# Department of Computing

**CS-213: Advanced Programming**

**Class: BSCS 7AB**

# Lab 11: React Native Calculator Application

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# Lab 11: React Native Calculator Application

**Introduction**

React Native combines the best parts of native development with React, a best-in-class JavaScript library for building user interfaces.

**Objectives**

This lab will get students familiar with the React Native application Development.

**Tools/Software Requirement**

React native, Android Studio, JDK, node JS

**Description**

**Reference Videos**

<https://www.youtube.com/watch?v=TkYTPSVvMaM&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=11>

<https://www.youtube.com/watch?v=f3K2QuFH9yc&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=12>

<https://www.youtube.com/watch?v=487ec0OCppw&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=13>

<https://www.youtube.com/watch?v=8PVWlBwiegY&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=14>

<https://www.youtube.com/watch?v=4vRTFKI4ZS8&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=15>

<https://www.youtube.com/watch?v=8bhKXfEpyEw&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=16>

<https://www.youtube.com/watch?v=I-aeTW40yls&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=17>

<https://www.youtube.com/watch?v=YTkzfdyxNbM&list=PLYxzS__5yYQlHANFLwcsSzt3elIbYTG1h&index=18>

**Lab Task**

Create a basic calculator app in react native

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| Solution |
| Task Code:  App.js:  import React, { Component } from 'react';  import {View,Text,ToastAndroid, ScrollView} from 'react-native';  import styles from './styles';  import NumberButtons from './components/NumberButtons';  import HistoryView from './components/HistoryView'  const buttons = [    ['CLEAR', 'DEL'],    ['7', '8', '9', '÷'],    ['4', '5', '6', 'x'],    ['1', '2', '3', '+'],    ['.', '0', '=','-']  ]  const initialOutput = '0';  const maxLength = 57;  export default class App extends Component {      constructor(props){        super(props);        this.state = {            \_output: initialOutput,            \_mathExpression: '',            \_history: [],        }        this.\_handleEvent = this.\_handleEvent.bind(this);        this.\_clearHistory = this.\_clearHistory.bind(this);    }      \_handleEvent = (value) => {      if(!isNaN(value) || value=='.'){        this.\_concatToOutput(value);      }      else{        switch(value) {          case buttons[0][0]:            this.\_initOutput();            break;            case buttons[0][1]:            if (this.state.\_output.length === 1){              this.\_initOutput();            }            else {              this.\_replaceLastIndex('');            }            break;          case buttons[4][2]:            this.\_evaluate();            break;          default:            let strLastChar = this.state.\_output.slice(-1);            if(isNaN(strLastChar)){              this.\_replaceLastIndex(value)            }            else{              this.\_concatToOutput(value);            }            break;        }      }    }        \_concatToOutput = (value) => {      if(this.state.\_output.length>=maxLength){        this.\_showToast('Maximum Expression Length of ' + maxLength + ' is reached.');      }      else{        if(this.state.\_output !== initialOutput){          this.setState({\_output: this.state.\_output + '' + value + ''})        }        else{          this.setState({\_output: value + ''})        }      }    }      \_replaceLastIndex = (value) => {      var str1 = this.state.\_output.replace(/.$/,value)      this.setState({        \_output: str1      })    }      \_evaluate = () => {      try{        let strCurOutput = this.state.\_output;        if(isNaN(strCurOutput)){          let dEval = eval(this.\_convertToMathExpression(this.state.\_output));          let aHistory = [...this.state.\_history];          aHistory.push([strCurOutput, dEval])          this.setState({            \_output: ''+dEval,            \_history: aHistory          })        }      }      catch(exception){          this.\_showToast('Invalid format used.');      }    }      \_convertToMathExpression = (value) => {       let strTemp = value.replace(new RegExp(this.\_escapeRegExp(buttons[1][3]), 'g'), '/');       strTemp = strTemp.replace(new RegExp(this.\_escapeRegExp(buttons[2][3]), 'g'), '\*');      return strTemp;    }    \_escapeRegExp = (str) => {      return str.replace(/([.\*+?^=!:${}()|\[\]\/\\])/g, "\\$1");    }      \_initOutput = () => {      this.setState({        \_output: initialOutput      })    }      \_clearHistory = () => {        const emptyArray = [];      this.setState({        \_history: emptyArray      })    }      \_showToast = (value) => {      ToastAndroid.show(value, ToastAndroid.SHORT);    }      render() {      return (        <View style={styles.container}>          <View style={styles.contHistory}>            <HistoryView data={this.state.\_history} onClear={this.\_clearHistory}/>          </View>          <View style={styles.contOutput}>            <View style={styles.placeHolderOutput}>              <Text style={styles.txtDefault}>{this.state.\_output}</Text>            </View>          </View>          <View style={styles.contButtons}>            <NumberButtons onBtnPress={this.\_handleEvent} buttons={buttons}/>          </View>        </View>      );    }  }  Task Output Screenshot: |

### Deliverable

Compile a single word document by filling in the solution part and submit this Word file on LMS. This lab grading policy is as follows: The lab is graded between 0 to 10 marks. The submitted solution can get a maximum of 5 marks. At the end of each lab or in the next lab, there will be a viva/quiz related to the tasks. You must show the implementation of the tasks in the designing tool, along with your complete Word document to get your work graded. You must also submit this Word document on the LMS. In case of any problems with submissions on LMS, submit your Lab assignments by emailing it to Ms. Ayesha Asif: [ayesha.asif@seecs.edu.pk](mailto:ayesha.asif@seecs.edu.pk).