# Code Review Checklist

Author: Mark Zuckerberg

Reviewer: Gaurav Patel

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## Code Style Guidelines

### Indentation:

Issue: The code does not follow consistent indentation (e.g., line 35).

Solution: Ensure each code block uses consistent indentation for readability. Typically, 4 spaces or a tab for each nested block is standard in PHP.

### Code Blocks:

Issue: Inline braces are used, as in `if ($act == "edit") {` on line 70.

Solution: Place opening and closing braces on new lines for better readability.

### Snake Case:

Issue: The code inconsistently uses snake\_case and camelCase, as seen in `$selectCommand` (line 62).

Solution: Use snake\_case for all variable names to maintain consistency. Change `$selectCommand` to `$select\_command`.

### Comments:

Issue: The code lacks comments for critical sections, especially for complex or conditional logic (e.g., lines 20–40).

Solution: Add comments to explain each conditional block, including error handling and database actions.

## Code Structure Guidelines

### Modularization:

Issue: PHP, HTML, and JavaScript code are all embedded within the same file, making the code hard to maintain (lines 1–80).

Solution: Separate PHP logic into a backend file and keep HTML in a separate view file. Use `include` or `require` statements in PHP to load the necessary HTML.

### SQL Injection:

Issue: SQL injection is possible in the delete statement: `$dbh->query("DELETE FROM students WHERE id=" . $id);` (line 17).

Solution: Use prepared statements to prevent SQL injection: `$stmt = $dbh->prepare("DELETE FROM students WHERE id = ?");`

### Input Filtering:

Issue: The `gpa` field is not filtered and directly takes user input without validation (e.g., lines 36 and 77).

Solution: Validate and sanitize `gpa` as a float using `$gpa = filter\_input(INPUT\_POST, "gpa", FILTER\_VALIDATE\_FLOAT);`.

### Separation Of Concerns:

Issue: PHP outputs HTML elements directly, which can make code management harder (e.g., line 81).

Solution: Use templates or frameworks like Blade or Twig to separate PHP logic from HTML.

### Code Duplication:

Issue: SQL commands for selecting all students are repeated multiple times (lines 25, 46, and 75).

Solution: Define a function `fetchAllStudents()` to retrieve students once and reuse it as needed.

## Functionality

### Requirements Met:

Issue: The GPA field is incorrectly referenced as `GPA` instead of `gpa` in the Edit form (line 102).

Solution: Use `<?php echo $editStudent['gpa'] ?>` for consistency and correct functionality.

### Delete and Edit Links:

Issue: The `Delete` and `Edit` links lack confirmation dialogs, which can lead to accidental deletions (line 84).

Solution: Add JavaScript confirmation for actions.

### Bugs:

Issue: The page reloads every time a new student is added or edited, which is functional but not user-friendly.

Solution: Implement AJAX for form submissions to avoid full-page reloads, enhancing user experience.