React and TypeScript Course

Instructor: Ben Davis

Time: Wednesday at 3:10

A course designed to take students from no coding knowledge, to building a deployed website using NextJS, TypeScript, ReactJS, and more.

GitHub: https://github.com/bmdavis419/MMCTypeScriptCourse/tree/main

PLEASE NOTE THIS SCHEDULE IS SUBJECT TO CHANGE AND WILL BE UPDATED ACCORDINGLY

Schedule

Week 1

Setup the development workspace for the class

1. Introduction
    a. What is TypeScript
    b. What is Git
2. Installation
    a. Download VSCode
    b. Install Git
    c. Install Node
3. Setup
    a. Setup a place to store projects
    b. Setup VSCode with Extensions
        i. Bracket Pair Colorizer
        ii. Prettier
        iii. ES7 React Snippets
    c. Download the key for lessons from git
        i. Git basics
    d. Create the project we will work on during week 2
        i. Node Modules
        ii. Tsconfig.json
        iii. Npm init
4. Homework
    a. Play with VSCode and the project cloned from Git

Week 2

Introduce basic programming concepts

1. Lesson
   a. Introduce concepts with examples
      i. Printing to console
      ii. Variables
      iii. Types
         1. string
         2. number
         3. Boolean
      iv. Expressions
      v. User Inputs and Imports
      vi. Conditionals
      vii. Embedded expressions in strings
2. Homework
   a. Create a tax calculator
      i. Get the user to input their bill
      ii. Calculate the bill by multiplying their input by .2
      iii. Print out the resulting bill

Week 3

Expand on the previously introduced concepts

1. Lesson
   a. Introduce concepts with examples
      i. Arrays
      ii. For Loops
      iii. While Loops
      iv. Functions
      v. For Each Loops
2. Homework
   a. Print all of the months of the year, as well as what number they correspond to
      i. Create an array of Months in order from Jan-Dec
      ii. Use one of the loops we learned to print out the {MONTH} - {NUMBER}
      iii. Ex:
         1. Jan - 1
         2. Feb - 2

Week 4

Introduce objects and modules

1. Lessons
    a. Interfaces
    b. Objects
    c. Arrays of objects
    d. Foreach of object array
    e. Modules
2. Homework
    a. Create a new file called classes.ts, in this file you are going to create an interface for a school class and a function that will print some info, with some calculations
    b. Create an interface with the following attributes: name, dayOfWeek, creditHours, time, and currentScore
    c. Create a function that will print the score of an object of type you created
    d. Create a function that will display how long you will need to work on the class (creditHours * 2)
    e. Import the functions and interface into your index file
    f. Create some fake classes, and run both functions on it in a foreach

Week 5

Introduce React and NextJS

1. Lessons
    a. What is React?
    b. What is NextJS
    c. Create a Next App project
    d. Update the Next App project and change the defaults
2. Homework
    a. None

Week 6

React components and jsx

1. Lessons
    a. What are components?
    b. Functional vs Class based components
    c. Create a new component
    d. What is JSX?
    e. Display jsx and create a simple page
    f. Add the page to the render pipeline
2. Homework
    a. Create a new page with a variety of different html tags

Week 7

React component linking and props

1. Lessons
   a. Props
   b. Linking to other pages
      i. ReactRouter
   c. How interfaces tie into props
2. Homework
   a. Create a component that would take in and display a name, description, and price.

Week 8

Styling React Pages

1. Lessons
   a. Simple CSS
   b. Libraries (Tailwind, Bootstrap, Materialize, etc.)
2. Homework
   a. Stylize the card you made for homework before using what we learned in class.

Week 9

React Hooks and Functions

1. Lessons
   a. UseEffect
   b. UseState
   c. Imported Hooks and Functions
   d. Forms
2. Homework
   a. None

Week 10

External Databases and Queries I

1. Lessons
   a. Connect to DB
      i. Either Apollo or Firebase
   b. Read data into page
   c. Print out the data into components
2. Homework

        a. Using a data source and template provided, read from the database and populate the data into the site

Week 11

External Databases and Queries II

1. Lessons
   a. Send data to database from form
2. Homework
   a. Using a data source and template provided, build a simple contact form.

Week 12

Building and Hosting
1. Lessons
   a. Setup firebase for deployment
   b. Build a react app
   c. Publish for free to firebase
2. Homework
   a. Pick a final project to do (templates provided)

Week 13

FINAL PROJECT WORK DAY

Week 14

PRESENT FINAL PROJECT