Assignment: SASS Pipeline with Gulp (Automate tasks by defining workflow)

Objective: The objective of this assignment is to demonstrate proficiency in setting up and utilizing a SASS pipeline with Gulp (or any other package) to streamline the development process, automate tasks, and enhance CSS workflows.

Instructions:

1. **Background Research:**
   - Conduct research on SASS (Syntactically Awesome Style Sheets) and its benefits over traditional CSS.
   - Explore the concept of a task runner such as Gulp and its role in automating repetitive tasks in web development workflows.
2. **Installation and Setup:**
   - Install Node.js and NPM (Node Package Manager) on your local machine if you haven't already done so.
   - Initialize a new Node.js project and install Gulp globally and locally using NPM.
3. **Setting up the SASS Pipeline:**
   - Create a directory structure for your project and organize your SASS files accordingly.
   - Set up a Gulpfile.js to define tasks for various steps in the SASS pipeline, such as compilation, autoprefixing, compression, etc.
   - Configure Gulp plugins for each step of the pipeline, including gulp-sass, gulp-autoprefixer, gulp-clean-css, etc.
4. **Task Definitions:**
   - Define Gulp tasks for the following steps in the SASS pipeline:
     - Compilation: Convert SASS files to CSS using gulp-sass plugin.
     - Autoprefixing: Add vendor prefixes to CSS rules for better browser compatibility using gulp-autoprefixer plugin.
     - Compression: Minify and optimize CSS files for production using gulp-clean-css plugin.
     - Watching: Set up a watch task to monitor changes in SASS files and automatically trigger compilation and other tasks.
5. **Running the Pipeline:**
   - Execute the defined Gulp tasks using the command line interface and observe the output.
   - Verify that the SASS pipeline successfully compiles, autoprefixes, compresses, and watches for changes in SASS files.
6. **Customization and Optimization:**
   - Experiment with different configurations and options for Gulp plugins to customize the SASS pipeline according to your project requirements.
   - Optimize the pipeline for performance, efficiency, and maintainability by fine-tuning task definitions and configurations.
7. **Testing and Debugging:**
   - Test the SASS pipeline with different types of SASS files, including variables, mixins, nested styles, etc.
   - Debug any issues or errors encountered during the setup or execution of the pipeline and troubleshoot them effectively.

8. **Assignment Submission:**
   - Write a detailed report documenting the setup and configuration of the SASS pipeline using Gulp.
   - Include descriptions of each step in the pipeline, Gulp task definitions, configuration settings, and any challenges faced during the assignment.
   - Provide examples, screenshots, or code snippets to illustrate your understanding and implementation of the SASS pipeline.
   - Submit your report along with the Gulpfile.js and any additional files or resources used during the assignment.

Assessment Criteria:

- Understanding of SASS concepts and benefits.
- Proficiency in setting up and configuring a SASS pipeline with Gulp.
- Effectiveness of task definitions and configurations in automating and optimizing the development workflow.
- Clarity and coherence of the assignment report.

Additional Notes:

- This assignment is designed to provide hands-on experience with setting up a SASS pipeline using Gulp and enhance your skills in CSS preprocessing and automation.
- Experiment with different Gulp plugins, configurations, and options to customize the pipeline according to your project requirements.
- Seek help from online resources, tutorials, and documentation whenever needed, and don't hesitate to ask questions or seek clarification from instructors or peers.

Submission Deadline: [28th Feb 2024]