

BANGLA E-LEARNING APPS FOR KIDS

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Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project Titled “**Bangla e-Learning Apps for Kids**”, submitted by Sazidul Alam ID: 162-15-7813; Md. Osman Ali ID: 162-15-8166; Md. Minhazul Islam ID: 162-15-8244 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on August 2019.

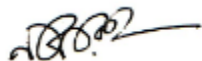
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We hereby declare that, this project has been done by us under the supervision of **Md. Sadekur Rahman, Assistant Professor, Department of CSE**, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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DEDICATION

To my beloved parents
Without whom my life means nothing.

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First we express our heartiest thanks and gratefulness to almighty Allah for his divine blessing makes us possible to complete the final year project/internship successfully.

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Finally, we must acknowledge with due respect the constant support and patience of our parents.

ABSTRACT

Bangla e-Learning Apps for Kids will be great e-Learning Apps. Now we live in the Digital World and thus our Learning System will be also converted from manual System to Electronics Format. This is the high time to convert all the Learning Apps from Manual Book to Computer Based Electronics Format. We also try to prepare Interactive Electronics Learning Apps for Kids. We specially try to cover mathematical and analytical areas for the kids, age group from 4 to 5. In this age, a kid can identify small or big; far or near; calculate something and compare something with others. We also try to cover it and also try to make it interactive with sound and image. We hope, our project will be a very special learning material for kids.

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CHAPTER 1

Introduction

1.1 Introduction

We try to develop a Bangla e-Learning Material for Kids, for the age group from 4 to 5. In this age, a kid can identify small or big; far or near; calculate something and compare something with others. Thus, we try to focus on above analytical & mathematical issues into our system. We also try to make it interactive with sound and image. We hope, our project will be a very special learning Apps for kids [5][6].

1.2 Motivation

If we search e-Learning Apps, we found most of them are in English, thus kids are not getting a very good Bangla tutorials and loss interest to learn Bangla lessons at the beginning of their study life. Thus, we concentrate our focus point on Bangla lesson and also try to make it interactive.

1.3 Objectives

Our main objective is to prepare e-Learning Apps for Kids. We try to attract students in every level by adding colorful pictures, sound and Apps so that kids never bore on it and always try to give more attention on the content of the Apps. We try to increase the understanding level gradually so that a kid can develop his level of understanding day by day [4].

1.4 Expected Outcome

We proposed a Mobile Application which has two part: one for Lesson and one for Exercise. In the Lesson part we found counting number, how to do Sum & Subtract etc. In the Exercise part kids can identify small or big; far or near; calculate something and compare something with others. In this part, we need to input our decision and the system reply with right result.

CHAPTER 2

Background

2.1 Introduction

Our system is a mobile application. We need to install the .apk in our android mobile phone. After installation, we found two part at the home page: one for Lesson and one for Exercise. In the Lesson part we found counting number, how to do Sum & Subtract etc. In the Exercise part kids can identify small or big; far or near; calculate something and compare something with others. In this part, we need to input our decision and the system reply with right result.

2.2 Related Works

Right now there are a lot of digital learning Apps in the market. But most of them are in English, thus kids are not getting a very good Bangla tutorials and loss interest to learn Bangla lessons at the beginning of their study life. Thus, we concentrate our focus point on Bangla lesson and also try to make it interactive.

2.3 Comparative Studies

Compare to the current digital learning Apps, we found most of the Apps are in English but as our mother language is Bangla, we have lot of things to learn in our native language. But due to lacking of good Bangla learning Apps, student's loss interest to learn Bangla. Moreover we found that, English alphabets are very easy to write on the other hand Bangla alphabets are little bit hard to write and memorize. Considering all above, we try to develop tutorials in Bangla and which will be a unique work and not allied before [4][5].

2.4 Scope of Problems

The main problem of this type of application is to ensure the attractiveness of the interface. Another challenge is to make it interactive and acceptable to all type of kids and parents. Because, we have different types of parents with different mindset and the kids also have different choice and attractions/dislike on different objects and images. Thus, we try to develop our app considering all above issues.

2.5. Challenges

Obviously we faced many problems which were difficult to overcome. But problems are always meant to be solved. Few of the challenges we faced while developing this project are: finding appropriate images, color & sound. We should aware about simplicity of the User Interface design also. We should not use anything that crates negative impression in the kids mind.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

First of all we collect requirement from the user. General parents and teachers are the target user of our system. We also consider kids interest and attractions during developing our system. We also study a lot about kid's nature and object selection issues. We also study the manual books that Bangladesh Education Board offers for the kids.

3.2 Requirement Collection and Analysis

We try to accumulate all the requirements in a format so that we can identify the core & non-core requirements and our technical people can draw a design for the software.

Core Requirements:

- Language of the content should be Bangla
- There are some Lessons containing Counting, Sum, and Subtract etc.
- There are some Exercise containing identify small or big; far or near; calculate something and compare something with others

Non-Core Requirements:

- Follow the manual Book offered by Bangladesh Education Board
- Follow the suggestion of parents and teachers
- Make it more colorful and attractive for kids

3.3 Use Case Modeling and Description

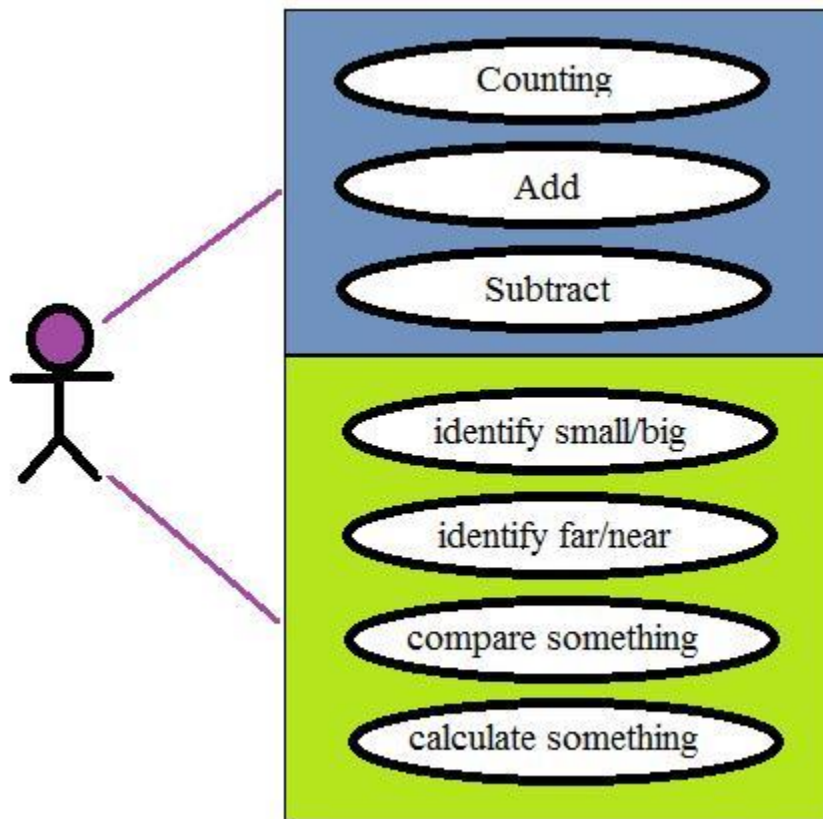


Fig 3.1: Use Case Diagram

3.4 Description:

For developing Bangla Digital Learning Apps, following requirements are finally found:

In the Lesson Part:

- Counting number
- Add two number
- Subtract number

In the Exercise Part:

- Identify Similar Object
- Identify Small & Big Object
- Identify Far & Near Object
- Compare two object
- Identify two number
- Add two number
- Subtract number

3.4.1 Lesson Part:

Counting Number: In this part, kids can learn numbers from 1 to 10. For learning counting, we use images of different objects so that kids can count it first and also familiar the number/ digits of 1, 2, 3, to 10.

Add two Numbers: After learning counting, kids will learn about Adding two numbers. For example, they can calculate $1+3=4$

Subtract two Numbers: Besides adding two numbers, kids can also do subtract of two numbers also. For example, they can calculate $3-1 = 2$

3.4.2 Exercise Part:

Comparison: In this session, kids can compare between small and big; tall and short; large and small number.

Counting: In this part, kids can count how many objects are there and click on the right number button.

Arranging similar number or object: In this part, kids can arrange similar objects or numbers by clicking on the right image.

Sum: In this part, kids can do math by summing two numbers

Subtract: In this part, kids can do math by subtracting two numbers

3.5 Logical Data Model

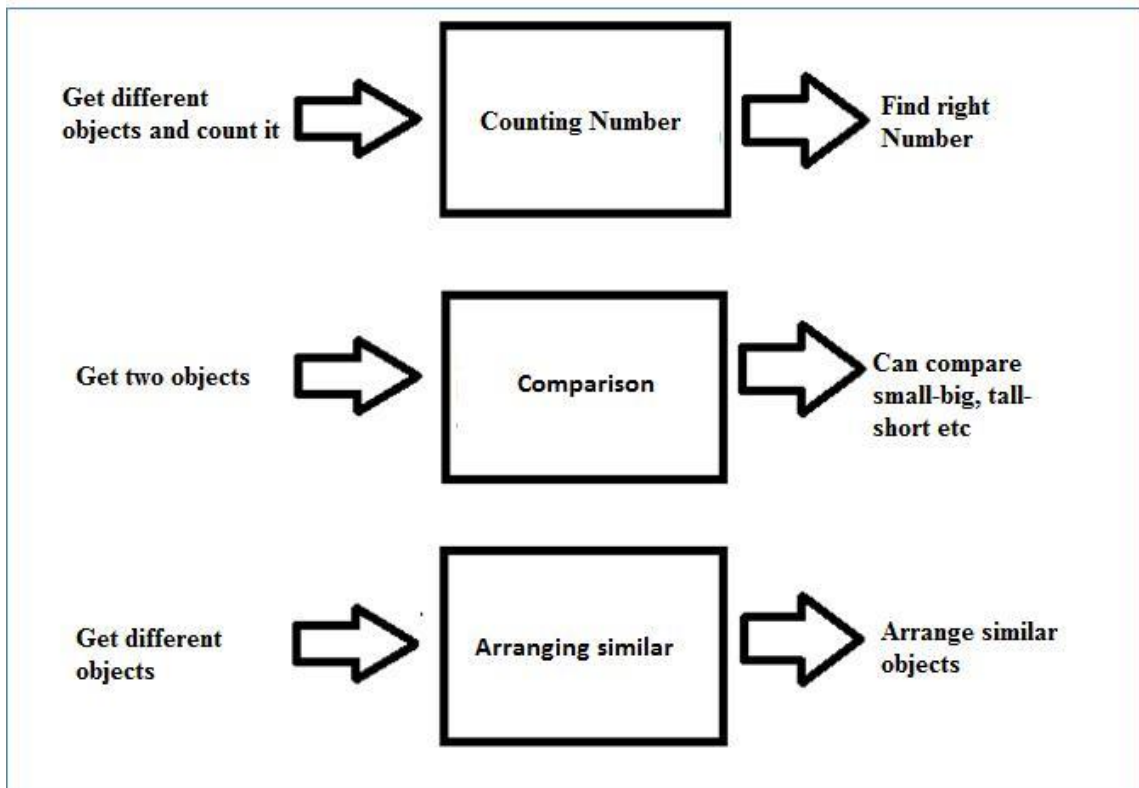


Fig 3.2: Logical Mode

CHAPTER 4

Design Specification

4.1 Overview of Design and Development

We develop mobile application for digital learning Apps. We use React Native framework for developing it. React Native Framework is a very popular open source framework. It is developed and maintained by Facebook. React Native is a Cross Platform mobile application development framework. We can develop android, iOS and UWF mobile application by using React native [1][2].



Fig 4.1: Cross Platform App

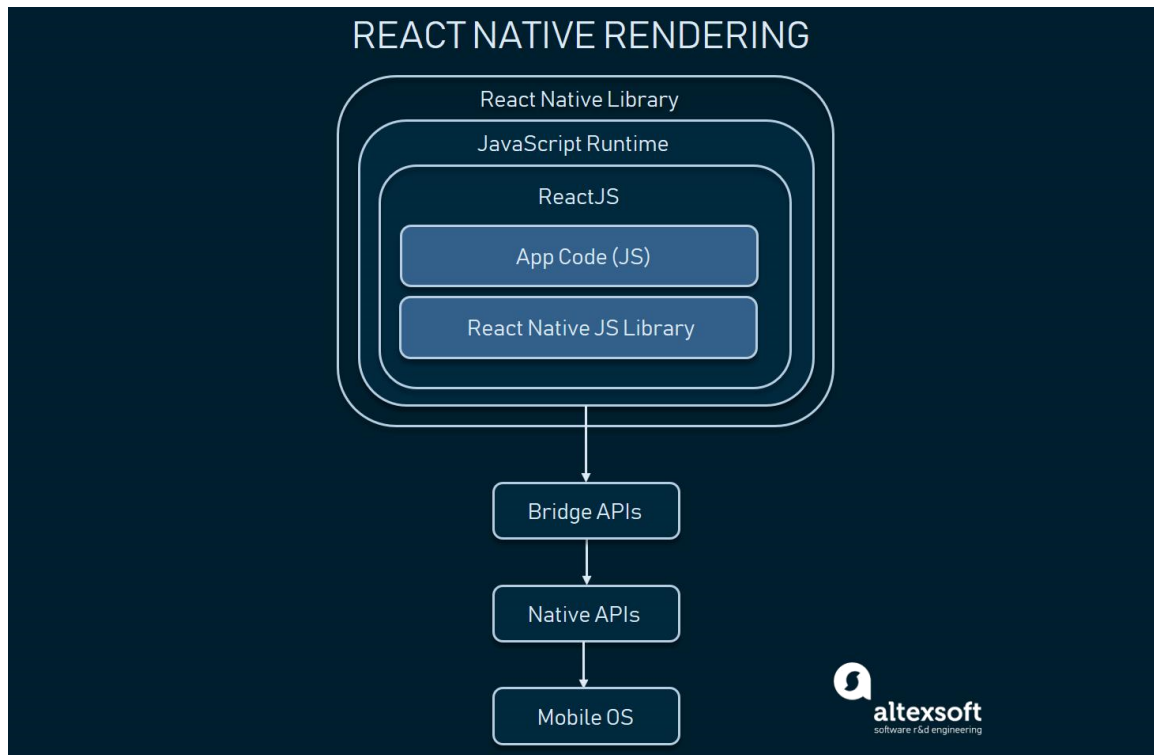


Fig 4.2: React Native Rendering.

After completing the development part, we do Testing and finally close the development part and keep it ready for use.

The different phases of our Development times are:

- Requirement Analysis
- Template Design
- Database Design
- UI Design
- Coding (Method and Function)
- Testing

In our Project, we use Waterfall Model.

4.2 Front-end Design

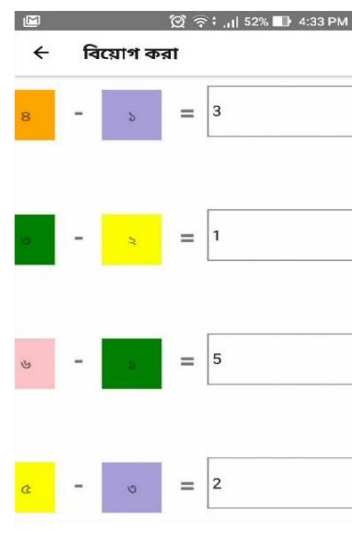
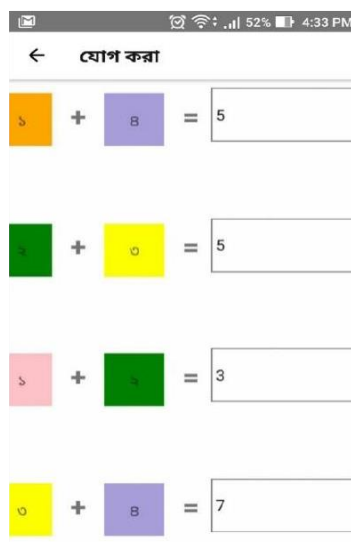
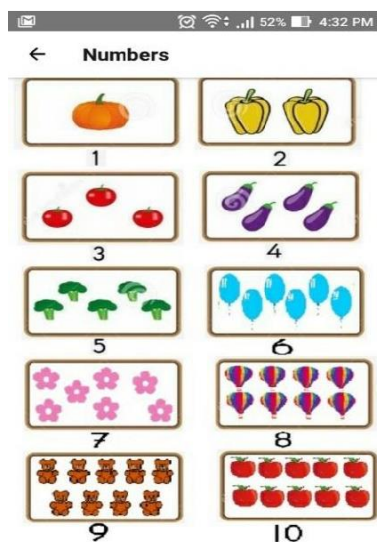
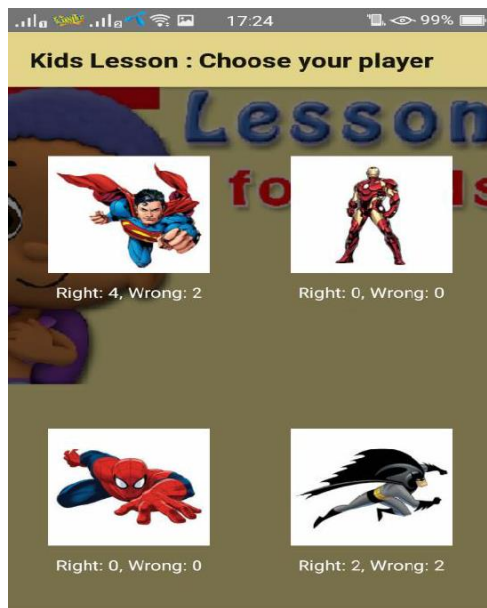


Fig 4.3: Lesson for Kids

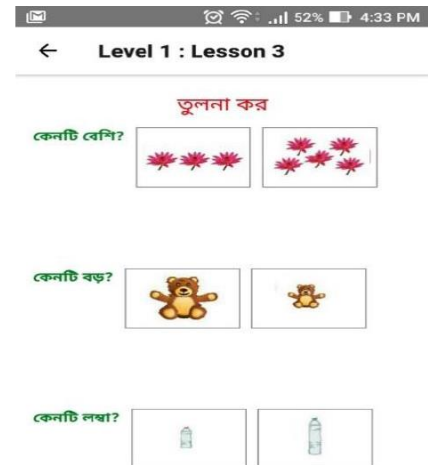
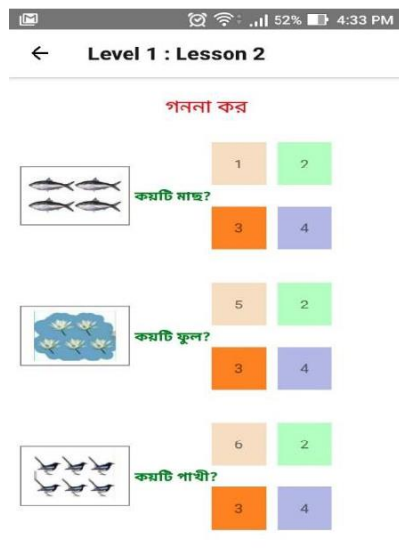


Fig 4.4: Exercise for kids, Level-1



Fig 4.5: Exercise for kids, Level-2

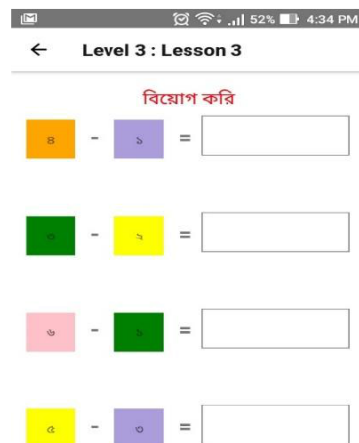
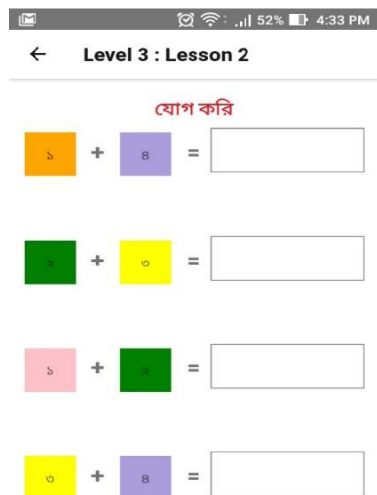
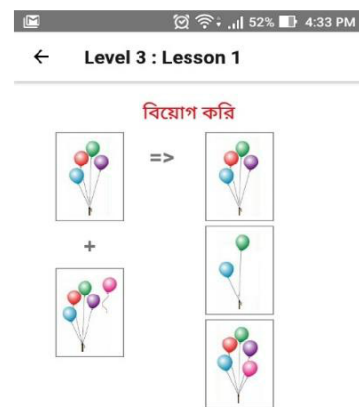


Fig 4.6: Exercise for kids, Level-3

4.3 Bank-end Design

We use React Native Framework for developing this mobile application. React Native is a JavaScript system for composing genuine, locally rendering iOS and Android applications. It depends on React, Facebook's JavaScript library for structure UIs, yet as opposed to focusing on the program, it targets portable stages. At the end of the day: in case you're a web engineer, you can utilize React Native to compose spotless, quick versatile applications, from the solace of a natural structure and a solitary JavaScript codebase [3].

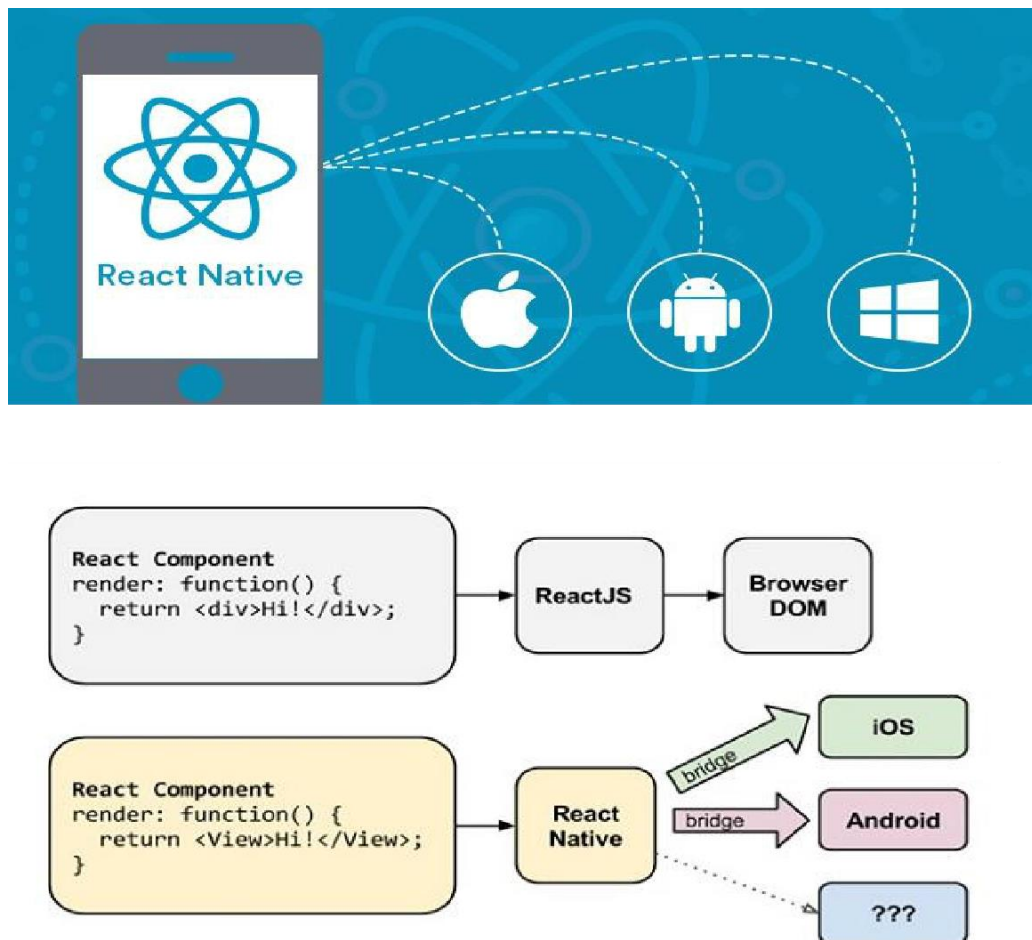


Fig 4.7: React Native as Back-end

Why we Choose React Native?

- It's Just React
- It's Actually Native
- Handling Multiple Platforms
- A Better Developer Experience

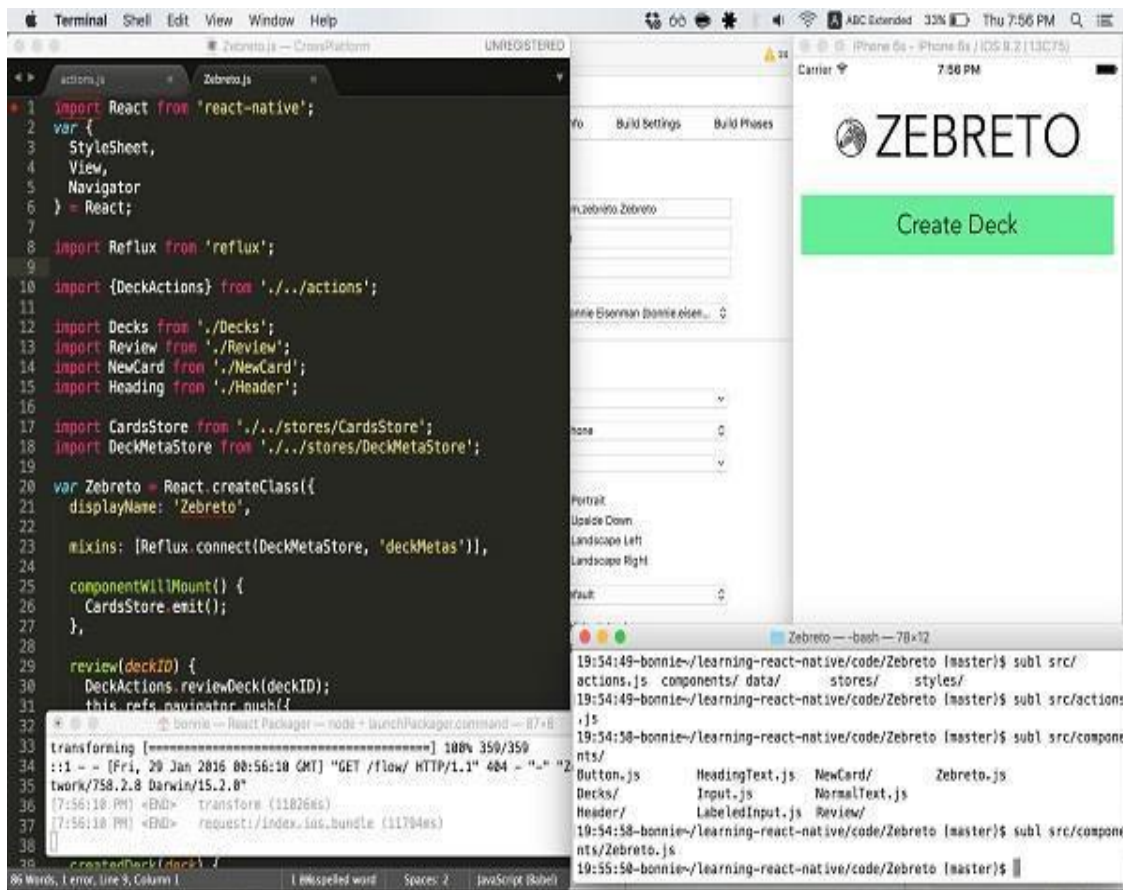


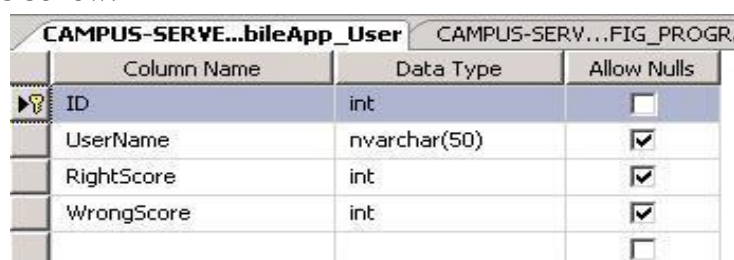
Fig 4.8: Dev. App. By React Native

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

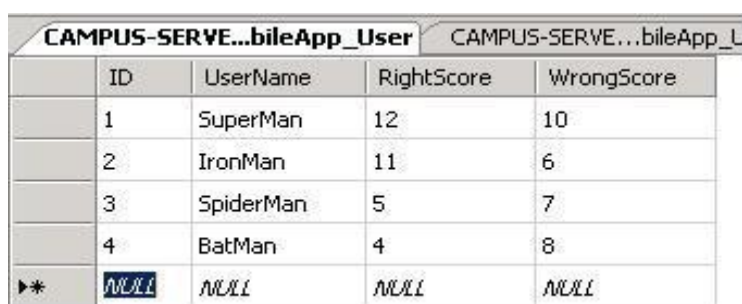
We develop Mobile Application for Digital Learning System for Kids in where we concentrate on Lesson & Exercise but not contain any Database. We use SQL Server 2008 as Database for our project. And we use one table named “UserInfo” which contains 4 columns as bellow:



CAMPUS-SERVE...bibleApp_User		CAMPUS-SERVE...FIG_PROGR...	
	Column Name	Data Type	Allow Nulls
	ID	int	☐
	UserName	nvarchar(50)	☒
	RightScore	int	☒
	WrongScore	int	☒
			☐

Fig 5.1: Database Table: UserInfo

In the User Column we store 4 users as: Superman, Ironman, Spiderman, & Batman and next 2 columns contain Right & Wrong scores respectively. Following image contains the Data of the UserInfo table:



CAMPUS-SERVE...bibleApp_User		CAMPUS-SERVE...bibleApp_L		
	ID	UserName	RightScore	WrongScore
	1	SuperMan	12	10
	2	IronMan	11	6
	3	SpiderMan	5	7
	4	BatMan	4	8
▶*	NULL	NULL	NULL	NULL

Fig 5.2: Data in the Database Table: UserInfo

5.2 Implementation of Front-end Design

We can separate Front-end into two part as bellow:

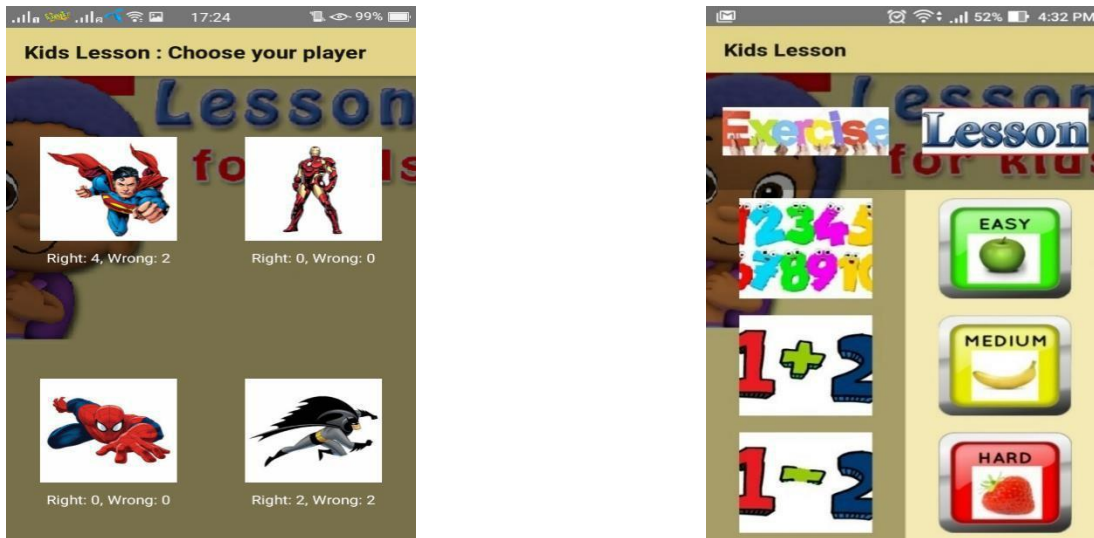


Fig 5.3: Home Page

5.2.1 Lesson Part:

Counting Number: In this part, kids can learn numbers from 1 to 10. For learning counting, we use images of different objects so that kids can count it first and also familiar the number/ digits of 1, 2, 3, to 10.

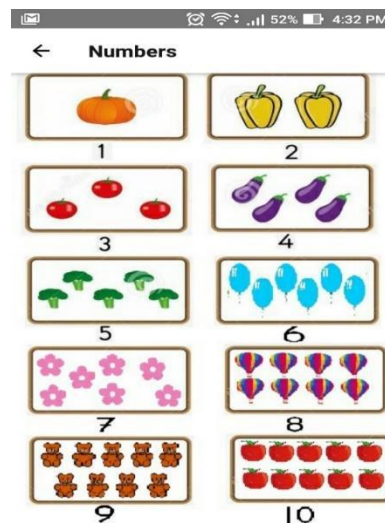


Fig 5.4: Counting Number

Add two Numbers: After learning counting, kids will learn about Adding two numbers. For example, they can know about calculate $1+3=4$

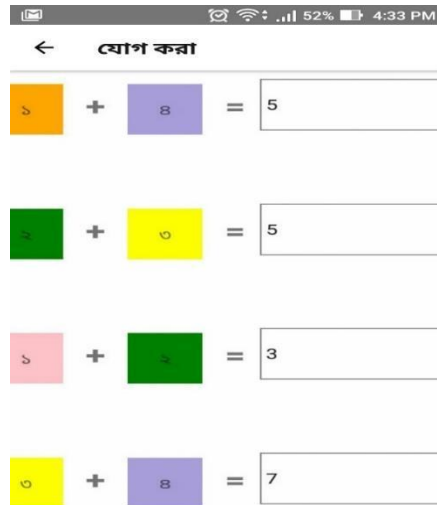


Fig 5.5: Adding two numbers

Subtract two Numbers: Besides adding two numbers, kids can also do subtract of two numbers also. For example, they can calculate $3-1 = 2$

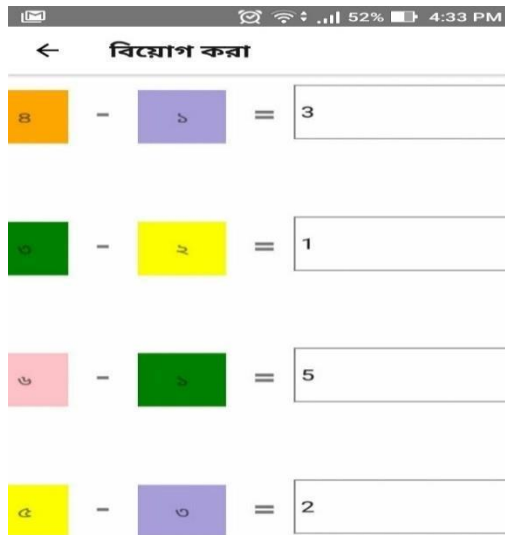


Fig 5.6: Subtracting two numbers

3.4.2 Exercise Part:

Comparison: In this session, kids can compare between small and big; tall and short; large and small number.

If a Student can click on the right image, the system will celebrate it by displaying smiley image and sound.

On the other hand, if a student can click wrong image, the system identify it by displaying a sad image and sound.

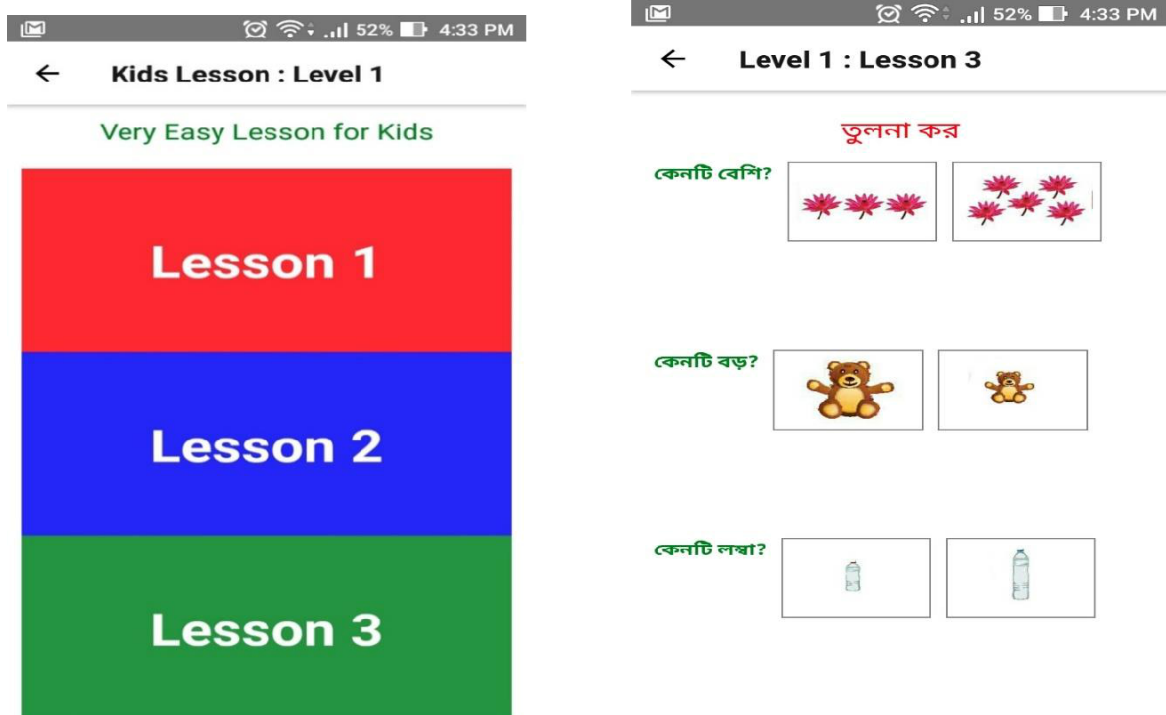


Fig 5.7: Comparison of two objects

Counting: In this part, kids can count how many objects are there and click on the right number button.

If a Student can click on the right image, the system will celebrate it by displaying smiley image and sound.

On the other hand, if a student can click wrong image, the system identify it by displaying a sad image and sound.



Fig 5.8: Counting Object

Matching similar number or object: In this part, kids can arrange similar objects or numbers by clicking on the right image.

If a Student can click on the right image, the system will celebrate it by displaying smiley image and sound.

On the other hand, if a student can click wrong image, the system identify it by displaying a sad image and sound.

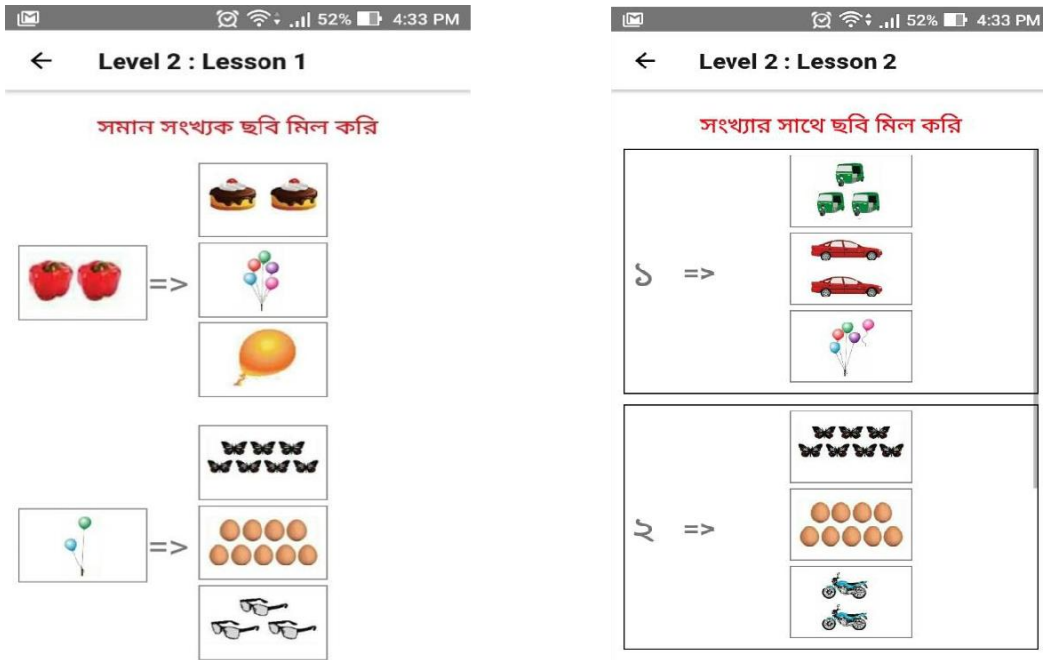


Fig 5.9: Matching Object

Sum: In this part, kids can do math by summing two numbers

If a Student can click on the right image, the system will celebrate it by displaying smiley image and sound.

On the other hand, if a student can click wrong image, the system identify it by displaying a sad image and sound.

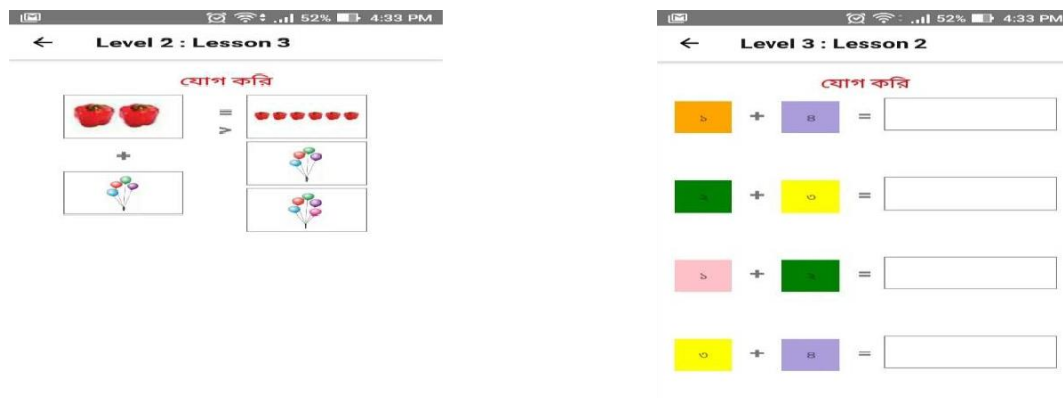


Fig 5.10: Adding Object

Subtract: In this part, kids can do math by subtracting two numbers

← Level 3 : Lesson 1

বিয়েগ করি



=>



+







← Level 3 : Lesson 3

বিয়েগ করি

8

-

১

=

৩

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Fig 5.11: Subtracting Object

CHAPTER 6

Conclusion and Future Scope

6.1 Discussion and Conclusion

Actually, we have a goal to develop a Mobile Application on Bangla Digital Lesson for kids. We consider all Apps in Bangla because there is a huge lacking of Bangla Apps in the market and thus students are not getting enough study Apps and loss their interest on Bangla Lesson Learning. And finally we can develop it by using a cross platform framework so that all the user of Android and iOS can use it. Our main goal is to encourage kids to learn Bangla in all the ways and we think our system will do it properly.

6.2 Limitations

There are some limitation of our system also which are as bellow:

1. We could not include Database in our system and thus we could not store the score for future.
2. There is no user level access and no option of saving previous records.

6.3 Scope for Further Developments

We will incorporate following things in future:

1. We will use Database in our next version
2. We will access our system by creating user and store previous records and other's records into the database for future use.

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