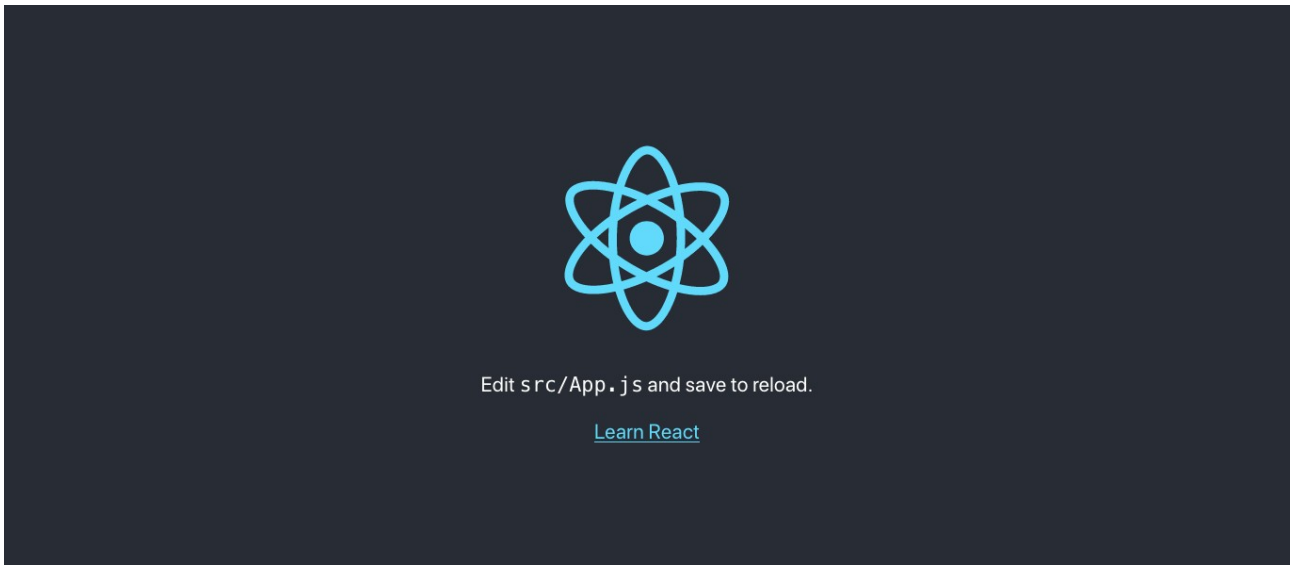
React Project Create

```
npx create-react-app first_app
```

```
cd first_app
npm start
```



React Project Structure

0_install

- first_app -
  - node_modules
  - package.json
  - package-lock.json
  - public
  - **src** -
    - App.css
    - App.js
    - index.css
    - index.js
    - reportWebVitals.js
    - components -
      - header.js
      - footer.js

1_hello_react_app

- src

2_components

- src

3_props

- src

4_events

- src

5_state

- src

(5) React State Assignment

Copy 0_install/first_app/src folder to 5_state folder.
Create components/about.js file.

```
import React, {Component} from 'react';

class AboutUs extends Component {
   state = {
      name: '...'
   }
   setName = evt => {
      this.state.name = evt.target.value;
   }
   clickMe = evt => {
      this.setState({name: this.state.name});
   }

   render() {
      return (
         <div>
            <div>
               <p> {this.state.name} </p>
            </div>
            <div>
               name : <input onChange={this.setName} type="text" />
            </div>
            <button onClick={this.clickMe}> Click </button>
         </div>
      )
   }
}
export default AboutUs;
```

Change App.js file.

```
import './App.css';
import AboutUs from './components/about.js';

function App() {
  return (
    <div className="App">
      <header className="App-header">
        <AboutUs />
      </header>
    </div>
  );
}

export default App;
```

```
cd 0_install/first_app
```

Run react server.

```
npm start
```

Create 5_state/assignment folder.
Copy 0_install/first_app/src folder to 5_state/assignment folder.

(6) React Life Cycle

Change about.js file.

```
class AboutUs extends Component {
	state = {
	}

	constructor(props) {
		super(props);
		console.log('constructor call');
	}

	componentDidMount() {
		console.log('componentDidMount call');
	}

	componentDidUpdate() {
		console.log('componentDidUpdate call');
	}

	componentWillUpdate() {
		console.log('componentWillUpdate call');
	}

	componentWillUnmount() {
		console.log('componentWillUnmount call');
	}

	render() {
		console.log('render call');
		return (
			. . .
		)
	}
}
```

```
cd 0_install/first_app
```

Run react server.

```
npm start
```

Create 6_life_cycle folder.
Copy 0_install/first_app/src folder to 6_life_cycle folder.

(7) React Conditional

Example 1

Even Odd Number using conditional.

Create component/even_odd.js file**.**

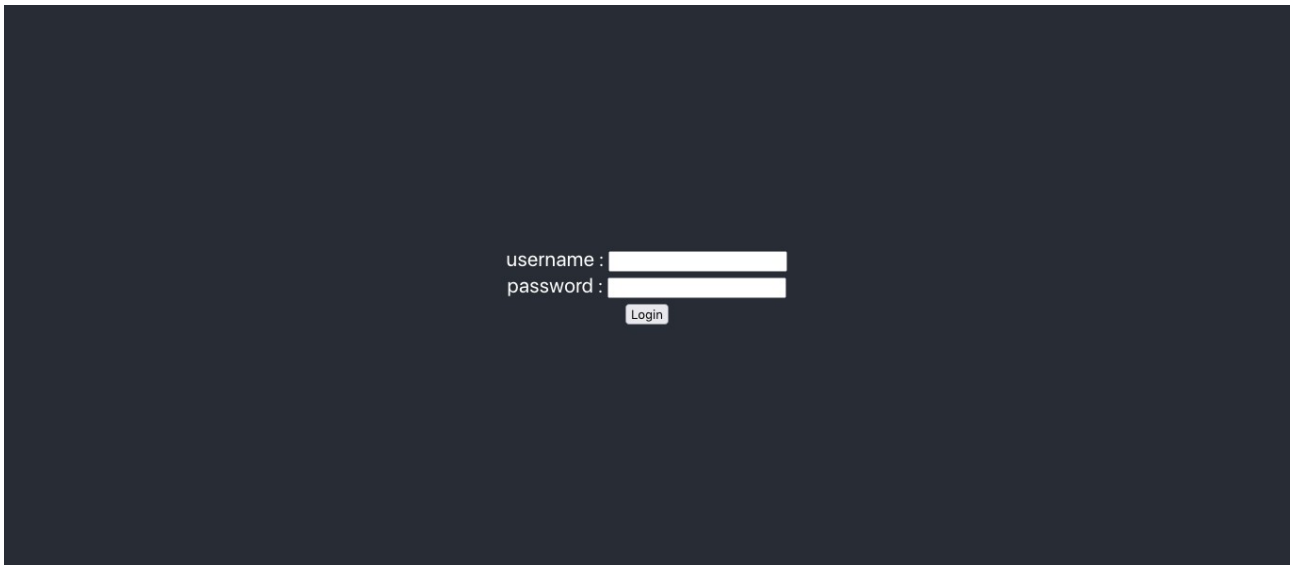
```
class EvenOdd extends Component {
	state = {
		num: 0
	}
	setNum = evt => {
		this.state.num = evt.target.value;
	}
	click  = evt =>  {
		this.setState({num: this.state.num});
	}
	render() {
		return (
			<div>
				<div>
					<input onChange={ this.setNum } type="text" />
				</div>
				<div>
					<button onClick={ this.click }> Click </button>
				</div>
				<div>
					{ this.state.num % 2 == 0 ? "Even Number" : "Odd Number"}
				</div>
			</div>
		)
	}
}
export default EvenOdd;
```

Change App.js file.

```
import './App.css';
import EvenOdd from './components/even_odd.js';

function App() {
  return (
    <div className="App">
      <header className="App-header">
          <EvenOdd />
      </header>
    </div>
  );
}

export default App;
```

Example 2

Login and Logout screen using conditional.



Copy even_odd.js and rename component/login.js file**.**

```
class Login extends Component {
	state = {
		isLogin: false,
		username: '',
	}
	setUser = evt => {
		this.state.username = evt.target.value;
	}
	clickLogin  = evt =>  {
		if (this.state.username == 'kyaw' && this.state.passwd == '123') {
			this.setState({isLogin: true});
		}
	}
	clickLogout  = evt =>  {
		this.setState({isLogin: false});
	}
	render() {
		return (
			<div>
			    { this.state.isLogin ? (
				<div>
				   <div>
				      Welcome home screen !
				   </div>
				   <div>
				      <button onClick={ this.clickLogout }> Logout </button>
				   </div>
				</div>
			    ) : (
				<div>
				   <div>
				      username: <input onChange={ this.setUser} type="text" />
				   </div>
				   <div>
				      <button onClick={ this.clickLogin }> Login </button>
				   </div>
				</div>
				)
			    }
			</div>
		)
	}
}
export default Login;
```

Create 7_conditional folder.
Copy 0_install/first_app/src folder to 7_conditional folder.

(8) React Keys

Create component/home.js file**.**

```
import React, { Component } from 'react';

class Home extends Component {

	render() {
		const employees = ['aung aung', 'mg mg', 'kyaw kyaw', 'aye aye']
		return (
			<div>
				{ employees.map(employee => {
					return (
						<div>
							<h1> { employee } </h1>
						</div>
					)

				})
				}
			</div>
		)
	}
}

export default Home;
```

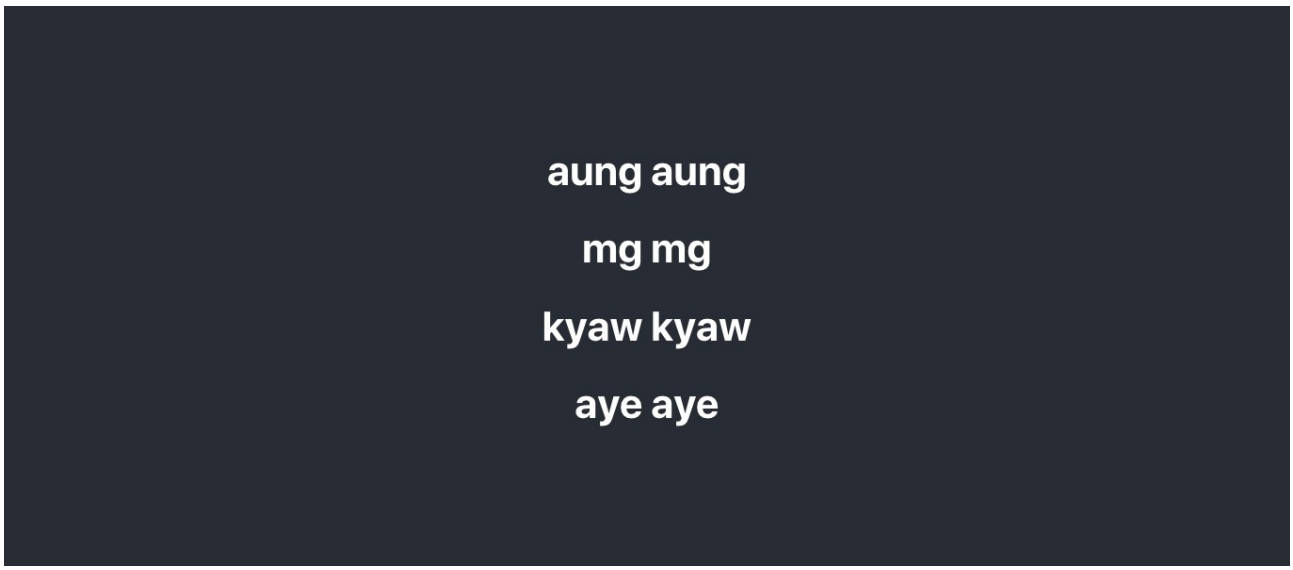
Inspect browser console.

Warning: Each child in a list should have a unique "key" prop.

Check the render method of `Home`. See https://reactjs.org/link/warning-keys for more information.
div
Home@http://localhost:3000/static/js/bundle.js:354:1
header
div
App

Create component/new_home.js file.

```
import React, { Component } from 'react';

class NewHome extends Component {

	render() {
		const employees = [
			{id: 1, name: 'aung aung'},
			{id: 2, name: 'mg mg'},
			{id: 3, name: 'kyaw kyaw'},
			{id: 4, name: 'aye aye'}
		]

		return (
			<div>
				{ employees.map(employee => {
					return (
						<div key={employee.id}>
							<h1> { employee.name } </h1>
						</div>
					)

				})
			}
			</div>
		)
	}
}

export default NewHome;
```



Create 8_keys folder.
Copy 0_install/first_app/src folder to 8_keys folder.

(9) React Router

```
npm install react-router-dom
```

Check in package.json file.

```
npm list
```

Create component/menu.js file.

```
import { BrowserRouter, Routes, Route } from "react-router-dom";
import EvenOdd from './even_odd.js';
import Login from './login.js';
import Home from './new_home.js';

const Menu = () => {
  return (
    <BrowserRouter>
      <Routes>
        <Route path="login" element={<Login />} />
        <Route path="home" element={<Home />} />
        <Route path="evenodd" element={<EvenOdd />} />
      </Routes>
    </BrowserRouter>
  )
};

export default Menu;
```

Run in browser -

```
localhost:3000/login
localhost:3000/home
localhost:3000/evenodd
```

Create 9_router folder.
Copy 0_install/first_app/src folder to 9_router folder.

(10) React Hooks

useState

Copy component/login.js and Create component/new_login.js file.
Change class state instead function useState and remove this keyword.

```
import { useState } from 'react';

function NewLogin() {
	const [islogin, setlogin] = useState(false);
	const [username, setusername] = useState("");

	const setUsername = evt => {
		setusername(evt.target.value);
	}

	const clickLogin  = evt =>  {
		if (username == 'kyaw' && passwd == '123') {
			setlogin(true);
		} else {
			alert('sorry, invalid username and password !');
		}
	}

	const clickLogout  = evt =>  {
		setlogin(false);
	}
	. . .
}

export default NewLogin;
```

Change Menu.js file.

```
. . .
import Login from './new_login.js';
. . .
```

useEffect

Change new_login.js file.

```
import { useState, useEffect } from 'react';

function NewLogin() {
	. . .
	useEffect(() => {
		// run after every rendering
		if (islogin && username) {
		    console.log(username, 'logged in.');
		}
	});

	const clickLogin  = evt =>  {
		if (username == 'kyaw' && passwd == '123') {
			setlogin(true);
		} else {
			alert('sorry, invalid username and password !');
		}
	}
	. . .
```

Add new users.

```
username = aung
passwd == 321

username = aye
passwd == 456
```

useContext

Copy component/menu.js and Create component/new_menu.js file.

```
import { BrowserRouter, Routes, Route } from "react-router-dom";
import EvenOdd from './even_odd.js';
import Login from './new_login.js';
import Home from './new_home.js';
import { createContext } from 'react';

export const Context = createContext();

const NewMenu = () => {

  const app_name = 'First App';

  return (
    <BrowserRouter>
      <Context.Provider value={app_name}>
        <Routes>
          . . .
        </Routes>
      </Context.Provider>
    </BrowserRouter>
  )
};

export default NewMenu;
```

Change new_login.js file.

```
. . .
import { Context } from './new_menu.js';
. . .
return (
          <div>
              <Context.Consumer>
                  { value => <span> { value } </span> }
              </Context.Consumer>
          { islogin ? (
. . .
```

Add Context Consumer in **new_home.js** and **even_odd.js** and app_name change to **Second App**.

Create 10_router folder.
Copy 0_install/first_app/src folder to 10_router folder.

(11) React Styling

CSS Stylesheet

Create src/Login.css file.

```
.Login {
  background-color: blue;
}
```

Change new_login.js file.

```
. . .
import '../Login.css';
. . .
return (
            <div className="Login">
              <Context.Consumer>
. . .
```

Style Object

Change even_odd.js file.

```
. . .
render() {
                    const myStyle = {
                      backgroundColor: "orange",
                    };

                    return (
                              <div style={myStyle}>
                                        <Context.Consumer>
. . .
```

Inline Style

Change new_home.js file.

```
. . .
return (
          <div style={{ backgroundColor: "green" }}>
                <Context.Consumer>
. . .
```

Create 11_style folder.
Copy 0_install/first_app/src folder to 11_style folder.

Django

1) Create new folder **4_django_restful** beside **3_react**.

```
mkdir 4_django_react
```

2) Check python version available 3.7.

```
py -0
```

3) Create new python virtual environment.

```
py -3.7 -m venv django2.2-venv
```

4) Activate virtual environment.

```
./django2.2-venv/Script/activate
```

5) Install django and check by pip list.

```
python -m pip install django==2.2
```

6) Create new project using django.

```
python -m django startproject hrms
```

7) Rename hrms project name as hrms-api.

```
cd hrms-api
```

8) Run server by manage.py file.

```
python manage.py runserver
```

9) Test in localhost:8000 in browser.

The install worked successfully! Congratulations!

Application Programming Interface (API)

1) Create new django application.

```
python manage.py startapp api
```

2) Register new app in setting.py

3) Database tables migrate.

```
python manage.py migrate
```

4) Check **hrms-api/db.sqlite3** database.
Download SQL Query Browser (www.sqlitebrowser.org)

5) Create new admin user.

```
python manage.py createsuperuser
```

username: admin
email: admin@gmail.com
password: superuser

6) Login django administration at localhost:8000/admin in browser.

7) Create new employee table.

hrms-api/api/models.py

```
from django.db import models
# Create your models here.
class EmployeeModel(models.Model):
        name = models.CharField(max_length=20)
        phone = models.CharField(max_length=20)
        address = models.CharField(max_length=20)
```

8) makemigrations and migrate for new change.

```
python manage.py makemigrations api
python manage.py migrate api
```

9) Register for django administration.

```
from django.contrib import admin
from .models import EmployeeModel

# Register your models here.
admin.site.register(EmployeeModel)
```

Django Restful Framework

1) Install django restful framework. (www.django-rest-framework.org)

```
python -m pip install djangorestframework==3.9.2
```

2) Register in setting.py

```
INSTALLED_APPS = [
    . . .
    'django.contrib.staticfiles',
    'rest_framework',
    'api',
]
```

3) Create new serializers.py

hrms-api/api/serializers.py

```
from rest_framework import serializers
from .models import EmployeeModel

class EmployeeSerializer(serializers.ModelSerializer):
        class Meta:
                model = EmployeeModel
                fields = ['id', 'name', 'phone', 'address']
```

4) Edit views.py.

hrms-api/api/views.py

```
from django.shortcuts import render

# Create your views here.
from rest_framework import viewsets
from .models import EmployeeModel
from .serializers import EmployeeSerializer

class EmployeeViewSet(viewsets.ModelViewSet):
        serializer_class = EmployeeSerializer
        queryset = EmployeeModel.objects.all()
```

5) Creat new urls.py

hrms-api/api/urls.py

```
from rest_framework import routers
from django.urls import path, include
from .views import EmployeeViewSet

router = routers.DefaultRouter()
router.register('employees', EmployeeViewSet)

urlpatterns = [
        path('', include(router.urls))
]
```

6) Edit root urls.py

hrms-api/hrms/urls.py

```
from django.contrib import admin
from django.urls import path, include

urlpatterns = [
    path('admin/', admin.site.urls),
    path('api/', include('api.urls'))
]
```

7) Run **localhost:8000/api/employees** in browser.

Test API Method

POST (Create new employee)

```
HTTP 201 Created
Allow: GET, POST, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

{
    "id": 2,
    "name": "Mg Mg",
    "phone": "09787897878",
    "address": "Mandalay"
}
```

GET (Read employee)

```
HTTP 200 OK
Allow: GET, POST, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

[
    {
        "id": 1,
        "name": "Kyaw Kyaw",
        "phone": "09383838",
        "address": "Yangon"
    }
]
```

PUT (Update employee)

Change url => **http://localhost:8000/api/employees/2**

```
HTTP 200 OK
Allow: GET, PUT, PATCH, DELETE, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

{
    "id": 2,
    "name": "Maung Maung",
    "phone": "09787897878",
    "address": "Mandalay"
}
```

DELETE (Delete employee)

Change url => **http://localhost:8000/api/employees/2**

```
HTTP 204 No Content
Allow: GET, PUT, PATCH, DELETE, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept
```

Are you sure you want to delete this Employee Instance?

Auth Token

1) Register in setting.py

```
INSTALLED_APPS = [
    . . .
    'rest_framework',
    'rest_framework.authtoken',
    'api',
]
```

2) Migrate auth token table.

```
Python manage.py migrate
```

3) Create token for admin user at django administration.

```
5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a
```

Postman API Platform

Download postman (www.postman.com)

1) Edit root urls.py

hrms-api/hrms/urls.py

```
from django.contrib import admin
from django.urls import path, include
from rest_framework.authtoken.views import obtain_auth_token

urlpatterns = [
    path('admin/', admin.site.urls),
    path('api/', include('api.urls')),
    path('auth/', obtain_auth_token)
]
```

2) In postman api platform.

POST => **localhost:8000/auth/**.

Body Form Data

username = admin
password = superuser

Return Result

```
{"token":"5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a"}
```

Permission IsAuthenticated

1) Edit setting.py

```
. . .
WSGI_APPLICATION = 'hrms.wsgi.application'

REST_FRAMEWORK = {
    'DEFAULT_PERMISSION_CLASSES': (
        'rest_framework.permissions.IsAuthenticated',
    )
}
. . .
```

2) Edit views.py

```
from django.shortcuts import render

# Create your views here.
from rest_framework import viewsets
from .models import EmployeeModel
from .serializers import EmployeeSerializer
from rest_framework.authentication import TokenAuthentication

class EmployeeViewSet(viewsets.ModelViewSet):
            serializer_class = EmployeeSerializer
            queryset = EmployeeModel.objects.all()
            authentication_classes = (TokenAuthentication,)
```

3) In postman api platform.

GET => **localhost:8000/employees**.

Body Form Data

username = admin
password = superuser

Return Result

```
{
  "detail": "Authentication credentials were not provided."
}
```

4) Include headers.

GET => **localhost:8000/employees**.

Body Form Data

username = admin
password = superuser

Headers

Authorization = Token 5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a

Return Result


```
[
   {
      "id": 1,
      "name": "Kyaw Kyaw Kwa",
      "phone": "09383838",
      "address": "Yangon"
   }
]
```

Django React

Inside **4_django_restful** folder.

```
npx create-react-app hrms-web
```

project structure

- hrms-web -
    - node_modules
    - package.json
    - package-lock.json
    - public
    - **src** -
        - App.css
        - App.js
        - index.css
        - index.js
        - reportWebVitals.js
        - **components** -
            - home.js
            - login.js
            - menu.js

home.js

```
import React, { Component } from 'react';

class Home extends Component {
	render() {
		const employees = ['aung aung', 'mg mg', 'kyaw kyaw', 'aye aye']
		return (
			<div>
				{ employees.map(employee => {
					return (
						<div>
							<h1> { employee } </h1>
						</div>
					)

				})
				}
			</div>
		)
	}
}

export default Home;
```

menu.js

```
import { BrowserRouter, Routes, Route } from "react-router-dom";
import Login from './login.js';
import Home from './home.js';

const Menu = () => {
  return (
    <BrowserRouter>
      <Routes>
        <Route path="login" element={<Login />} />
        <Route path="home" element={<Home />} />
      </Routes>
    </BrowserRouter>
  )
};

export default Menu;
```

App.js

```
import './App.css';
import Menu from './components/menu.js';

function App() {
  return (
    <div className="App">
      <header className="App-header">
          <Menu />
      </header>
    </div>
  );
}

export default App;
```

Test url

localhost:3000/home
localhost:3000/login

(1) Using Fetch Method

home.js

```
import React, { Component } from 'react';

class Home extends Component {

        componentDidMount(){
                fetch('http://127.0.0.1:8000/api/employees/', {
                        method: 'GET',
                        headers: {
                        'Content-Type': 'application/json',
                        'Authorization': 'Token 5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
                    }
                })
                .then( resp => resp.json())
                .then( res => console.log(res))
                .catch( error => console.log(error))
        }

        render() {
                const employees = ['aung aung', 'mg mg', 'kyaw kyaw', 'aye aye']
                return (
                        <div>
                                { employees.map(employee => {
                                        return (
                                                <div>
                                                        <h1> { employee } </h1>
                                                </div>
                                        )

                                    })
                                }
                        </div>
                )
        }
}

export default Home;
```

Key Error

Warning: Each child in a list should have a unique "key" prop.

Update home.js

```
render() {
                const employees = ['aung aung', 'mg mg', 'kyaw kyaw', 'aye aye']
                return (
                        <div>
                                { employees.map(employee => {
                                        return (
                                                <div key= { employee }>
                                                        <h1> { employee } </h1>
                                                </div>
                                        )

                                })
                        }
                        </div>
                )
        }
```

Cross-Origin Request Blocked

Cross-Origin Request Blocked: The Same Origin Policy disallows reading the remote resource at http://127.0.0.1:8000/api/employees/. (Reason: CORS header ‘Access-Control-Allow-Origin’ missing). Status code: 401.

Install django-cors-headers

```
python -m pip install django-cors-headers==2.5.3
```

Change hrms-api/hrms/settings.py

```
MIDDLEWARE = [
   'django.middleware.security.SecurityMiddleware',
   'django.contrib.sessions.middleware.SessionMiddleware',
   'corsheaders.middleware.CorsMiddleware',
   . . .
]

CORS_ORIGIN_WHITELIST = (
   'localhost:3000'
)
```

Update return data into state

Change home.js

```
import React, { Component } from 'react';

class Home extends Component {

	state = {
		employees: []
	}

	componentDidMount(){
		fetch('http://127.0.0.1:8000/api/employees/', {
			method: 'GET',
			headers: {
			  'Content-Type': 'application/json',
			  'Authorization': 'Token 5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
			}
		})
		.then( resp => resp.json())
		.then( res => this.setState({ employees: res }))
		.catch( error => console.log(error))
	}

	render() {
		//const employees = ['aung aung', 'mg mg', 'kyaw kyaw', 'aye aye']
		return (
			<div>
				{
					this.state.employees.map(employee => {
						return (
							<div key={ employee.id }>
								<h1> { employee.name } </h1>
							</div>
						)

					})
				}
			</div>
		)
	}
}

export default Home;
```

(2) List View

Create hrms-web/src/components/employees folder.
Create detail.js, list.js and form.js

project structure

- hrms-web -
  - . . .
  - public
  - **src** -
    - App.css
    - App.js
    - . . .
    - **components** -
      - home.js
      - login.js
      - menu.js
      - **employees**
        - detail.js
        - list.js
        - form.js

Change list.js

```
import React, { Component } from 'react';

class EmployeeList extends Component {

	render() {
		return (
			<div>
			    <h1> List View </h1>
				{
					this.props.employees.map(employee => {
						return (
							<div key={ employee.id }>
								<h3> { employee.name } </h3>
							</div>
						)

					})
				}
			</div>
		)
	}
}

export default EmployeeList;
```

Change home.js

```
import React, { Component } from 'react';
import EmployeeList from './employees/list.js';

class Home extends Component {

	state = {
		employees: []
	}

	componentDidMount(){
		. . .
	}

	render() {
		return (
			<div>
				<h1> HRMS </h1>
				<div>
					<EmployeeList employees={ this.state.employees }/>
				</div>
			</div>
		)
	}
}

export default Home;
```

(3) Detail View

detail.js

```
import React, { Component } from 'react';

class EmployeeDetail extends Component {

	render() {
		return (
			<div>
			    <h1> Detail View </h1>
			</div>
		)
	}
}

export default EmployeeDetail;
```

home.js

```
import React, { Component } from 'react';
import EmployeeList from './employees/list.js';
import EmployeeDetail from './employees/detail.js';

class Home extends Component {

	state = {
		employees: []
	}

	componentDidMount(){
		. . .
	}

	render() {
		return (
			<div>
				<h1> HRMS </h1>
				<div>
					<EmployeeList employees={ this.state.employees }/>
					<EmployeeDetail />
				</div>
			</div>
		)
	}
}

export default Home;
```

Create src/Home.css

Home.css

```
.Header {
    display: grid;
    grid-template-columns: 1fr 1fr;
    text-align: left;
    grid-gap: 100px;
}
```

Import css at home.js

```
import '../Home.css';

<h1> HRMS </h1>
        <div className="Header">
```

(3) List Item Click

home.js

```
import React, { Component } from 'react';
import EmployeeList from './employees/list.js';
import EmployeeDetail from './employees/detail.js';
import '../Home.css';

class Home extends Component {

	state = {
		employees: []
	}

	componentDidMount(){
		. . .
	}

	employeeClicked = employee => {
		console.log("Employee Clicked ", employee);
	}

	render() {
		return (
			<div>
				<h1> HRMS </h1>
				<div className="Header">
					<EmployeeList employees={this.state.employees}
							employeeClicked={this.employeeClicked}/>
					<EmployeeDetail />
				</div>
			</div>
		)
	}
}

export default Home;
```

list.js

```
import React, { Component } from 'react';

class EmployeeList extends Component {

        employeeClicked = employee => evt => {
              this.props.employeeClicked(employee);
        };

        render() {
              return (
                    <div>
                        <h1> Employee List </h1>
                          {
                              his.props.employees.map(employee => {
                                    return (
                                          <div key={ employee.id }>
                                              <h3
                                                  onClick={this.employeeClicked(employee)}>
                                                    { employee.name }
                                               </h3>
                                           </div>
                                          )

                                    })
                              }
                    </div>
              )
        }
}

export default EmployeeList;
```

console result

```
Employee Clicked
Object { id: 1, name: "Kyaw Kyaw", phone: "09383838", address: "Yangon" }
home.js:28

Employee Clicked
Object { id: 4, name: "Aung Aung", phone: "09373737373", address: "Mandalay" }
home.js:28
```

(4) Connect List View with Detail View

home.js

```
state = {
        employees: [],
        selectedEmployee: null
}

employeeClicked = employee => {
        console.log("Employee Clicked ", employee);
        this.setState({ selectedEmployee: employee });
}

render() {
                return (
                        . . .
                        <EmployeeDetail employee={ this.state.selectedEmployee } />

                        . . .
                )
        }
```

detail.js

```
import React, { Component } from 'react';

class EmployeeDetail extends Component {

        render() {

                const employee = this.props.employee;

                return (
                        <div>
                          <h1> Detail View </h1>
                            <div>
                                <h3> {employee.name} </h3>
                                <p> {employee.phone} </p>
                                <p> {employee.address} </p>
                            </div>
                        </div>
                )
        }
}

export default EmployeeDetail;
```

Uncaught TypeError: employee is null

Update home.js

```
{
        this.state.selectedEmployee
        ?
            <EmployeeDetail employee={ this.state.selectedEmployee } />
        :
            null
}
```

(5) Form View

Change form.js

```
import React, { Component } from 'react';

class EmployeeForm extends Component {

        render() {
                return (
                        <div>
                            <h1> Form View </h1>
                        </div>
                )
        }
}

export default EmployeeForm;
```

Change home.js

Add new state view type and add new button.

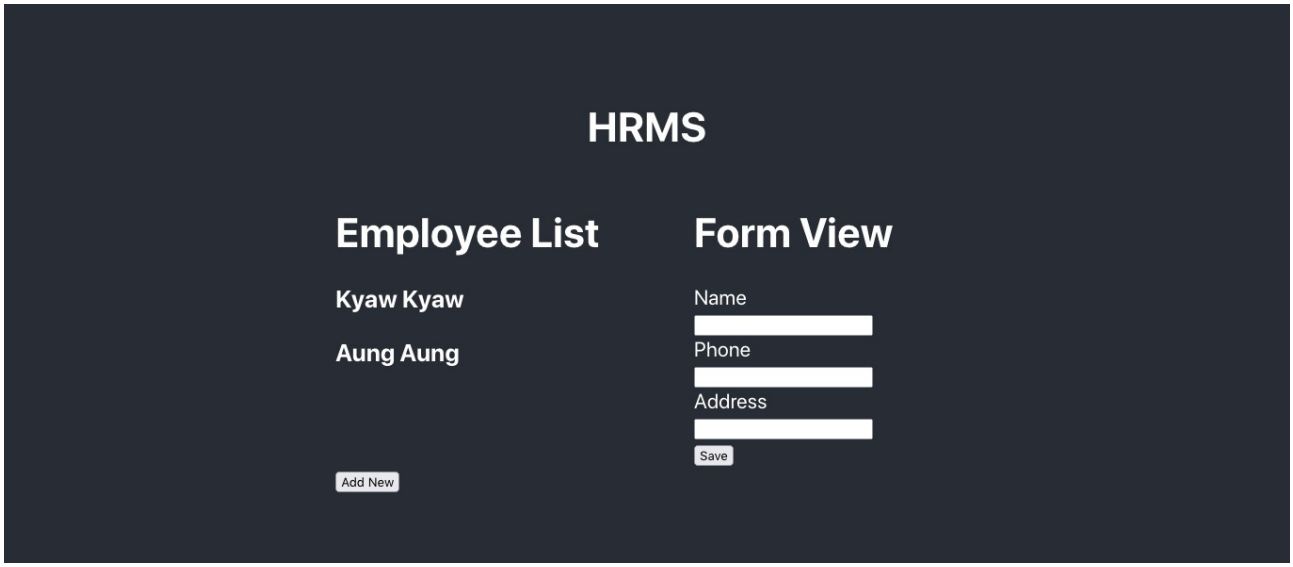
```
. . .
import EmployeeForm from './employees/form.js';

class Home extends Component {
        state = {
                . . .
                view_type: ''
        }

        componentDidMount(){
                . . .
        }

        employeeClicked = employee => {
                . . .
                this.setState({ selectedEmployee: employee, view_type: 'detail' });
        }

        addNewClicked = () => {
                console.log("Add New Click");
                this.setState({ view_type: 'create'});
        };

        render() {
                return (
                        <div>
                                . . .
                                <div className="Header">
                                        {
                                                this.state.view_type == 'create'
                                                ? <EmployeeForm/> : null
                                        }

                                        {
                                                this.state.view_type == 'detail'
                                                ?   <EmployeeDetail
                                                        employee={ this.state.selectedEmployee } />
                                                :  null
                                        }
                                </div>
                                <div className="Footer">
                                    <button onClick={this.addNewClicked}>Add New</button>
                                </div>
                        </div>
                )
        }
}
```

Add new css class at Home.css

```
.Footer {
   text-align: left;
}
```

Change form.js

```
class EmployeeForm extends Component {
        save = () => {
            console.log('save click');
        }

        render() {
                return (
                        <div>
                            <h1> Form View </h1>
                                <div>
                                    <span> Name </span> <br/>
                                    <input name="name" type="text" /> <br/>
                                    <span> Phone </span> <br/>
                                    <input name="phone" type="text" /> <br/>
                                    <span> Address </span> <br/>
                                    <input name="address" type="text" /> <br/>
                                    <button onClick={this.save}> Save </button>
                                </div>
                        </div>
                )
        }
}
```



(6) Form Save

Change form.js

```
import React, { Component } from 'react';

class EmployeeForm extends Component {

    state = {
        editedEmployee: {'name': '', 'phone': '', 'address': ''}
    }

    inputChanged = evt => {
        console.log('input change', evt.target.value);
        let employee = this.state.editedEmployee;
        employee[evt.target.name] = evt.target.value;
        this.setState({ editedEmployee: employee });
    }

    save = () => {
        console.log('save click');
        fetch('http://127.0.0.1:8000/api/employees/', {
            method: 'POST',
            headers: {
                'Content-Type': 'application/json',
                'Authorization': 'Token 5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
            },
            body: JSON.stringify(this.state.editedEmployee)
        }).then( resp => resp.json())
        .then( res => console.log(res))
        .catch( error => console.log(error))
    }

    render() {
        return (
                <div>
                    <h1> Form View </h1>
                      <div>
                        <span> Name </span> <br/>
                        <input name="name" type="text" onChange={this.inputChanged}/> <br/>
                            . . .
                      </div>
                  </div>
                )
        }
}

export default EmployeeForm;
```

(7) Form Update

Font Awesome Install

```
npm install react-fontawesome
```

public/index.html

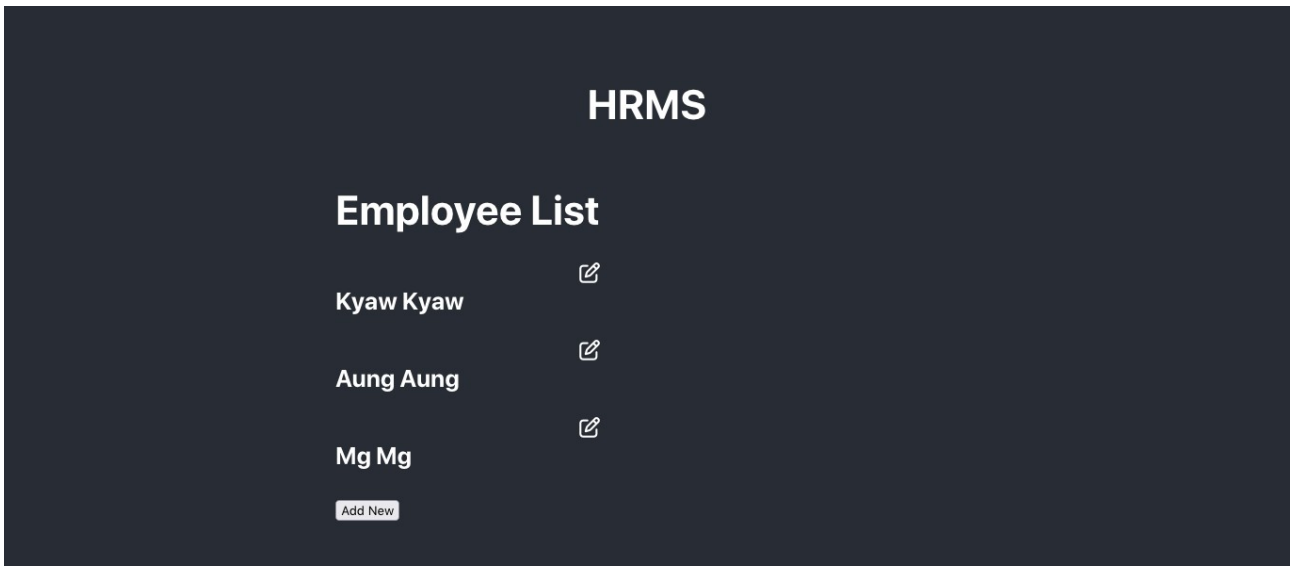
```
<script src="https://kit.fontawesome.com/7f0377bcc2.js" crossorigin="anonymous"></script>
```

List.css

```
.List {
   display: grid;
   grid-template-columns: 1fr auto auto;
}
```

list.js

```
import React, { Component } from 'react';
import '../../List.css';
var FontAwesome = require('react-fontawesome');

class EmployeeList extends Component {
    . . .

   updateClicked = employee => evt => {
      this.props.updateClicked(employee);
   };

   render() {
         return (
                  <div>
                     <h1> Employee List </h1>
                       {
                            this.props.employees.map(employee => {
                                 return (
                                      <div key={employee.id} className="List">
                                           . . .
                                           <FontAwesome name="edit"
                                                onClick={this.updateClicked(employee)}/>
                                       </div>
                                        )
                                   })
                                 }
                          </div>
   . . .
```



Change home.js

```
addNewClicked = () => {
   console.log("Add New Click");
   let newemployee = {'name': '', 'phone': '', 'address': ''};
   this.setState({selectedEmployee: newemployee, view_type: 'create'});
};

updateClicked = employee => {
   console.log("update Click");
   this.setState({selectedEmployee: employee, view_type: 'update'});
};

 render() {
            return (
                  <div>
                      <h1> HRMS </h1>
                         <div className="Header">
                              <EmployeeList employees={this.state.employees}
                                        employeeClicked={this.employeeClicked}
                                        updateClicked={this.updateClicked}/>
                                 {
                                        this.state.view_type == 'create'
                                        || this.state.view_type == 'update'
                                        ?
                                              <EmployeeForm . . ./>
                                        :
                                              null
                                 }
                                 . . .
                         </div>
   . . .
```

Change form.js

```
import React, { Component } from 'react';

class EmployeeForm extends Component {

   state = {
         editedEmployee: null
    }

   inputChanged = evt => {
      console.log('input change', evt.target.value);
      let employee = this.props.employee;
      employee[evt.target.name] = evt.target.value;
      this.setState({ editedEmployee: employee });
   }

   save = () => {
       . . .
   }

   update = () => {
      console.log('update click');
      fetch(`http://127.0.0.1:8000/api/employees/${this.props.employee.id}/`, {
         method: 'PUT',
         headers: {
            'Content-Type': 'application/json',
            'Authorization': 'Token 5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
         },
         body: JSON.stringify(
            this.state.editedEmployee
         )
      }).then( resp => resp.json())
      .then( res => console.log(res))
      .catch( error => console.log(error))
   }

   render() {
         return (
               <div>
                  <h1> Form View </h1>
                    <div>
                         <input name="name" type="text" value={this.props.employee.name}
                                 onChange={this.inputChanged}/> <br/>
                          . . .
                         <button onClick={this.save}> Save </button>
                         <button onClick={this.update}> Update </button>
                    </div>
                </div>
   . . .
```

(8) Delete

list.js

```
. . .

deleteClicked = employee => evt => {
   console.log('delete click');
            fetch(`http://127.0.0.1:8000/api/employees/${employee.id}/`, {
      method: 'DELETE',
      headers: {
         'Content-Type': 'application/json',
         'Authorization': 'Token 5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
      }
   })
   .then( res => this.props.reload(employee, 'delete'))
   .catch( error => console.log(error))
};

 . . .

<FontAwesome name="edit" onClick={this.updateClicked(employee)}/>
<FontAwesome name="trash" onClick={this.deleteClicked(employee)}/>
. . .
```

(9) Reload

home.js

```
    reload = (employee, method) => {
            if (method == 'save') {
                this.setState({employees: [...this.state.employees, employee]});
            } else if (method == 'update') {
                this.setState({view_type: ''});
            } else if (method == 'delete') {
                const employees = this.state.employees.filter( emp => emp.id !==
                                    employee.id);
                this.setState({employees: employees});
            }
      }
```

Change form.js and list.js under save, update and delete function.

```
save = () => {
    fetch('http://127.0.0.1:8000/api/employees/', {
          . . .
    }).then( resp => resp.json())
    .then( res => this.props.reload(res, 'save'))
    .catch( error => console.log(error))
  }
```

(10) Login

Change login.js

```
class Login extends Component {
        state = {
                user: {
                  username: '',
                  password: ''
              },
        }

        inputChanged = event => {
            let user = this.state.user;
            user[event.target.name] = event.target.value;
            this.setState({user: user});
        }

        clickLogin  = () =>  {
                fetch('http://127.0.0.1:8000/auth/', {
                        method: 'POST',
                        headers: { 'Content-Type': 'application/json'},
                        body: JSON.stringify(this.state.user)
                })
                .then( resp => resp.json())
                .then( res => {
                                console.log(res.token);
                                if (res.token) {
                                        window.location.href = "/home";
                                } else {
                                        alert("Username & Password Invalid !");
                                }
                }).catch( error => console.log(error))
        }

        render() {
                return (
                        <div className="Login">
                                <div>
                                        <div>
                                                username : <input name="username"
onChange={ this.inputChanged } type="text" />
                                        </div>
                                        . . .
                                </div>
                        </div>
                )
        }
}
export default Login;
```

(11) React Cookie

React Cookie Install

```
npm install react-cookie
```

menu.js

```
import { BrowserRouter, Routes, Route } from "react-router-dom";
import Login from './login.js';
import Home from './home.js';
import { CookiesProvider } from "react-cookie";

const Menu = () => {
  return (
    <CookiesProvider>
      <BrowserRouter>
        <Routes>
          <Route path="" element={<Login />} />
          <Route path="home" element={<Home />} />
        </Routes>
      </BrowserRouter>
    </CookiesProvider>
  )
};

export default Menu;
```

login.js

```
import React, { Component } from 'react';
import { withCookies } from "react-cookie";

class Login extends Component {
      . . .
      clickLogin  = () =>  {
            fetch('http://127.0.0.1:8000/auth/', {
                  . . .
            })
            .then( resp => resp.json())
            .then( res => {
                        console.log(res.token);
                        this.props.cookies.set('hrms-token', res.token);
                        . . .
            }).catch( error => console.log(error))
      }
    . . .
}
export default withCookies(Login);
```

home.js

```
import React, { Component } from 'react';
. . .
import { withCookies } from 'react-cookie';

class Home extends Component {
      state = {
            . . .
            token: this.props.cookies.get('hrms-token')
      }

      componentDidMount(){
            fetch('http://127.0.0.1:8000/api/employees/', {
                  method: 'GET',
                  headers: {
            'Content-Type': 'application/json',
            'Authorization': `Token ${this.state.token}`
          }
            })
            .then( resp => resp.json())
            .then( res => this.setState({employees: res}))
            .catch( error => console.log(error))
      }

      . . .

      render() {
            return (
                  <div>
                        <h1> HRMS </h1>
                        <div className="Header">
                              <EmployeeList employees={ this.state.employees }
employeeClicked={this.employeeClicked} updateClicked={this.updateClicked}
reload={this.reload} token={this.state.token}/>
                              . . .
                  </div>
            )
      }
}

export default withCookies(Home);
```

form.js

```
import React, { Component } from 'react';

class EmployeeForm extends Component {

   . . .

   save = () => {
      console.log('save click');
      fetch('http://127.0.0.1:8000/api/employees/', {
         method: 'POST',
         headers: {
            'Content-Type': 'application/json',
            'Authorization': `Token ${this.props.token}`
         },
         body: JSON.stringify(this.state.editedEmployee)
      }).then( resp => resp.json())
      .then( res => this.props.reload(res, 'save'))
      .catch( error => console.log(error))
   }

   update = () => {
      console.log('update click');
      fetch(`http://127.0.0.1:8000/api/employees/${this.props.employee.id}/`, {
         method: 'PUT',
         headers: {
            'Content-Type': 'application/json',
            'Authorization': `Token ${this.props.token}`
         },
         body: JSON.stringify(
            this.state.editedEmployee
         )
      }).then( resp => resp.json())
      .then( res => this.props.reload(res, 'update'))
      .catch( error => console.log(error))
   }

      render() {
            . . .
      }
}

export default EmployeeForm;
```

Change also list.js fetch method.

Expo

Create New Project first_app.

```
expo init first_app
```

Create new first_app/components folder and Create header.js and footer.js under components folder.

project structure

- first_app -
  - node_modules
  - assets
  - babel.config.js
  - package.json
  - package-lock.json
  - App.js
  - app.json
  - **components** -
    - header.js
    - footer.js

(1) Components

header.js

```
import React from 'react';
import {Text, View} from 'react-native';

function Header() {
	return (
		<View>
			<Text> Header </Text>
		</View>
	);
}

export { Header };
```

footer.js

```
import React, { Component } from 'react';
import {Text, View} from 'react-native';

class Footer extends Component {
        render() {
                return (
                        <View>
                                <Text> Footer </Text>
                        </View>
                );
        }
}

export default Footer;
```

App.js

```
import { StyleSheet, Text, View } from 'react-native';
import { Header } from './components/header';
import Footer from './components/footer';

export default function App() {
  return (
    <View style={styles.container}>
      <Header />
        <Text> Hello React Native World </Text>
      <Footer />
    </View>
  );
}

const styles = StyleSheet.create({
  container: {
    flex: 1,
    backgroundColor: '#fff',
    alignItems: 'center',
    justifyContent: 'center',
  },
});
```

(2) Props

App.js

```
import { StyleSheet, Text, View } from 'react-native';
. . .

export default function App() {
  return (
    <View style={styles.container}>
      <Header message="header page" name="testing" />
        <Text> main page </Text>
      <Footer address="yangon" />
    </View>
  );
}
. . .
```

header.js

```
import React from 'react';
import {Text, View} from 'react-native';

function Header(props) {
        return (
                <View>
                        <Text> { props.message } </Text>
                        <Text> Our { props.name } page </Text>
                </View>
        );
}
export { Header };
```

footer.js

```
import React, { Component } from 'react';
import {Text, View} from 'react-native';

class Footer extends Component {
        render() {
                return (
                        <View>
                                <Text> { this.props.address } </Text>
                        </View>
                );
        }
}
export default Footer;
```

(3) Events

App.js

```
import { StyleSheet, Text, View, Alert } from 'react-native';
import { Header } from './components/header';
import Footer from './components/footer';

function showTesting() {
  Alert.alert('you click testing !');
}

export default function App() {
  return (
    <View style={styles.container}>
      <Header message="header page" name="testing" popup={ showTesting }/>
        <Text> main page </Text>
      <Footer address="yangon" />
    </View>
  );
}

. . .
```

header.js

```
import React from 'react';
import {Text, View} from 'react-native';

function Header(props) {
        return (
                <View>
                        <Text> { props.message } </Text>
                        <Text onPress={ props.popup }> Our { props.name } page </Text>
                </View>
        );
}

export { Header };
```

footer.js

```
import React, { Component } from 'react';
import {Text, View, TextInput, Alert} from 'react-native';

class Footer extends Component {

        logConsole() {
                Alert.alert('you typed in footer ...');
        }

        render() {
                return (
                        <View>
                                <Text> { this.props.address } </Text>
                                <TextInput onChangeText={ this.logConsole } />
                        </View>
                );
        }
}

export default Footer;
```

(4) State

footer.js

```
import React, { Component } from 'react';
import {Text, TextInput, View, Button, Alert} from 'react-native';

class Footer extends Component {

        state = {
                name: 'Aung Aung'
        }

        logConsole() {
                Alert.alert('you typed in footer ...');
        }

        setName = name => {
                this.setState({name});
        }

        showName = () => {
                Alert.alert("You typed " + this.state.name);
        }

        render() {
                return (
                        <View>
                                <Text> { this.props.address } </Text>
                                <TextInput onChangeText={ this.logConsole } />
                                <TextInput onChangeText={ this.setName }
                                        style={{ backgroundColor: 'orange'}}/>
                                <Button onPress={ this.showName } title="Click Me"/>
                        </View>
                );
        }
}

export default Footer;
```

App.js is not change.

header.js

```
import React, { useState } from 'react';
import {Text, View, TextInput, Button} from 'react-native';

function Header(props) {

        const [name, setName] = useState('Aung Aung');

        return (
                <View>
                        <Text> { props.message } </Text>
                        <Text onPress={ props.popup }> Our { props.name } page </Text>
                        <TextInput onChangeText={(name) => setName(name)}
                                style={{ backgroundColor: 'gray'}}/>
                        <Button onPress={() => alert("You typed" + name)} title="Click Me"/>
                </View>
        );
}

export { Header };
```

(5) Flat List

Create new list.js under components folder.

```
import React from 'react';
import {Text, View, FlatList, Alert} from 'react-native';

function List() {
   const clickEmployee = (item) => {
      Alert.alert("you clicked " + item.name);
   }

    return (
         <View>
            <FlatList
            data={[
               {name: 'Aung Aung'}, {name: 'Mg Mg'}, {name: 'Kyaw Kyaw'}
            ]}
            renderItem={({item}) => (
               <Text onPress={() => clickEmployee(item)}>
                  <View>
                     <Text >{item.name}</Text>
                  </View>
               </Text>
            )}
          />
        </View>
     );
}
export default List;
```

Import from App.js

```
import { StyleSheet, Text, View, Alert } from 'react-native';
import List from './components/list';

export default function App() {
  return (
    <View style={styles.container}>
      <List />
    </View>
  );
}

const styles = StyleSheet.create({
  container: {
    flex: 1,
    marginTop: 100,
    . . .
   }
});
```

(6) Navigation

Install React Navigation.

```
npm install
react-navigation
react-navigation-stack
react-native-gesture-handler
react-native-safe-area-context
```

Create new detail.js under components folder.

```
import React from 'react';
import {Text, TextInput, View, Button} from 'react-native';

function Detail() {
	return (
		<View>
			<Text> Detail Screen </Text>
		</View>
	);
}

export default Detail;
```

Update App.js

```
import React from 'react';
import List from './components/list';
import Detail from './components/detail';

import { createAppContainer } from 'react-navigation';
import { createStackNavigator } from 'react-navigation-stack';

const AppNavigator = createStackNavigator(
  {
    List: {screen: List},
    Detail: {screen: Detail},
  },
  {
    initialRouteName: "List"
  }
)

const App = createAppContainer(AppNavigator);

export default App;
```

To click one screen to another screen.

list.js

```
import React from 'react';
import {Text, View, Button, FlatList, Alert} from 'react-native';

function List(props) {
   return (
      <View>
         <FlatList
            . . .
         />

         <Button
            title="Go to Detail"
            onPress={() => props.navigation.navigate('Detail')}
         />
     </View>
    );
}

export default List;
```

To send data with navigation.

list.js

```
import React from 'react';
import {Text, View, Button, FlatList, Alert} from 'react-native';

function List(props) {

   const clickEmployee = (item) => {
      //Alert.alert("you clicked " + item.name);
      props.navigation.navigate('Detail', {
         name: item.name
      });
   }

    return (
         <View>
               . . .
         </View>
    );
}

export default List;
```

Update detail.js

```
import React, { useState } from 'react';
import {Text, TextInput, View, Button} from 'react-native';

function Detail(props) {

        const name = props.navigation.getParam('name', '');

         return (
                <View>
                        <Text> Detail Screen </Text>
                        <Text> Name: {name} </Text>
                </View>
        );
}

export default Detail;
```

To change tool bar title and color.

detail.js

```
import React, { useState } from 'react';
import {Text, TextInput, View, Button} from 'react-native';

function Detail(props) {
   const name = props.navigation.getParam('name', '');

   return (
        . . .
    );
}

Detail.navigationOptions = {
   title: "Detail Screen",
   headerStyle: {
     backgroundColor: 'orange'
   }
}

export default Detail;
```

(7) Styles

Create new login.js under components folder.
Change flexDirection to row to column.

login.js

```
import React from "react";
import {StyleSheet, Text, View, Image, TextInput, TouchableOpacity } from "react-native";

function Login() {

  return (
    <View style={styles.container}>
      <Image style={styles.image} source={require("../assets/logo.png")} />

      <View style={styles.inputView}>
        <TextInput
          style={styles.inputText}
          placeholder="Username"
        />
      </View>

      <View style={styles.inputView}>
        <TextInput
          style={styles.inputText}
          placeholder="Password"
          secureTextEntry={true}
        />
      </View>

      <TouchableOpacity>
        <Text style={styles.signup}> Create New Account ?</Text>
      </TouchableOpacity>

      <TouchableOpacity style={styles.login}>
        <Text> Login </Text>
      </TouchableOpacity>
    </View>
  );
}

const styles = StyleSheet.create({
  container: {
    flex: 1,
    backgroundColor: "#fff",
    alignItems: "center",
    justifyContent: "center",
  },
```

```
  image: {
    marginBottom: 40,
    width: 100,
    height: 100
  },

  inputView: {
    backgroundColor: "#FFC7A1",
    borderRadius: 30,
    width: "70%",
    height: 45,
    marginBottom: 20,
  },

  inputText: {
    height: 50,
    padding: 10,
    marginLeft: 20,
  },

  signup: {
    height: 20,
    marginBottom: 20,
  },

  login: {
    width: "70%",
    height: 50,
    alignItems: "center",
    justifyContent: "center",
    marginTop: 40,
    backgroundColor: "#FF7D26",
  },
});

export default Login;
```

(8) Android or IOS Platform

For android change login.js to login.android.js.
For IOS change login.js to login.ios.js.

login.android.js

```
import React from "react";
import {StyleSheet, Text, View, Image, TextInput, TouchableOpacity, Platform } from "react-
native";

function Login() {

  return (
    <View style={styles.container}>
        . . .
    </View>
  );
}

const styles = StyleSheet.create({

  . . .
  inputView: {
    backgroundColor: Platform.OS == 'android' ? "#FFC7A1" : "blue",
    borderRadius: 30,
    width: "70%",
    height: 45,
    marginBottom: 20,
  },
  . . .
});

export default Login;
```

Change login.ios.js and run in ios.

(9) Icon and Splash Screen

Change app.json

```
{
  "expo": {
    "name": "fist_app",
    "slug": "fist_app",
    "version": "1.0.0",
    "orientation": "portrait",
    "icon": "./assets/my_logo.png",
    "userInterfaceStyle": "light",
    "splash": {
      "image": "./assets/my_splash.png",
      "resizeMode": "contain",
      "backgroundColor": "#ffffff"
    },
    "updates": {
      "fallbackToCacheTimeout": 0
    },
    "assetBundlePatterns": [
      "**/*"
    ],
    "ios": {
      "supportsTablet": true
    },
    "android": {
      "adaptiveIcon": {
        "foregroundImage": "./assets/adaptive-icon.png",
        "backgroundColor": "#FFFFFF"
      }
    },
    "web": {
      "favicon": "./assets/favicon.png"
    }
  }
}
```

React Native

Create New Project hrms-mobile under react_native folder.

```
npx react-native init hrmsmobile
```

Create assets folder.

```
mkdir android/app/src/main/assets
```

Bundle js

```
npx react-native bundle --platform android --dev false --entry-file index.js --bundle-output
android/app/src/main/assets/index.android.bundle --assets-dest android/app/src/main/res
```

Build with gradlew

```
cd android
gradlew assembleDebug
```

JAVA_HOME Path Error

```
jdk.java.net/archive/
```

share apk by python simple server

```
cd react_native\hrmsmobile\android\app\build\outputs\apk\debug
python -m http.server 8007
```

Expo Project For Test

Create New Project hrms-mobile under expo folder.

```
npx create-expo-app hrms-mobile
```

(1) Create Navigation

Create new folder components.
Create new login.js file under components folder.

Create new folder employees under components folder.
Create new detail.js, form.js and list.js files under employees folder.

Install React Navigation.

```
npm install
react-navigation
react-navigation-stack
react-native-gesture-handler
react-native-safe-area-context
```

Change App.js

```
import List from './components/employees/list';
import Detail from './components/employees/detail';
import Form from './components/employees/form';
import Login from './components/login';

import { createAppContainer } from 'react-navigation';
import { createStackNavigator } from 'react-navigation-stack';

const AppNavigator = createStackNavigator(
  {
    List: {screen: List},
    Detail: {screen: Detail},
    Form: {screen: Form},
    Login: {screen: Login},
  },
  {
    initialRouteName: "Login"
  }
)

const App = createAppContainer(AppNavigator);

export default App;
```

Change login.js

```
import React, { Component } from "react";
import {StyleSheet, Text, View } from "react-native";

class Login extends Component{
  render() {
    return (
      <View style={styles.container}>
        <Text> Login View </Text>
      </View>
    );
  }
}

const styles = StyleSheet.create({
  container: {
    flex: 1,
    backgroundColor: "#fff",
    alignItems: "center",
    justifyContent: "center",
  }
});

export default Login;
```

Change list.js

```
import React, { Component } from 'react';
import {Text, View, StyleSheet} from 'react-native';

class List extends Component {
    render() {
        return (
            <View style={styles.container}>
                <View style={{ marginBottom:20, height: 100,
alignItems:"center", justifyContent: "center"}}>
                    <Text style={{fontSize:20, fontWeight:'bold'}}> Employee
List </Text>
                </View>


            </View>
        );
    }
}

List.navigationOptions = {
    title: "Home Screen",
    headerStyle: {
      backgroundColor: '#714B67'
    },
    headerTintColor: '#fff',
}

const styles = StyleSheet.create({
    container: {
```

```
        flex: 1,
    }
})

export default List;
```

Change form.js

```
import React, { Component } from 'react';
import {Text, View, StyleSheet} from 'react-native';

class Form extends Component {

    render() {
        return (
            <View style={styles.container}>
                <View style={{ marginBottom:20, height: 100,
alignItems:"center", justifyContent: "center"}}>
                    <Text style={{ fontSize: 20, fontWeight: 'bold',
marginBottom: 20}}> Employee Form </Text>
                </View>
            </View>
        );
    }
}

Form.navigationOptions = {
    title: "Form Screen",
    headerStyle: {
      backgroundColor: 'green'
    },
    headerTintColor: '#fff',
}

const styles = StyleSheet.create({
    container: {
      flex: 1,
      backgroundColor: "#fff",
      alignItems: "center",
    }
});

export default Form;
```

Change detail.js

```
import { Component } from 'react';
import {Text, View, StyleSheet} from 'react-native';

class Detail extends Component {

    render() {
        return (
            <View style={styles.container}>
                <View style={{ marginBottom:20, height: 100,
alignItems:"center", justifyContent: "center"}}>
                    <Text style={{fontSize:20, fontWeight:'bold'}}> Employee
Detail </Text>
                </View>
            </View>
        );
    }
}

Detail.navigationOptions = {
    title: "Detail Screen",
    headerStyle: {
      backgroundColor: 'orange'
    },
    headerTintColor: '#fff'
}

const styles = StyleSheet.create({
    container: {
      flex: 1,
      backgroundColor: "#fff",
    }
});

export default Detail;
```

(2) Using Fetch Method

Change App.js initialRouteName to List.
Call fetch method in List Component componentDidMount Method.

list.js

```
   componentDidMount() {
        console.log('componentDidMount call');
        fetch('http://192.168.99.175:8000/api/employees/', {
            method: 'GET',
            headers: {
                'Content-Type': 'application/json',
                'Authorization': 'Token 5bfc020cdc3bbe1f3e399fe2c5727c6c7e8'
            }
        })
        .then( resp => resp.json())
        .then( res => console.log(res))
        .catch( error => console.log(error))
    }
```

(3) Return Data to State

Add return data to state by setState Method.

list.js

```
import React, { Component } from 'react';
import {Text, View, StyleSheet, FlatList} from 'react-native';

class List extends Component {

    state = {
        employees: []
    }

    componentDidMount() {
        console.log('componentDidMount call');
        fetch('http://192.168.99.175:8000/api/employees/', {
            method: 'GET',
            headers: {
                'Content-Type': 'application/json',
                'Authorization': 'Token
5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
            }
        })
        .then( resp => resp.json())
        .then( res => this.setState({employees: res}))
        .catch( error => console.log(error))
    }
```

```
    render() {
        return (
            <View style={styles.container}>
                <View >
                    . . .
                </View>
                <FlatList
                    data={this.state.employees}
                    renderItem={({item, index}) => (
                        <Text style={[
                            { padding: 10, fontSize: 18, height:
44,backgroundColor: 'white', flex: 1 },
                            index % 2 == 0 ? { backgroundColor: '#D3D3D3' } : {
backgroundColor: 'white' }
                        ]}>
                            {item.name}
                        </Text>
                    )}
                />
            </View>
        );
    }
}

List.navigationOptions = {
    title: "Home Screen",
    headerStyle: {
      backgroundColor: '#714B67'
    },
    headerTintColor: '#fff',
}

const styles = StyleSheet.create({
    container: {
        flex: 1,
    },
    item: {
        padding: 10,
        fontSize: 18,
        height: 44
    },
})

export default List;
```

(4) Events

Employee click to employee detail.

list.js

```
    employeeClicked = employee => {
        this.props.navigation.navigate('Detail', { employee: employee });
    }

    render() {
        return (
            <View style={styles.container}>
                <FlatList
                    data={this.state.employees}
                    renderItem={({item, index}) => (
                        <Text onPress={() => this.employeeClicked(item)}. . ./>
                            {item.name}
                        </Text>
                    )}
                />
            </View>
        );
```

detail.js

```
import {Text, View, StyleSheet, Button} from 'react-native';

class Detail extends Component {
    deleteClicked = () => {
        console.log('delete click');
    }

    render() {
        employee = this.props.navigation.getParam('employee', '');
        return (
            <View style={styles.container}>
                <View> . . . </View>
                <View style={{ marginLeft:20, alignItems: 'flex-start' }}>
                    <Text> Name: { employee.name } </Text>
                    <Text> Phone: { employee.phone } </Text>
                    <Text> Address: { employee.address } </Text>
                </View>
                <View style={{ marginTop:50, alignItems:"center"}}>
                    <View style={{ width: '80%'}}>
                        <Button  title="Update"
                            onPress={() =>
this.props.navigation.navigate('Form',{employee: employee, view_type: false })}
                        />
                        <Text />
                        <Button  title="Delete"
onPress={this.deleteClicked} />
                        <Text />
                        <Button  title="Go Home"  onPress={() =>
this.props.navigation.navigate('List')} />
                    </View>
                </View>
            </View>
```

(5) Floating Action Button

Install Floating Action Buttion.

```
npm install react-native-floating-action
```

list.js

```
import {Text, View, StyleSheet, FlatList} from 'react-native';
import { FloatingAction } from "react-native-floating-action";

class List extends Component {
    state = {
        employees: []
    }

    componentDidMount() {
        . . .
    }

    employeeClicked = employee => {
        . . .
    }

    addNewClicked = () => {
        console.log("Add New Click");
        let newemployee = {
            'name': '',
            'phone': '',
            'address': ''
        };
        this.props.navigation.navigate('Form', {  employee: newemployee,
view_type: true });
    }

    render() {
        return (
            <View style={styles.container}>
                <View >
                </View>
                <FlatList
                    . . .
                />
                <FloatingAction onPressMain={this.addNewClicked}/>
            </View>
        );
    }
}
```

form.js

```
import React, { Component } from 'react';
import {Text, View, StyleSheet, TextInput, Button} from 'react-native';

class Form extends Component {

    state = {
        editedEmployee: null
    }

    inputChanged = (name, value) => {
        console.log('input change', name, value);
        employee = this.props.navigation.getParam('employee', '');
        employee[name] = value;
        this.setState({ editedEmployee: employee });
    }

    save = () => {
        console.log('save click');
    }

    update = () => {
        console.log('update click');
    }

    render() {
        return (
            <View style={styles.container}>
                <View >
                    . . .
                </View>

                <TextInput
                    style={styles.inputText}
                    onChangeText={value => this.inputChanged('name', value)}
                    />

                <TextInput
                    style={styles.inputText}
                    onChangeText={value => this.inputChanged('phone', value)}
                    />

                <TextInput
                    style={styles.inputText}
                    onChangeText={value => this.inputChanged('address', value)}
                    />

                <View style={{ width: '80%'}}>
                    <Button onPress={this.save} title="Save" />
                    <Text/>
                    <Button onPress={this.update} title="Update" />
                </View>
            </View>
        );
    }
}
```

```
const styles = StyleSheet.create({
    container: {
      flex: 1,
      backgroundColor: "#fff",
      alignItems: "center",
    },
    inputText: {
      height: 50,
      padding: 10,
      height: 45,
      width: "80%",
      borderRadius: 10,
      marginBottom: 20,
      borderColor: 'blue',
      borderWidth: 1
    },
});

export default Form;
```

(6) Conditional Display

form.js

```
    render() {
        employee = this.props.navigation.getParam('employee', '');
        view_type = this.props.navigation.getParam('view_type', '');

        return (
            <View style={styles.container}>
                <TextInput
                    style={styles.inputText}
                    value={employee.name}
                    onChangeText={value => this.inputChanged('name', value)}
                    />

                <TextInput
                    style={styles.inputText}
                    value={employee.phone}
                    onChangeText={value => this.inputChanged('phone', value)}
                    />

                <TextInput
                    style={styles.inputText}
                    value={employee.address}
                    onChangeText={value => this.inputChanged('address', value)}
                    />

                <View style={{ width: '80%'}}>
                    {
                        view_type ? <Button onPress={this.save} title="Save" />
: <Button onPress={this.update} title="Update" />
                    }
                </View>
            </View>
        );
    }
```

(7) Login View

App.js Change InitialRouteName to Login.

login.js

```
import React, { Component } from "react";
import { StyleSheet, Text, View, Image, TextInput, TouchableOpacity } from
"react-native";

class Login extends Component{

  state = {
    user: {
      username: '',
      password: ''
    },
  }

  inputChanged = (name, value) => {
    let user = this.state.user;
    user[name] = value;
    this.setState({user: user});
  }

  clickLogin  = () =>  {
    console.log('clickLogin call');
  }

  render() {
    return (
      <View style={styles.container}>
        <Image style={styles.image} source={require("../assets/icon.png")} />

          <TextInput
            style={styles.inputText}
            placeholder="Username"
            onChangeText={value => this.inputChanged('username', value)}
          />

          <TextInput
            style={styles.inputText}
            placeholder="Password"
            secureTextEntry={true}
            onChangeText={value => this.inputChanged('password', value)}
          />

          <Text style={styles.signup}> Create New Account ?</Text>

          <TouchableOpacity style={styles.login} onPress={this.clickLogin}>
            <Text style={{ color: 'white'}}> Login </Text>
          </TouchableOpacity>
      </View>
    );
  }
}
```

```
const styles = StyleSheet.create({
  container: {
    flex: 1,
    backgroundColor: "#fff",
    alignItems: "center",
    justifyContent: "center",
  },
  image: {
    marginBottom: 40,
    width: 100,
    height: 100
  },
  inputText: {
    height: 50,
    padding: 10,
    height: 45,
    width: "80%",
    borderRadius: 10,
    marginBottom: 20,
    borderColor: '#714B67',
    borderWidth: 1
  },
  signup: {
    height: 20,
    marginBottom: 20,
  },
  login: {
    width: "70%",
    height: 50,
    alignItems: "center",
    justifyContent: "center",
    marginTop: 40,
    backgroundColor: "#714B67",
  },
});

export default Login;
```

Add auth method in login click.

```
clickLogin  = () =>  {
    console.log('clickLogin call');
    fetch('http://192.168.99.175:8000/auth/', {
      method: 'POST',
      headers: { 'Content-Type': 'application/json'},
      body: JSON.stringify(this.state.user)
    })
    .then( resp => resp.json())
    .then( res => {
        console.log(res.token);
        if (res.token) {
          this.props.navigation.navigate('List');
        } else {
          Alert.alert("Username & Password Invalid !");
        }
    }).catch( error => console.log(error))
  }
```

(8) Save, Update and Delete Function

detail.js

```
   deleteClicked = () => {
        console.log('delete click');
        employee = this.props.navigation.getParam('employee', '');
        fetch(`http://192.168.99.175:8000/api/employees/${employee.id}/`, {
            method: 'DELETE',
            headers: {
                'Content-Type': 'application/json',
                'Authorization': 'Token
5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
            }
        })
        .then( res => this.props.navigation.navigate('List'))
        .catch( error => console.log(error))
    }
```

form.js

```
    save = () => {
        console.log('save click');
        fetch('http://192.168.99.175:8000/api/employees/', {
            method: 'POST',
            headers: {
                'Content-Type': 'application/json',
                'Authorization': 'Token
5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
            },
            body: JSON.stringify(this.state.editedEmployee)
        }).then( resp => resp.json())
        .then( res => this.props.navigation.navigate('Detail', {
            employee: this.state.editedEmployee
        })
        )
        .catch( error => console.log(error))
    }

    update = () => {
        console.log('update click');
        employee = this.props.navigation.getParam('employee', '');
        fetch(`http://192.168.99.175:8000/api/employees/${employee.id}/`, {
            method: 'PUT',
            headers: {
                'Content-Type': 'application/json',
                'Authorization': 'Token
5bfc020cdc3bbe1f3e399fe2c5727c6c7e85c28a'
            },
            body: JSON.stringify(
                this.state.editedEmployee
            )
        }).then( resp => resp.json())
        .then( res => this.props.navigation.navigate('Detail', {
            employee: this.state.editedEmployee
        }))
        .catch( error => console.log(error))
    }
```

(9) Reload Flat List

list.js

```
import React, { Component } from 'react';
import {Text, View, StyleSheet, FlatList} from 'react-native';
import { FloatingAction } from "react-native-floating-action";

class List extends Component {
    state = {
        employees: [],
        isRefreshing: false
    }

    onRefresh = () => {
        this.setState({ isRefreshing: true});
        this.componentDidMount();
        this.setState({ isRefreshing: false});
    }

    componentDidMount() {

    }

    employeeClicked = employee => {

    }

    addNewClicked = () => {

    }

    render() {
        return (
            <View style={styles.container}>
                <View >
                </View>
                <FlatList
                    data={this.state.employees}
                    renderItem={ . . . }
                    onRefresh={this.onRefresh}
                    refreshing={this.state.isRefreshing}
                />
                <FloatingAction onPressMain={this.addNewClicked}/>
            </View>
        );
    }
}
```

(10) Async Storage

Async storage with token data save.