Lab Assignment 1: Spinning Up React Native App

React Native is a significant framework in mobile app development. It allows developers to build mobile apps for both iOS and Android using a single TypeScript or JavaScript codebase. In this lab assignment, you will document setting up a React Native App which will be used for future lab assignments.

System requirements:

* **Time of this report**: 9/8/2024, 20:35:58
* **Machine name**: LAPTOP-A5GVKGJB
* **Machine Id**: {8FBDCDC2-8A48-44DF-B073-D5F2709DB377}
* **Operating System**: Windows 11 Pro 64-bit (10.0, Build 22631) (22621.ni\_release.220506-1250)
* **Processor**: AMD Ryzen 7 5800H with Radeon Graphics (16 CPUs), ~3.2GHz
* **Memory**: 24576MB RAM

Installation instructions:

1. On Administrator Windows PowerShell run the command Set-ExecutionPolicy Bypass -Scope Process -Force; [System.Net.ServicePointManager]::SecurityProtocol = [System.Net.ServicePointManager]::SecurityProtocol -bor 3072; iex ((New-Object System.Net.WebClient).DownloadString('https://community.chocolatey.org/install.ps1')) to install **Chocolatey**
2. Once installed run choco install -y nodejs-lts microsoft-openjdk17 to install both **Node.JS** and **Java Development Kit 17**
3. Download and install **Android Studio**. Choose the following items to be installed:
   1. Android SDK
   2. Android SDK Platform
   3. Android Virtual Device
4. On Android Studio -> SDK Manager Install the following Android 14 packages:
   1. Android SDK Platform 34
   2. Intel x86 Atom\_64 System Image or Google APIs Intel x86 Atom System Image
   3. Android SDK Build-Tools version 34.0.0

Configuration steps:

1. Setup **ANDROID\_HOME** environment variable
   1. Open the Windows Control Panel.
   2. Click on User Accounts, then click User Accounts again
   3. Click on Change my environment variables
   4. Click on New... to create a new ANDROID\_HOME user variable that points to the path to your Android SDK (default: %LOCALAPPDATA%\Android\Sdk)
2. Setup **platform-tools** to Path variable
   1. Select the Path variable.
   2. Click Edit.
   3. Click New and add the path to platform-tools to the list (default: %LOCALAPPDATA%\Android\Sdk\platform-tools)
3. On **Android Studio** create a new device of your choice using UpsideDownCake API Level 34 image

Project creation:

On Terminal run the following command: npx @react-native-community/cli@latest init IncredibleTodoList

Running the project:

Open two separate terminal windows:

1. On the first terminal navigate to the project folder and run npm start to get the Metro Development Server running
2. Boot the virtual android device created on Configuration step 3 by selecting it from the list and clicking on the “start” button
3. Once both are up and running, navigate to the same folder on the second terminal window and run npm run android

Troubleshooting:

Several things can (will) go wrong when setting up the environment and creating the project:

* Choco installation requires Get-ExecutionPolicy to not be Restricted. If that’s the case, run Set-ExecutionPolicy AllSigned or Set-ExecutionPolicy Bypass -Scope Process on Powershell prior to its installation.
* Android Studio requires Virtualization. During its installation include **Performance (Intel ® HAXM)** option; Also enable **Windows Hypervisor Platform** on Windows Features
* When creating the new project, if some unexpected issues happen you may try to remove previous react-native-cli packages running npm uninstall -g react-native-cli @react-native-community/cli on Terminal
* If the project refuses to build no matter what (happened to me), try creating it with a specific version:
  + npx @react-native-community/cli init IncredibleTodoList --version=0.74
  + On **projectfolder\android\gradle\wrapper\gradle-wrapper.properties** you may need to downgrade Gradle to a previous version by changing the line *distributionUrl=https\://services.gradle.org/distributions/gradle-8.x-all.zip*
* Other errors can be detailed using cli-doctor npx react-native doctor

Resources:

* <https://chocolatey.org/install>
* <https://reactnative.dev/docs/set-up-your-environment>
* <https://developer.android.com/studio/index.html>
* <https://reactnative.dev/docs/getting-started-without-a-framework>
* <https://android-developers.googleblog.com/2018/07/android-emulator-amd-processor-hyper-v.html>
* <https://reactnative.dev/docs/troubleshooting>
* <https://stackoverflow.com/questions/78384724/react-native-error-java-io-uncheckedioexception-could-not-move-temporary-work>
* <https://stackoverflow.com/questions/54415332/command-failed-gradlew-bat-installdebug-error-whenever-installing-dependencies>
* <https://github.com/react-native-community/cli/blob/main/packages/cli-doctor/README.md#doctor>
* <https://github.com/facebook/react-native/issues/46210#issuecomment-2315210922>