Code Review Strategy

Our team's guideline to conduct the code review consists of individual team members examining source files that have been written by other members. Each member goes through a number of files and notes any issues with their readability and functionality. These findings are compiled into a central Google Document containing a section for all the source files. A discussion is then initiated with all members to discuss any issues for the source code files and a general consensus is made for the next steps. The central document will serve as a backlog for minor fixes that will be incorporated into future sprints

Code Review Summary

Adam

- Inconsistent test question files, solutions/formulas separated by "ANSWER:" and "FORMULA:". Both are accounted for in WriteAssignment.php. Sticking with ANSWER would require less effort since that is how multiple php file are parsing the question files.
- Dead code block in EditAssignmentPage.php that saves new questions to file, would be revived if we scrap PreviewQuestion.php which I recommend to improve continuity of creating assignment/question process by avoiding dead ends that require back button.
- Time conversion function can be reused since similar code blocks are used in multiple files.

Brian

- A lot of operations can be done on the SQL server rather than on the php code, this would save time and make the code cleaner
- Lots of repeated blocks of code and similar pages. We should clean it up by refactoring, and moving functionality around. This will result in more scalable code, along with a less confusing interface, as the user will have less pages to go through in order to use the app
- Pages that are solely for getting user confirmation aren't redundant (and also seem to be causing bugs) remove these
- Refer to columns in database by column name instead of index when fetching a row using an array
- We use a lot of default, hardcoded values as fallbacks when the database doesn't find data matching the posted variables. Should find a way to show an error message, or handle these errors properly
- Warning messages aren't displayed as clearly as they should be (login issues) move these to a more visible location for less confusion for the user

Daniel

- There are many files which repeat code to make SQLI objects. This code should be refactored into a file that can be included whenever needed to reduce code repetition
- There are inconsistencies in the naming conventions in the files and we should choose the convention to be either camelCase or snake_case.
- Use session variables to store reused variables like user_id.
- Remove intermediate pages by applying AJAX to dynamically update pages.
- Formatting and indentation should be standardized and source code should be run through a php formatter.
- Need to increase error handling (e.g. for unset POST variables) and input filtering/verification

Darius

- Database querying needs to be improved, we need to use a central db class that manages opening and closing the connection.
  - The object should be instantiated only once per each page as a global field.
- Need to redesign the way account permissions are stored on the database using a many to many relation model
- Some parts of the code manually deals with the id (ie for question file it looks at previous files, or for some records it checks the row count and adds 1 to it), this is a bit of a hack and should be avoided
- Improve functions by having a PHPDoc for all the functions we have created. If a function is every used more than once between pages then it needs to go in a module
- We should use column names instead of indices when we are accessing row information from a query result
- Instead of saving information between pages in hidden elements we need to make use of session variables instead
- Some of the statistics in ViewStatistics.php can be derived from within the query as opposed to calculating it from individual query records
- Should adopt a consistent naming convention for variables, there are some mixes right now

Kevin

- Many of reusable code (mysqli declaration, similar functions used in multiple places, etc)
- Should fix/unify the naming convention of the variables, query result (use column keywords instead of the indexes)
- Really like the ajax call on the changing visibility of the assignment. Can be use in different areas on the product since it can minimize the number of posting of our web application which we are doing a lot of.
- Lots of changes required for making UI better (changing colour for text boxes, typos, need to fix css on pages to use the checkboxes for ajax, etc)
- For back buttons, instead of returning to the previous page, redirects them to a certain page would be better

Code Debrief Video

https://youtu.be/Dizb_cZKBys

Code Review

Database

- Reimplement permissions and account_types as follows since **an account type can access multiple different pages, and a page can be accessed by multiple different account types**:
  - ACCOUNT_TYPES(<u>AccountTypeID</u>, Description)
  - PAGES(<u>PageID</u>, PageName)
  - PERMISSIONS(<u>AccountTypeID</u>, <u>PageID</u>)
- check if entry in permission exists

All

- **USE A CENTRAL SQL OBJECT & Wolfram Object -- create a config file**
  - use php includes for common code (e.g. navigation bar)
- document functions
- remove redundant pages and use ajax to save info instead of posting to new pages
- run formatter
- keep line lengths below 80
- find an alternative to hidden elements for storing values between pages
- use cookies and session variable
- code consistency, agree on having html, head, body tags

AccountLogin.php

- use PHPDoc for documentation convention
- visibility_tag is missing documentation
- should try to use column names instead of column indices
- store logged_in in session variable
- usually better to have one global mysqli object
- should move logged in view to a new page entirely
- use a function to create the forms for each button
- want to redirect the login to another page instead of showing it in the same page

AddRandomQuestions.php

- should just use one variable for sql queries (insertsql, sql)
- formatting needs a lot of work, should run through a formatter
- two php blocks
- no isset checks

Ajax.php

- json_encode is different between two functions

AllCreatedAssignmentsPage.php

- instead of making html using php make html with html and echo values when needed
- change up the query Select * to only select required columns
- change up the query result to use keywords (column names) instead of indexes (this page is an example or how we should do it)

AssignmentAnswer.php

- rename $conn to $mysqli to be consistent with other files
- when making a mysqli object declare the credentials in the parameters
- use mysqli>query, mysqli>num_rows instead to be consistent
- embed variables in sql string instead of concatenating them
- rename everything from camelCase to snake_case
- use column names instead of indices when accessing row info
- perform error check when accessing files
- change the visibility of the answer only after the due date (exception for instructor, they can see it whenever)
- change the textbox for assignment id to a dropdown
- need to add in line to also display the questions
- keep track of the multiple choice answer file with True/False tag for each option

AssignmentMarkingFeedback.php

- rename from camelCase to snake_case
- use the same var for queries ($sql instead of $sqlUpdate)
- declare mysqli as global var and close it once
- do not understand how time conversion works, need some comments
- put time conversion into another php file and import it
- instead of concatenating use variables in double quotes
- use column names instead of column indices
- instead of using result, result2, row1, row 2 ... use more descriptive variables for query results
- check row count before accessing row data (line 60)
- line 60 - 80 are a little hard to read through
- maybe try putting some areas of the code into functions
- need to add a dropdown to select specific student's marks/feedback
- edit colour of the mark textbox to white
- create section for currently active assignments (use bootstrap tabs)

- fix mark being negative being enter
- fix query result naming convention

AssignmentOverview.php

- put time conversion into another php file and import it
- put submission record insertion into a function
- uses similar large block of code from AssignmentMarkingFeedback.php, break it down and share it between the files in a central location

ChooseAssignment.php

- instead of using php to write html, write html and echo through php snippets when needed
- formatting (indentation inconsistenties, tabs and spaces)
- embed variables in string instead of concatenating them
- error check before accessing row (line 38)
- use column names instead of column indices
- multiple php snippets can be merged together, code is broken up for no reason

ConfirmCreateAssignmentPage.php

- embed variables in string
- Want to notify user in the EditAssignment page instead of having an extra page (Considering to have html alert to do so)

CreateAccount.php

- document functions
- use global mysqli and declare it once
- err_msg should not say account created in case of no errors, name to msg
- After creating account, allow the user to log into their account instead of making them go to login page to login
- Error message is currently at the bottom, going to move it to the top of the page to make it more visible

CreateCourse.php

- function parameters do not match documentation
- use global mysqli
- rename permission check to something more suitable

CreateMultipleChoice.php

- formatting needs a lot of work

- embed variables in string
- do not echo large blocks of html
- use dropdown instead of textbox for selecting question

CreateQuestion.php

- need some comments and new variable names, addvar is difficult to read
- addvar has hard coded values (use constants?)
- typo in random variable Max value (currently 2 min)
- change colour for textboxes

DisplayAssignment.php

- declare mysqli without extra vars, rework sql convention in general
- camelCase is bad
- concat is bad
- name is better than index
- only shows the question inside the assignment (right now it also shows the answer)
- change the textbox for assignment id to a dropdown

EditAssignmentPage.php

- implement converttime in another file and import it
- global mysqli is better
- name is better than index
- breakup block of code (53-91) into functions
- after creating a question, also add it to the assignment instead of the preview question page
- fix closing bracket with the random question
- change colour of the tag textbox white (or possibly create a dropdown with all the tags)

EditCourses.php

- global mysqli is better
- function paramters don't match documentation
- session is started but not used

NewAssignmentPage.php

- you should never manually count record ids
- find a new way to get the new assignment id (want to avoid counting id manually)

NewAssignmentResult.php

- put an array into post instead of treating it like one
- add comments

PreviewQuestion.php

- feel like using js to send user back to their history is a bad idea
- the way the files are created are bad
- use the question id for the filename, they are already in question directory
- never manually increment id

SelectQuestionPage.php

- $i is declared out of place
- use names instead of indices
- add comments to while statement line 47
- considering to move AddRandomQuestion functionality to this page as well

VariablesReader.php

- needs commenting

ViewStatistics.php

- formatting not consistent with other files
- camelcasing
- too many results and rows variables, very difficult to read
- some statistics like average can be computed directly using a query instead of code
- breakup code into functions so it is easier to understand