PRAKTIKUM PENGEMBANGAN APLIKASI BERGERAK

MODUL 5 Interaction & Navigation in React Native



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PROGRAM STUDI S1 SISTEM INFORMASI FAKULTAS REKAYASA INDUSTRI TELKOM UNIVERSITY SURABAYA 2024

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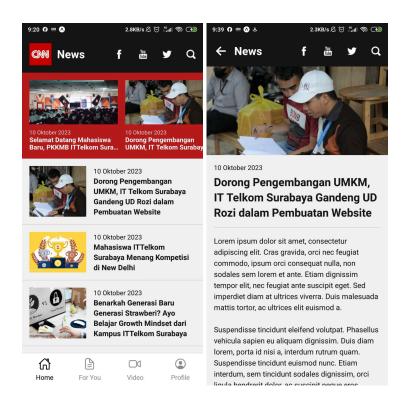
MODUL 5 INTERACTION & NAVIGATION IN REACT NATIVE

Pada praktikum kali ini kita akan melanjutkan belajar tentang konsep dasar hal-hal yang berkaitan dengan interaksi dan navigasi di dalam React Native. Kegiatan ini dilakukan agar mahasiswa mampu menerapkan konsep dasar interaksi dan navigasi pada React Native. Praktikum kali ini akan diberikan 2 contoh sedernana:

- 1. Contoh project yang menerapkan NativeBase dan React Navigation.
- 2. Contoh project yang menerapkan Gluestack dan Expo Router.

1. Project NativeBase dan React Navigation

Pada bagian ini kita akan belajar menerapkan konsep navigation pada sebuah project react native (expo) yang menggunakan **NativeBase** sebagai UI Framework nya dan menggunakan **React Navigation** untuk penerapan navigasi antar screen. Hasil akhir nya adalah seperti gambar di bawah ini.



1.1 Membuat dan Menjalankan Project React Native (Expo)

 Buat sebuah project React Native via Expo bernama nav-one dengan menjalankan command: Masuk ke folder project nav-one yang sudah terbuat dengan menjalankan command:

```
cd nav-one
```

• Jalankan project react native anda dengan command:

```
npx expo start
```

atau

```
npx expo start --tunnel
```

- Akan muncul sebuah QRCode pada command prompt anda
- Buka aplikasi **Expo Go** di handphone, kemudian scan **QRCode** tersebut.

```
purnamanaking -/Desktop/myApp (master) $ expo start

This command is being 'executed with the global Expo (LT. Learn more: <a href="https://blog.expo.dev/the-new-expo-cli-f4250d8e3421">https://blog.expo.dev/the-new-expo-cli-f4250d8e3421</a>
'n use the local CLI instead (recommended in SDK 46 and higher), run:

Starting project at /Users/purnamaanaking/Desktop/myApp

Starting Metro Bundler

**Metro waiting on exp://192.168.8.180:19000

**Netro waiting on exp://192.168.8.180:19000

**Scan the QR code above with Expo Go (Android) or the Camera app (iOS)

**Press a | open Android

**Press i | open IOS simulator

**Press v | open web

**Press v | open web

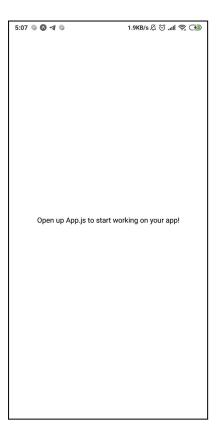
**Press v | reload app

**Press v | show all commands

**Logs for your project will appear below. Press Ctrl+C to exit.

**Started Metro Bundler**
```

• Akan muncul Screen Sederhana (pada Handphone anda) dari Project React Native yang telah anda buat.



1.2 Instalasi & Setup NativeBase

 Install NativeBase dan dependencies nya dengan mengeksekusi command berikut ini pada terminal / command prompt.

```
npm install native-base --legacy-peer-deps

npx expo install react-native-svg --legacy-peer-deps

npx expo install react-native-safe-area-context --legacy-peer-deps
```

- Patch NativeBase (Jika Muncul Warning SSRProvider) dengan membuka file node_modules/native-base/src/core/NativeBaseProvider.tsx
- Cari dan lihat pada baris ke 97 dan ubah
 <SSRProvider>{children}</SSRProvider> menjadi:

```
{React.version >= '18' ? children : <SSRProvider>{children}</SSRProvider>}
```

Pada terminal, jalankan command:

```
npx patch-package native-base
```

Jalankan ulang service Expo nya.

1.3 Instalasi & Setup React Navigation

• Masuk ke direktori project yang telah dibuat, kemudian install **React Navigation**:

```
npm install @react-navigation/native --legacy-peer-deps

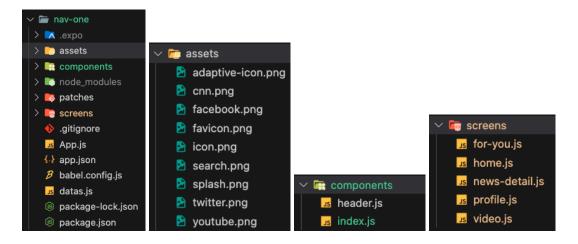
npm install @react-navigation/native-stack --legacy-peer-deeps

npx expo install react-native-screens react-native-safe-area-context
--legacy-peer-deps

npm install @react-navigation/bottom-tabs --force
```

1.4 Persiapan Struktur Project

- Sesuaikan struktur project yang ada seperti di bawah ini dengan cara menambahkan folder-folder dan file-file yang dibutuhkan. Download file-file assets pada <u>link</u> ini.
- Download file datas.js pada link berikut.



1.5 Inisialisasi App.js

• Terapkan pada file **App.js** kode program React Native di bawah ini.

```
import { createNativeStackNavigator } from "@react-navigation/native-stack";
import { createBottomTabNavigator } from "@react-navigation/bottom-tabs";
import { NavigationContainer } from "@react-navigation/native";
import { NativeBaseProvider, Text } from "native-base";
import Ionicons from "@expo/vector-icons/Ionicons";
import Home from "./screens/home";
import Video from "./screens/video";
import Profile from "./screens/profile";
import ForYou from "./screens/for-you";
import NewsDetail from "./screens/news-detail";

// Navigator Declaration
```

```
const Stack = createNativeStackNavigator();
const Tab = createBottomTabNavigator();
const noHead = { headerShown: false };
const Tabs = () => {
    <Tab.Navigator
      screenOptions={({ route }) => ({
        tabBarIcon: ({ focused, color }) => {
          let iconName;
          switch (route.name) {
            case "Home":
              iconName = "home-outline";
              break;
              iconName = "document-text-outline";
              break;
            case "Video":
              iconName = "videocam-outline";
              break;
            case "Profile":
              iconName = "person-circle-outline";
              break;
            <Ionicons
              name={iconName}
              size={28}
              color={focused ? "black" : color}
            />
        tabBarIconStyle: { marginTop: 5 },
        tabBarStyle: {
         height: 70,
          borderTopWidth: 0,
        tabBarLabel: ({ children, color, focused }) => {
            <Text color={focused ? "black" : color} mb={2}>
              {children}
            </Text>
      })}
      <Tab.Screen name="Home" component={Home} options={noHead} />
      <Tab.Screen name="For You" component={ForYou} options={noHead} />
      <Tab.Screen name="Video" component={Video} options={noHead} />
      <Tab.Screen name="Profile" component={Profile} options={noHead} />
    </Tab.Navigator>
const App = () => {
```

1.6 Komponen Header

• Terapkan pada file /components/header.js kode program React Native di bawah ini.

```
import { SafeAreaView } from "react-native-safe-area-context";
import { StatusBar } from "react-native";
import { Box, HStack, Image, Heading } from "native-base";
import { TouchableOpacity } from "react-native";
import Ionicons from "@expo/vector-icons/Ionicons";
import { useNavigation } from "@react-navigation/native";
const Header = ({ title, withBack = false }) => {
 const trueGray900 = "#171717";
 const navigation = useNavigation();
    <SafeAreaView>
      <StatusBar barStyle="light" backgroundColor={trueGray900} />
      <Box bg={"trueGray.900"} p={"4"}>
        <HStack justifyContent="space-between" alignItems="center">
          <HStack alignItems="center">
            {!withBack ? (
                <Image
                  source={require("../assets/cnn.png")}
                  w="12"
                  h="12"
                  alt="CNN Logo"
                  mr={"3"}
                />
              </>
              <TouchableOpacity
                activeOpacity={0.5}
                onPress={() => navigation.goBack()}
```

```
<Box mr={"3"}>
                  <Ionicons name="arrow-back-outline" size={32} color="white" />
                </Box>
              </TouchableOpacity>
            )}
            <Heading color={"white"}>{title}</Heading>
          </HStack>
          <HStack space={"2x1"}>
            <Image
              source={require("../assets/facebook.png")}
             w="5"
             h="5"
              alt="Facebook Icon"
            <Image
              source={require("../assets/youtube.png")}
             w="5"
             h="5"
              alt="Facebook Icon"
            <Image
             source={require("../assets/twitter.png")}
             w="5"
             h="5"
              alt="Facebook Icon"
            <Image
              source={require("../assets/search.png")}
              w="5"
             h="5"
              alt="Search Icon"
          </HStack>
        </HStack>
      </Box>
    </SafeAreaView>
  );
};
export default Header;
```

1.7 Inisialisasi index.js pada Direktori /components

Terapkan pada file /components/index.js kode program React Native di bawah ini.

```
import Header from "./header";
export { Header };
```

1.8 Screen Home

• Terapkan pada file /screens/home.js kode program React Native di bawah ini.

```
import { Heading, Image, Text, FlatList } from "native-base";
import { Box, ScrollView } from "native-base";
import { TouchableOpacity } from "react-native";
import { useNavigation } from "@react-navigation/native";
import { Header } from "../components";
import datas from "../datas";
const Home = () => {
 const navigation = useNavigation();
 const renderitem = ({ item }) => {
      <TouchableOpacity
        activeOpacity={0.5}
        onPress={() => navigation.navigate("News Detail", { item: item })}
        <Box
          p={"4"}
          borderBottomColor={"coolGray.300"}
          borderBottomWidth={1}
         flexDirection="row"
          flex={1}
          <Box flex={1} mr={"4"}>
            <Image
              source={{ uri: item.image }}
             w="full"
             h="full"
              alt="Image Data"
            />
          </Box>
          <Box flex={1.8}>
            <Text fontSize={"sm"}>{item.date}</Text>
            <Heading lineHeight={"md"} fontSize={"md"}>
              {item.title}
            </Heading>
          </Box>
        </Box>
      </TouchableOpacity>
 return (
      <Header title={"News"} />
      <Box py={"4"} bg="red.700">
        <ScrollView horizontal={true} showsHorizontalScrollIndicator={false}>
          {datas.slice(14).map((item, index) => {
           return (
              <TouchableOpacity
                activeOpacity={0.5}
                key={index}
```

```
onPress={() =>
                  navigation.navigate("News Detail", { item: item })
                <Box w={"48"} mr={"4"} ml={index == 0 ? "4" : "0"}>
                    source={{ uri: item.image }}
                    w="full"
                    h="24"
                    alt="Image Data"
                    mb={"2"}
                  <Text fontSize={"xs"} color="light.300">
                    {item.date}
                  </Text>
                  <Heading
                    fontSize={"sm"}
                    lineHeight={"xs"}
                    ellipsizeMode="tail"
                    numberOfLines={2}
                    color="light.50"
                    {item.title}
                  </Heading>
                </Box>
              </TouchableOpacity>
         })}
        </ScrollView>
      </Box>
      <FlatList
       data={datas}
       renderItem={renderitem}
       keyExtractor={(item) => item.id}
       showsVerticalScrollIndicator={false}
   </>
 );
};
export default Home;
```

1.9 Screen For You

• Terapkan pada file /screens/for-you.js kode program React Native di bawah ini.

1.10 Screen Video

Terapkan pada file /screens/video.js kode program React Native di bawah ini.

1.11 Screen Profile

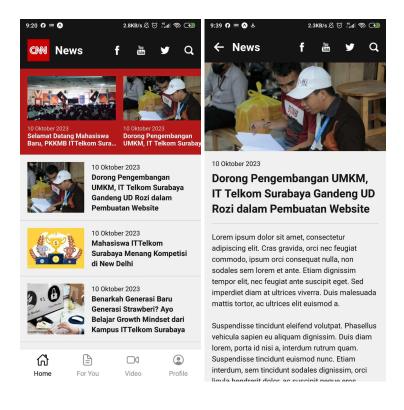
Terapkan pada file /screens/profile.js kode program React Native di bawah ini.

1.12 Screen News Detail

Terapkan pada file /screens/news-detail.js kode program React Native di bawah ini.

2. Project Gluestack dan Expo Router

Pada bagian ini kita akan belajar menerapkan konsep navigation pada sebuah project react native (expo) yang menggunakan **Gluestack** sebagai UI Framework nya dan menggunakan **Expo Router** untuk penerapan navigasi antar screen. Hasil akhir nya adalah seperti gambar di bawah ini.



2.1 Membuat dan Menjalankan Project React Native (Expo)

 Buat sebuah project React Native via Expo bernama nav-two dengan menjalankan command:

```
npx create-expo-app nav-two --template
```

- Pilih template blank.
- Masuk ke folder project nav-one yang sudah terbuat dengan menjalankan command:

```
cd nav-two
```

Jalankan project react native and dengan command:

```
npx expo start
atau
```

```
npx expo start --tunnel
```

- Akan muncul sebuah QRCode pada command prompt anda
- Buka aplikasi **Expo Go** di handphone, kemudian scan **QRCode** tersebut.

```
purnamaanaking -/Desktop/myApp (master) $ expo start

This command is being executed with the global Expo CLI. Learn more: https://blog.expo.dev/the-new-expo-cli-f425048e3421

To use the local CLI instead (recommended in 5DK 46 and higher), run:

> npx expo start

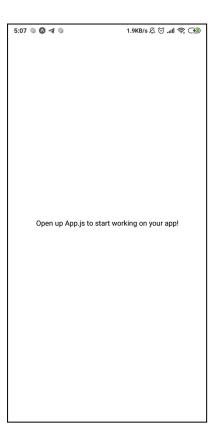
Starting project at /Users/purnamaanaking/Desktop/myApp

Starting Metro Bundler

| Metro waiting on exp://192.168.8.180:19000
| Scan the QR code above with Expo Go (Android) or the Camera app (10S)

> Press a open Android
| Press i open iOS simulator
| Press i open iOS simulator
| Press r | reload app
| Press r | reload app
| Press r | reload app
| Press r | Teload app
```

• Akan muncul Screen Sederhana (pada Handphone anda) dari Project React Native yang telah anda buat.



2.2 Instalasi & Setup Gluestack

• Install **Gluestack** dan **dependencies** nya dengan mengeksekusi command berikut ini pada terminal / command prompt:

```
npm install @gluestack-style/legend-motion-animation-driver
@gluestack-style/react @gluestack-ui/config @gluestack-ui/themed
@react-native-aria/focus @react-native-aria/interactions
@react-native-aria/overlays --legacy-peer-deps
```

Atau dengan cara:

• Install dependencies.

```
npm i @gluestack-ui/themed @gluestack-style/react react-native-svg@13.4.0
--legacy-peer-deps
```

Install default themed.

```
npm i @gluestack-ui/config@latest --legacy-peer-deps
```

2.3 Instalasi & Setup Expo Router

• Install **Expo Router** dan **dependencies** nya dengan mengeksekusi command berikut ini pada terminal / command prompt:

npx expo install expo-router react-native-safe-area-context react-native-screens expo-linking expo-constants expo-status-bar react-native-gesture-handler

Buka file package.json kemudian tambahkan kode program di bawah ini:

```
"main": "expo-router/entry",
```

• Buka file **app.json** kemudian tambahkan kode program di bawah ini:

```
"scheme": "my-scheme"
```

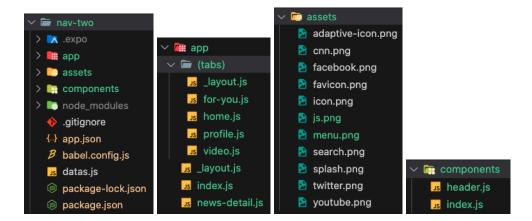
• Buka file **babel.config.js** kemudian tambahkan kode program di bawah ini:

```
plugins: ["expo-router/babel"],
```

Jalankan ulang service Expo nya.

2.4 Persiapan Struktur Project

- Sesuaikan struktur project yang ada seperti di bawah ini dengan cara menambahkan folder-folder dan file-file yang dibutuhkan. Download file-file assets pada link ini.
- Download file datas.js pada link berikut.



2.5 Inisialisasi Stack Layout pada /app/_layout.js

Terapkan pada file /app/_layout.js kode program React Native di bawah ini.

2.6 Inisialisasi Index pada /app/index.js

• Terapkan pada file /app/index.js kode program React Native di bawah ini.

```
import { Redirect } from "expo-router";

const Root = () => {
   return <Redirect href="/home" />;
};

export default Root;
```

2.7 Inisialisasi Tabs Layout pada /app/(tabs)/_layout.js

Terapkan pada file /app/(tabs)/_layout.js kode program React Native di bawah ini.

```
import { Tabs } from "expo-router/tabs";
import { Text } from "@gluestack-ui/themed";
import Ionicons from "@expo/vector-icons/Ionicons";
const noHead = { headerShown: false };
const TabsLayout = () => {
    <Tabs
      screenOptions={({ route }) => ({
        tabBarIcon: ({ focused, color }) => {
          let iconName;
          switch (route.name) {
            case "home":
              iconName = "home-outline";
              break;
            case "for-you":
              iconName = "document-text-outline";
              break;
            case "video":
              iconName = "videocam-outline";
              break;
            case "profile":
              iconName = "person-circle-outline";
```

```
<Ionicons
              name={iconName}
              size={28}
              color={focused ? "black" : color}
        tabBarIconStyle: { marginTop: 5 },
        tabBarStyle: {
         height: 70,
        },
       tabBarLabel: ({ children, color, focused }) => {
            <Text mb="$2" color={focused ? "$black" : color} fontSize="$sm">
              {children}
            </Text>
       },
     })}
      <Tabs.Screen name="home" options={{ title: "Home", ...noHead }} />
      <Tabs.Screen name="for-you" options={{ title: "For You", ...noHead }} />
      <Tabs.Screen name="video" options={{ title: "Video", ...noHead }} />
      <Tabs.Screen name="profile" options={{ title: "Profile", ...noHead }} />
    </Tabs>
export default TabsLayout;
```

2.8 Komponen Header

Terapkan pada file /components/header.js kode program React Native di bawah ini.

```
<Image
                  source={require("../assets/cnn.png")}
                  h="$12"
                  alt="CNN Logo"
                  mr={"$3"}
              <TouchableOpacity
                activeOpacity={0.5}
                onPress={() => navigation.goBack()}
                <Box mr={"$3"}>
                  <Ionicons name="arrow-back-outline" size={32} color="white" />
                </Box>
              </TouchableOpacity>
            <Heading color={"$white"}>{title}</Heading>
          </HStack>
          <HStack space={"2x1"}>
            <Image
              source={require("../assets/facebook.png")}
              w="$5"
             h="$5"
              alt="Facebook Icon"
            />
            <Image
              source={require("../assets/youtube.png")}
              w="$5"
             h="$5"
              alt="Facebook Icon"
            <Image
              source={require("../assets/twitter.png")}
              w="$5"
             h="$5"
              alt="Facebook Icon"
            <Image
              source={require("../assets/search.png")}
              w="$5"
              h="$5"
              alt="Search Icon"
          </HStack>
        </HStack>
      </Box>
    </SafeAreaView>
 );
};
export default Header;
```

2.9 Inisialisasi index.js pada Direktori /components

• Terapkan pada file /components/index.js kode program React Native di bawah ini.

```
import Header from "./header";
export { Header };
```

2.10 Screen Home

Terapkan pada file /app/(tabs)/home.js kode program React Native di bawah ini.

```
import { Heading, FlatList, Box, Text, Image } from "@gluestack-ui/themed";
import { Header } from "../../components";
import { ScrollView } from "react-native";
import datas from "../../datas";
import { Link } from "expo-router";
import { TouchableOpacity } from "react-native";
const Home = () => {
 const renderitem = ({ item }) => {
    return (
     <Link
       href={{
         pathname: "/news-detail",
         params: item,
        }}
        asChild
        <TouchableOpacity activeOpacity={0.5}>
         <Box
           p={"$4"}
           borderBottomColor={"$coolGray300"}
           borderBottomWidth={1}
            flexDirection="row"
            flex={1}
            <Box flex={1} mr={"$4"}>
                source={{ uri: item.image }}
                w="$full"
               h="$full"
                alt="Image Data"
            </Box>
            <Box flex={1.8}>
              <Text fontSize={"$sm"}>{item.date}</Text>
              <Heading lineHeight={"$md"} fontSize={"$md"}>
                {item.title}
              </Heading>
            </Box>
          </Box>
        </TouchableOpacity>
      </Link>
```

```
return (
      <Header title={"News"} />
      <Box py={"$4"} bg="$red700">
        <ScrollView horizontal={true} showsHorizontalScrollIndicator={false}>
          {datas.slice(14).map((item, index) => {
              <Link
                href={{
                  pathname: "/news-detail",
                  params: item,
                key={index}
                asChild
                <TouchableOpacity activeOpacity={0.5}>
                  <Box w={"$48"} mr={"$4"} ml={index == 0 ? "$4" : "0"}>
                    <Image
                      source={{ uri: item.image }}
                      w="$full"
                      alt="Image Data"
                      mb={"$2"}
                    <Text fontSize={"$xs"} color="$textLight300">
                      {item.date}
                    </Text>
                    <Heading
                      fontSize={"$sm"}
                      lineHeight={"$xs"}
                      ellipsizeMode="tail"
                      numberOfLines={2}
                      color="$textLight50"
                      {item.title}
                    </Heading>
                  </Box>
                </TouchableOpacity>
              </Link>
          })}
        </ScrollView>
      </Box>
      <FlatList
        data={datas}
        renderItem={renderitem}
        keyExtractor={(item) => item.id}
        showsVerticalScrollIndicator={false}
      />
    </>
export default Home;
```

2.11 Screen For You

• Terapkan pada file /app/(tabs)/for-you.js kode program React Native di bawah ini.

2.12 Screen Video

• Terapkan pada file /app/(tabs)/video.js kode program React Native di bawah ini.

2.13 Screen Profile

• Terapkan pada file /app/(tabs)/profile.js kode program React Native di bawah ini.

```
import { Center, Heading } from "@gluestack-ui/themed";
import { Header } from "../../components";
```

2.14 Screen News Detail

• Terapkan pada file /app/news-detail.js kode program React Native di bawah ini.

3. Tugas

- 1. Praktekkan seluruh poin praktikum yang ada di atas.
- 2. Edit dan sesuaikan Screen News Detail sehingga dapat menampilkan image, date, title dan content berdasarkan News yang diklik, seperti gambar di bawah ini.



- Dokumentasikan hasil praktikum tersebut (screenshot kode program, output pada browser, penjelasan kode program yang ditulis) dalam bentuk Laporan Praktikum.
- 4. Letakkan source code hasil praktikum dan hasil tugas praktikum (no. 2) ke **Github**. Sertakan info **link repository** source code nya pada Laporan Praktikum.
- 5. Kumpulkan Laporan Praktikum **(.pdf)** via E-Learning paling lambat sebelum jadwal praktikum minggu depan.