# Sophomore Tasks

## Unit 1: Fundamentals and Syntax

* Procedural and Object-Oriented programming
* Interpreted and Compiled Languages
* Inline documentation
* Self-documenting code and formatting conventions
* Whitespace and hidden characters
* Keywords and syntax
* Common primitive datatypes
* Variable assignment and assignment operators
* Primitive, literal, and referential values
* Value substitution
* Resolving expressions

## Unit 2: Branching

* Comparison operators and expressions
* Code blocks
* Conditional statements
* Nesting

## Unit 3: Errors and Debugging

* Using a Debugger
* Reading Error Codes
* Error Types
* Creating Test Data

## Unit 4: Collections and Iterators

* Ordered/Unordered collection datatypes
* Ordered collection elements by Index
* Unordered collections by Key
* Manipulating a collection
* Iterating through collections
* Multi-Dimensional Arrays
* Nested unordered collections

## Unit 5: Procedures

* Procedures (functions/methods)
* Scopes
* Function arguments
* Function return statements

## Unit 6: Classes and Objects

* Basic objects with properties and methods
* Object classes
* Class constructors
* Class inheritance

## Unit 7: Modules

* Modular Code
* Importing Modules
* Module Scopes
* Creating Modules

# Junior Tasks

## Unit 1: Github

* Cloning
* Forking
* Branching
* Fetch/Pull/Conflicts/Merge
* Commit/Push
* Pull Requests

## Unit 2: HTML and CSS refresher

* Elements, tags, and attributes
* Sizing (margin, border, padding, content)
* CSS classes and ids
* Effectively using DIV layers
* Display attribute
* Cascading with multiple selectors
* Complex selectors

## Unit 3: Python to Javascript pt1

* Launching a JS file with nodeJS
* Reading errors
* Input/Output
* Datatypes
  + let vs var and scopes
  + substitution
* Conditional Statements
  + Resolving conditions
* Functions
  + *Function* keyword and arrows
  + Arguments
  + Return values
  + Callbacks
  + Substitution

## Unit 4: Python to Javascript pt2

* Arrays
  + Indexes, splice, shift, pop, find, filter, include
* Loops
  + forEach(), for, for..in, for..of
  + break

## Unit 5: Python to Javascript pt3

* Objects
  + Properties and methods
* Classes
  + Constructors
  + Class properties and methods
* Modules

## Unit 6: Javascript in HTML

* Debugging tools / errors
* Javascript DOM
* Event handling
* Getting elements by ID or Class
* Getting/Setting element attributes and properties
* Creating and appending elements

## Unit 7: Flowchart Algorithms

## Unit 8: Graphics in Canvas

## Unit 9: Plugins in RPG Maker MV

# Senior Tasks

## Unit1: Javascript Refresh

* Datatypes
  + let vs var and scopes
  + objects with properties
  + arrays
  + substitution
* Conditional Statements
  + Resolving conditions
* Functions
  + *Function* keyword and arrows
  + Arguments
  + Return values
  + Callbacks
  + Substitution
* Loops
  + forEach(), for, for..in, for..of
  + break
* Classes
  + Constructors
  + Object methods
* Modules

## Unit 2: Dynamic web server

* Serve static websites in Nodejs
* Handle routes with ExpressJS
* Templating with EJS
* Query Parameters
* HTML Forms and POST data in ExpressJS

## Unit 3: Data management

* Open a CSV file and parse
* Convert array or object to CSV and write to file
* Open a JSON file and parse
* Convert JS data to JSON and write to JSON file
* Create a sqlite database and table
* SELECT, UPDATE, INSERT, and DELETE

## Unit 4: Professional Development

* Possible certifications (for your interests)
* Professional communications / media
* Interpersonal relationships and conflict management
* Concise language in resume building

## Unit 5: Project Management

* SDLC
* AGILE and Waterfall
* Tracking projects with KanBan
* Tracking tasks with Issues in Github
* Git branching
* Unit testing

## Unit 6: Documentation

* Writing self-documenting code
* Using effective comments
* Logging
* Writing developer documentation
* Writing user documentation

## Unit 7: Ethics and Legality

* Software Licensing
  + Proprietary and FOSS
* Data ownership and safe storage
* Identifying sensitive data
* Privacy policies

## Unit 8: Module and REST APIs

* Advanced module usage
* Retrieving data from an API by http requests
* Handling tokens/authentication

## Unit 9: Websockets

* Using socketIO