Login Page View Controller File:

```
import UIKit

var userName = "Vishnu"
var updatepassword = "Vishnu"
class loginPage: UIViewController
{




    override func viewDidLoad() {
        super.viewDidLoad()

    }
    @IBOutlet weak var label1: UILabel!

    @IBOutlet weak var uname: UITextField!

    @IBOutlet weak var pwd: UITextField!



    func RestartPage()
    {

        uname.text
        pwd.text


    }

    @IBAction func forgotPass(_ sender: Any)
    {
        let vc = storyboard?.instantiateViewController(withIdentifier: "cp2") as? changePasswordPage



        self.navigationController?.pushViewController(vc!, animated: true)

    }


    @IBAction func senddata(_ sender: UIButton)
    {
        let vc = storyboard?.instantiateViewController(withIdentifier: "cp3") as? changePassword1
```

```
        if uname.text == userName && pwd.text == updatepassword
        {
            let vc1 = storyboard?.instantiateViewController(withIdentifier: "wp") as! welcomePage

            self.navigationController?.pushViewController(vc1, animated: true)

            vc1.dataString = "Welcome  \(uname.text!)"


        }
        else if uname.text != userName && pwd.text != updatepassword
        {

            let alert = UIAlertController(title: "User credentials are invalid", message: "Please Try Again",
preferredStyle: .alert)
            let restart = UIAlertAction(title: "Press Here To Go Back To Login Page", style: .default, handler:
{action in self.RestartPage()})

            alert.addAction(restart)
            present(alert , animated: true,completion: nil)

        }

        else
        {
            if uname.text != userName
            {

                let alert = UIAlertController(title: "userName is Invalid", message: "Please Try Again",
preferredStyle: .alert)
                let restart = UIAlertAction(title: "Press Here To Go Back To Login Page", style: .default, handler:
{action in self.RestartPage()})

                alert.addAction(restart)
                present(alert , animated: true,completion: nil)

            }

            else if pwd.text != updatepassword
            {


                let alert = UIAlertController(title: "Password is Invalid", message: "Please Try Again", preferredStyle:
.alert)
                let restart = UIAlertAction(title: "Press Here To Go Back To Login Page", style: .default, handler:
{action in self.RestartPage()})

                alert.addAction(restart)
                present(alert , animated: true,completion: nil)

            }
```

```
    }


}
}
```

Welcome Page View Controller File:

```
import UIKit

class welcomePage: UIViewController
{
    @IBOutlet weak var textlabel: UILabel!



    var dataString: String = ""

    override func viewDidLoad() {
        super.viewDidLoad()

        print(dataString)
        textlabel.text = dataString

    }


  @IBAction func calcbutton(_ sender: UIButton)
  {

    let vc1 = storyboard?.instantiateViewController(withIdentifier: "cp1") as! CalculatorViewController




    self.navigationController?.pushViewController(vc1, animated: true)



  }


  @IBAction func changepasswordbutton(_ sender: UIButton)
  {

    let vc2 = storyboard?.instantiateViewController(withIdentifier: "cp3") as! changePassword1
```

```
        self.navigationController?.pushViewController(vc2, animated: true)


    }


    }
```

Calculator View Controller File:

```
import UIKit

class CalculatorViewController: UIViewController
{


    @IBOutlet weak var calculatorWorkings: UILabel!

    @IBOutlet weak var calculatorResults: UILabel!

    var workings:String = ""
    var symbol : Character = "c"

    override func viewDidLoad()
    {
        super.viewDidLoad()
        clearAll()
        // Do any additional setup after loading the view.
    }


    @IBAction func equalsTap(_ sender: Any)
    {

        if (validInput())
        {
            if symbol == ">"
            {
            print(leftexp)
            var leftcheckedWorkingsForPercent = leftexp.replacingOccurrences(of: "%", with: "*0.01")
            var leftexpression = NSExpression(format:leftcheckedWorkingsForPercent)
            var leftresult = leftexpression.expressionValue(with: nil, context: nil) as! Double
            //var leftresultString = formatResult(result:result)



            print(rightexp)
                let start = rightexp.index(rightexp.startIndex, offsetBy: 1)
                let end = rightexp.index(rightexp.startIndex, offsetBy: rightexp.count-1)
                let range = start...end
```

```
            let newRightExp = String(rightexp[range])
          var rightcheckedWorkingsForPercent = newRightExp.replacingOccurrences(of: "%", with: "*0.01")
          var rightexpression = NSExpression(format:rightcheckedWorkingsForPercent)
          var rightresult = rightexpression.expressionValue(with: nil, context: nil) as! Double
         // var rightresultString = formatResult(result:result)


            var result = great(lexp: leftresult, rexp: rightresult)
            calculatorResults.text = result


          }

          else
          {


          let checkedWorkingsForPercent = workings.replacingOccurrences(of: "%", with: "*0.01")
          let expression = NSExpression(format:checkedWorkingsForPercent)
          let result = expression.expressionValue(with: nil, context: nil) as! Double
          let resultString = formatResult(result:result)
          calculatorResults.text = resultString
          }
      }

      else
      {


          let alert = UIAlertController(title: "Invalid Input", message: "its not working based on your input",
preferredStyle: .alert)

          alert.addAction(UIAlertAction(title: "okay", style: .default))
          self.present(alert, animated: true, completion: nil)

      }
  }

  func validInput() -> Bool
  {
      var count = 0
      var funcInIndexes = [Int]()
      for char in workings
      {

          if(specialCharacters(char: char))
          {
              funcInIndexes.append(count)
          }
          count+=1
      }
```

```
    var previous:Int = -1
    for index in funcInIndexes
    {
        if(index == 0){
            return false
        }

        if(index == workings.count - 1)
        {
            return false
        }


        if(previous != -1){

            if (index - previous == 1)
            {

                return false
            }
        }
        previous = index


    }

    return true


}

func specialCharacters(char :Character) -> Bool
{
    //symbol =  char

    if (char == "*")
    {


        return true
    }

    if (char == "/")
    {


        return true
    }
```

```
    if (char == "%")
    {

        return true
    }
    if (char == "-")
    {

        return true
    }
    if (char == "+")
    {

        return true
    }

    return false


}


func formatResult (result:Double) -> String
{

    if (result.truncatingRemainder(dividingBy: 1) == 0)
    {
        return String(format: "%.0f", result)
    }
    else
    {
        return String(format: "%.2f", result)

    }
}









func clearAll()
{

   workings = ""
    calculatorWorkings.text = ""
```

```
    calculatorResults.text = ""

}




@IBAction func allClearTap(_ sender: Any)
{
    clearAll()
}


@IBAction func backTap(_ sender: Any)
{

    if (!workings.isEmpty){
        workings.removeLast()
        calculatorWorkings.text = workings


    }



}
var leftexp = ""
var rightexp = ""
func addToWorkings(value:String)
{




    if value == ">"
    {
        leftexp = workings
        workings = ""
        calculatorWorkings.text = workings



    }
    //rightexp = rightexp + value
    workings = workings + value
      print(workings)
    calculatorWorkings.text = workings
        rightexp = workings
```

```
}
@IBAction func percentTap(_ sender: Any) {

    addToWorkings(value: "%")
}


@IBAction func divideTap(_ sender: Any) {
    addToWorkings(value: "/")
}


@IBAction func timesTap(_ sender: Any) {
    addToWorkings(value: "*")
}


@IBAction func minusTap(_ sender: Any) {
    addToWorkings(value: "-")
}


@IBAction func plusTap(_ sender: Any) {
    addToWorkings(value: "+")
}


@IBAction func decimalTap(_ sender: Any) {
    addToWorkings(value: ".")
}


@IBAction func zeroTap(_ sender: Any) {
    addToWorkings(value: "0")
}

func great(lexp : Double , rexp: Double)->String
{


    if lexp > rexp
    {

        return "true"



    }
    if lexp == rexp
    {

        return "equal"
```

```
    }
    else
    {


        return "false"
    }




}

@IBAction func greaterTap(_ sender: Any)
{


    addToWorkings(value: ">")
    symbol = ">"



}

@IBAction func oneTap(_ sender: Any) {
    addToWorkings(value: "1")
}


@IBAction func twoTap(_ sender: Any) {
    addToWorkings(value: "2")
}



@IBAction func threeTap(_ sender: Any) {
    addToWorkings(value: "3")
}


@IBAction func fourTap(_ sender: Any) {
    addToWorkings(value: "4")
}


@IBAction func fiveTap(_ sender: Any) {
    addToWorkings(value: "5")
}
```

```
    @IBAction func sixTap(_ sender: Any) {
        addToWorkings(value: "6")
    }

    @IBAction func sevenTap(_ sender: Any) {
        addToWorkings(value: "7")
    }

    @IBAction func eightTap(_ sender: Any) {
        addToWorkings(value: "8")
    }

    @IBAction func nineTap(_ sender: Any) {
        addToWorkings(value: "9")
    }

}
```

Forgot Password View Controller File:

```
import UIKit


class changePasswordPage: UIViewController
{
    func reset(){

        userNameError.isHidden = true



    }

    @IBOutlet weak var oldusername: UITextField!


    @IBOutlet weak var newpass: UITextField!

    @IBOutlet weak var userNameError: UILabel!

    @IBAction func updatePassword(_ sender: Any)
    {

        print(newpass.text)

        if oldusername.text == userName {
        updatepassword = newpass.text!

        let alert = UIAlertController(title: "Password Updation is successfull", message: "You can now login using
your new password", preferredStyle: .alert)
        let restartAction = UIAlertAction(title: "Login Again", style: .default, handler: {action in
self.loginAgain()})
        alert.addAction(restartAction)
```

```
        present(alert , animated:true , completion: nil)
        }

        else if oldusername.text != userName{
            userNameError.text  = "Incorrect UserName or No UserName"
            userNameError.isHidden = false
        }
    }


    func loginAgain()
    {

        navigationController?.popToRootViewController(animated: true)
    }

        var dataString: String = ""
        override func viewDidLoad() {
            super.viewDidLoad()

            print(dataString)
            dataString = newpass.text!
           reset()
        }


    }
```

Change Password View Controller File:

```
import UIKit




class changePassword1: UIViewController {


    func reset(){

    oldPasswordError.isHidden = true



    }

    @IBOutlet weak var oldPass: UITextField!


    @IBOutlet weak var oldPasswordError: UILabel!


    @IBOutlet weak var newPassword: UITextField!
```

```
    @IBAction func changePassword(_ sender: Any) {


        print(newPassword.text)
        if oldPass.text == updatepassword{
        updatepassword = newPassword.text!

        let alert = UIAlertController(title: "Password Updation is successfull", message: "You can now login using
your new password", preferredStyle: .alert)
        let restartAction = UIAlertAction(title: "Login Again", style: .default, handler: {action in
self.loginAgain()})
        alert.addAction(restartAction)
        present(alert , animated:true , completion: nil)

        }
        else if oldPass.text != updatepassword{
          oldPasswordError.text  = "Incorrect Password or No Password"
          oldPasswordError.isHidden = false
        }



    }

    func loginAgain()
    {

        navigationController?.popToRootViewController(animated: true)
    }

        var dataString: String = ""
        override func viewDidLoad() {
            super.viewDidLoad()

            print(dataString)
            dataString = newPassword.text!
            reset()
        }







}
```

7:07

WELCOME TO SAFARI

USERNAME

PASSWORD

Forgot Password

SIGN IN

2:35

WELCOME TO SAFARI

Vishnu

Vishnu

Forgot Password

SIGN IN

2:35

Back

Welcome Vishnu

Calculator

Change Password

7:08

Back

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7:08
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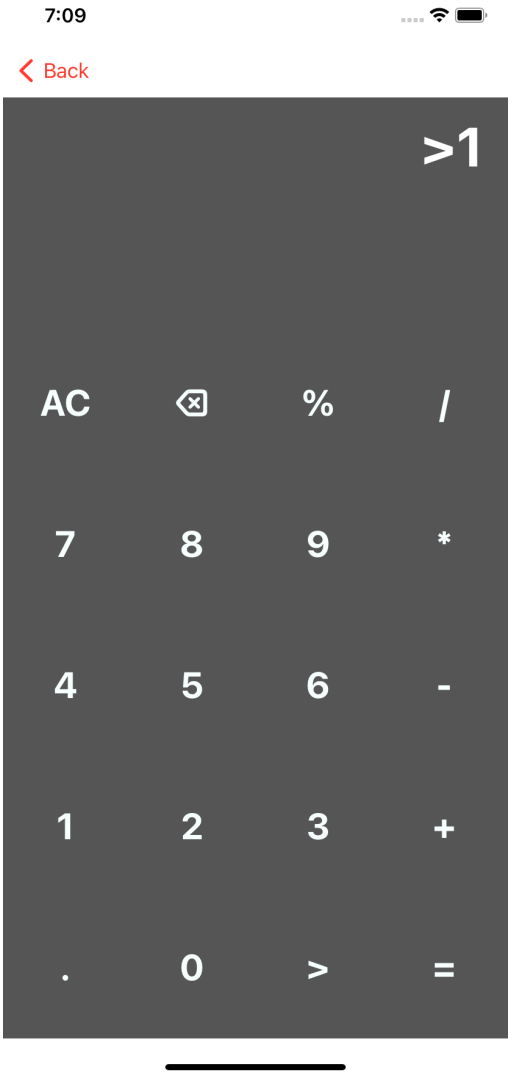
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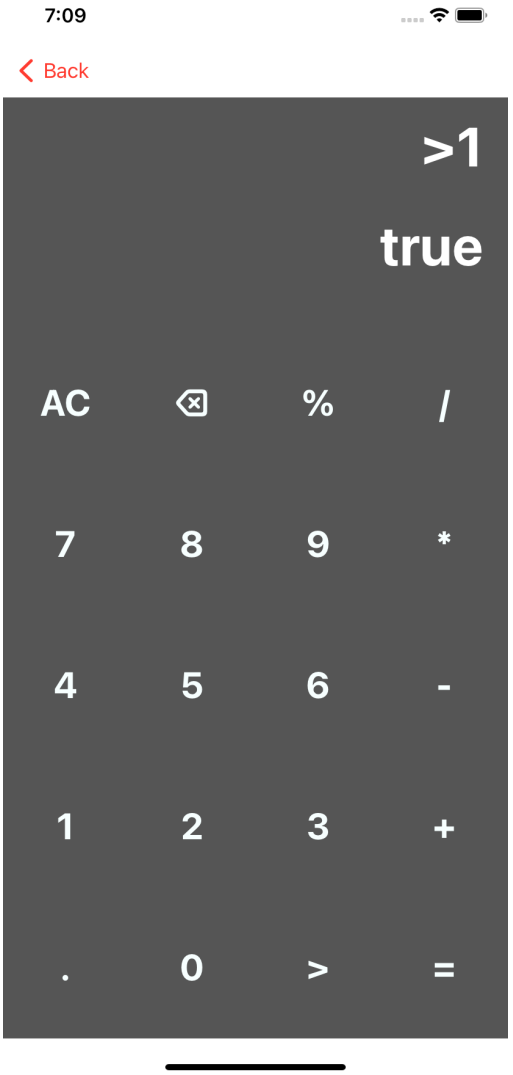
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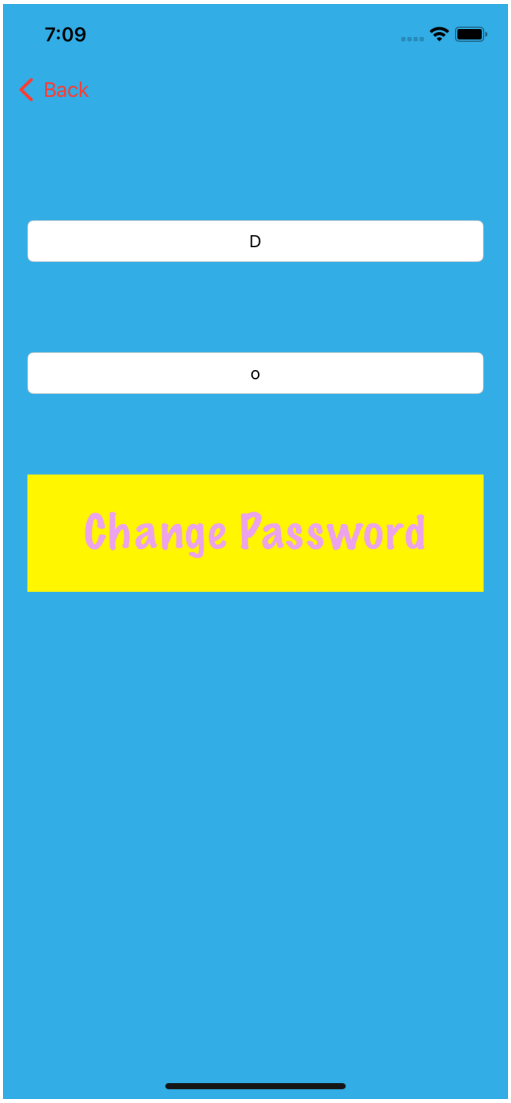
7:09
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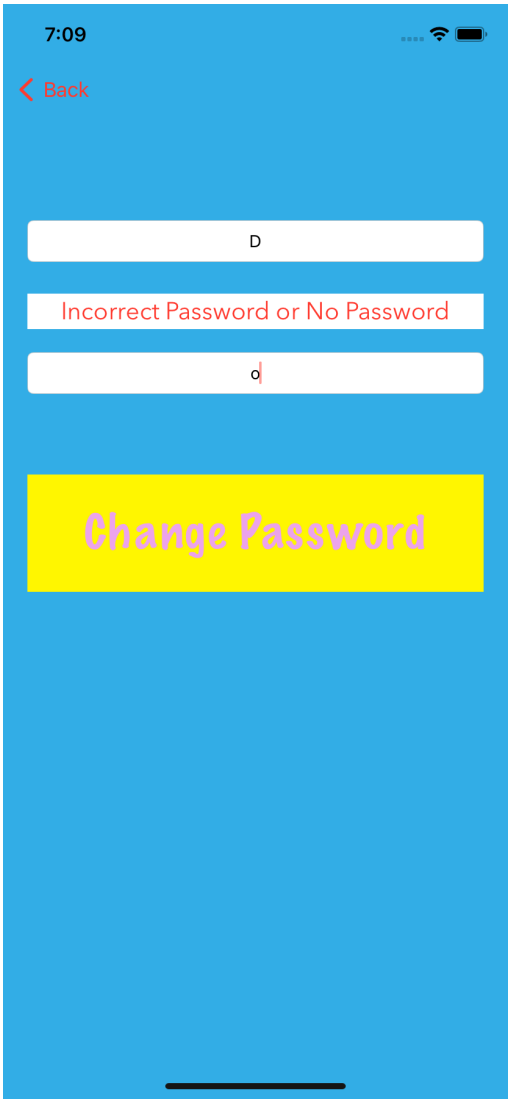
Change Password


7:09
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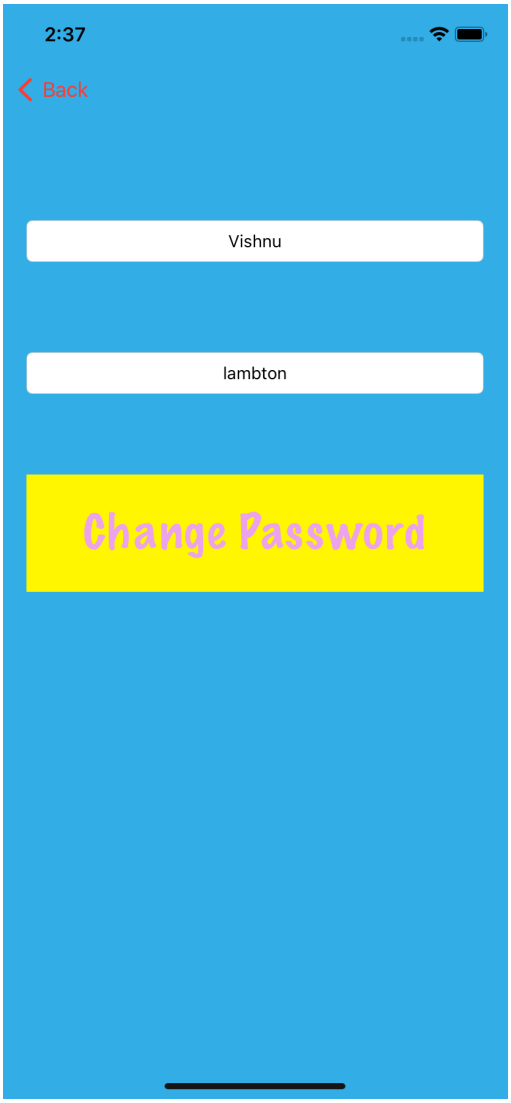
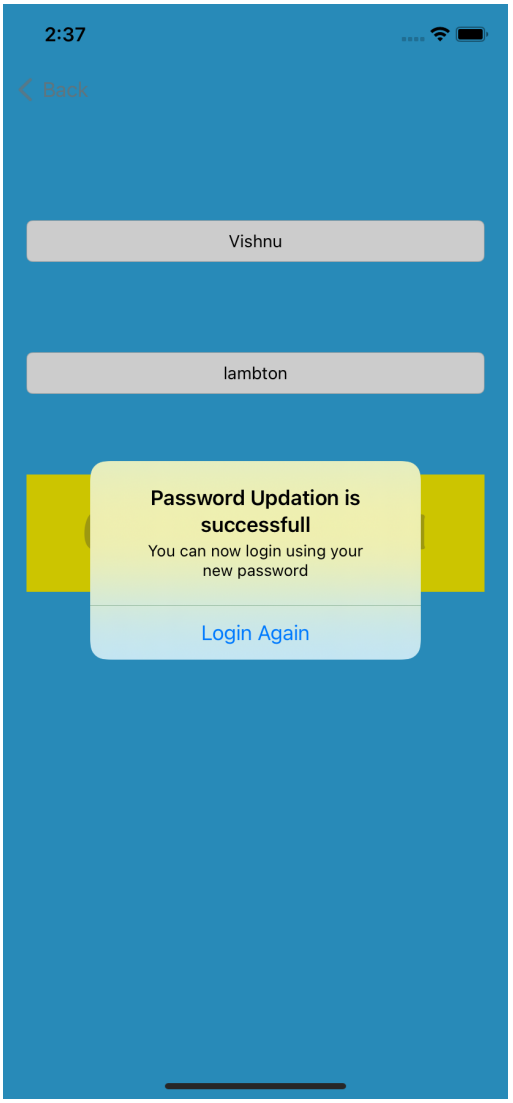
Incorrect Password or No Password
o
Change Password


2:37
Back
Vishnu
lambton
Change Password


2:37
Back
Vishnu
lambton
Password Updation is successfull
You can now login using your new password
Login Again

2:37

WELCOME TO SAFARI

Vishnu

lambton

Forgot Password

SIGN IN

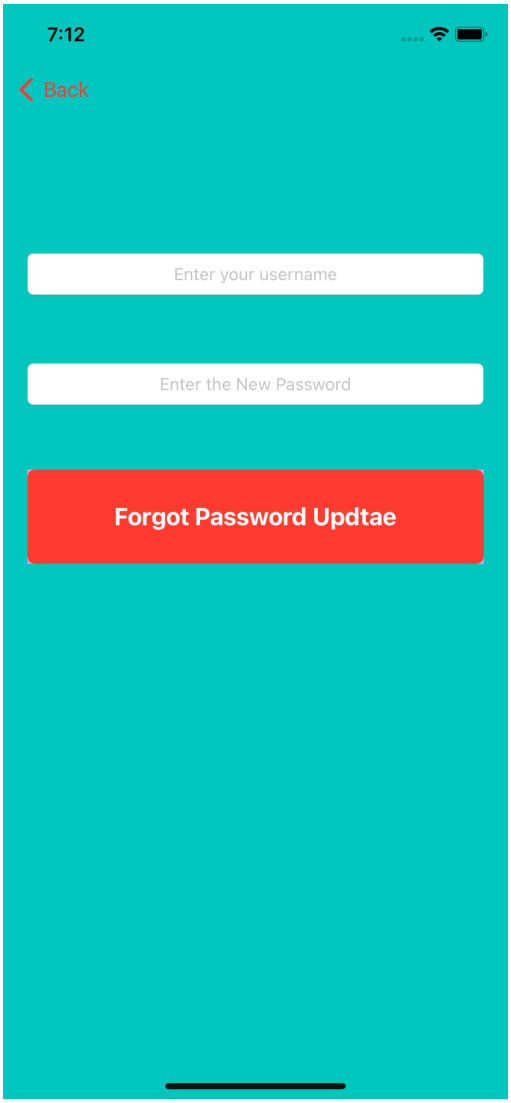
2:35

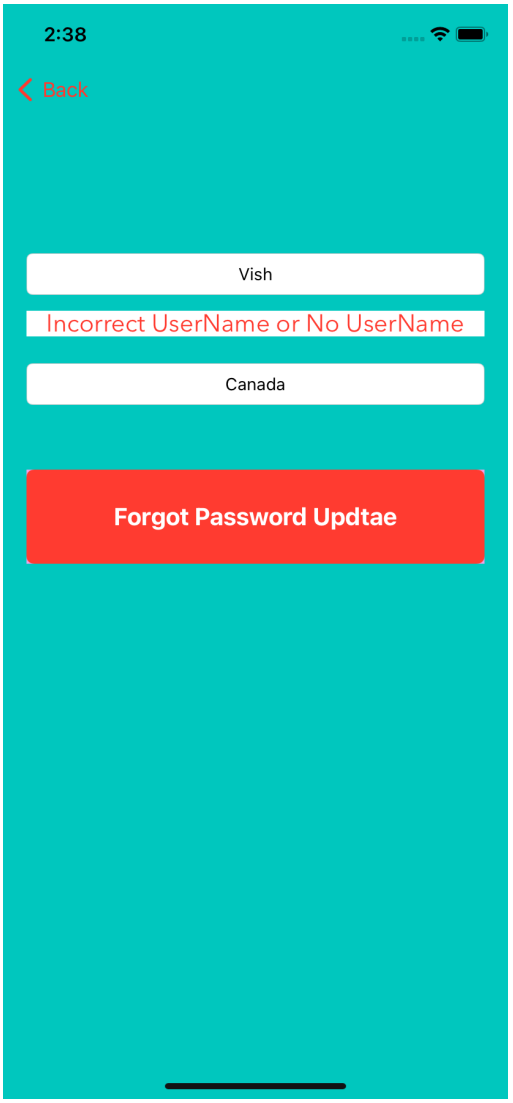
Back

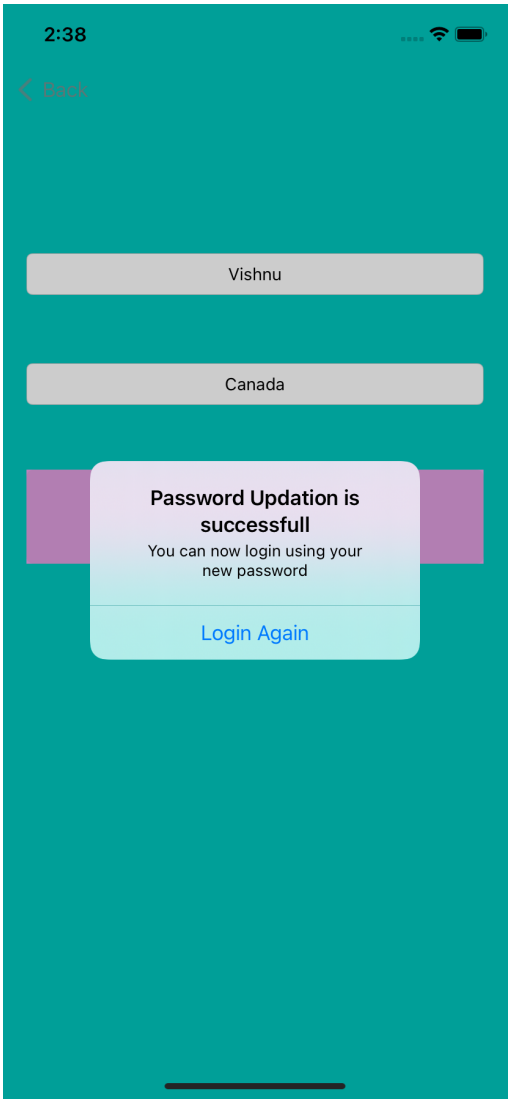
Welcome Vishnu

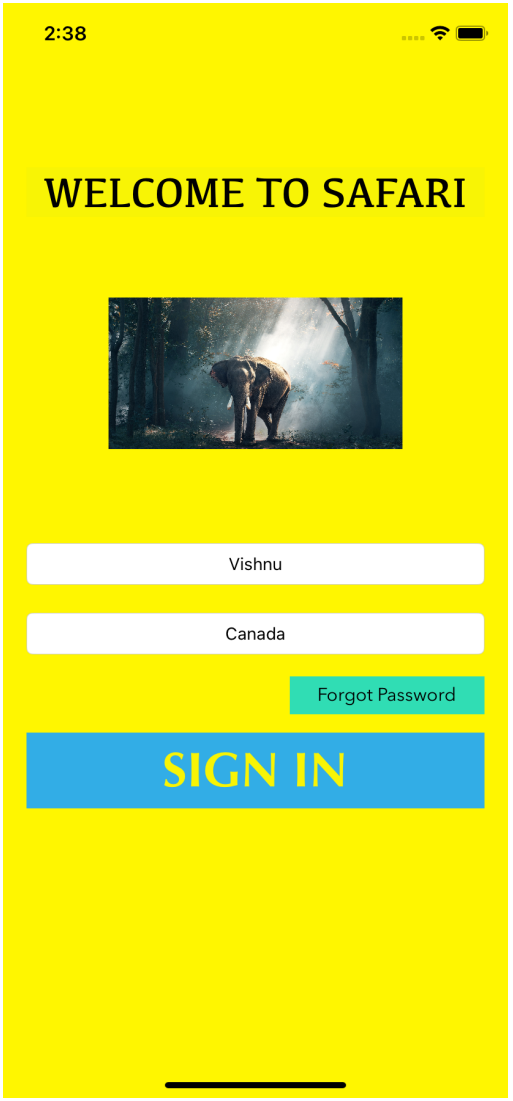
Calculator

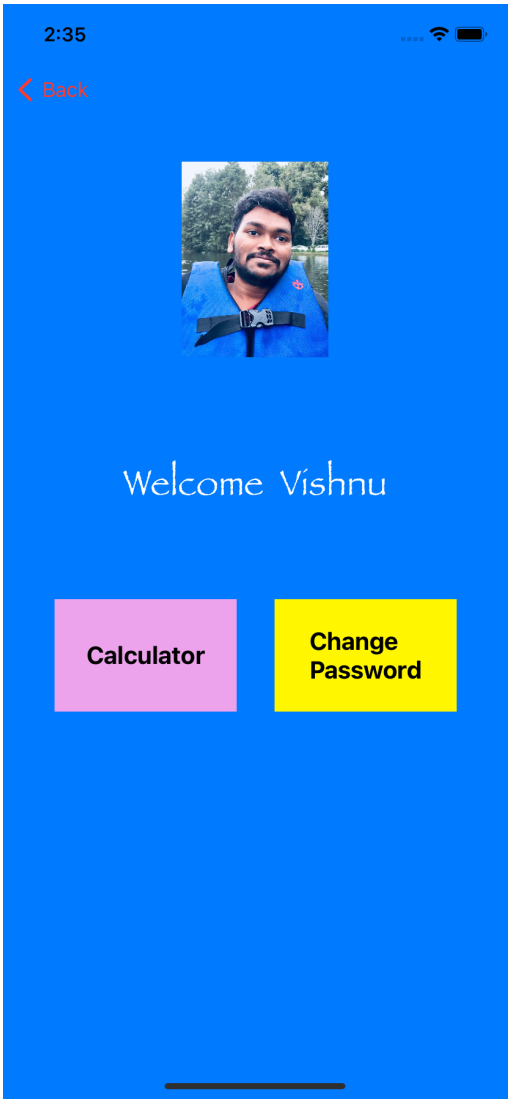
Change Password


7:12
Back
Enter your username
Enter the New Password
Forgot Password Updtae


2:38
Back
Vish
Incorrect UserName or No UserName
Canada
Forgot Password Updtae


2:38
Back
Vishnu
Canada
Password Updation is successfull
You can now login using your new password
Login Again


2:38
WELCOME TO SAFARI
Vishnu
Canada
Forgot Password
SIGN IN


2:35
Back
Welcome Vishnu
Calculator
Change Password