SE3040

Application Frameworks (AF)

Final Exam

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Student Name : Rajapaksha T.N.

Category : Tourism

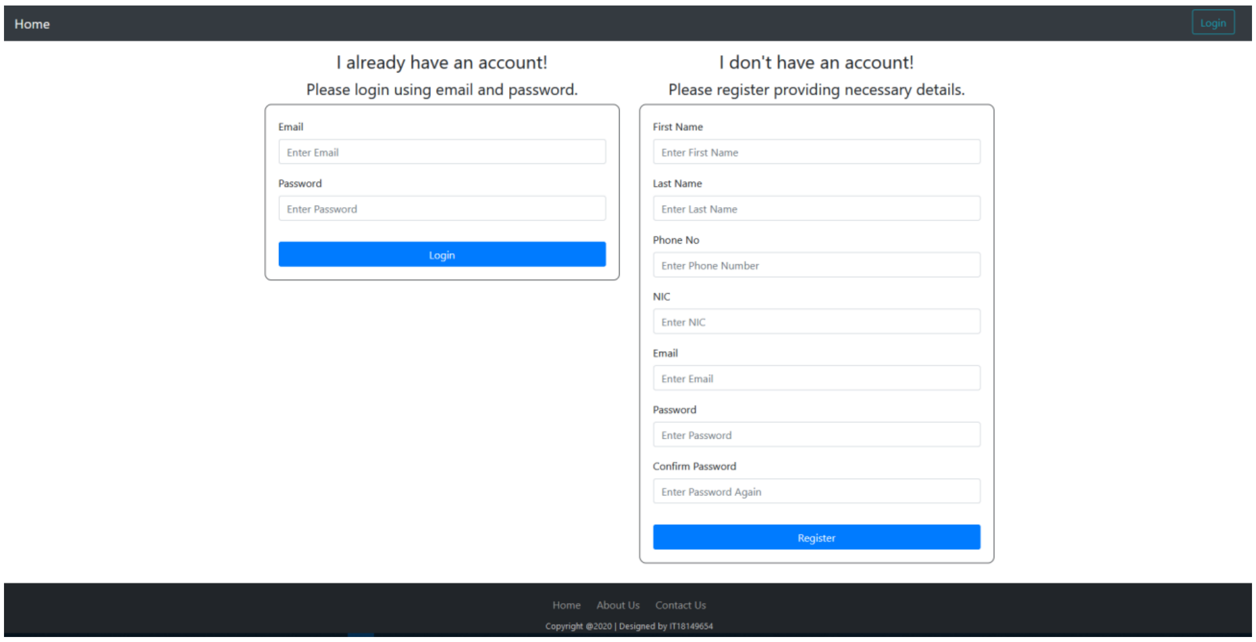
Scenario

This is an Online Tourism Web Application Management System.

There are three main actors in this scenario.

1. Administrator
2. Tour Manager
3. Customer

All the users use one login page to login to the system. System can identify the logged in user's type and provide only the permitted functionality for that user type. The navigation bar will be updated accordingly.



I already have an account!

Please login using email and password.

Email

Enter Email

Password

Enter Password

Login

I don't have an account!

Please register providing necessary details.

First Name

Enter First Name

Last Name

Enter Last Name

Phone No

Enter Phone Number

NIC

Enter NIC

Email

Enter Email

Password

Enter Password

Confirm Password

Enter Password Again

Register

Home About Us Contact Us

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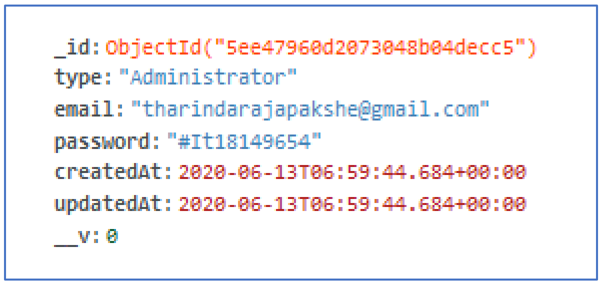
In order **to login to the system as the Administrator**, use the following logging credentials:

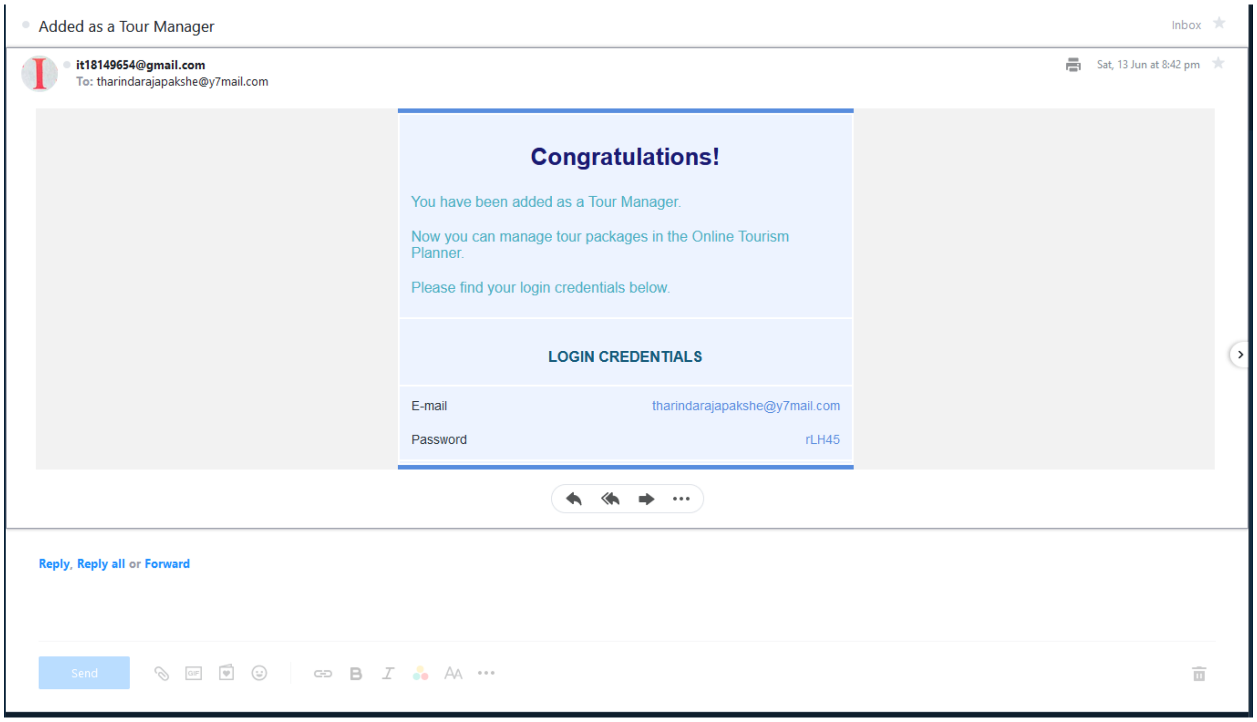
Email = tharindarajapakshe@gmail.com

Password = #It18149654



```
_id: ObjectId("5ee47960d2073048b04decc5")
type: "Administrator"
email: "tharindarajapakshe@gmail.com"
password: "#It18149654"
createdAt: 2020-06-13T06:59:44.684+00:00
updatedAt: 2020-06-13T06:59:44.684+00:00
__v: 0
```

The Administrator can login to the system and manage Tour Managers. Administrator can add Tour Managers. When the Tour Manager is added, an email is sent to the newly added Tour Manager with the login credentials (Auto generated password) for the Tour Manager to login.



Added as a Tour Manager

Inbox

it18149654@gmail.com
To: tharindarajapakshe@y7mail.com

Sat, 13 Jun at 8:42 pm

Congratulations!

You have been added as a Tour Manager.

Now you can manage tour packages in the Online Tourism Planner.

Please find your login credentials below.

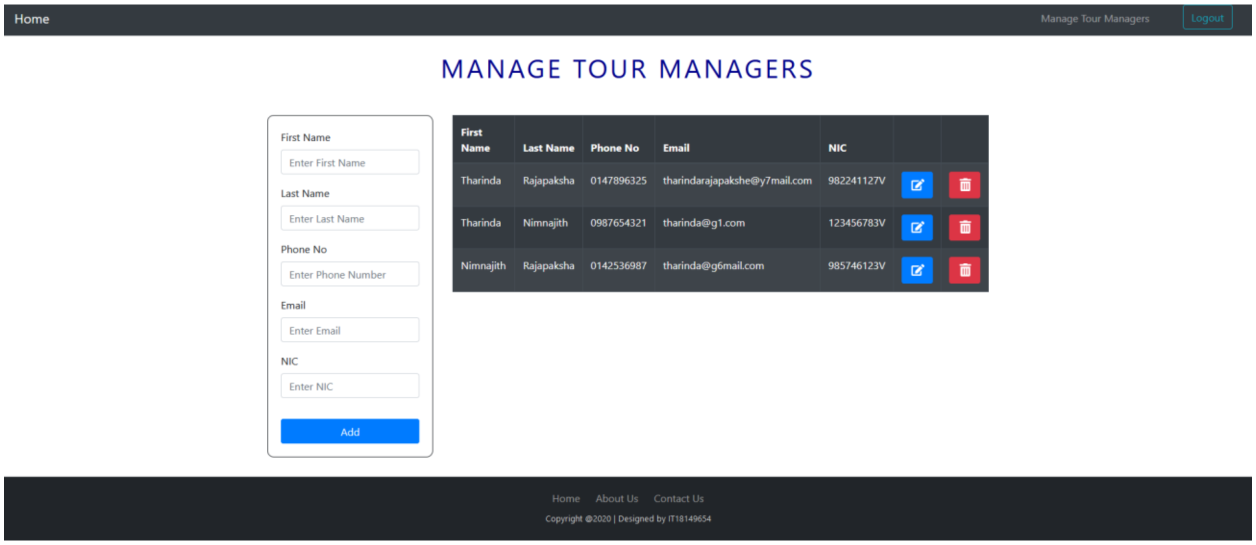
LOGIN CREDENTIALS

E-mail	tharindarajapakshe@y7mail.com
Password	rLH45

Reply, Reply all or Forward

If Administrator details needs to be changed or to add new Administrators to be added, a separate API is provided in the adminRooutes.js in the express backend project. A tool like Postman can be used for this purpose.

Further the Administrator can perform other CRUD operations on Tour Managers such as editing the details of the existing Tour Managers and removing the Tour Managers.



MANAGE TOUR MANAGERS

First Name
Enter First Name
Last Name
Enter Last Name
Phone No
Enter Phone Number
Email
Enter Email
NIC
Enter NIC
Add

First Name	Last Name	Phone No	Email	NIC		
Tharinda	Rajapaksha	0147896325	tharindarajapakshe@y7mail.com	982241127V	✎	🗑
Tharinda	Nimnajith	0987654321	tharinda@g1.com	123456783V	✎	🗑
Nimnajith	Rajapaksha	0142536987	tharinda@g6mail.com	985746123V	✎	🗑

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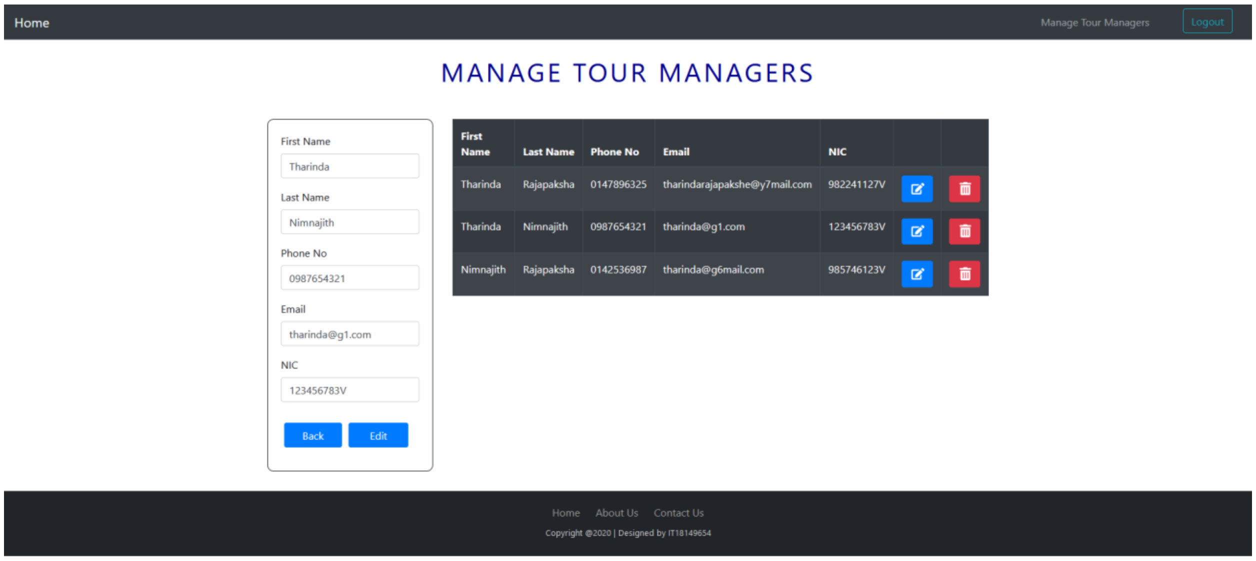

MANAGE TOUR MANAGERS

First Name
Tharinda
Last Name
Nimnajith
Phone No
0987654321
Email
tharinda@g1.com
NIC
123456783V
Back Edit

First Name	Last Name	Phone No	Email	NIC		
Tharinda	Rajapaksha	0147896325	tharindarajapakshe@y7mail.com	982241127V	✎	🗑
Tharinda	Nimnajith	0987654321	tharinda@g1.com	123456783V	✎	🗑
Nimnajith	Rajapaksha	0142536987	tharinda@g6mail.com	985746123V	✎	🗑

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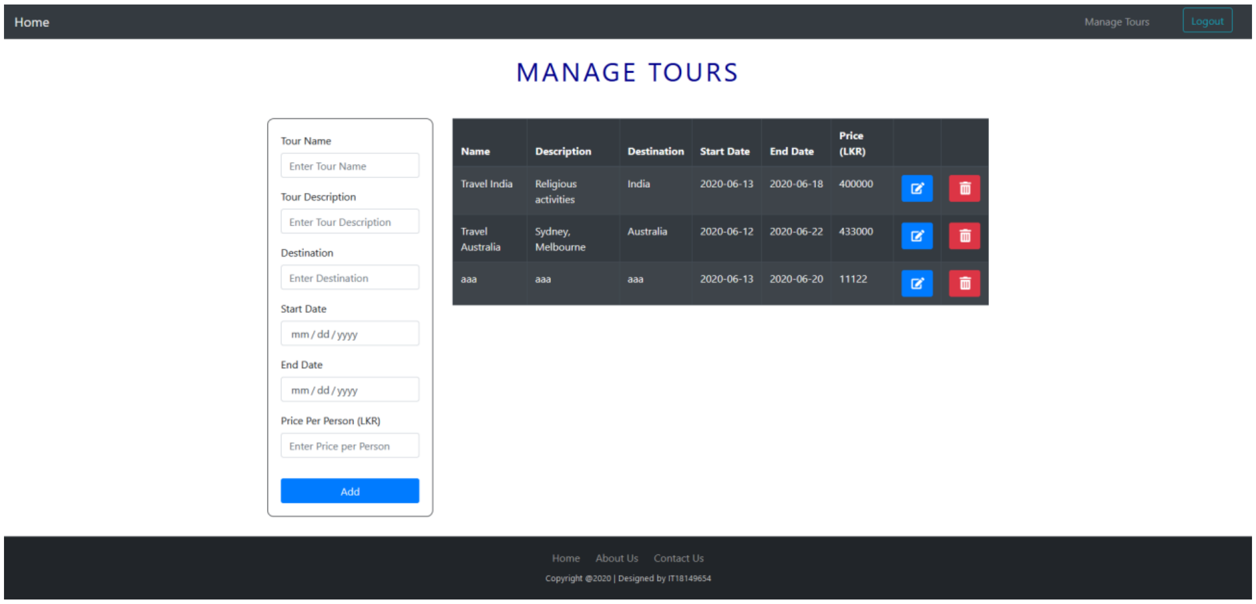
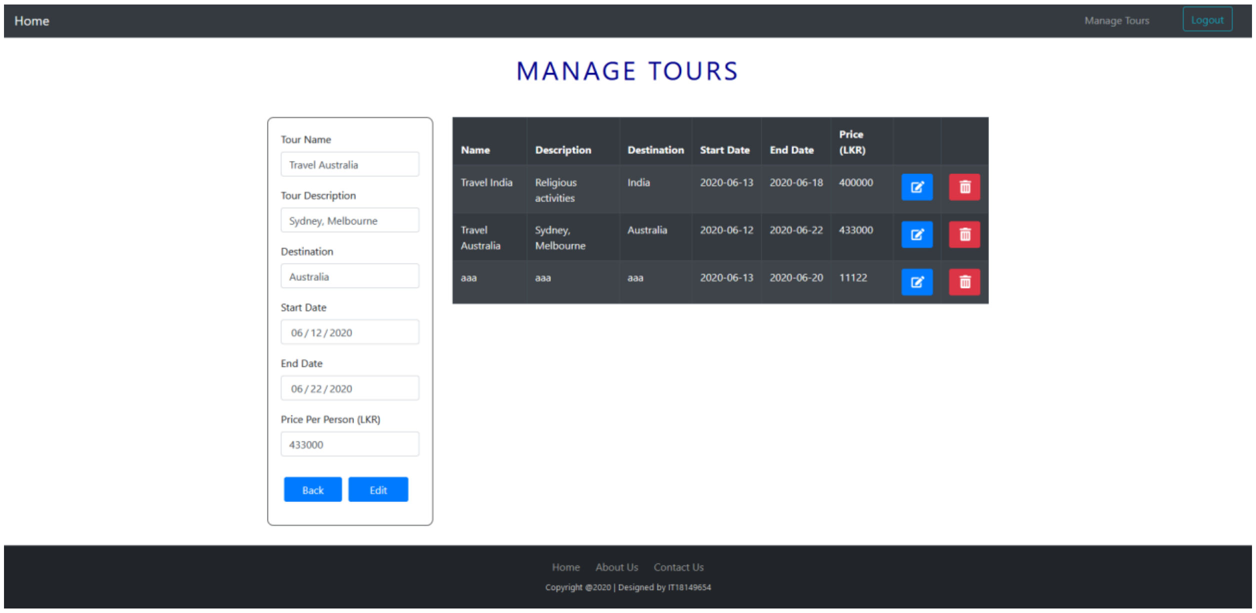
The Tour Manager can login to the system using the email and the automatically generated random password sent for his / her email once the Administrator adds him / her for the system.



Name	Description	Destination	Start Date	End Date	Price (LKR)		
Travel India	Religious activities	India	2020-06-13	2020-06-18	400000		
Travel Australia	Sydney, Melbourne	Australia	2020-06-12	2020-06-22	433000		
aaa	aaa	aaa	2020-06-13	2020-06-20	11122		

The Tour Manager can manage tour packages once logged in. Tour Manager can add new Tour Packages by providing details such as Tour Name, Tour Description, Destination, Start Date, End Date and Price per Person. Tour Manager can update the existing tour details as well as he / she can delete them if necessary.



MANAGE TOURS

Tour Name	Travel Australia
Tour Description	Sydney, Melbourne
Destination	Australia
Start Date	06 / 12 / 2020
End Date	06 / 22 / 2020
Price Per Person (LKR)	433000

Name	Description	Destination	Start Date	End Date	Price (LKR)		
Travel India	Religious activities	India	2020-06-13	2020-06-18	400000		
Travel Australia	Sydney, Melbourne	Australia	2020-06-12	2020-06-22	433000		
aaa	aaa	aaa	2020-06-13	2020-06-20	11122		

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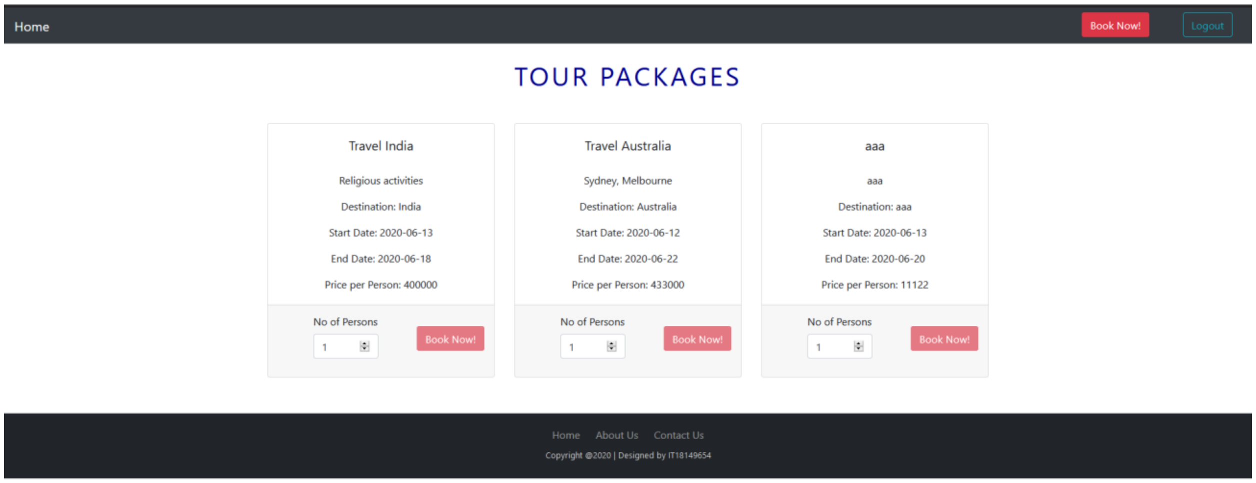
A customer can view and book the tour packages. First the customer must be registered to the system and create user account by providing his / personal details. When the customer has an account, he / she can log in to the system.



TOUR PACKAGES

Travel India

Religious activities

Destination: India

Start Date: 2020-06-13

End Date: 2020-06-18

Price per Person: 400000

No of Persons 1

Travel Australia

Sydney, Melbourne

Destination: Australia

Start Date: 2020-06-12

End Date: 2020-06-22

Price per Person: 433000

No of Persons 1

aaa

aaa

Destination: aaa

Start Date: 2020-06-13

End Date: 2020-06-20

Price per Person: 11122

No of Persons 1

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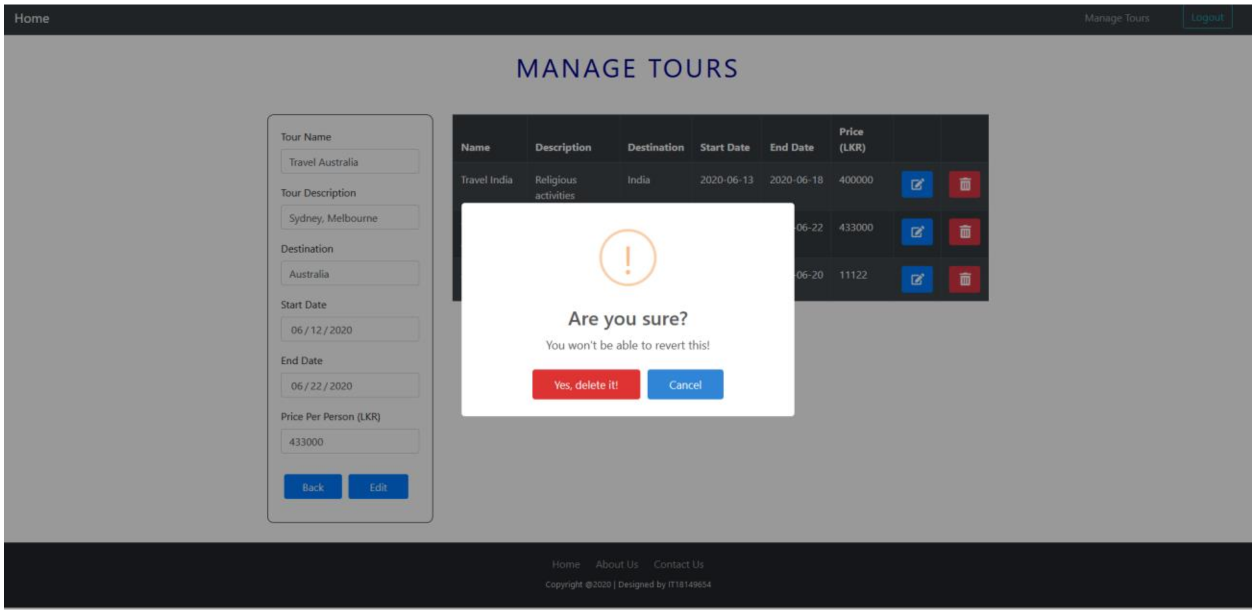
All the forms are properly validated so that no invalid data will be sent to the backend and stored in the database. For example, data types, input format patterns as well as things such as not being able to enter two users with the same NIC or email are handled. Alerts and specially confirmation messages are provided at necessary situations such as deletion of a record.



MANAGE TOURS

Tour Name	Travel Australia
Tour Description	Sydney, Melbourne
Destination	Australia
Start Date	06 / 12 / 2020
End Date	06 / 22 / 2020
Price Per Person (LKR)	433000

Name	Description	Destination	Start Date	End Date	Price (LKR)
Travel India	Religious activities	India	2020-06-13	2020-06-18	400000
				06-22	433000
				06-20	11122

Are you sure?

You won't be able to revert this!

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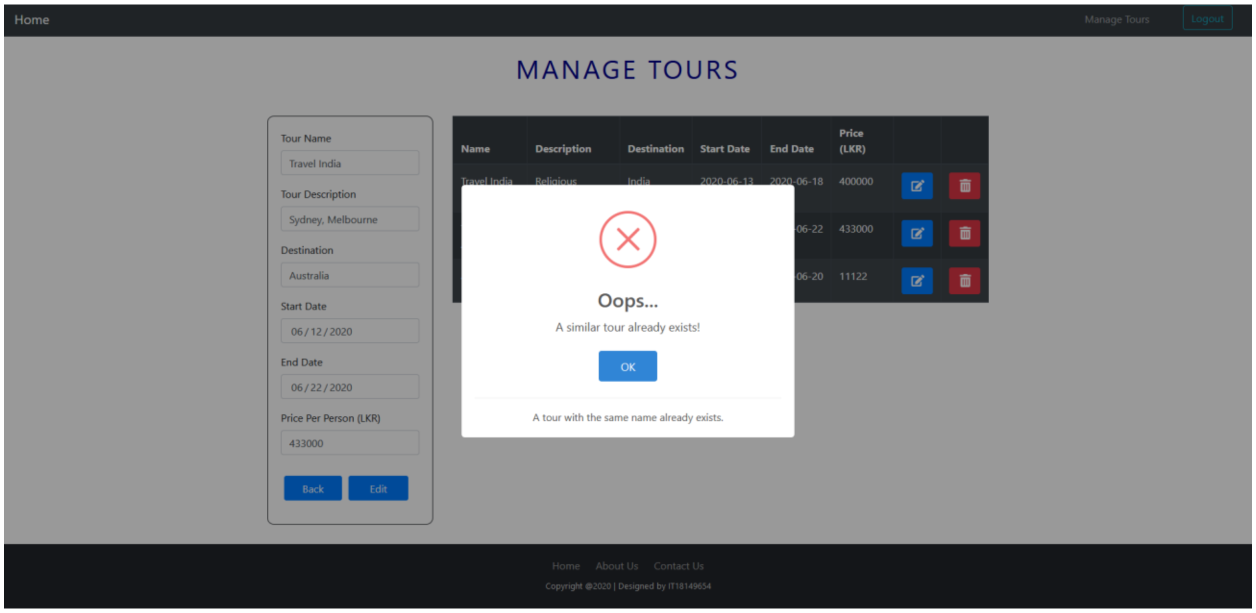

MANAGE TOURS

Tour Name	Travel India
Tour Description	Sydney, Melbourne
Destination	Australia
Start Date	06 / 12 / 2020
End Date	06 / 22 / 2020
Price Per Person (LKR)	433000

Name	Description	Destination	Start Date	End Date	Price (LKR)
Travel India	Religious	India	2020-06-13	2020-06-18	400000
				06-22	433000
				06-20	11122

Oops...

A similar tour already exists!

A tour with the same name already exists.

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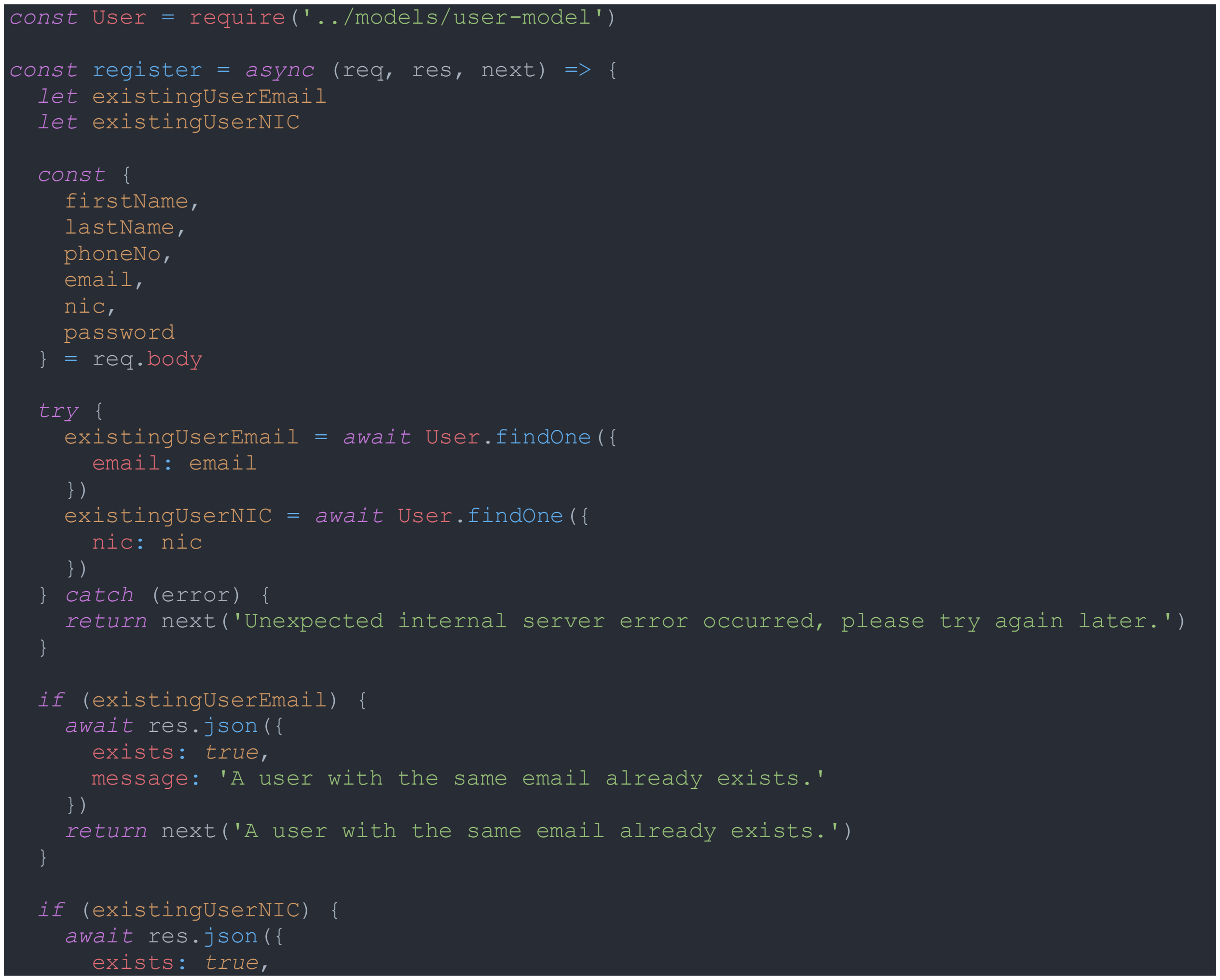
Implementation main functionalities (both frontend and backend)

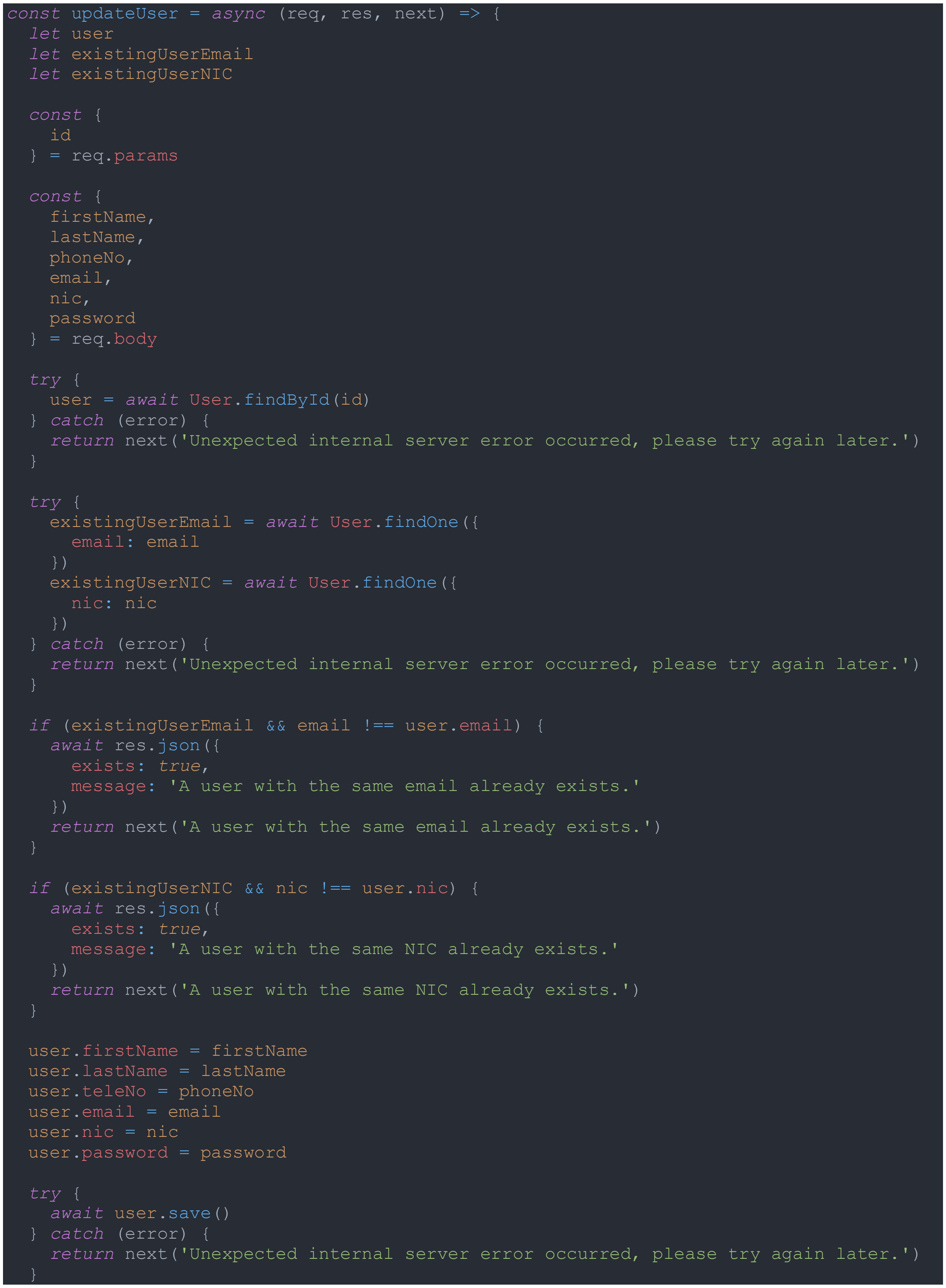
1. Login, Logout and Register Functionality

Backend Implementation

login-controller.js



```
const User = require('../models/user-model')

const register = async (req, res, next) => {
  let existingUserEmail
  let existingUserNIC

  const {
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password
  } = req.body

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  const newUser = new User({
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password
  })

  try {
    await newUser.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(201).send({
    message: 'Customer registered added successfully!'
  })
}

const login = async (req, res, next) => {
  const {
    email,
    password
  } = req.body

  let existingUser

  try {
    existingUser = await User.findOne({
      email: email
    })
  } catch (error) {
    res.send({
      message: 'Login failed, please try again later.',
      login: -1
    })

    return next(error)
  }

  if (!existingUser || existingUser.password !== password) {
    res.send({
      message: 'Invalid username or password.',
      login: 0
    })

    return next(error)
  }

  res.send({
    message: 'Logged in!',
    login: 1,
    type: existingUser.type,
    userDetails: existingUser
  })
}
```



```
const updateUser = async (req, res, next) => {
  let user
  let existingUserEmail
  let existingUserNIC

  const {
    id
  } = req.params

  const {
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password
  } = req.body

  try {
    user = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail && email !== user.email) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC && nic !== user.nic) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  user.firstName = firstName
  user.lastName = lastName
  user.teleNo = phoneNo
  user.email = email
  user.nic = nic
  user.password = password

  try {
    await user.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }
  res.status(200).send({
    message: 'User updated successfully!'
  })
}

const deleteUser = async (req, res, next) => {
  let user

  const {
    id
  } = req.params

  try {
    user = await User.findById(id)
    await user.remove()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'User deleted successfully!'
  })
}

const getUser = async (req, res, next) => {
  let user

  const {
    id
  } = req.params

  try {
    user = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(user)
}

const getCustomerList = async (req, res, next) => {
  let customerList

  try {
    customerList = await User.find({
      type: 'Customer'
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(customerList)
}

exports.register = register
exports.login = login
exports.updateUser = updateUser
exports.deleteUser = deleteUser
exports.getUser = getUser
exports.getCustomerList = getCustomerList
```

user-model.js

```
const mongoose = require('mongoose')
const uniqueValidator = require('mongoose-unique-validator')

const Schema = mongoose.Schema

const userSchema = new Schema({
  firstName: {
    type: String,
    trim: true
  },
  lastName: {
    type: String,
    trim: true
  },
  phoneNo: {
    type: String,
    trim: true
  },
  email: {
    type: String,
    required: true,
    unique: true,
    trim: true
  },
  nic: {
    type: String,
    unique: true,
    trim: true
  },
  password: {
    type: String,
    required: true,
    trim: true
  },
  type: {
    type: String,
    default: 'Customer'
  }
}, {
  timestamps: true,
  collection: 'Users'
})

userSchema.plugin(uniqueValidator)

module.exports = mongoose.model('Users', userSchema)
```

login-routes.js

```
const express = require('express')
const router = express.Router()

const LoginController = require('../controllers/login-controller')

router.post('/register', LoginController.register);
router.post('/login', LoginController.login);
router.put('/user/:id', LoginController.updateUser)
router.delete('/user/:id', LoginController.deleteUser)
router.get('/user/:id', LoginController.getUser)
router.get('/user', LoginController.getCustomerList)

module.exports = router
```

Frontend Implementation

login-register-component.jsx

```
import React, {Component} from 'react'
import 'bootstrap/dist/css/bootstrap.min.css'
import Swal from 'sweetalert2'
import axios from 'axios'
import {proxy} from '../../conf'
import Col from 'react-bootstrap/Col'
import Row from 'react-bootstrap/Row'
import LoginComponent from '../../components/login-component/login-component'
import RegisterComponent from '../../components/register-component/register-component'
import HomeComponent from '../home-component/home-component'
import NavigationBarComponent from '../../components/navigation-bar-
component/navigation-bar-component'
import './login-register-component-styles.scss'

class LoginRegisterComponent extends Component {
  constructor(props) {
    super(props)
    this.state = {
      firstName: '',
      lastName: '',
      phoneNo: '',
      email: '',
      nic: '',
      password: '',
      confirmPassword: '',
      loginEmail: '',
      loginPassword: '',
      loggedIn: false,
      userType: ''
    }
  }

  onChangeFirstName = event => {
    this.setState({
      firstName: event.target.value
    })
  }

  onChangeLastName = event => {
    this.setState({
      lastName: event.target.value
    })
  }

  onChangePhoneNo = event => {
    this.setState({
      phoneNo: event.target.value
    })
  }

  onChangeEmail = event => {
    this.setState({
      email: event.target.value
    })
  }

  onChangeNIC = event => {
    this.setState({
      nic: event.target.value
    })
  }

  onChangePassword = event => {
    this.setState({
      password: event.target.value
    })
  }

  onChangeConfirmPassword = event => {
    this.setState({
      confirmPassword: event.target.value
    })
  }

  onChangeLoginEmail = event => {
    this.setState({
      loginEmail: event.target.value
    })
  }

  onChangeLoginPassword = event => {
    this.setState({
      loginPassword: event.target.value
    })
  }

  onSubmitLogin = event => {
    event.preventDefault()
    const user = {
      email: this.state.loginEmail,
      password: this.state.loginPassword
    }
    axios.post(`${proxy}login/login`, user)
      .then(res => {
        this.setState({
          loginEmail: '',
          loginPassword: ''
        })
        if (res.data.login === 1) {
          this.setState({
            loggedIn: true,
            userType: res.data.type
          })
          Swal.fire({
            position: 'top-end',
            icon: 'success',
            title: 'Logged in Successfully!',
            showConfirmButton: false,
            timer: 1500
          }).then(() => {
          })
        } else if (res.data.login === 0) {
          Swal.fire({
            icon: 'error',
            title: 'Oops...',
            text: res.data.message
          }).then(() => {
          })
        } else {
          Swal.fire({
            icon: 'error',
            title: 'Oops...',
            text: 'An unexpected error occurred. Please try again later.'
          }).then(() => {
          })
        }
      }).catch(error => {
      console.log(error)
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'An unexpected error occurred. Please try again later.'
      }).then(() => {
      })
    })
  }

  onSubmitRegister = event => {
    event.preventDefault()
    if (this.state.password !== this.state.confirmPassword) {
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'Passwords must match!',
        footer: 'Please enter the same password for both Password & Confirm Password
fields.'
      }).then(() => {
      })
    } else {
      const user = {
        firstName: this.state.firstName,
        lastName: this.state.lastName,
        phoneNo: this.state.phoneNo,
        email: this.state.email,
        nic: this.state.nic,
        password: this.state.password
      }
      axios.post(`${proxy}login/register`, user)
        .then(res => {
          if (res.data.exists === true) {
            Swal.fire({
              icon: 'error',
              title: 'Oops...',
              text: 'A similar user already exists!',
              footer: res.data.message
            }).then(() => {
            })
          } else {
            this.setState({
              firstName: '',
              lastName: '',
              phoneNo: '',
              email: '',
              nic: '',
              password: '',
              confirmPassword: ''
            })
            Swal.fire({
              position: 'top-end',
              icon: 'success',
              title: 'Registration Successful!',
              showConfirmButton: false,
              timer: 1500
            }).then(() => {
            })
          }
        }).catch(error => {
        console.log(error)
        Swal.fire({
          icon: 'error',
          title: 'Oops...',
          text: 'An unexpected error occurred. Please try again later.'
        }).then(() => {
        })
      })
    }
  }

  render() {
    if (this.state.loggedIn) {
      return (
        <HomeComponent loggedIn={this.state.loggedIn}
                       userType={this.state.userType}/>
      )
    }

    return (
      <div className='container'>
        <NavigationBarComponent loggedIn={this.state.loggedIn}
                                userType={this.state.userType}/>
        <div style={{marginTop: '70px'}}>
          <Row>
            <Col sm='6'>
              <h3 align={'center'}
                  style={{
                    marginBottom: '10px'
                  }}
              >
                I already have an account!
              </h3>
              <h4 align={'center'}
                  style={{
                    marginBottom: '10px'
                  }}
              >
                Please login using email and password.
              </h4>
              <LoginComponent onChangeLoginEmail={this.onChangeLoginEmail}
```

```
                              onChangeLoginPassword={this.onChangeLoginPassword}
                              onSubmitLogin={this.onSubmitLogin}
                              loginEmail={this.state.loginEmail}
                              loginPassword={this.state.loginPassword}/>
            </Col>
            <Col sm='6'>
              <h3 align={'center'}
                  style={{
                    marginBottom: '10px'
                  }}
              >
                I don't have an account!
              </h3>
              <h4 align={'center'}
                  style={{
                    marginBottom: '10px'
                  }}
              >
                Please register providing necessary details.
              </h4>
              <RegisterComponent onChangeFirstName={this.onChangeFirstName}
                                 onChangeLastName={this.onChangeLastName}
                                 onChangePhoneNo={this.onChangePhoneNo}
                                 onChangeEmail={this.onChangeEmail}
                                 onChangePassword={this.onChangePassword}

onChangeConfirmPassword={this.onChangeConfirmPassword}
                                 onChangeNIC={this.onChangeNIC}
                                 onSubmitRegister={this.onSubmitRegister}
                                 firstName={this.state.firstName}
                                 lastName={this.state.lastName}
                                 phoneNo={this.state.phoneNo}
                                 email={this.state.email}
                                 nic={this.state.nic}
                                 password={this.state.password}
                                 confirmPassword={this.state.confirmPassword}/>
            </Col>
          </Row>
        </div>
      </div>
    )
  }
}

export default LoginRegisterComponent
```

login-component.jsx

```
import React, {Component} from 'react'
import Form from 'react-bootstrap/Form'
import Col from 'react-bootstrap/Col'
import Button from 'react-bootstrap/Button'
import './login-component-styles.scss'

class LoginComponent extends Component {
  render() {
    const {
      onChangeLoginEmail,
      onChangeLoginPassword,
      onSubmitLogin,
      loginEmail,
      loginPassword
    } = this.props

    return (
      <div>
        <Form
          onSubmit={onSubmitLogin}
          style={{
            border: 'solid 1px',
            padding: '20px',
            borderRadius: '10px'
          }}
        >
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridLoginEmail'>
              <Form.Label>Email</Form.Label>
              <Form.Control placeholder='Enter Email'
                            type='text'
                            onChange={onChangeLoginEmail}
                            value={loginEmail}
                            pattern='[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$'
                            title='Please enter a valid email.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridLoginPassword'>
              <Form.Label>Password</Form.Label>
              <Form.Control placeholder='Enter Password'
                            type='password'
                            onChange={onChangeLoginPassword}
                            value={loginPassword}
                            minlength={5}
                            title='Please enter a valid password.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Button variant='primary'
                  type='submit'
                  className={'btn btn-block btn-primary mt-3'}>
            Login
          </Button>
        </Form>
      </div>
    )
  }
}

export default LoginComponent
```

register-component.jsx

```jsx
import React, {Component} from 'react'
import Form from 'react-bootstrap/Form'
import Col from 'react-bootstrap/Col'
import Button from 'react-bootstrap/Button'
import './register-component-styles.scss'

class RegisterComponent extends Component {
  render() {
    const {
      onChangeFirstName,
      onChangeLastName,
      onChangePhoneNo,
      onChangeEmail,
      onChangePassword,
      onChangeConfirmPassword,
      onChangeNIC,
      onSubmitRegister,
      firstName,
      lastName,
      phoneNo,
      email,
      nic,
      password,
      confirmPassword
    } = this.props

    return (
      <div>
        <Form
          name={'form'}
          onSubmit={onSubmitRegister}
          style={{
            border: 'solid 1px',
            padding: '20px',
            borderRadius: '10px'
          }}
        >
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridFirstName'>
              <Form.Label>First Name</Form.Label>
              <Form.Control placeholder='Enter First Name'
                            type='text'
                            onChange={onChangeFirstName}
                            value={firstName}
                            pattern='[A-Za-z]{2,32}'
                            title='Please enter a valid first name.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridLastName'>
              <Form.Label>Last Name</Form.Label>
              <Form.Control placeholder='Enter Last Name'
                            type='text'
                            onChange={onChangeLastName}
                            value={lastName}
                            pattern='[A-Za-z]{2,32}'
                            title='Please enter a valid last name.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridPhoneNo'>
              <Form.Label>Phone No</Form.Label>
              <Form.Control placeholder='Enter Phone Number'
                            type='text'
                            onChange={onChangePhoneNo}
                            value={phoneNo}
                            pattern='0[0-9]{9}'
                            title='Please enter a valid phone number.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridNIC'>
              <Form.Label>NIC</Form.Label>
              <Form.Control placeholder='Enter NIC'
                            type='text'
                            onChange={onChangeNIC}
                            value={nic}
                            pattern='[0-9]{9}V'
                            title='Please enter a valid NIC.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridEmail'>
              <Form.Label>Email</Form.Label>
              <Form.Control placeholder='Enter Email'
                            type='email'
                            onChange={onChangeEmail}
                            value={email}
                            pattern='[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$'
                            title='Please enter a valid email.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridPassword'>
              <Form.Label>Password</Form.Label>
              <Form.Control placeholder='Enter Password'
                            type='password'
                            onChange={onChangePassword}
                            value={password}
                            pattern='(?=.*\d)(?=.*[a-z])(?=.*[A-Z]).{5,}'
                            title='Password must contain at least one number, one
uppercase,
                            lowercase letter and at least 5 or more characters.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridConfirmPassword'>
              <Form.Label>Confirm Password</Form.Label>
              <Form.Control placeholder='Enter Password Again'
                            type='password'
                            onChange={onChangeConfirmPassword}
                            value={confirmPassword}
                            pattern='(?=.*\d)(?=.*[a-z])(?=.*[A-Z]).{5,}'
                            title='Password must contain at least one number, one
uppercase,
                            lowercase letter and at least 5 or more characters.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Button variant='primary'
                  type='submit'
                  className='btn btn-block btn-primary mt-3'>
            Register
          </Button>
        </Form>
      </div>
    )
  }
}

export default RegisterComponent
```

navigation-bar-component.jsx

```
import React, {Component} from 'react'
import {Link} from 'react-router-dom'
import Button from 'react-bootstrap/Button'
import Navbar from 'react-bootstrap/Navbar'
import Nav from 'react-bootstrap/Nav'
import './navigation-bar-component-styles.scss'

class NavigationBarComponent extends Component {
  constructor(props) {
    super(props)
    this.state = {
      loggedIn: false,
      userType: ''
    }
  }

  render() {
    const {
      loggedIn,
      userType
    } = this.props

    this.state.loggedIn = loggedIn
    this.state.userType = userType

    return (
      <Navbar bg='dark'
              variant='dark'
              fixed='top'
              expand='md'
              style={{
                width: '100%'
              }}
              collapseOnSelect
      >
        <Nav>
```

```
          <div>
            <Link to='/'
                  style={{
                    textDecoration: 'none'
                  }}
            >
              <Navbar.Brand href='#home'>Home</Navbar.Brand>
            </Link>
          </div>
          <div
            style={{
              position: 'fixed',
              right: '150px'
            }}
          >
            <Nav className='mr-auto'>
              {
                loggedIn && userType === 'Administrator' ? (
                    <Link to='/managers'
                          style={{
                            textDecoration: 'none'
                          }}
                    >
                      <Nav.Link href='#managers'>Manage Tour Managers</Nav.Link>
                    </Link>
                  ) :
                  null
              }
              {
                loggedIn && userType === 'Tour Manager' ? (
                    <Link to='/tours'
                          style={{
                            textDecoration: 'none'
                          }}
                    >
                      <Nav.Link href='#tours'>Manage Tours</Nav.Link>
                    </Link>
                  ) :
                  null
              }
              {
                loggedIn && userType === 'Customer' ? (
                    <Link to='/packages'
                          style={{
                            textDecoration: 'none'
                          }}
                    >
                      <Nav.Link href='#book_now'>
                        <Button variant={'danger'}
                                style={{
                                  marginTop: '-8px'
                                }}
                        >
                          Book Now!
                        </Button>
                      </Nav.Link>
                    </Link>
                  ) :
                  null
              }
            </Nav>
          </div>
          <div
```

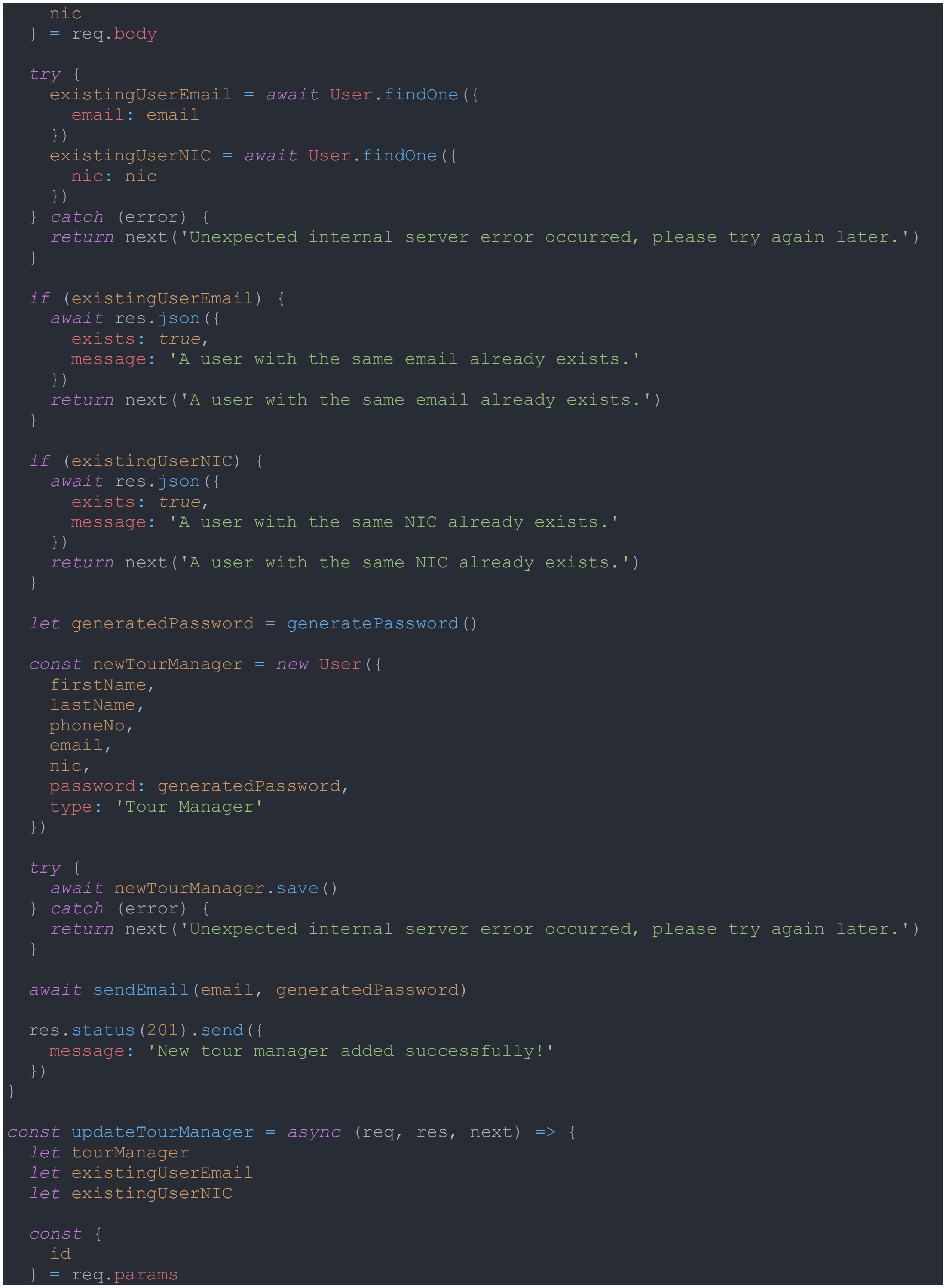
```
            style={{
              position: 'fixed',
              right: '30px'
            }}
          >
            {
              loggedIn ? (
                  <Link to='/'
                        style={{
                          textDecoration: 'none'
                        }}
                  >
                    <Button variant='outline-info'>Logout</Button>
                  </Link>
                ) :
                <Link to='/login'
                      style={{
                        textDecoration: 'none'
                      }}
                >
                  <Button variant='outline-info'>Login</Button>
                </Link>
            }
          </div>
        </Nav>
      </Navbar>
    )
  }
}

export default NavigationBarComponent
```

2. Manage Tour Managers Functionality

Backend Implementation

tour-manager-controller.js

```
const nodemailer = require('nodemailer')

const User = require('../models/user-model')

require('dotenv').config()

const addTourManager = async (req, res, next) => {
  let existingUserEmail
  let existingUserNIC

  const {
    firstName,
    lastName,
    phoneNo,
    email,
```



```
    nic
  } = req.body

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  let generatedPassword = generatePassword()

  const newTourManager = new User({
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password: generatedPassword,
    type: 'Tour Manager'
  })

  try {
    await newTourManager.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  await sendEmail(email, generatedPassword)

  res.status(201).send({
    message: 'New tour manager added successfully!'
  })
}

const updateTourManager = async (req, res, next) => {
  let tourManager
  let existingUserEmail
  let existingUserNIC

  const {
    id
  } = req.params
  const {
    firstName,
    lastName,
    phoneNo,
    email,
    nic
  } = req.body

  try {
    tourManager = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail && email !== tourManager.email) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC && nic !== tourManager.nic) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  tourManager.firstName = firstName
  tourManager.lastName = lastName
  tourManager.teleNo = phoneNo
  tourManager.email = email
  tourManager.nic = nic

  try {
    await tourManager.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour manager updated successfully!'
  })
}

const deleteTourManager = async (req, res, next) => {
  let tourManager

  const {
    id
  } = req.params

  try {
    tourManager = await User.findById(id)
    await tourManager.remove()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour manager deleted successfully!'
  })
}

const getTourManager = async (req, res, next) => {
  let tourManager

  const {
    id
  } = req.params

  try {
    tourManager = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tourManager)
}

const getTourManagerList = async (req, res, next) => {
  let tourManagerList

  try {
    tourManagerList = await User.find({
      type: 'Tour Manager'
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tourManagerList)
}

const getAdminEmail = async () => {
  let admin

  try {
    admin = await User.findOne({
      type: 'Administrator'
    })
  } catch (error) {
    return error
  }

  return admin.email;
}

let transporter = nodemailer.createTransport({
  service: 'gmail',
  auth: {
    user: 'it18149654@gmail.com',
    pass: process.env.PASSWORD
  }
})

const sendEmail = async (email, password) => {
  let adminEmail = getAdminEmail()

  let info = {
    from: adminEmail,
    to: email,
    subject: 'Added as a Tour Manager',
    text:
      `Congratulations!
      You have been assigned as a Tour Manager.
      Now you can manage tours related operations as a tour manager in the Online
Tourism Planner.
      Please find your login credentials below.
      LOGIN CREDENTIALS
      Email: ${email}
      Password: ${password}
      Thank you!
      This is an auto-generated email.
      If this has been sent by mistake, please delete this without sharing this.
      All rights reserved.`,
    html:
      `<!--suppress HtmlDeprecatedAttribute -->
      <div style="margin: 0; padding: 0; background-color: #f2f2f2; font-family:
arial, serif;">
      <table style="margin: 0 auto; background: white; max-width: 500px; padding-
bottom: 0; border-top: 5px solid #588dde; border-bottom: 5px solid #588dde; width:
100%;">
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>
      <table align="left" style="width: 100%;">
      <tr>
      <td style="padding: 10px;">
      <h1 style="text-align: center; color: #1a1a72;">Congratulations!</h1>
      <h2 style="margin-top:25px; margin-bottom: 0; color: #4db0c4; font-weight: 400;
font-size: medium;">You have been added as a Tour Manager.</h2>
      <h2 style="margin-top:20px; margin-bottom: 0; color: #4db0c4; font-weight: 400;
font-size: medium;">Now you can manage tour packages in the Online Tourism
Planner.</h2>
      <h2 style="margin-top:20px; margin-bottom: 10px; color: #4db0c4; font-weight:
400; font-size: medium;">Please find your login credentials below.</h2>
      </td>
      </tr>
      </table>
      </td>
      </tr>
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>
      <table align="left" style="width: 100%;">
      <tr>
      <td style="padding: 10px;">
      <h4 style="margin-top:20px; margin-bottom: 8px; color: #145a7a; font-weight:
400; text-align: center; font-size: 16px;"><b>LOGIN CREDENTIALS</b></h4>
      </td>
      </tr>
      </table>
      </td>
      </tr>
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>
      <table align="left" style="width: 50%;">
      <tr>
      <td align="left" valign="top" style="padding: 10px;">
      <h6 style="font-size: 14px; margin-top: 0; margin-bottom: 0; color: #29353c;
font-weight: 400;">E-mail</h6>
      <h6 style="font-size: 14px; margin-top: 20px; margin-bottom: 0; color: #29353c;
font-weight: 400;">Password</h6>
      </td>
      </tr>
      </table>
      <table align="left" style="width: 50%;">
      <tr>
      <td align="right" valign="top" style="padding: 10px;">
      <h6 style="font-size: 14px; margin-top: 0; margin-bottom: 0; color: #588dde;
font-weight: 400;">${email}</h6>
      <h6 style="font-size: 14px; margin-top: 20px; margin-bottom: 0; color: #588dde;
font-weight: 400;">${password}</h6>
      </td>
      </tr>
      </table>
      </td>
      </tr>
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>`
  }

  // noinspection JSCheckFunctionSignatures
  transporter.sendMail(info, (error, data) => {
    if (error) {
      console.log(error)
      console.log('Email sending failed! Please try again.')
    } else {
      console.log(data)
      console.log('An email is sent successfully to ' + email + '.')
    }
  })
}

function generatePassword() {
  let length = 5
  let randomPassword = ''
  let characters = 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789'
  let charactersLength = characters.length

  for (let i = 0; i < length; i++)
    randomPassword += characters.charAt(Math.floor(Math.random() * charactersLength))

  return randomPassword
}

exports.addTourManager = addTourManager
exports.updateTourManager = updateTourManager
exports.deleteTourManager = deleteTourManager
exports.getTourManager = getTourManager
exports.getTourManagerList = getTourManagerList
```

tour-manager-controller.js

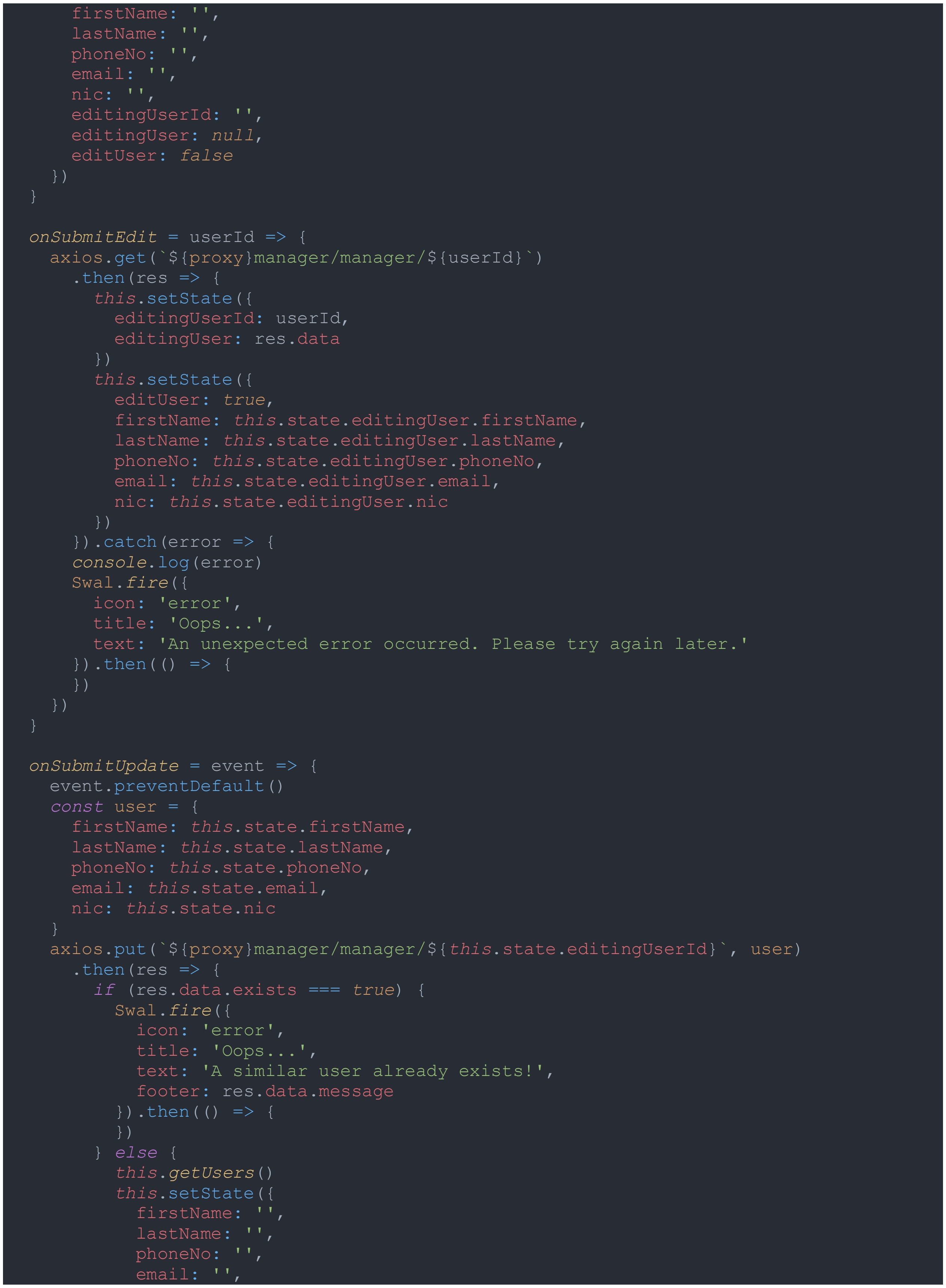
```
const express = require('express')
const router = express.Router()

const TourManagerController = require('../controllers/tour-manager-controller')

router.post('/manager', TourManagerController.addTourManager)
router.put('/manager/:id', TourManagerController.updateTourManager)
router.delete('/manager/:id', TourManagerController.deleteTourManager)
router.get('/manager/:id', TourManagerController.getTourManager)
router.get('/manager', TourManagerController.getTourManagerList)

module.exports = router
```

Frontend Implementation

manage-tour-manager-component.jsx

```
import React, {Component} from 'react'
import 'bootstrap/dist/css/bootstrap.min.css'
import Swal from 'sweetalert2'
import axios from 'axios'
import {proxy} from '../../conf'
import Col from 'react-bootstrap/Col'
import Row from 'react-bootstrap/Row'
import AddTourManagerComponent from '../../components/tour-manager-add-component/tour-
manager-add-component'
import ListTourManagerComponent from '../../components/tour-manager-list-
component/tour-manager-list-component'
import NavigationBarComponent from '../../components/navigation-bar-
component/navigation-bar-component'
import './manage-tour-manager-component-styles.scss'

class ManageTourManagerComponent extends Component {
  constructor(props) {
    super(props)
    this.state = {
      users: [],
      firstName: '',
      lastName: '',
      phoneNo: '',
      email: '',
      nic: '',
      editingUserId: '',
      editingUser: null,
      editUser: false,
      loggedIn: true,
      userType: 'Administrator'
    }
  }

  componentDidMount() {
    this.getUsers()
  }

  getUsers = () => {
    axios.get(`${proxy}manager/manager`)
      .then(res => {
```

```
      this.setState({
        users: res.data
      })
    }).catch(error => {
    console.log(error)
    Swal.fire({
      icon: 'error',
      title: 'Oops...',
      text: 'An unexpected error occurred. Please try again later.'
    }).then(() => {
    })
  })
}

onChangeFirstName = event => {
  this.setState({
    firstName: event.target.value
  })
}

onChangeLastName = event => {
  this.setState({
    lastName: event.target.value
  })
}

onChangePhoneNo = event => {
  this.setState({
    phoneNo: event.target.value
  })
}

onChangeEmail = event => {
  this.setState({
    email: event.target.value
  })
}

onChangeNIC = event => {
  this.setState({
    nic: event.target.value
  })
}

onSubmitAdd = event => {
  event.preventDefault()
  const user = {
    firstName: this.state.firstName,
    lastName: this.state.lastName,
    phoneNo: this.state.phoneNo,
    email: this.state.email,
    nic: this.state.nic
  }
  axios.post(`${proxy}manager/manager`, user)
    .then(res => {
      if (res.data.exists === true) {
        Swal.fire({
          icon: 'error',
          title: 'Oops...',
          text: 'A similar user already exists!',
          footer: res.data.message
        }).then(() => {
        })
      } else {
        this.getUsers()
        this.setState({
          firstName: '',
          lastName: '',
          phoneNo: '',
          email: '',
          nic: ''
        })
        Swal.fire({
          position: 'top-end',
          icon: 'success',
          title: 'A new tour manager added successfully!',
          showConfirmButton: false,
          timer: 1500
        }).then(() => {
        })
      }
    }).catch(error => {
    console.log(error)
    Swal.fire({
      icon: 'error',
      title: 'Oops...',
      text: 'An unexpected error occurred. Please try again later.'
    }).then(() => {
    })
  })
}

deleteUser = userId => {
  Swal.fire({
    title: 'Are you sure?',
    text: "You won't be able to revert this!",
    icon: 'warning',
    showCancelButton: true,
    cancelButtonColor: '#3085d6',
    confirmButtonColor: '#d33',
    confirmButtonText: 'Yes, delete it!'
  }).then((result) => {
    if (result.value) {
      axios.delete(`${proxy}manager/manager/${userId}`)
        .then(() => {
          this.getUsers()
        }).catch(error => {
        console.log(error)
        Swal.fire({
          icon: 'error',
          title: 'Oops...',
          text: 'An unexpected error occurred. Please try again later.'
        }).then(() => {
        })
      })
      Swal.fire(
        'Deleted!',
        'Tour manager has been deleted.',
        'success'
      )
    }
  })
}

onBack = () => {
  this.setState({
```



```
    firstName: '',
    lastName: '',
    phoneNo: '',
    email: '',
    nic: '',
    editingUserId: '',
    editingUser: null,
    editUser: false
  })
}

onSubmitEdit = userId => {
  axios.get(`${proxy}manager/manager/${userId}`)
    .then(res => {
      this.setState({
        editingUserId: userId,
        editingUser: res.data
      })
      this.setState({
        editUser: true,
        firstName: this.state.editingUser.firstName,
        lastName: this.state.editingUser.lastName,
        phoneNo: this.state.editingUser.phoneNo,
        email: this.state.editingUser.email,
        nic: this.state.editingUser.nic
      })
    }).catch(error => {
    console.log(error)
    Swal.fire({
      icon: 'error',
      title: 'Oops...',
      text: 'An unexpected error occurred. Please try again later.'
    }).then(() => {
    })
  })
}

onSubmitUpdate = event => {
  event.preventDefault()
  const user = {
    firstName: this.state.firstName,
    lastName: this.state.lastName,
    phoneNo: this.state.phoneNo,
    email: this.state.email,
    nic: this.state.nic
  }
  axios.put(`${proxy}manager/manager/${this.state.editingUserId}`, user)
    .then(res => {
      if (res.data.exists === true) {
        Swal.fire({
          icon: 'error',
          title: 'Oops...',
          text: 'A similar user already exists!',
          footer: res.data.message
        }).then(() => {
        })
      } else {
        this.getUsers()
        this.setState({
          firstName: '',
          lastName: '',
          phoneNo: '',
          email: '',
          nic: '',
          editingUserId: '',
          editingUser: null,
          editUser: false
        })
        Swal.fire({
          position: 'top-end',
          icon: 'success',
          title: 'Tour manager updated successfully!',
          showConfirmButton: false,
          timer: 1500
        }).then(() => {
        })
      }
    }).catch(error => {
    console.log(error)
    Swal.fire({
      icon: 'error',
      title: 'Oops...',
      text: 'An unexpected error occurred. Please try again later.'
    }).then(() => {
    })
  })
}

render() {
  return (
    <div className='container'>
      <NavigationBarComponent loggedIn={this.state.loggedIn}
                              userType={this.state.userType}/>
      <h1 style={{
        textAlign: 'center',
        marginTop: '80px',
        marginBottom: '50px',
        textTransform: 'uppercase',
        letterSpacing: '4px',
        color: 'darkblue'
      }}>
        Manage Tour Managers
      </h1>
      <Row>
        <Col sm='3'>
          <AddTourManagerComponent onBack={this.onBack}
                                   onChangeFirstName={this.onChangeFirstName}
                                   onChangeLastName={this.onChangeLastName}
                                   onChangePhoneNo={this.onChangePhoneNo}
                                   onChangeEmail={this.onChangeEmail}
                                   onChangeNIC={this.onChangeNIC}
                                   onSubmitAdd={this.onSubmitAdd}
                                   onSubmitUpdate={this.onSubmitUpdate}
                                   editUser={this.state.editUser}
                                   firstName={this.state.firstName}
                                   lastName={this.state.lastName}
                                   phoneNo={this.state.phoneNo}
                                   email={this.state.email}
                                   nic={this.state.nic}/>
        </Col>
        <Col sm='9'>
          <ListTourManagerComponent users={this.state.users}
                                    onSubmitEdit={this.onSubmitEdit}
                                    deleteUser={this.deleteUser}/>

        </Col>
      </Row>
      </div>
    )
  }
}

export default ManageTourManagerComponent
```

tour-manager-add-component.jsx

```
import React, {Component} from 'react'
import Form from 'react-bootstrap/Form'
import Col from 'react-bootstrap/Col'
import Button from 'react-bootstrap/Button'
import './tour-manager-add-component-styles.scss'

class AddTourManagerComponent extends Component {
  render() {
    const {
      onBack,
      onChangeFirstName,
      onChangeLastName,
      onChangePhoneNo,
      onChangeEmail,
      onChangeNIC,
      onSubmitAdd,
      onSubmitUpdate,
      editUser,
      firstName,
      lastName,
      phoneNo,
      email,
      nic
    } = this.props

    return (
      <div>
        <Form
          onSubmit={editUser ? onSubmitUpdate : onSubmitAdd}
          style={{
            border: 'solid 1px',
            padding: '20px',
            borderRadius: '10px'
          }}
        >
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridFirstName'>
              <Form.Label>First Name</Form.Label>
              <Form.Control placeholder='Enter First Name'
                            type='text'
                            onChange={onChangeFirstName}
                            value={firstName}
                            pattern='[A-Za-z]{2,32}'
                            title='Please enter a valid first name.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridLastName'>
              <Form.Label>Last Name</Form.Label>
              <Form.Control placeholder='Enter Last Name'
                            type='text'
                            onChange={onChangeLastName}
                            value={lastName}
                            pattern='[A-Za-z]{2,32}'
                            title='Please enter a valid last name.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridPhoneNo'>
              <Form.Label>Phone No</Form.Label>
              <Form.Control placeholder='Enter Phone Number'
                            type='text'
                            onChange={onChangePhoneNo}
                            value={phoneNo}
                            pattern='0[0-9]{9}'
                            title='Please enter a valid phone number.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridEmail'>
              <Form.Label>Email</Form.Label>
              <Form.Control placeholder='Enter Email'
                            type='email'
                            onChange={onChangeEmail}
                            value={email}
                            pattern='[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$'
                            title='Please enter a valid email.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridNIC'>
              <Form.Label>NIC</Form.Label>
              <Form.Control placeholder='Enter NIC'
                            type='text'
                            onChange={onChangeNIC}
                            value={nic}
                            pattern='[0-9]{9}V'
                            title='Please enter a valid NIC.'
                            required/>
            </Form.Group>
          </Form.Row>
          {
            editUser ? (
              <Form.Row>
                <Form.Group>
                  <Button variant='primary'
                          type='button'
                          className={'btn btn-block btn-primary mt-3'}
                          style={{
                            marginLeft: '10px',
                            marginRight: '20px'
                          }}
                          onClick={onBack}
                  >
                    Back
                  </Button>
                </Form.Group>
                <Form.Group>
                  <Button variant='primary'
                          type='submit'
                          className={'btn btn-block btn-primary mt-3'}
                          style={{
                            marginLeft: '20px',
                            marginRight: '20px'
                          }}
                  >
                    Edit
                  </Button>
                </Form.Group>
              </Form.Row>
            ) : (
              <Button variant='primary'
                      type='submit'
                      className={'btn btn-block btn-primary mt-3'}
              >
                Add
              </Button>
            )
          }
        </Form>
      </div>
    )
  }
}

export default AddTourManagerComponent
```

tour-manager-list-component.jsx

```
import React, {Component} from 'react'
import Table from 'react-bootstrap/Table'
import SingleUserComponent from '../tour-manager-single-component/tour-manager-single-
component'
import './tour-manager-list-component-styles.scss'

class ListTourManagerComponent extends Component {
  render() {
    const {
      users,
      onSubmitEdit,
      deleteUser
    } = this.props

    return (
      <div>
        <Table responsive striped bordered hover variant='dark'>
          <thead>
          <tr>
            <th>First Name</th>
            <th>Last Name</th>
            <th>Phone No</th>
            <th>Email</th>
            <th>NIC</th>
            <th/>
            <th/>
          </tr>
          </thead>
          <tbody>
          {
            users.map(user => {
              return <SingleUserComponent user={user}
                                          onSubmitEdit={() => onSubmitEdit(user._id)}
                                          deleteUser={() => deleteUser(user._id)}/>

            })
          }
          </tbody>
        </Table>
      </div>
    )
  }
}

export default ListTourManagerComponent
```

tour-manager-single-component.jsx

```
import React, {Component} from 'react'
import Button from 'react-bootstrap/Button'
import {FaEdit, FaTrashAlt} from 'react-icons/fa'
import './tour-manager-single-component-styles.scss'

class SingleTourManagerComponent extends Component {
  render() {
    const {
      user,
      onSubmitEdit,
      deleteUser
    } = this.props

    return (
      <tr key={user._id}>
        <td>{user.firstName}</td>
        <td>{user.lastName}</td>
        <td>{user.phoneNo}</td>
        <td>{user.email}</td>
        <td>{user.nic}</td>
        <td>
          <Button
            variant={'primary'}
            onClick={onSubmitEdit}
          >
            <FaEdit
              size={20}
              style={{
                marginBottom: '4px',
                marginLeft: '2px'
              }}
            />
          </Button>
        </td>
        <td>
          <Button
            variant={'danger'}
            onClick={deleteUser}
          >
```

```
            <FaTrashAlt
              size={20}
              style={{
                marginBottom: '4px',
                marginLeft: '2px'
              }}
            />
          </Button>
        </td>
      </tr>
    )
  }
}

export default SingleTourManagerComponent
```

3. Manage Tour Packages Functionality

Backend Implementation

tour-routes.js

```
const express = require('express')
const router = express.Router()

const TourController = require('../controllers/tour-controller')

router.post('/tour', TourController.addTour)
router.put('/tour/:id', TourController.updateTour)
router.delete('/tour/:id', TourController.deleteTour)
router.get('/tour/:id', TourController.getTour)
router.get('/tour', TourController.getTourList)

module.exports = router
```

tour-model.js

```
const mongoose = require('mongoose')
const uniqueValidator = require('mongoose-unique-validator')

const Schema = mongoose.Schema

const tourSchema = new Schema({
  tourName: {
    type: String,
    required: true,
    trim: true
  },
  tourDescription: {
      type: String,
      required: true,
      trim: true
    },
  destination: {
    type: String,
    required: true,
    trim: true
  },
  startDate: {
    type: Date,
    required: true,
    trim: true
  },
  endDate: {
    type: Date,
    required: true,
    unique: true,
    trim: true
  },
  pricePerPerson: {
    type: Number,
    required: true,
    unique: true,
    trim: true
  }
}, {
  timestamps: true,
  collection: 'Tours'
})

tourSchema.plugin(uniqueValidator)

module.exports = mongoose.model('Tours', tourSchema)
```

tour-controller.js

```
const Tour = require('../models/tour-model')

require('dotenv').config()

const addTour = async (req, res, next) => {
  let existingTourName

  const {
    tourName,
    tourDescription,
    destination,
    startDate,
    endDate,
    pricePerPerson
  } = req.body

  try {
    existingTourName = await Tour.findOne({
      tourName: tourName
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingTourName) {
    await res.json({
      exists: true,
      message: 'A tour with the same name already exists.'
    })
    return next('A tour with the same name already exists.')
  }

  const newTour = new Tour({
    tourName,
    tourDescription,
    destination,
    startDate,
    endDate,
    pricePerPerson
  })

  try {
    await newTour.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(201).send({
    message: 'New tour added successfully!'
  })
}

const updateTour = async (req, res, next) => {
  let tour
  let existingTourName

  const {
    id
  } = req.params

  const {
    tourName,
    tourDescription,
    destination,
    startDate,
    endDate,
    pricePerPerson
  } = req.body

  try {
    tour = await Tour.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  try {
    existingTourName = await Tour.findOne({
      tourName: tourName
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingTourName && tourName !== tour.tourName) {
    await res.json({
      exists: true,
      message: 'A tour with the same name already exists.'
    })
    return next('A tour with the same name already exists.')
  }
  tour.tourName = tourName
  tour.tourDescription = tourDescription
  tour.destination = destination
  tour.startDate = startDate
  tour.endDate = endDate
  tour.pricePerPerson = pricePerPerson

  try {
    await tour.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour updated successfully!'
  })
}

const deleteTour = async (req, res, next) => {
  let tour

  const {
    id
  } = req.params

  try {
    tour = await Tour.findById(id)
    await tour.remove()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour deleted successfully!'
  })
}

const getTour = async (req, res, next) => {
  let tour

  const {
    id
  } = req.params

  try {
    tour = await Tour.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tour)
}

const getTourList = async (req, res, next) => {
  let tourList

  try {
    tourList = await Tour.find({})
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tourList)
```

```
}

exports.addTour = addTour
exports.updateTour = updateTour
exports.deleteTour = deleteTour
exports.getTour = getTour
exports.getTourList = getTourList
```

Frontend Implementation

manage-tour-component.jsx

```
import React, {Component} from 'react'
import 'bootstrap/dist/css/bootstrap.min.css'
import Swal from 'sweetalert2'
import axios from 'axios'
import {proxy} from '../../conf'
import Col from 'react-bootstrap/Col'
import Row from 'react-bootstrap/Row'
import AddTourComponent from '../../components/tour-add-component/tour-add-component'
import ListTourComponent from '../../components/tour-list-component/tour-list-
component'
import NavigationBarComponent from '../../components/navigation-bar-
component/navigation-bar-component'
import './manage-tour-component-styles.scss'

class ManageTourComponent extends Component {
  constructor(props) {
    super(props)
    this.state = {
      tours: [],
      tourName: '',
      tourDescription: '',
      destination: '',
      startDate: '',
      endDate: '',
      pricePerPerson: '',
      editingTourId: '',
      editingTour: null,
      editTour: false,
      loggedIn: true,
      userType: 'Tour Manager'
    }
  }

  componentDidMount() {
    this.getTours()
  }

  getTours = () => {
    axios.get(`${proxy}tour/tour`)
      .then(res => {
        this.setState({
          tours: res.data
        })
      }).catch(error => {
      console.log(error)
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'An unexpected error occurred. Please try again later.'
      }).then(() => {
      })
    })
  }

  onChangeTourName = event => {
    this.setState({
      tourName: event.target.value
    })
  }

  onChangeTourDescription = event => {
    this.setState({
      tourDescription: event.target.value
    })
  }

  onChangeDestination = event => {
    this.setState({
      destination: event.target.value
    })
  }

  onChangeStartDate = event => {
    this.setState({
      startDate: event.target.value
    })
  }

  onChangeEndDate = event => {
    this.setState({
      endDate: event.target.value
    })
  }

  onChangePricePerPerson = event => {
    this.setState({
      pricePerPerson: event.target.value
    })
  }

  onBack = () => {
    this.setState({
      tourName: '',
      tourDescription: '',
      destination: '',
      startDate: '',
      endDate: '',
      pricePerPerson: '',
      editingTourId: '',
      editingTour: null,
      editTour: false
    })
  }

  onSubmitAdd = event => {
    event.preventDefault()
    const tour = {
      tourName: this.state.tourName,
      tourDescription: this.state.tourDescription,
      destination: this.state.destination,
      startDate: this.state.startDate,
      endDate: this.state.endDate,
      pricePerPerson: this.state.pricePerPerson
    }
    axios.post(`${proxy}tour/tour`, tour)
      .then(res => {
        if (res.data.exists === true) {
          Swal.fire({
            icon: 'error',
            title: 'Oops...',
            text: 'A similar tour already exists!',
            footer: res.data.message
          }).then(() => {
          })
        } else {
          this.getTours()
          this.setState({
            tourName: '',
            tourDescription: '',
            destination: '',
            startDate: '',
            endDate: '',
            pricePerPerson: ''
          })
          Swal.fire({
            position: 'top-end',
            icon: 'success',
            title: 'A new tour added successfully!',
            showConfirmButton: false,
            timer: 1500
          }).then(() => {
          })
        }
      }).catch(error => {
      console.log(error)
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'An unexpected error occurred. Please try again later.'
      }).then(() => {
      })
    })
  }

  deleteTour = tourId => {
    Swal.fire({
      title: 'Are you sure?',
      text: "You won't be able to revert this!",
      icon: 'warning',
      showCancelButton: true,
      cancelButtonColor: '#3085d6',
      confirmButtonColor: '#d33',
      confirmButtonText: 'Yes, delete it!'
    }).then((result) => {
      if (result.value) {
        axios.delete(`${proxy}tour/tour/${tourId}`)
          .then(() => {
            this.getTours()
          }).catch(error => {
          console.log(error)
          Swal.fire({
            icon: 'error',
            title: 'Oops...',
            text: 'An unexpected error occurred. Please try again later.'
          }).then(() => {
          })
        })
        Swal.fire(
          'Deleted!',
          'Tour has been deleted.',
          'success'
        )
      }
    })
  }

  onSubmitEdit = tourId => {
    axios.get(`${proxy}tour/tour/${tourId}`)
      .then(res => {
        this.setState({
          editingTourId: tourId,
          editingTour: res.data
        })
        this.setState({
          editTour: true,
          tourName: this.state.editingTour.tourName,
          tourDescription: this.state.editingTour.tourDescription,
          destination: this.state.editingTour.destination,
          startDate: this.state.editingTour.startDate,
          endDate: this.state.editingTour.endDate,
          pricePerPerson: this.state.editingTour.pricePerPerson
        })
      }).catch(error => {
      console.log(error)
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'An unexpected error occurred. Please try again later.'
      }).then(() => {
      })
    })
  }

  onSubmitUpdate = event => {
    event.preventDefault()
    const tour = {
      tourName: this.state.tourName,
      tourDescription: this.state.tourDescription,
      destination: this.state.destination,
      startDate: this.state.startDate,
      endDate: this.state.endDate,
      pricePerPerson: this.state.pricePerPerson
    }
    axios.put(`${proxy}tour/tour/${this.state.editingTourId}`, tour)
      .then(res => {
        if (res.data.exists === true) {
          Swal.fire({
            icon: 'error',
            title: 'Oops...',
            text: 'A similar tour already exists!',
            footer: res.data.message
          }).then(() => {
          })
        } else {
          this.getTours()
          this.setState({
            tourName: '',
            tourDescription: '',
            destination: '',
            startDate: '',
            endDate: '',
            pricePerPerson: '',
            editingTourId: '',
            editingTour: null,
            editTour: false
          })
          Swal.fire({
            position: 'top-end',
            icon: 'success',
            title: 'Tour updated successfully!',
            showConfirmButton: false,
            timer: 1500
          }).then(() => {
          })
        }
      }).catch(error => {
      console.log(error)
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'An unexpected error occurred. Please try again later.'
      }).then(() => {
      })
    })
  }

  render() {
    return (
      <div className='container'>
        <NavigationBarComponent loggedIn={this.state.loggedIn}
                                userType={this.state.userType}/>
        <h1 style={{
          textAlign: 'center',
          marginTop: '80px',
          marginBottom: '50px',
          textTransform: 'uppercase',
          letterSpacing: '4px',
          color: 'darkblue'
        }}>
          Manage Tours
        </h1>
        <Row>
          <Col sm='3'>
            <AddTourComponent onBack={this.onBack}
                              onChangeTourName={this.onChangeTourName}
                              onChangeTourDescription={this.onChangeTourDescription}
                              onChangeDestination={this.onChangeDestination}
                              onChangeStartDate={this.onChangeStartDate}
                              onChangeEndDate={this.onChangeEndDate}
                              onChangePricePerPerson={this.onChangePricePerPerson}
                              onSubmitAdd={this.onSubmitAdd}
                              onSubmitUpdate={this.onSubmitUpdate}
                              editTour={this.state.editTour}
                              tourName={this.state.tourName}
                              tourDescription={this.state.tourDescription}
                              destination={this.state.destination}
                              startDate={this.state.startDate}
                              endDate={this.state.endDate}
                              pricePerPerson={this.state.pricePerPerson}/>
          </Col>
```

```
          <Col sm='9'>
            <ListTourComponent tours={this.state.tours}
                               onSubmitEdit={this.onSubmitEdit}
                               deleteTour={this.deleteTour}/>
          </Col>
        </Row>
      </div>
    )
  }
}

export default ManageTourComponent
```

tour-add-component.jsx

```
import React, {Component} from 'react'
import Form from 'react-bootstrap/Form'
import Col from 'react-bootstrap/Col'
import Button from 'react-bootstrap/Button'
import './tour-add-component-styles.scss'

class AddTourComponent extends Component {
  render() {
    const {
      onBack,
      onChangeTourName,
      onChangeTourDescription,
      onChangeDestination,
      onChangeStartDate,
      onChangeEndDate,
      onChangePricePerPerson,
      onSubmitAdd,
      onSubmitUpdate,
      editTour,
      tourName,
      tourDescription,
      destination,
      startDate,
      endDate,
      pricePerPerson
    } = this.props

    return (
      <div>
        <Form
          onSubmit={editTour ? onSubmitUpdate : onSubmitAdd}
          style={{
            border: 'solid 1px',
            padding: '20px',
            borderRadius: '10px'
          }}
        >
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridTourName'>
              <Form.Label>Tour Name</Form.Label>
              <Form.Control placeholder='Enter Tour Name'
                            type='text'
                            onChange={onChangeTourName}
                            value={tourName}
                            title='Please enter a tour name.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridTourDescription'>
              <Form.Label>Tour Description</Form.Label>
              <Form.Control placeholder='Enter Tour Description'
                            type='text' onChange={onChangeTourDescription}
                            value={tourDescription}
                            title='Please enter a tour description.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridDestination'>
              <Form.Label>Destination</Form.Label>
              <Form.Control placeholder='Enter Destination'
                            type='text' onChange={onChangeDestination}
                            value={destination}
                            title='Please enter a destination.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridStartDate'>
              <Form.Label>Start Date</Form.Label>
              <Form.Control placeholder='Enter Start Date'
                            type='date'
                            onChange={onChangeStartDate}
                            value={startDate.substring(0, 10)}
                            title='Please enter a start date.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridEndDate'>
              <Form.Label>End Date</Form.Label>
              <Form.Control placeholder='Enter End Date'
                            type='date'
                            onChange={onChangeEndDate}
                            value={endDate.substring(0, 10)}
                            title='Please enter an end date.'
                            required/>
            </Form.Group>
          </Form.Row>
          <Form.Row>
            <Form.Group as={Col}
                        controlId='formGridPricePerPerson'>
              <Form.Label>Price Per Person (LKR)</Form.Label>
              <Form.Control placeholder='Enter Price per Person'
                            type='string'
                            onChange={onChangePricePerPerson}
                            value={pricePerPerson}
                            pattern='[0-9]{1,16}'
                            title='Please enter valid price per person.'
                            required/>
            </Form.Group>
          </Form.Row>
          {
            editTour ? (
              <Form.Row>
                <Form.Group>
                  <Button variant='primary'
                          type='button'
                          className={'btn btn-block btn-primary mt-3'}
                          style={{
                            marginLeft: '10px',
                            marginRight: '20px'
                          }}
                          onClick={onBack}
                  >
                    Back
                  </Button>
                </Form.Group>
                <Form.Group>
                  <Button variant='primary'
                          type='submit'
                          className={'btn btn-block btn-primary mt-3'}
                          style={{
                            marginLeft: '20px',
                            marginRight: '20px'
                          }}
                  >
                    Edit
                  </Button>
                </Form.Group>
              </Form.Row>
            ) : (
              <Button variant='primary'
                      type='submit'
                      className={'btn btn-block btn-primary mt-3'}
              >
                Add
              </Button>
            )
          }
        </Form>
      </div>
    )
  }
}

export default AddTourComponent
```

tour-list-component.jsx

```
import React, {Component} from 'react'
import Table from 'react-bootstrap/Table'
import SingleTourComponent from '../tour-single-component/tour-single-component'
import './tour-list-component-styles.scss'

class ListTourComponent extends Component {
  render() {
    const {
      tours,
      onSubmitEdit,
      deleteTour
    } = this.props
    return (
      <div>
        <Table responsive striped bordered hover variant='dark'>
          <thead>
          <tr>
            <th>Name</th>
            <th>Description</th>
            <th>Destination</th>
            <th>Start Date</th>
            <th>End Date</th>
            <th>Price (LKR)</th>
            <th/>
            <th/>
          </tr>
          </thead>
          <tbody>
          {
            tours.map(tour => {
              return <SingleTourComponent tour={tour}
                                          onSubmitEdit={() => onSubmitEdit(tour._id)}
                                          deleteTour={() => deleteTour(tour._id)}/>

            })
          }
          </tbody>
        </Table>
      </div>
    )
  }
}

export default ListTourComponent
```

tour-single-component.jsx

```
import React, {Component} from 'react'
import Button from 'react-bootstrap/Button'
import {FaEdit, FaTrashAlt} from 'react-icons/fa'
import './tour-single-component-styles.scss'

class SingleTourComponent extends Component {
  render() {
    const {
      tour,
      onSubmitEdit,
      deleteTour
    } = this.props

    return (
      <tr key={tour._id}>
        <td>{tour.tourName}</td>
        <td>{tour.tourDescription}</td>
        <td>{tour.destination}</td>
        <td>{tour.startDate.substring(0, 10)}</td>
        <td>{tour.endDate.substring(0, 10)}</td>
        <td>{tour.pricePerPerson}</td>
        <td>
          <Button
            variant={'primary'}
            onClick={onSubmitEdit}
          >
            <FaEdit
              size={20}
              style={{
                marginBottom: '4px',
                marginLeft: '2px'
              }}
            />
          </Button>
        </td>
        <td>
          <Button
            variant={'danger'}
            onClick={deleteTour}
          >
            <FaTrashAlt
              size={20}
              style={{
                marginBottom: '4px',
                marginLeft: '2px'
              }}
            />
          </Button>
        </td>
      </tr>
    )
  }
}

export default SingleTourComponent
```

4. Customer View & Book Tours Functionality (Only Partially implemented)

Frontend Implementation

tour-packages-component.jsx

```
import React, {Component} from 'react'
import 'bootstrap/dist/css/bootstrap.min.css'
import Swal from 'sweetalert2'
import axios from 'axios'
import {proxy} from '../../conf'
import NavigationBarComponent from '../../components/navigation-bar-
component/navigation-bar-component'
import TourPackageCardDeckComponent
  from '../../components/tour-package-card-deck-component/tour-package-card-deck-
component'
import './tour-packages-component-styles.scss'

class TourPackagesComponent extends Component {
  constructor(props) {
    super(props)
    this.state = {
      tours: [],
      tourName: '',
      tourDescription: '',
      destination: '',
      startDate: '',
      endDate: '',
      pricePerPerson: '',
      selectedTourId: '',
      selectedTour: null,
      selectTour: false,
      loggedIn: true,
      userType: 'Customer',
      count: 1
    }
  }

  componentDidMount() {
    this.getTours()
  }

  getTours = () => {
    axios.get(`${proxy}tour/tour`)
      .then(res => {
        this.setState({
          tours: res.data
        })
      }).catch(error => {
      console.log(error)
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'An unexpected error occurred. Please try again later.'
      }).then(() => {
      })
    })
  }

  onSubmitHandle = tourId => {
    axios.get(`${proxy}tour/tour/${tourId}`)
      .then(res => {
        this.setState({
          selectedTourId: tourId,
          selectedTour: res.data
        })
        this.setState({
          selectTour: true,
          tourName: this.state.selectedTour.tourName,
          tourDescription: this.state.selectedTour.tourDescription,
          destination: this.state.selectedTour.destination,
          startDate: this.state.selectedTour.startDate,
          endDate: this.state.selectedTour.endDate,
          pricePerPerson: this.state.selectedTour.pricePerPerson
        })
      }).catch(error => {
      console.log(error)
      Swal.fire({
        icon: 'error',
        title: 'Oops...',
        text: 'An unexpected error occurred. Please try again later.'
      }).then(() => {
      })
    })
  }

  onChangeCount = event => {
    this.setState({
      count: event.target.value
    })
  }

  render() {
    return (
      <div className='container'>
        <NavigationBarComponent loggedIn={this.state.loggedIn}
                                userType={this.state.userType}/>
        <div style={{
          marginTop: '60px',
          marginBottom: '-25px'
        }}
        >
          <TourPackageCardDeckComponent tours={this.state.tours}
                                        onSubmitHandle={this.onSubmitHandle}
                                        onChangeCount={this.onChangeCount}
                                        count={this.state.count}/>
        </div>
      </div>
    )
  }
}

export default TourPackagesComponent
```

tour-package-card-desk-component.jsx

```
import React, {Component} from 'react'
import CardDeck from 'react-bootstrap/CardDeck'
import TourPackageCardComponent from '../tour-package-card-component/tour-package-
card-component'
import './tour-package-card-deck-component-styles.scss'

class TourPackageCardDeckComponent extends Component {
  render() {
    const {
      tours,
      onSubmitHandle,
      onChangeCount,
      count
    } = this.props

    return (
      <div>
        <h1 style={{
          textAlign: 'center',
          marginTop: '80px',
          marginBottom: '50px',
          textTransform: 'uppercase',
          letterSpacing: '4px',
          color: 'darkblue'
        }}>
          Tour Packages
        </h1>
        <div style={{
          marginBottom: '80px'
        }}>
          <CardDeck>
            {
              tours.map(tour => {
                return <TourPackageCardComponent tour={tour}
                                                 onSubmitHandle={() =>
onSubmitHandle(tour._id)}
                                                 onChangeCount={onChangeCount}
                                                 count={count}/>
              })
            }
          </CardDeck>
        </div>
      </div>
    )
  }
}

export default TourPackageCardDeckComponent
```

tour-package-card-component.jsx

```
import React, {Component} from 'react'
import Button from 'react-bootstrap/Button'
import Card from 'react-bootstrap/Card'
import Form from 'react-bootstrap/Form'
import Col from 'react-bootstrap/Col'
import './tour-package-card-component-styles.scss'

class TourPackageCardComponent extends Component {
  render() {
    const {
      tour,
      onSubmitHandle,
      onChangeCount,
      count
    } = this.props

    return (
      <Card>
        <Card.Body>
          <Card.Title align={'center'}
                      style={{
                        marginBottom: '30px'
                      }}
          >
            {tour.tourName}
          </Card.Title>
          <Card.Text align={'center'}>
            {tour.tourDescription}
          </Card.Text>
          <Card.Text align={'center'}>
            Destination: {tour.destination}
          </Card.Text>
          <Card.Text align={'center'}>
            Start Date: {tour.startDate.substring(0, 10)}
          </Card.Text>
          <Card.Text align={'center'}>
```

```
            End Date: {tour.endDate.substring(0, 10)}
          </Card.Text>
          <Card.Text align={'center'}>
            Price per Person: {tour.pricePerPerson}
          </Card.Text>
        </Card.Body>
        <Card.Footer>
          <Form>
            <Form.Row>
              <Form.Group as={Col}
                          controlId='formNoOfPersons'>
                <Form.Label
                  style={{
                    marginLeft: '50px',
                    width: '100px'
                  }}
                >No of Persons</Form.Label>
                <Form.Control placeholder='No of Persons'
                              type='number'
                              onChange={onChangeCount}
                              value={count}
                              pattern='[0-9]{1,4}'
                              min='1'
                              title='Please enter number of persons.'
                              required
                              style={{
                                marginLeft: '50px',
                                width: '100px'
                              }}/>
              </Form.Group>
              <Form.Group>
                <Button variant='danger'
                        type='submit'
                        style={{
                          marginTop: '20px'
                        }}
                        onClick={onSubmitHandle}
                        disabled
                >
                  Book Now!
                </Button>
              </Form.Group>
            </Form.Row>
          </Form>
        </Card.Footer>
      </Card>
    )
  }
}

export default TourPackageCardComponent
```

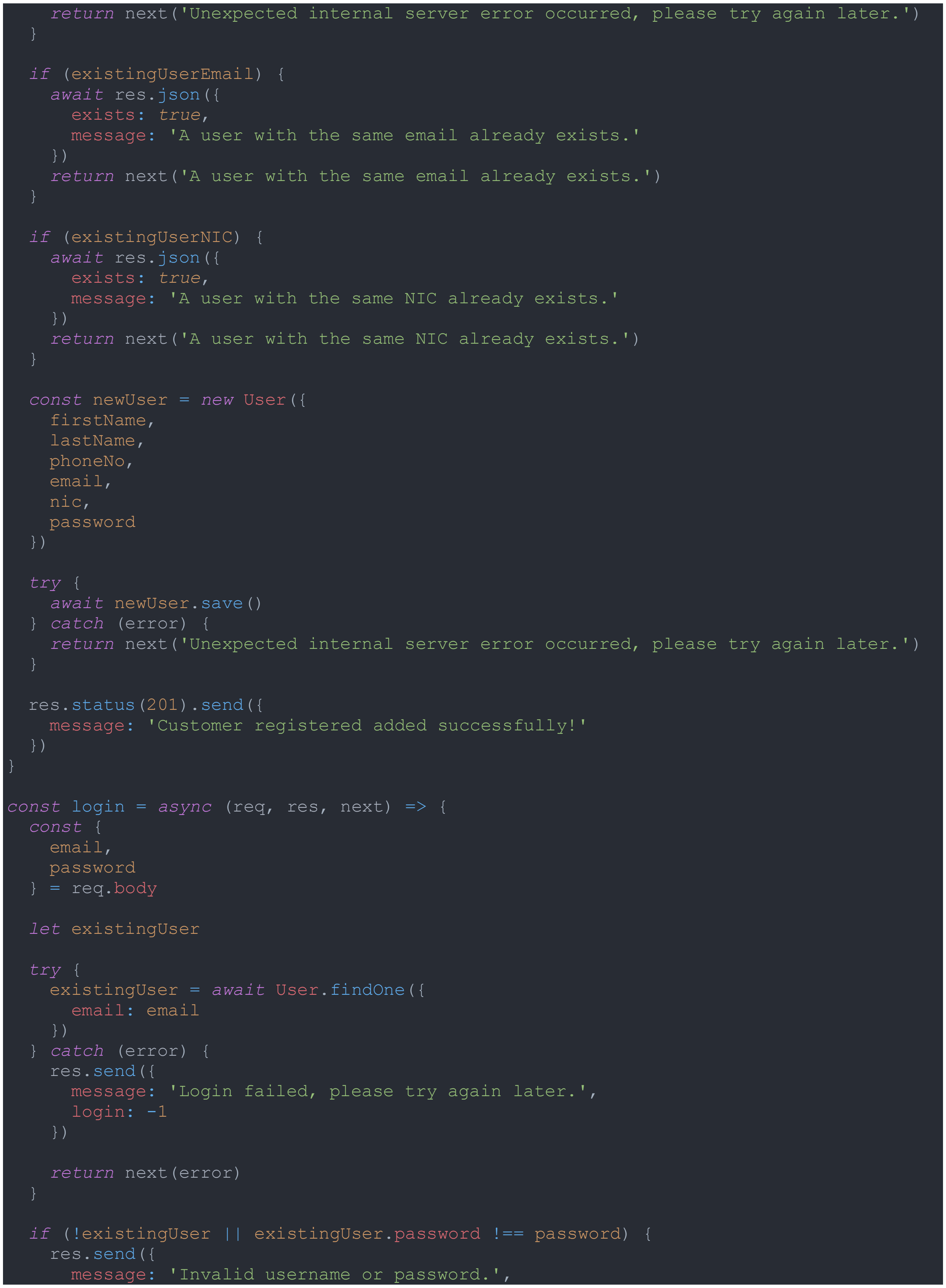
RESTful web service (implemented code)

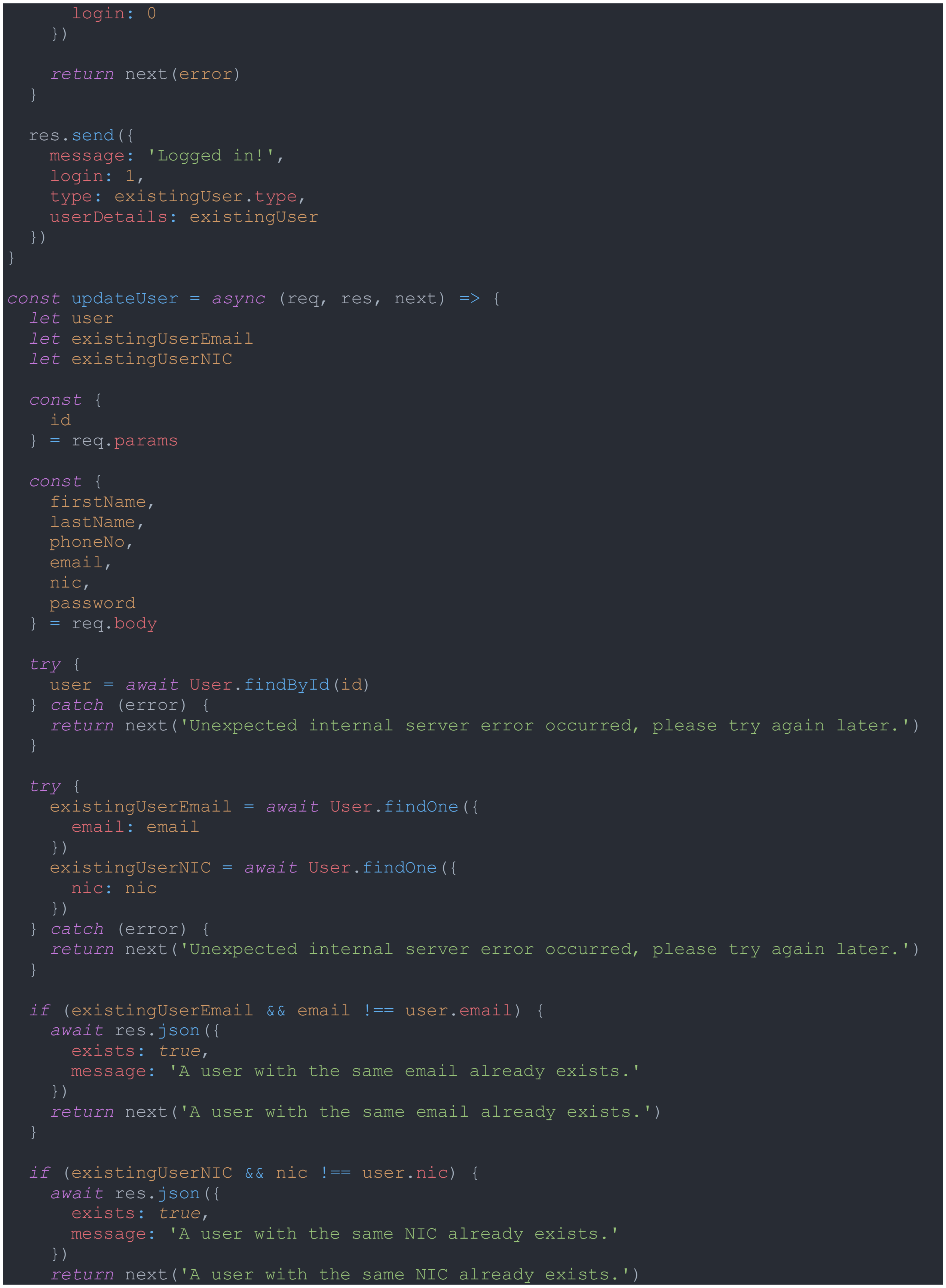
admin-controller.js

```
const User = require('../models/user-model')

const addAdmin = async (req, res, next) => {
  let existingUser

  const {
    email,
    password
  } = req.body

  try {
    existingUser = await User.findOne({
      email: email
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUser) {
    res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  const newAdmin = new User({
    email,
    password,
    type: 'Administrator'
  })

  try {
    await newAdmin.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(201).send({
    message: 'New administrator added successfully!'
  })
}

const updateAdmin = async (req, res, next) => {
  let admin
  let existingUser

  const {
    id
  } = req.params

  const {
    email,
    password
  } = req.body

  try {
    admin = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  try {
    existingUser = await User.findOne({
      email: email
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUser && email !== admin.email) {
    res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  admin.email = email
  admin.password = password

  try {
    await admin.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Administrator updated successfully!',
  })
}

const deleteAdmin = async (req, res, next) => {
  let admin

  const {
    id
  } = req.params

  try {
    admin = await User.findById(id)
    await admin.remove()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Administrator deleted successfully!',
  })
}

const getAdmin = async (req, res, next) => {
  let admin

  const {
    id
  } = req.params

  try {
    admin = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(admin)
}

const getAdminList = async (req, res, next) => {
  let adminList

  try {
    adminList = await User.find({
      type: 'Administrator'
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(adminList)
}

exports.addAdmin = addAdmin
exports.updateAdmin = updateAdmin
exports.deleteAdmin = deleteAdmin
exports.getAdmin = getAdmin
exports.getAdminList = getAdminList
```

login-controller.js

```
const User = require('../models/user-model')

const register = async (req, res, next) => {
  let existingUserEmail
  let existingUserNIC

  const {
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password
  } = req.body

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
```

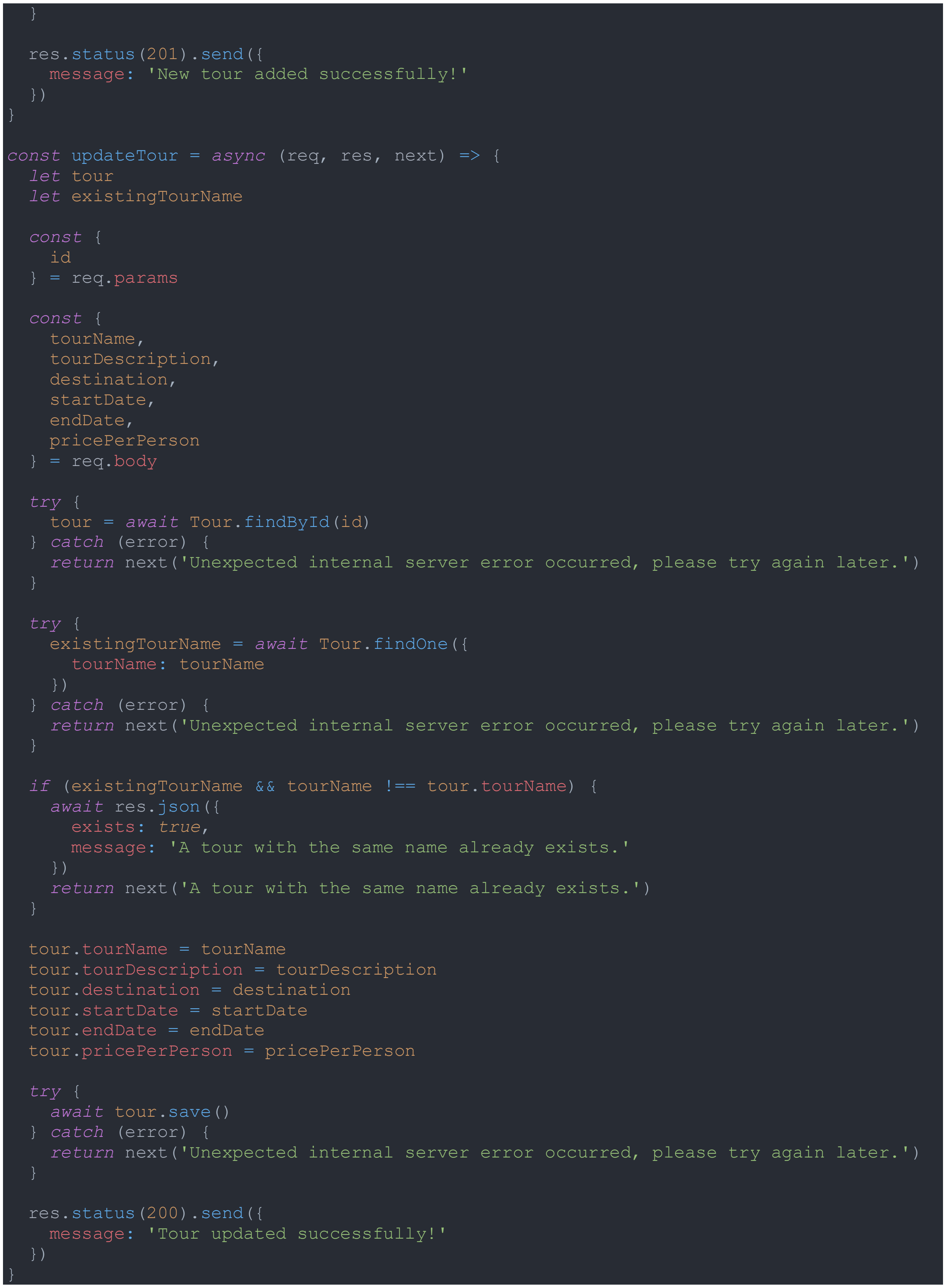

```
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  const newUser = new User({
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password
  })

  try {
    await newUser.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(201).send({
    message: 'Customer registered added successfully!'
  })
}

const login = async (req, res, next) => {
  const {
    email,
    password
  } = req.body

  let existingUser

  try {
    existingUser = await User.findOne({
      email: email
    })
  } catch (error) {
    res.send({
      message: 'Login failed, please try again later.',
      login: -1
    })

    return next(error)
  }

  if (!existingUser || existingUser.password !== password) {
    res.send({
      message: 'Invalid username or password.',
```



```
      login: 0
    })

    return next(error)
  }

  res.send({
    message: 'Logged in!',
    login: 1,
    type: existingUser.type,
    userDetails: existingUser
  })
}

const updateUser = async (req, res, next) => {
  let user
  let existingUserEmail
  let existingUserNIC

  const {
    id
  } = req.params

  const {
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password
  } = req.body

  try {
    user = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail && email !== user.email) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC && nic !== user.nic) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  user.firstName = firstName
  user.lastName = lastName
  user.teleNo = phoneNo
  user.email = email
  user.nic = nic
  user.password = password

  try {
    await user.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'User updated successfully!'
  })
}

const deleteUser = async (req, res, next) => {
  let user

  const {
    id
  } = req.params

  try {
    user = await User.findById(id)
    await user.remove()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'User deleted successfully!'
  })
}

const getUser = async (req, res, next) => {
  let user

  const {
    id
  } = req.params

  try {
    user = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(user)
}

const getCustomerList = async (req, res, next) => {
  let customerList

  try {
    customerList = await User.find({
      type: 'Customer'
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(customerList)
}

exports.register = register
exports.login = login
exports.updateUser = updateUser
exports.deleteUser = deleteUser
exports.getUser = getUser
exports.getCustomerList = getCustomerList
```

tour-controller.js

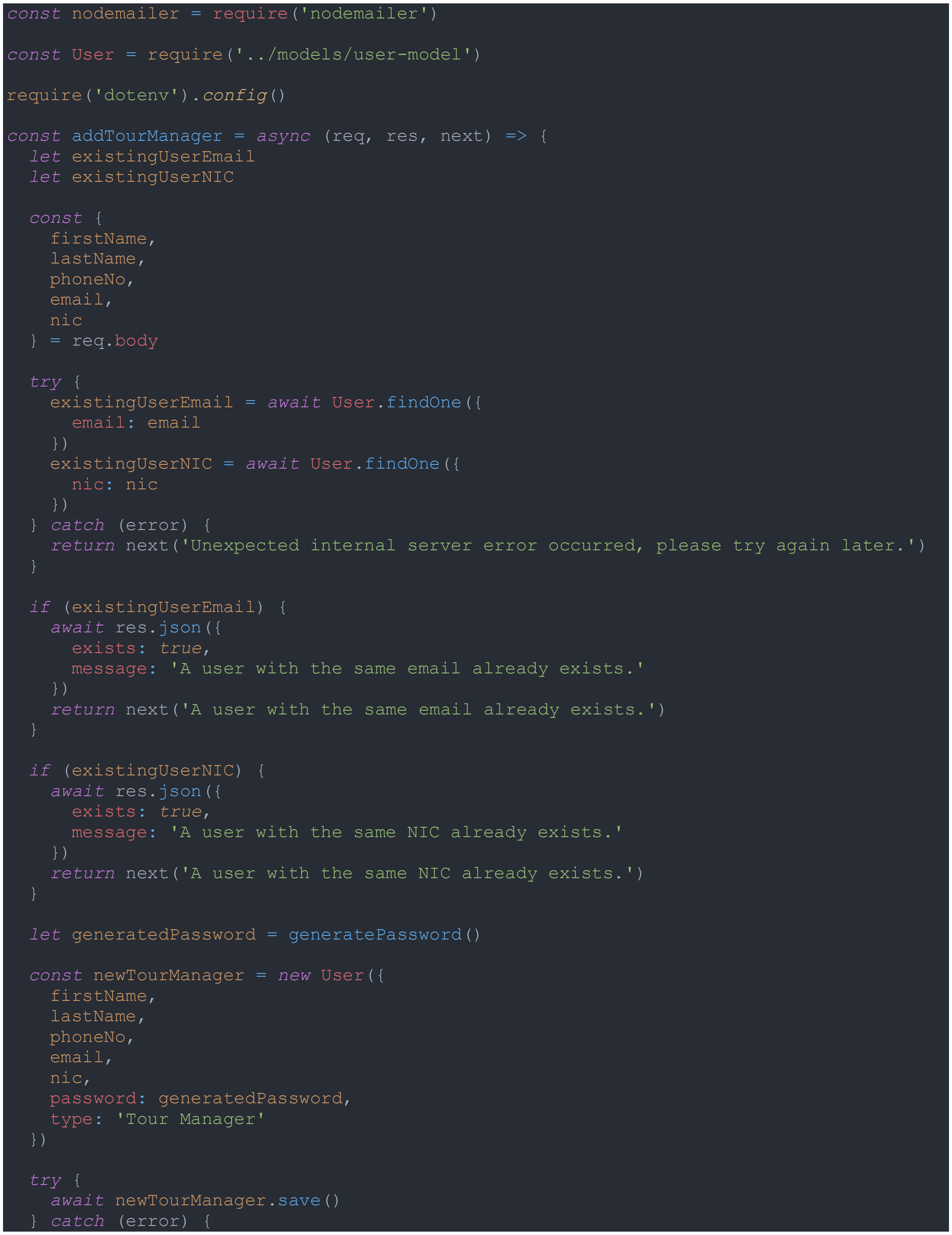
```
const Tour = require('../models/tour-model')

require('dotenv').config()

const addTour = async (req, res, next) => {
  let existingTourName

  const {
    tourName,
    tourDescription,
    destination,
    startDate,
    endDate,
    pricePerPerson
  } = req.body

  try {
    existingTourName = await Tour.findOne({
      tourName: tourName
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingTourName) {
    await res.json({
      exists: true,
      message: 'A tour with the same name already exists.'
    })
    return next('A tour with the same name already exists.')
  }

  const newTour = new Tour({
    tourName,
    tourDescription,
    destination,
    startDate,
    endDate,
    pricePerPerson
  })

  try {
    await newTour.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
```



```
  }

  res.status(201).send({
    message: 'New tour added successfully!'
  })
}

const updateTour = async (req, res, next) => {
  let tour
  let existingTourName

  const {
    id
  } = req.params

  const {
    tourName,
    tourDescription,
    destination,
    startDate,
    endDate,
    pricePerPerson
  } = req.body

  try {
    tour = await Tour.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  try {
    existingTourName = await Tour.findOne({
      tourName: tourName
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingTourName && tourName !== tour.tourName) {
    await res.json({
      exists: true,
      message: 'A tour with the same name already exists.'
    })
    return next('A tour with the same name already exists.')
  }

  tour.tourName = tourName
  tour.tourDescription = tourDescription
  tour.destination = destination
  tour.startDate = startDate
  tour.endDate = endDate
  tour.pricePerPerson = pricePerPerson

  try {
    await tour.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour updated successfully!'
  })
}
```

```
const deleteTour = async (req, res, next) => {
  let tour

  const {
    id
  } = req.params

  try {
    tour = await Tour.findById(id)
    await tour.remove()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour deleted successfully!'
  })
}

const getTour = async (req, res, next) => {
  let tour

  const {
    id
  } = req.params

  try {
    tour = await Tour.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tour)
}

const getTourList = async (req, res, next) => {
  let tourList

  try {
    tourList = await Tour.find({})
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tourList)
}

exports.addTour = addTour
exports.updateTour = updateTour
exports.deleteTour = deleteTour
exports.getTour = getTour
exports.getTourList = getTourList
```

tour-manager-controller.js



```javascript
const nodemailer = require('nodemailer')

const User = require('../models/user-model')

require('dotenv').config()

const addTourManager = async (req, res, next) => {
  let existingUserEmail
  let existingUserNIC

  const {
    firstName,
    lastName,
    phoneNo,
    email,
    nic
  } = req.body

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  let generatedPassword = generatePassword()

  const newTourManager = new User({
    firstName,
    lastName,
    phoneNo,
    email,
    nic,
    password: generatedPassword,
    type: 'Tour Manager'
  })

  try {
    await newTourManager.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  await sendEmail(email, generatedPassword)

  res.status(201).send({
    message: 'New tour manager added successfully!'
  })
}

const updateTourManager = async (req, res, next) => {
  let tourManager
  let existingUserEmail
  let existingUserNIC

  const {
    id
  } = req.params

  const {
    firstName,
    lastName,
    phoneNo,
    email,
    nic
  } = req.body

  try {
    tourManager = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  try {
    existingUserEmail = await User.findOne({
      email: email
    })
    existingUserNIC = await User.findOne({
      nic: nic
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  if (existingUserEmail && email !== tourManager.email) {
    await res.json({
      exists: true,
      message: 'A user with the same email already exists.'
    })
    return next('A user with the same email already exists.')
  }

  if (existingUserNIC && nic !== tourManager.nic) {
    await res.json({
      exists: true,
      message: 'A user with the same NIC already exists.'
    })
    return next('A user with the same NIC already exists.')
  }

  tourManager.firstName = firstName
  tourManager.lastName = lastName
  tourManager.teleNo = phoneNo
  tourManager.email = email
  tourManager.nic = nic

  try {
    await tourManager.save()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour manager updated successfully!'
  })
}

const deleteTourManager = async (req, res, next) => {
  let tourManager

  const {
    id
  } = req.params

  try {
    tourManager = await User.findById(id)
    await tourManager.remove()
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send({
    message: 'Tour manager deleted successfully!'
  })
}

const getTourManager = async (req, res, next) => {
  let tourManager

  const {
    id
  } = req.params

  try {
    tourManager = await User.findById(id)
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tourManager)
}

const getTourManagerList = async (req, res, next) => {
  let tourManagerList

  try {
    tourManagerList = await User.find({
      type: 'Tour Manager'
    })
  } catch (error) {
    return next('Unexpected internal server error occurred, please try again later.')
  }

  res.status(200).send(tourManagerList)
}
```

```
const getAdminEmail = async () => {
  let admin

  try {
    admin = await User.findOne({
      type: 'Administrator'
    })
  } catch (error) {
    return error
  }

  return admin.email;
}

let transporter = nodemailer.createTransport({
  service: 'gmail',
  auth: {
    user: 'it18149654@gmail.com',
    pass: process.env.PASSWORD
  }
})

const sendEmail = async (email, password) => {
  let adminEmail = getAdminEmail()

  let info = {
    from: adminEmail,
    to: email,
    subject: 'Added as a Tour Manager',
    text:
      `Congratulations!
      You have been assigned as a Tour Manager.
      Now you can manage tours related operations as a tour manager in the Online
Tourism Planner.
      Please find your login credentials below.
      LOGIN CREDENTIALS
      Email: ${email}
      Password: ${password}
      Thank you!
      This is an auto-generated email.
      If this has been sent by mistake, please delete this without sharing this.
      All rights reserved.`,
    html:
      `<!--suppress HtmlDeprecatedAttribute -->
      <div style="margin: 0; padding: 0; background-color: #f2f2f2; font-family:
arial, serif;">
      <table style="margin: 0 auto; background: white; max-width: 500px; padding-
bottom: 0; border-top: 5px solid #588dde; border-bottom: 5px solid #588dde; width:
100%;">
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>
      <table align="left" style="width: 100%;">
      <tr>
      <td style="padding: 10px;">
      <h1 style="text-align: center; color: #1a1a72;">Congratulations!</h1>
      <h2 style="margin-top:25px; margin-bottom: 0; color: #4db0c4; font-weight: 400;
font-size: medium;">You have been added as a Tour Manager.</h2>
      <h2 style="margin-top:20px; margin-bottom: 0; color: #4db0c4; font-weight: 400;
font-size: medium;">Now you can manage tour packages in the Online Tourism
Planner.</h2>
      <h2 style="margin-top:20px; margin-bottom: 10px; color: #4db0c4; font-weight:
400; font-size: medium;">Please find your login credentials below.</h2>
```

```
      </td>
      </tr>
      </table>
      </td>
      </tr>
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>
      <table align="left" style="width: 100%;">
      <tr>
      <td style="padding: 10px;">
      <h4 style="margin-top:20px; margin-bottom: 8px; color: #145a7a; font-weight:
400; text-align: center; font-size: 16px;"><b>LOGIN CREDENTIALS</b></h4>
      </td>
      </tr>
      </table>
      </td>
      </tr>
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>
      <table align="left" style="width: 50%;">
      <tr>
      <td align="left" valign="top" style="padding: 10px;">
      <h6 style="font-size: 14px; margin-top: 0; margin-bottom: 0; color: #29353c;
font-weight: 400;">E-mail</h6>
      <h6 style="font-size: 14px; margin-top: 20px; margin-bottom: 0; color: #29353c;
font-weight: 400;">Password</h6>
      </td>
      </tr>
      </table>
      <table align="left" style="width: 50%;">
      <tr>
      <td align="right" valign="top" style="padding: 10px;">
      <h6 style="font-size: 14px; margin-top: 0; margin-bottom: 0; color: #588dde;
font-weight: 400;">${email}</h6>
      <h6 style="font-size: 14px; margin-top: 20px; margin-bottom: 0; color: #588dde;
font-weight: 400;">${password}</h6>
      </td>
      </tr>
      </table>
      </td>
      </tr>
      <tr style="background: rgb(237, 243, 255); padding-left: 20px; padding-right:
20px;">
      <td>`
  }

  // noinspection JSCheckFunctionSignatures
  transporter.sendMail(info, (error, data) => {
    if (error) {
      console.log(error)
      console.log('Email sending failed! Please try again.')
    } else {
      console.log(data)
      console.log('An email is sent successfully to ' + email + '.')
    }
  })
}

function generatePassword() {
  let length = 5
  let randomPassword = ''
  let characters = 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789'
  let charactersLength = characters.length

  for (let i = 0; i < length; i++)
    randomPassword += characters.charAt(Math.floor(Math.random() * charactersLength))

  return randomPassword
}

exports.addTourManager = addTourManager
exports.updateTourManager = updateTourManager
exports.deleteTourManager = deleteTourManager
exports.getTourManager = getTourManager
exports.getTourManagerList = getTourManagerList
```

admin-routes.js

```
const express = require('express')
const router = express.Router()

const AdminController = require('../controllers/admin-controller')

router.post('/admin', AdminController.addAdmin)
router.put('/admin/:id', AdminController.updateAdmin)
router.delete('/admin/:id', AdminController.deleteAdmin)
router.get('/admin/:id', AdminController.getAdmin)
router.get('/admin', AdminController.getAdminList)

module.exports = router
```

tour-manager-routes.js

```
const express = require('express')
const router = express.Router()

const TourManagerController = require('../controllers/tour-manager-controller')

router.post('/manager', TourManagerController.addTourManager)
router.put('/manager/:id', TourManagerController.updateTourManager)
router.delete('/manager/:id', TourManagerController.deleteTourManager)
router.get('/manager/:id', TourManagerController.getTourManager)
router.get('/manager', TourManagerController.getTourManagerList)

module.exports = router
```

login-routes.js

```
const express = require('express')
const router = express.Router()

const LoginController = require('../controllers/login-controller')

router.post('/register', LoginController.register);
router.post('/login', LoginController.login);
router.put('/user/:id', LoginController.updateUser)
router.delete('/user/:id', LoginController.deleteUser)
router.get('/user/:id', LoginController.getUser)
router.get('/user', LoginController.getCustomerList)

module.exports = router
```

tour-routes.js

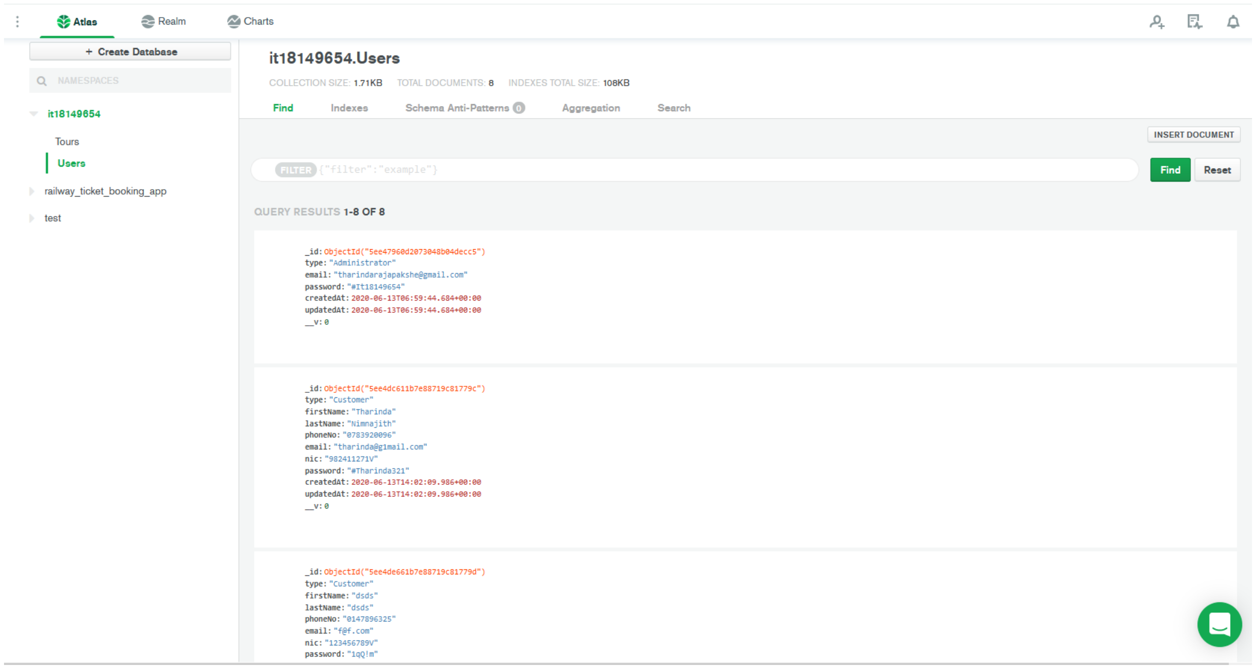
```
const express = require('express')
const router = express.Router()

const TourManagerController = require('../controllers/tour-manager-controller')

router.post('/manager', TourManagerController.addTourManager)
router.put('/manager/:id', TourManagerController.updateTourManager)
router.delete('/manager/:id', TourManagerController.deleteTourManager)
router.get('/manager/:id', TourManagerController.getTourManager)
router.get('/manager', TourManagerController.getTourManagerList)

module.exports = router
```

server.js

```
app.use('/manager', TourManagerRoutes)
app.use('/admin', AdminRoutes)
app.use('/tour', TourRoutes)
app.use('/login', LoginRoutes)
```

Mongo query for a specific Mongo collection

```
const {
  email,
  password
} = req.body

try {
  admin = await User.findById(id)
} catch (error) {
  return next('Unexpected internal server error occurred, please try again later.')
}

try {
  existingUser = await User.findOne({
    email: email
  })
} catch (error) {
  return next('Unexpected internal server error occurred, please try again later.')
}

if (existingUser && email !== admin.email) {
  res.json({
    exists: true,
    message: 'A user with the same email already exists.'
  })
  return next('A user with the same email already exists.')
}
```



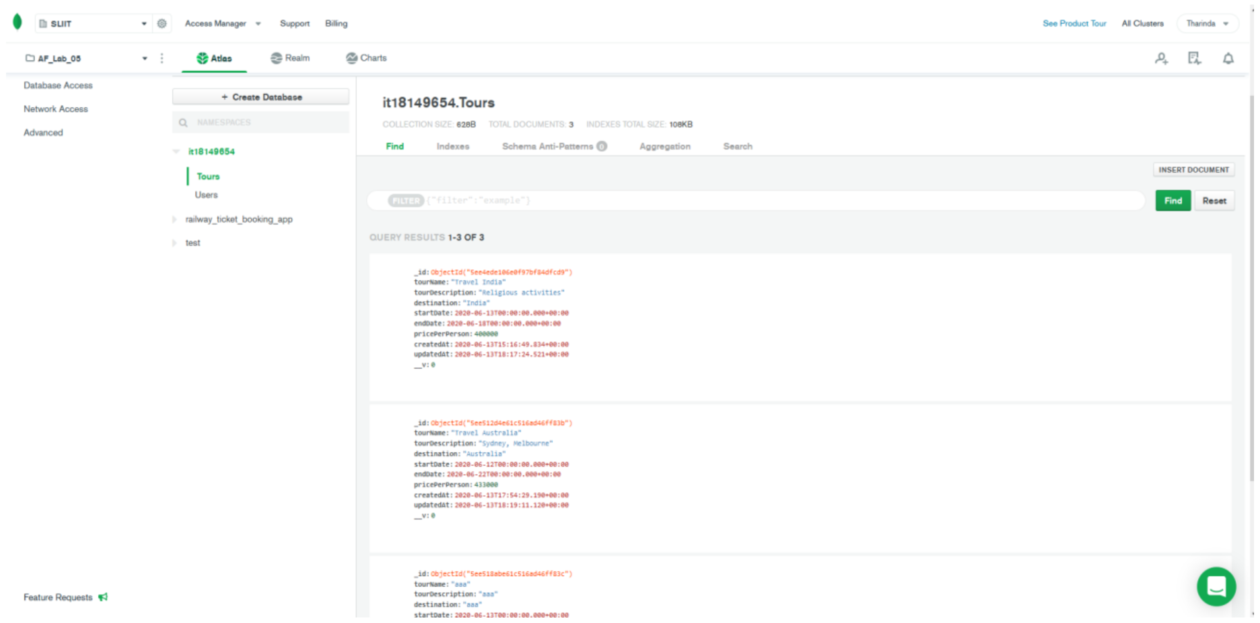
it18149654.Users

COLLECTION SIZE: 1.71KB TOTAL DOCUMENTS: 8 INDEXES TOTAL SIZE: 108KB

{"filter":"example"}

QUERY RESULTS 1-8 OF 8

```
_id: ObjectId("5ee47960d2073048b04decc5")
type: "Administrator"
email: "tharindarajapakshe@gmail.com"
password: "#It18149654"
createdAt: 2020-06-13T06:59:44.684+00:00
updatedAt: 2020-06-13T06:59:44.684+00:00
__v: 0

_id: ObjectId("5ee4dc611b7e88719c81779c")
type: "Customer"
firstName: "Tharinda"
lastName: "Nimnajith"
phoneNo: "0783920096"
email: "tharinda@g1mail.com"
nic: "982411271V"
password: "#Tharinda321"
createdAt: 2020-06-13T14:02:09.986+00:00
updatedAt: 2020-06-13T14:02:09.986+00:00
__v: 0

_id: ObjectId("5ee4de661b7e88719c81779d")
type: "Customer"
firstName: "dsds"
lastName: "dsds"
phoneNo: "0147896325"
email: "f@f.com"
nic: "123456789V"
password: "1qQ!m"
```



it18149654.Tours

COLLECTION SIZE: 628B TOTAL DOCUMENTS: 3 INDEXES TOTAL SIZE: 108KB

{"filter":"example"}

QUERY RESULTS 1-3 OF 3

```
_id: ObjectId("5ee4ede106e0f97bf84dfcd9")
tourName: "Travel India"
tourDescription: "Religious activities"
destination: "India"
startDate: 2020-06-13T00:00:00.000+00:00
endDate: 2020-06-18T00:00:00.000+00:00
pricePerPerson: 400000
createdAt: 2020-06-13T15:16:49.834+00:00
updatedAt: 2020-06-13T18:17:24.521+00:00
__v: 0
```

```
_id: ObjectId("5ee512d4e61c516ad46ff83b")
tourName: "Travel Australia"
tourDescription: "Sydney, Melbourne"
destination: "Australia"
startDate: 2020-06-12T00:00:00.000+00:00
endDate: 2020-06-22T00:00:00.000+00:00
pricePerPerson: 433000
createdAt: 2020-06-13T17:54:29.190+00:00
updatedAt: 2020-06-13T18:19:11.120+00:00
__v: 0
```

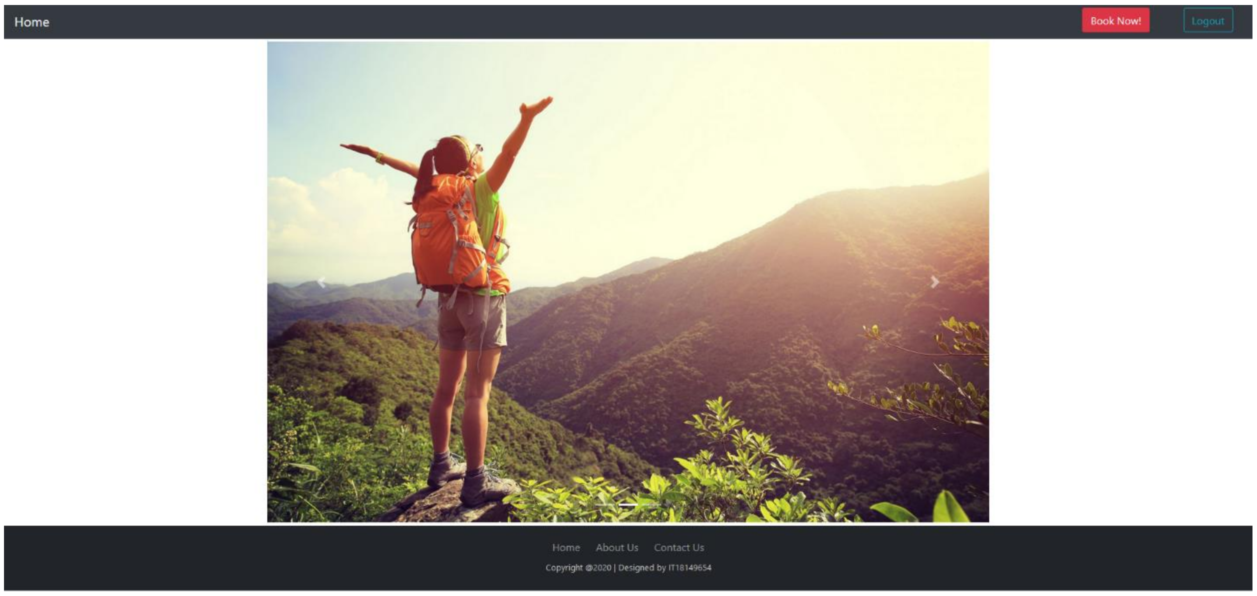
```
_id: ObjectId("5ee518abe61c516ad46ff83c")
tourName: "aaa"
tourDescription: "aaa"
destination: "aaa"
startDate: 2020-06-13T00:00:00.000+00:00
```

```
const {
  tourName,
  tourDescription,
  destination,
  startDate,
  endDate,
  pricePerPerson
} = req.body

try {
  tour = await Tour.findById(id)
} catch (error) {
  return next('Unexpected internal server error occurred, please try again later.')
}

try {
  existingTourName = await Tour.findOne({
    tourName: tourName
  })
} catch (error) {
  return next('Unexpected internal server error occurred, please try again later.')
}

if (existingTourName && tourName !== tour.tourName) {
  await res.json({
    exists: true,
    message: 'A tour with the same name already exists.'
  })
  return next('A tour with the same name already exists.')
}
```

```
const mongoose = require('mongoose')
const uniqueValidator = require('mongoose-unique-validator')

const Schema = mongoose.Schema

const userSchema = new Schema({
  firstName: {
    type: String,
    trim: true
  },
  lastName: {
    type: String,
    trim: true
  },
  phoneNo: {
    type: String,
    trim: true
  },
  email: {
    type: String,
    required: true,
    unique: true,
    trim: true
  },
  nic: {
    type: String,
    unique: true,
    trim: true
  },
  password: {
    type: String,
    required: true,
    trim: true
  },
  type: {
    type: String,
    default: 'Customer'
  }
}, {
  timestamps: true,
  collection: 'Users'
})

userSchema.plugin(uniqueValidator)

module.exports = mongoose.model('Users', userSchema)
```

```
const mongoose = require('mongoose')
const uniqueValidator = require('mongoose-unique-validator')

const Schema = mongoose.Schema

const tourSchema = new Schema({
  tourName: {
    type: String,
    required: true,
    trim: true
  },
  tourDescription: {
      type: String,
      required: true,
      trim: true
    },
  destination: {
    type: String,
    required: true,
    trim: true
  },
  startDate: {
    type: Date,
    required: true,
    trim: true
  },
  endDate: {
    type: Date,
    required: true,
    unique: true,
    trim: true
  },
  pricePerPerson: {
    type: Number,
    required: true,
    unique: true,
    trim: true
  }
}, {
  timestamps: true,
  collection: 'Tours'
})

tourSchema.plugin(uniqueValidator)

module.exports = mongoose.model('Tours', tourSchema)
```

Screenshot of the home page of the running application on localhost



Note: I added screenshots of some of the other pages in the “Scenario” section.

Thank You!