SE 319: Construction of User Interfaces

12/11/2023

Chris Smith [clsmith3@iastate.edu](mailto:clsmith3@iastate.edu), Xuan Wen Loo xuanwen@iastate.edu

Professor Abraham Aldaco

Final Project Documentation

INDEX

Software Description

This program enables a client to remotely view the temperature and humidity of wherever the sensor is set up. The DHT11 temperature and humidity sensor is connected to a raspberry pi which runs a program to record the data and regularly make post requests to the database to save it. A Node server handles the post requests from the raspberry pi as well as all other requests coming from the REACT application.

The REACT application requires a user to log in with an email and password before accessing the core content. Once a user enters the main page, the most recent one hundred readings from the database are immediately organized and displayed for the user. This page also displays the number of readings stored in the database and gives the user the option to clear all but the most recent 100 readings.

The ‘Company’ view allows the user to see information about the client, Wan Yeen Tradings, including a company description and contact information. The ‘Developers’ view displays information about the course and the wonderful team that developed this software.

Software Functionality Diagram

Files and Directory Architecture

-Description and Diagram of files

A screenshot of a computer

Description automatically generated1. src Directory:

* Components Directory: (Webpages views)
  + About.js: React component for the ‘Developers’ view. Show information of the course and students
  + Company.js: React component for the ‘Company’ view. Show information of the company (client)
  + Login.js: React component for user authentication.
  + MainView.js: React component for the main page displaying temperature and humidity readings.
* App\_Mongo.js: Entry point for the React application with Mongo DB integration.
* App.js: Entry point for the React application/
* employees.json: JSON file containing employee data used for login.
* index.css: Styling for the React application.
* index.js: Entry point for React application rendering.
* sensorRead.js: JavaScript file handling sensor readings.

2. Root Directory:

* package-lock.json: Auto-generated file for npm package versions.
* package.json: Configuration file for npm packages. Added express, cors, body-parser, mongodb, bootstrap, etc.
* tempAndHumidityRead.py: Python script for reading temperature and humidity data

-Description and diagram of client -server architecture

-Description and Diagram of logical architecture

-Database and API diagram

-Explanation of each web view

Installation manual (software and configuration)

Copy of the Code