BABY STAR

A Mini-Project Report
Under
Project Workshop

Submitted by

NAME OF THE CANDIDATES:
Simrandeep Pruthi (E032)
Mihir Saxena (E036)
Riya Shete (E040)
Vasudha Singh (E043)

Under The Guidance Of
Ratnesh Chaturvedi

in partial fulfillment for the award of the degree
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CERTIFICATE

This is to certify that the project entitled "BabyStar" is the bonafide work carried out by Simrandeep Pruthi, Mihir Saxena, Riya Shete, Vasudha Singh of B.Tech (Computer Engineering), MPSTME (NMIMS), Mumbai, during the 1Vth Semester of the academic year 2015-16, in partial fulfillment of the requirements for the award of the Degree of Bachelors of Technology as per the norms prescribed by NMIMS. The mini-project work has been assessed and found to be satisfactory.

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Ratnesh Chaturvedi

Internal Mentor

_____ _____

Examiner 1 Examiner 2

_____

Dean

Dr. D.J. Shah

DECLARATION

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Name: Simrandeep Pruthi, Mihir Saxena, Riya Shete, Vasudha Singh

Roll No. E032, E036, E040, E043

Place: MPSTME, Mumbai

Date: 22nd April, 2015

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ABSTRACT

It aims for us to get exposed to Android terminologies along with proper understanding and idea of android structure. To encourage thinking amongst us into developing an app that is yet not created which tomorrow would be of use to the society.Gain hands on Flash, Android studio along with practical knowledge being embedded.

The idea is to include all the academics of a child in the form of an app which will solve their intricacies of learning any subject and clearing their concept. We believe that every child is born a star. He/She just has to be molded in the right way to outshine everyone. Hence the name, BabyStar. Simple and to the point.

The content of the app would be questions regarding Colors and Numbers along with kids rhymes running in the background which will promote simultaneous learning.This will not only sharpen his/her knowledge regarding the topics but also compel him/her to win which is a virtue in itself.

The questions shall be displayed in a grid by displaying the name of the object in each grid window and the baby has to drag the object shown in the left window to their respective grid window. As soon as the baby put the object on the right grid block some object [ice-cream, candy or teddy] should pop out on the window and some pleasing music should be play which should make the baby feel happy. And by default the background music will be some play school rhyme or poem, so that he will also memorise the rhyme and poems.

The objective of this project is that many small baby waste their time in playing games on mobile games. So instead if the play this game they will gain some knowledge and sharpen their memory.

The main idea of this app is to make an interactive forum for children aged 3-5 which encourages them ‘learning with fun.’

The idea is to mix quiz along with fun filled games which would make them learn faster as the saying goes “*We see things, we learn things*

GUI: The “baby star” logo once clicked upon would open a screen with the two game names.That when clicked on, would open a screen where in the player has an option to either start the game or return back to the main menu.

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Abbreviations

Abbreviation	Description
ADB	Android Debugging Bridge
ADT	Android Development Tools
Android SDK	Android Software Development Kit
ART	Android Runtime
CPU	Central Processing Unit
CR	Class Representative
GPU	Graphic Processing Unit
HoD	Head of Department
IPS	In-Plane Switching
LCD	Liquid Crystal Display
RAM	Random Access Memory
SQL	Structured Query Language
SR	Student Representative
XML	Extensible Markup Language

Introduction

There are too many apps for adults and grown ups while the kids here are neglected. They need such an app that enhances their thinking along with some fun. We're promoting an environment that makes the child wanting to play more i.e. learn more.
And BABYSTAR strives to do exactly that.

The main idea of this app is to make an interactive forum for children aged 3-5 which encourages them 'learning with fun.'

The main focus of our app is to create a game which has never been implemented /or an improvement to what is currently available in the market. We are striving to create something that helps a child our targeted clients "Parents" who want their babies to not just play candy crush, Subway surfers or Temple run but to learn and utilize their child's time .

The idea is to mix quiz along with fun filled games which would make them learn faster as the saying goes "*We see things, we learn things."*

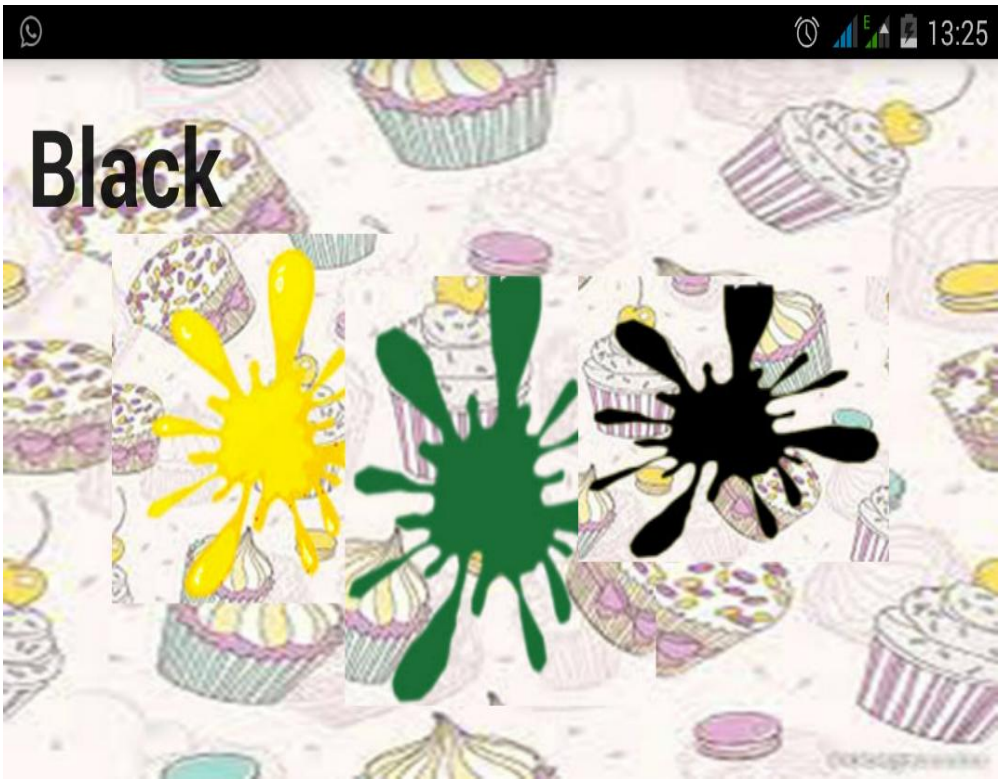
The content of the app would be questions regarding Colors and Numbers along with kids rhymes running in the background which will promote simultaneous learning.

Project Overview

BabyStar is an android application which is built with the intention of encouraging effective learning of kids. There will be two such games that the kid can play.

1. Spot The Color: The child can execute what he's taught in school in an interesting way where splashes of colors spring up and the baby has to select the right splash for the chosen color. The idea of this game is to clear the child's concept of colors. A grid shall be created and the child has to select the correct color from the given colors. There shall be a grid of 3 different colors and the child shall select the right one. Right answer would trigger a winning pleasant sound while the wrong answer would allow the child to try again. What we are trying to achieve here is to increase the basic memory and visual skills of the child by creating this game. Colors would be

displayed not just as splashes but also in other form of objects such as hats, balls and buckets.



2. Wizard Math: This would test the child's basic knowledge regarding numbers with simple addition and subtraction being tested. The numbers to be added would be in a box like structure and the child has to type the answer at the bottom. The answer will be checked and evaluated accordingly. Primarily our aim is to help a child understand mathematics as a subject in a fun and competitive way than just memorizing the answers.
   There will be level ups with increasing difficulty of the questions.
   This is to inculcate the child's liking towards math as a subject in a fun way.

   Thus, the game is an interactive one with certain special effects as well.

Hardware Specification

BabyStar is not a hardware intensive application, thus requires very basic level of hardware, as its application ranges across all devices, low end to high end, phones to tablets. Thus, the following are the minimum hardware specifications required to run the application:

- Processor:
  - Quad-core 1.2 GHz
  - PowerVR SGX 540 GPU.
- Memory:
  - 768 MB RAM
  - 1 GB of Flash Memory
  - Micro-SD card slot (Optional)
- Screen:
  - 3.5-inch LCD display
  - Capacitive or Resistive touch

During Development of the application, Huawei Honor 6 and Xolo Q3000 was used to develop the application on mobiles and ASUS Google Nexus 5and Aakash Tablet was used to develop the application on a tablet. Following are the specifications:

- Huawei Honor 6:
  - Processor:
    - Quad-core 1.7 GHz Cortex-A15
  - Memory:
    - 3GB of RAM
    - 16/32GB Internal
  - Screen:
    - 5-inch FHD 1080P 445PPI

- XOLO Q-3000:
  - Processor:
    - Quad-core 1.5 GHz Cortex-A7
    - PowerVR SGX544GPU
  - Memory:
    - 2 GB RAM
    - 16GB Internal
  - Screen:
    - 5.5 inches IPS LCD display

- Samsung Galaxy Core Duos
  - Processor:
    - 1.2 GHz Dual Core Cortex A5
  - Memory:
    - 1 GB RAM
    - 8 GB Internal
  - Screen:
    - 4.3 inches TFT Capacitive

- Aakash Tablet

- Processor:
  - 1.2 GHz Dual Core Cortex A7
- Memory:
  - 512 MB RAM
  - 4 GB Internal
- Screen:
  - 7 inches TFT Capacitive

Software Specifications:

BabyStar is designed to work on Android 4.0, Ice Cream Sandwich and above.

Apart from Android 4.0 and above, the application, like most android applications can run on the following Operating Systems:

- Blackberry OS 11
- Sailfish OS
- Chrome OS
- Color OS
- INUI OS
- YUN OS
- Nokia X mobile Platform

Some of these are based on android, while some (Bbos 11, Sailfish OS) are made compatible to run android applications.

Following is the list of Android versions on which BabyStar has been tested:

- Android 4.0 (Ice Cream Sandwich)
- Android 4.2 (Jellybean)
- Android 4.3 (Jellybean)
- Android 4.4 (KitKat)
- Android 5.0 (Lollipop)
- Android 5.0.2 (Lollipop)
- Android 5.1 (Lollipop)

This gives the application a broad platform, as these operating systems are in majority of smart phones being used by prospective users.

Review of Literature

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Most often associated with academic-oriented literature, such as a thesis, dissertation or a peer-reviewed journal article, a literature review usually precedes the methodology and results section although this is not always the case. Literature reviews are also common in a research proposal or prospectus. Its main goals are to situate the current study within the body of literature and to provide context for the particular reader. Literature reviews are a basis for research in nearly every academic field.

Java:

Java is a set of several computer software and specifications developed by Sun. Microsystems, later acquired by Oracle Corporation, that provides a system for developing application software and deploying it in a cross-platform computing environment. Java is used in a wide variety of computing platforms from embedded devices and mobile phones to enterprise servers and supercomputers. While less common,Java applets run in secure, sandboxed environments to provide many features of native applications and can be embedded in HTML pages.

Writing in the Java programming language is the primary way to produce code that will be deployed as byte code in a Java Virtual Machine (JVM); byte code compilers are also available for other languages, including Ada, JavaScript, Python, and Ruby. In addition, several languages have been designed to run natively on the JVM, including Scala, Clojure and Groovy. Java syntax borrows heavily from C and C++, but object-oriented features are modeled after Smalltalk and Objective-C. Java eschews certain low-level constructs such as pointers and has a very simple memory model where every object is allocated on the heap and all variables of object types are references. Memory management is handled through integrated automatic garbage collection performed by the JVM.

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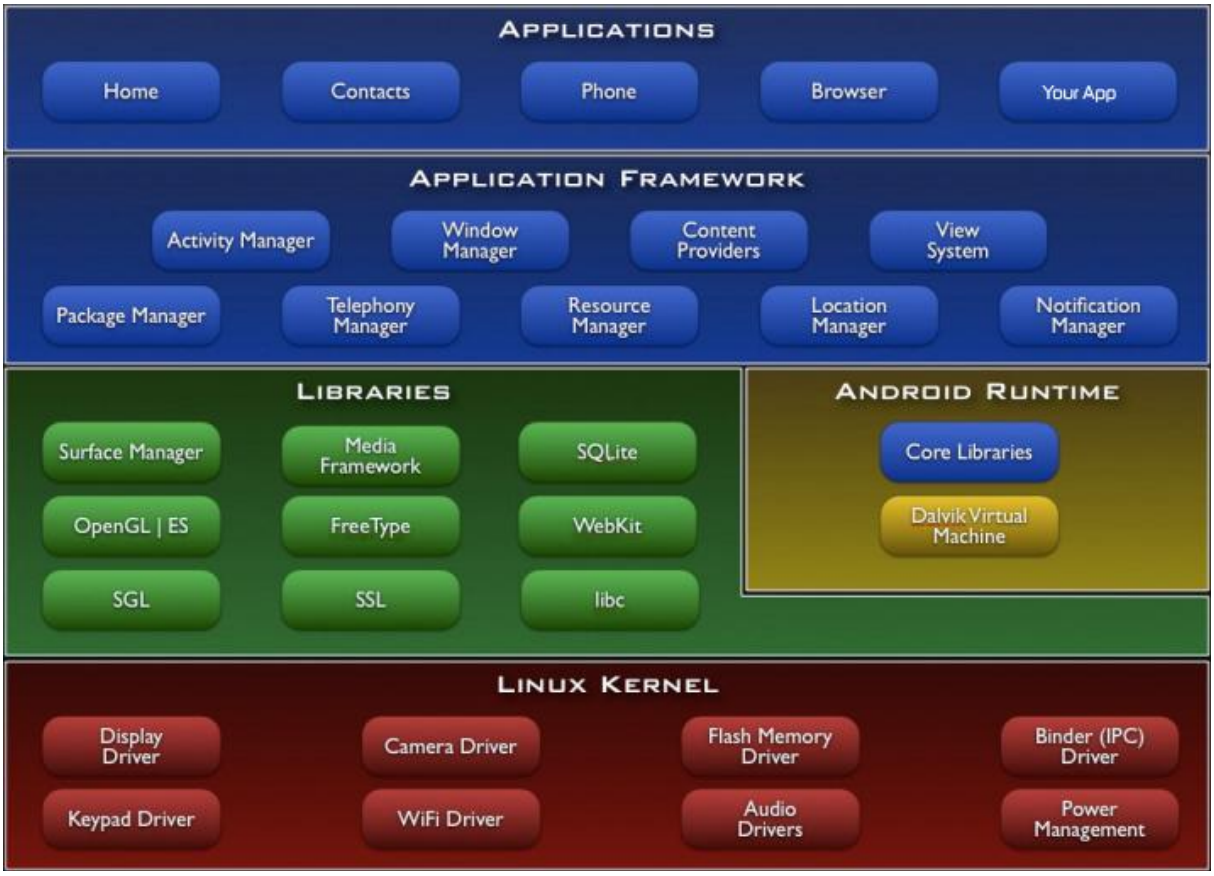
Introduction to Android:

Android is an open source and Linux-based operating system for mobile devices such as smart phones and tablet computers. Android was developed by the Open Handset Alliance, led by Google, and other companies.

Android provides a rich application framework that allows you to build innovative apps and games for mobile devices in a Java language environment.

Android Architecture:
Android operating system is a stack of software components which is roughly divided into five sections and four main layers as shown below in the architecture diagram.



Android gives you a world-class platform for creating apps and games for Android users everywhere, as well as an open marketplace for distributing to them instantly. Android operating system is a stack of software components which is roughly divided into five sections and four main layers as shown below in the architecture diagram.

You will find all the Android application at the top layer. You will write your application to be installed on this layer only. Examples of such applications are Contacts Books, Browser, Games etc. These comprise both the native applications provided with the particular Android implementation (for example web browser and email applications) and the third party applications installed by the user after purchasing the device. Applications created by third party users or developers will be installed here.

Overview:

BabyStar is a project that not only culminates an interest between babies but also between kids and their parent who try to make them learn. This app is made in such a way so as to benefit the society. The idea of the application was taken with the help of our IOT sir who encouraged us to make this application. The methods used in the application are at par with the latest implementations in current android apps in the market. The theoretical aspect of the application is such that it is a boon to the society. The games that are there constitute of a color game and a game to test the child's mathematical ability. This will reward him for his academics in school and otherwise. The 'Spot the color' game is made with an objective to make the child develop his/her memory and visual skills. Thus, this application thus performs a crucial role in embedding 'learning with fun' technique in today's era.

Analysis and Design

During the conception of the application, the requirements were mapped out first. This included analyzing the need of this application, its features and figuring out a list of functions it would perform during operation. This largely consisted of the analysis.

After performing a complete analysis, the design of the application was pursued. BabyStar is designed using material design. Material design is a comprehensive guide for visual, motion, and interaction design across platforms and devices. We have used animations in our application.

Animations
The new animation APIs let you create custom animations for touch feedback in UI controls, changes in view state, and activity transitions.
These APIs let you:

- Respond to touch events in your views with touch feedback animations.
- Hide and show views with circular reveal animations.
- Switch between activities with custom activity transition animations.
- Create more natural animations with curved motion.
- Animate changes in one or more view properties with view state change animations.
- Show animations in state list drawables between view state changes.

Touch feedback animations are built into several standard views, such as buttons. The new APIs let you customize these animations and add them to your custom views.

Requirements:

When analyzing the requirement of the application, fo1lowing points came up:

1. There are way too many adult or teenage apps on the net.
2. Hardly any creative app for kids.
3. Very few educational app on the Playstore.
4. Very few that promote educational learning along with entertainment.
5. For kids, there are either only game apps or only learning ones.

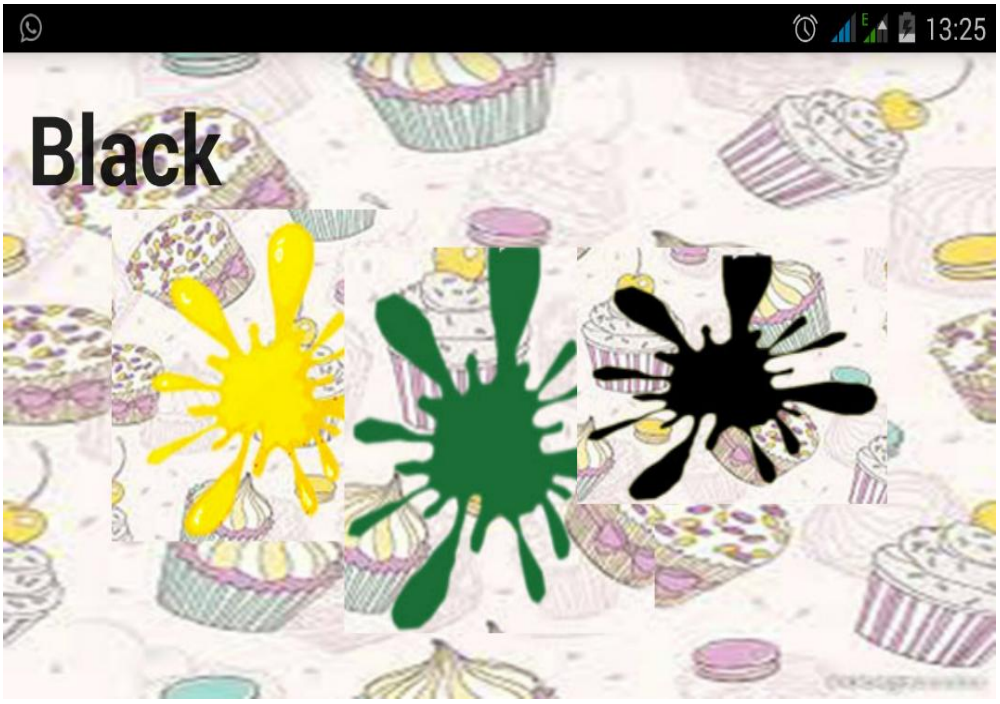
Features:

- Stimulate an interest in the kid to learn.
- Sharpen the kid's knowledge regarding colors and numbers.
- Completed app with special effects.
- Sounds, colorful backgrounds to catch the child's attention.
- Smart, new questions for the kid to be thorough in the topics.
- All in all, a fun game to lure the child into playing it more and being constructive rather than other unconstructive things.
- We are trying to make a bridge between the two and take learning with fun to an altogether different level!

Game 1: Spot the color:

The idea of this game is to clear the child's concept of alphabets and colors.

- A grid shall be created and the child has to drag the right letter in the correct alphabetical order.
- There shall be a grid of 3 different colors and the child shall select the right one.
- Right answer would trigger a winning pleasant sound while the wrong answer would allow the child to try again.



Game2: WizardMath

- This would test the child's basic knowledge regarding numbers with simple addition and subtraction being tested.
- The numbers to be added would be in a box like structure with four possible correct answers being at the bottom. The child has to choose the right answer and type the right answer.

Phases:

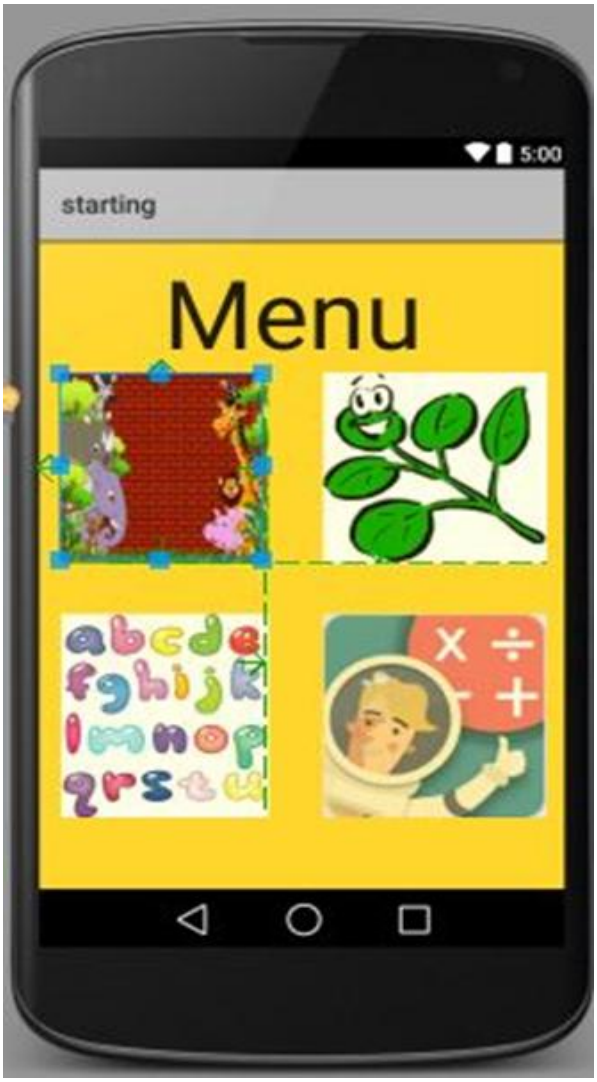
- Phase-1
- Phase-2
- Phase-3

Phase 1:

- The first phase was about understanding the android studio and formulating the app idea.
- After which, we implemented the first rough idea about how we will develop the app.
- This is what we did.

Phase2:

- After giving a start, we began with developing the front end of the app.
- Two games were being developed, colour quiz and math quiz.
- ‘Spot the color’ is to help a child understand the different.
- We did make the basic layout of the app along with the questionnaire for the math quiz.



Phase3:

- We connected all the front end and back end codes and ended up with the working app.
- Which consists of a Homepage, Menu and 2 games.

Methods Implemented:

Introduction to Android Studio:

Android Studio is the official IDE for Android application development, based on IntelliJ IDEA. On top of the capabilities you expect from IntelliJ, Android Studio offers:
Flexible Gradle-based build system.
Build variants and multiple apk file generation.
Code templates to help you build common app features.
Rich layout editor with support for drag and drop theme editing lint tools to catch performance, usability, version compatibility, and other problems.
ProGuard and app-signing capabilities.
Built-in support for Google Cloud Platform, making it easy to integrate Google Cloud. Messaging and App Engine.

SQL Lite Database:

SQLiteDatabase has methods to create, delete, execute SQL commands, and perform other common database management tasks.

See the Notepad sample application in the SDK for an example of creating and managing a database.

Database names must be unique within an application, not across all applications

Results and Discussion

The result is that the both games of the application are completed. The effects we hope are enough and impressive. The resulting application makes the baby to not only sharpen his knowledge regarding the topics but also compel him to win which is a virtue in itself.

The screenshots of the final application are:


5:00
BABY STAR
PLAY NOW!


5:00
MENU
SPOT THE COLOUR
WIZARD MATH


Black


3-1?
1
VS
Check Answer
Sorry, the correct answer is 2
Show Next Question

Conclusion and Future Scope

The objective of this project is that many small baby waste their time in playing games on mobile games. So instead if the play this game they will gain some knowledge and sharpen their memory and also encourage competitive behavior of the child.
There are too many existing apps for grown ups, so we decided to make one for children. For kids, there are either only game apps or only learning ones.
We are trying to make a bridge between the two and take learning with fun to an altogether different level!
The scope of the application can be to raise this basic leveled application to an altogether another level wherein colleges and schools would use similar applications like this in their syllabus that could change the education system in our country in a good and an efficiently creative way.

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