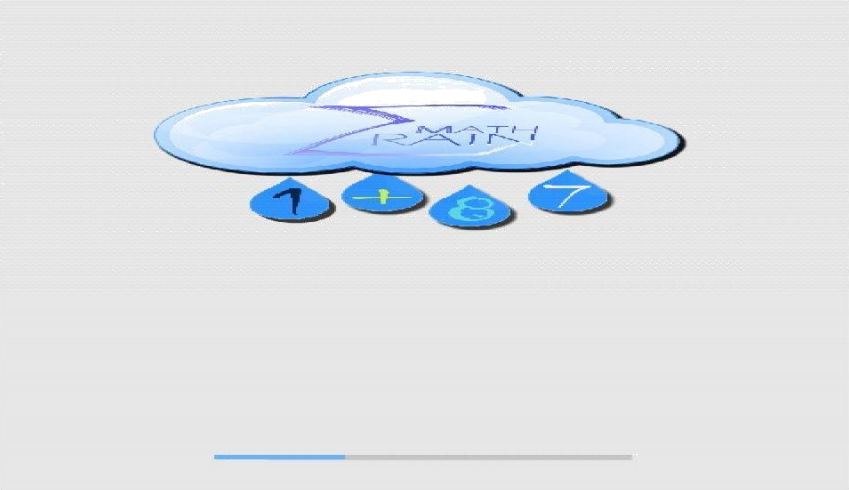

Fig: Math Rain

Math Test

The design is like black board that we found in class rooms. There will be timer and mathematical operation will be shown. The user need to find the correct answer and tap the numerical keyboard given in the screen.

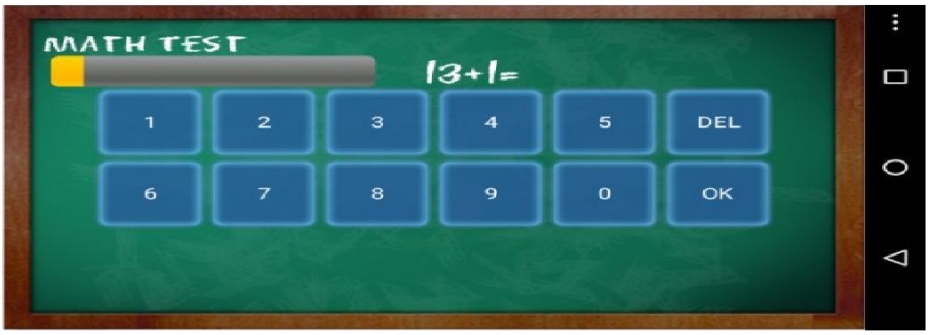

Fig: Math Test

Mathematics

This is like the math test game little difference in the user interface. There is a chapter and different levels associated with each of it. A fast timer is there that will make you out if you didn't answer or picked the wrong answer.

Fig: Mathematics

Proposed System

The main scope of this application is to entertain the user who are seeking to play games on mobile. This Math Fun game not only gives entertainment to the user but at the same time it increases the thinking abilities of the user.

End Users

People of all age groups can use this application. This an interesting app, mostly targeted for the kids as well as elders who wish to study mathematics that will help us in their day to day calculations in ease.

Requirements

Functional Requirements

Requirements

Functional Requirement define the intended behavior of the system. This behavior may be expressed as services, tasks or functions the system is required to perform. In this section the functional behavior system will be presented in detail.

The user will able to:

- Open the Application.
- Access the Menu.
- Select One of the option.
  1.) Addition
  2.) Multiplication
  3.) Subtraction
  4.) Division
  5.) Combined

- Choose Let It Rain option.
- Choose Digit for Operation.
- Answers to the equation on the falling animal.
- Answer the equations on the special animal that falls at certain intervals.
- Collect medals to unlock complex Modules.
- Change Music settings.
- Replay the game.
- Exit the application

The system will able to:

- Display the menu screen
- Display the user with option of operations buttons
- Display different Backgrounds at different game levels
- Display how many animals he saved by answering
- Display how many animals left to be answered to move in to next stage.
- Display the special animal name to answer the equation on its body
- Display the scores.
- Display collections page
- Display the medals user collected
- Display settings screen, where user can switch off/on music/sound effect
- Display the options with replay, settings, and exit.

Developer Requirements

Software

- Operating System: Windows Family

Hardware

- Processor: 1.6 GHz quad core processor or higher
- RAM: 500MB
- Hard disk: 256GB

Development Environment

- Android Studio IDE
- Android Emulator
- Android SDK

Other development environments or IDEs

- JDK 5 or JDK 6 (JRE alone is not sufficient)
- Apache Ant 1.8 or later

Design

In this section, we will discuss about the design elements of the system. The top-level design of the system can be represented with help a context diagram. This section also includes the database structure and the draft user interface screen for all the modules.

Data Structures:

Database is an organized collection of data in tables. In our local database, we are maintaining tables to store and retrieve data related to scores and collections of medals and animals saved.

Score details:

Game
Game _ Digit
Game _ score
Medals _ achieved
Animals _ saved

Flow Chart

This is the pictorial representation of the entire system and its modules and the communication between the modules.

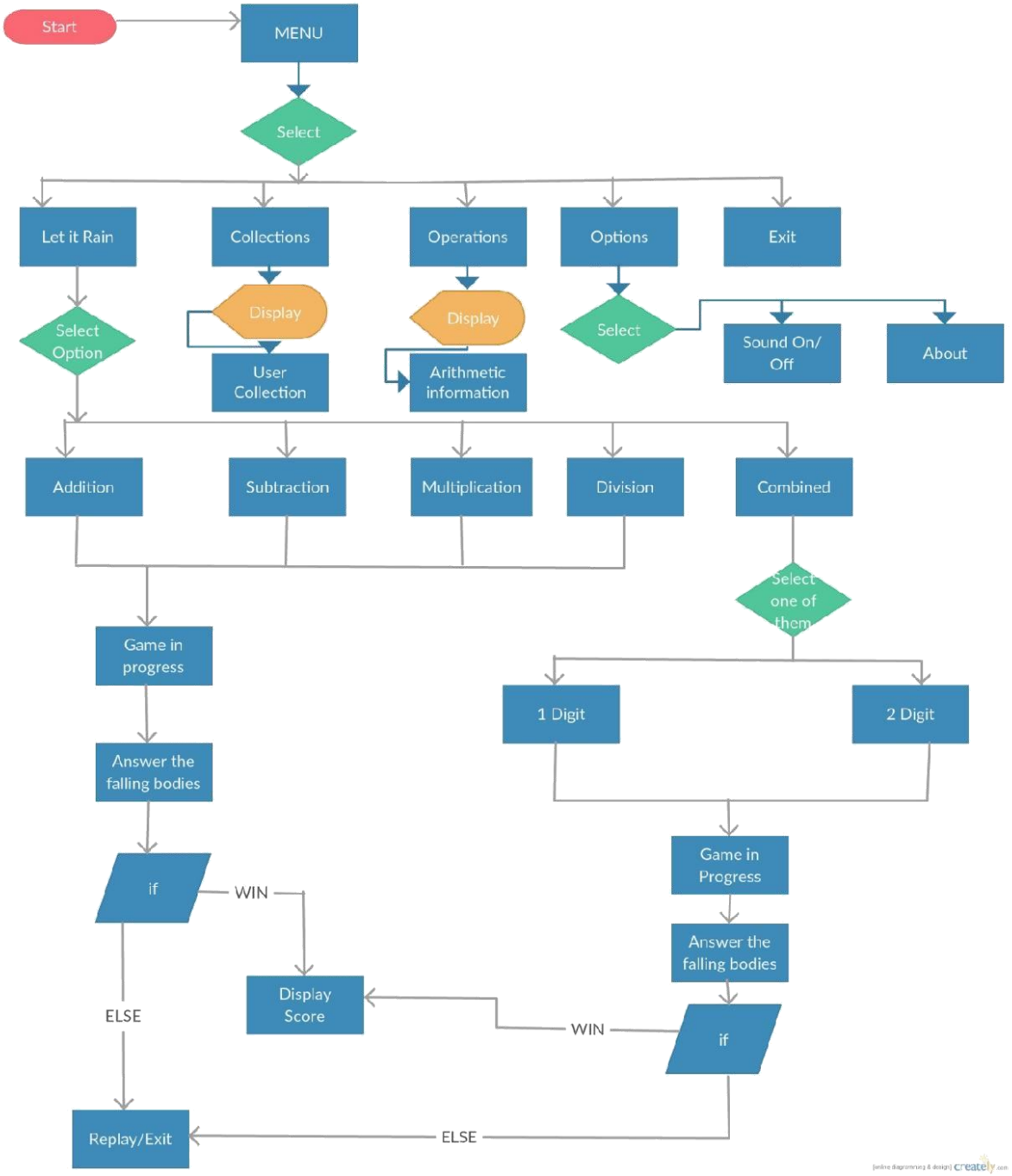

Figure: Flow chart for “Math Fun” game level

Screen Shots

Home Page

The user is greeted with the attractive and simple home page, here user can start the game seamlessly. Due to simplicity of the game user time not wasted by going through different menus and all. As mentioned user, can directly start the game by clicking the “Play” button also selecting game is not also mandatory default level is “easy” and user can start enjoying the game

Fig: Home page

Select Digit:

User can choose the difficulty level that they preferred to play by selecting this option

Fig: Select Level Page

Options Page

The game has beautiful music and sound effects included to add more fun. User can turn off/on anytime by coming to options page.

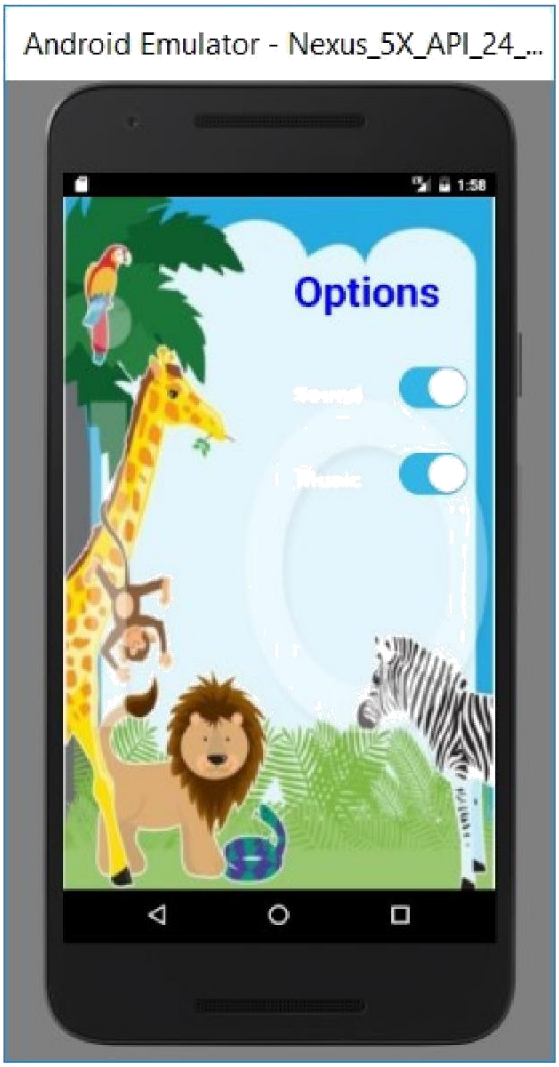

Fig: Options Page

Game Page

This is the game page where user need to play, we can see animals is falling with certain arithmetic operation in it and user need to answer accordingly.

Fig: Game Screen

Conclusion

We are developing Math Fun Game for kids (who are 6 to 9 years old). This application helps kids develop math skills by introducing fun. The application is always available as it is offline android App.

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Reference

Shashen Govender, (May 08 2014). “Create a puzzle game for Android with Dolby audio API”, www.code.tutsplus.com, retrieved on Jan. 24 2015.

https://www.tutorialspoint.com/android/

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tutorial

https://www.youtube.com/watch?v=2G8tGVJu0

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Title of paper, same as title on title page

Text, double spaced – indented paragraphs, left aligned. This is the body of the paper …….

Typically title and reference pages are not included in page counts for submission of an assignment.

Left aligned headings (optional)

Headings help divide information, and provide a more uniform look to your paper. At least one paragraph should be included under each heading.

Quotes

Remember to reference all information! Use block quotes for a large amount of quoted information:

> John Quincy Adams (July 11, 1767 – February 23, 1848) was an American lawyer, diplomat, politician, and President of the United States (March 4, 1825 – March 3, 1829). Successively a Federalist, Democratic-Republican, National Republican and later a Whig. Adams was the son of U.S. President John Adams and Abigail Adams. (Wikipedia)

Remember to reference quotes and ideas from the material that you read:

Many reasons justify an exposition of his political ideology. His career has implications for an amazingly long period in the life of the American Republic (Lipsky, 1950).

Conclusion

This is the summary of your paper. It should not be the same as the abstract, although it

may include some of the same information. Conclusions are at least a paragraph long.

References

Lipsky, G.A. (1950). John Quincy Adams: His Theory and Ideas. New York: Thomas Y. Crowell.

Lord, L. (2003). A first lady of many firsts. US News and World Report, 135(20). Retrieved February 16, 2004, from Academic Search Elite database.