



Stage: Systems Analysis and Design

System Design Specification

LO Grade Reporting

HSS Portfolio Projects

HSS013

[ANNUAL PLAN NUMBER]

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1 Document Management

When completing this document, please mark any section that is not required as 'N/A'. A brief description of why the section is not required should also be included.

1.1 Contributors

Please provide details of all contributors to this document.

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1.2 Version Control

Please document all changes made to this document since initial distribution.

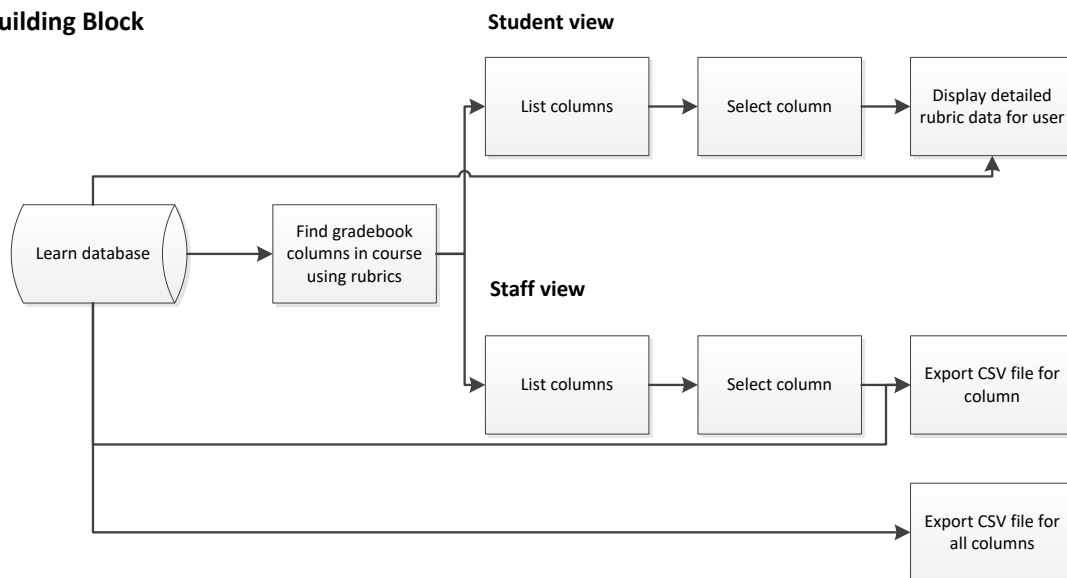
Date	Version	Author	Section	Amendment
07/06/16	0.1	GG	All	Initial version
09/06/16	0.5	GG	All	Details and images
10/06/16	0.9	GG	10	Minor changes

2 OVERVIEW

This project will develop a learn Building Block (B2B) to display detailed information on Gradebook grades/scores marked using Rubrics. There will be two views:

1. A student view: Displaying the details and feedback relating to a single gradebook grade in a course.
2. An instructor view: Allowing the instructors on a course to export the detailed rubric data used to generate a gradebook grade as a CSV file. For a single gradebook column and all gradebook columns (that are using rubric data)

Building Block



The student view will be implemented as a BB Learn 'tool'.

The staff view will be implemented as a BB Learn 'course tool' and as such will only be available to users who have permission to see and use the control panel in BB Learn.

3 DEVELOPMENT TOOLS AND STANDARDS

3.1 Development Tools

PL/SQL and Java/JSP

3.2 Development Standards

Tick the appropriate box to indicate the standards being followed for this application:

Standard	√ indicates compliance
Database Design	NA
Cold Fusion	NA
Java	√
Uportal Development	NA
Accessibility	
Web Style Standards	
Supported Web Browsers	

The tool will be implemented as a Blackboard Learn building block using the built in html tag-library and CSS files. This means that it will follow the Learn Web Style, it will be as accessible as Learn and it will support the same browsers as Learn

4 SYSTEM PROCESSES

The requirements will be fulfilled by creating one Learn Building block (B2B). This B2B will contain use a query that joins data from the following areas of Learn:

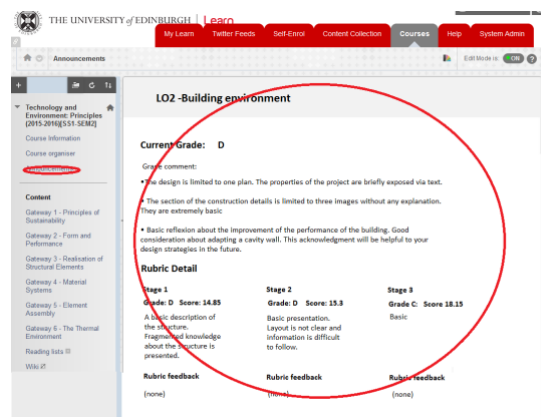
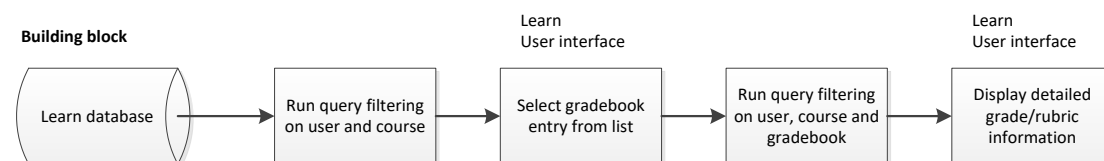
- Course data
- User data
- Enrolments data
- Gradebook data
- Rubric data

This result of this query will be used to generate the requested data and display/generate a CSV file from it. The query is detailed in section 10

If the B2B is unable to connect to the Learn database tables a message will be displayed indication that the service is currently unavailable

4.1 Student process (BRD 2-Student 'TO BE' Process Map)

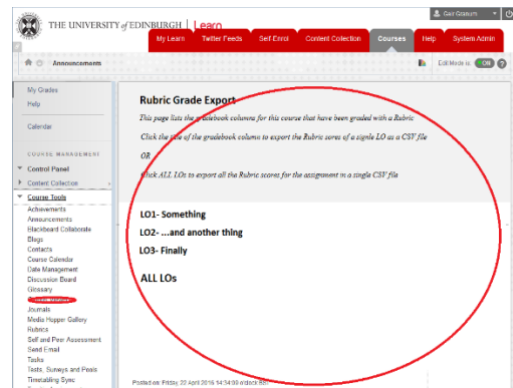
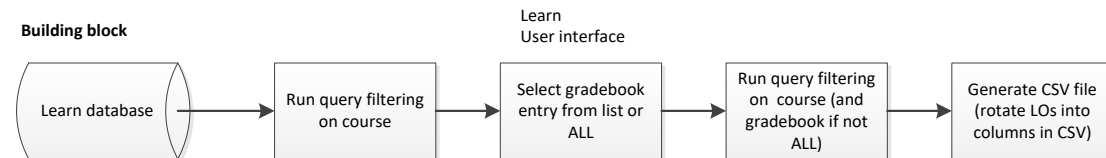
In the student process the query will be run twice. The first time it will be filtered on the current course and user. These data are found from the current context in Learn. Once a specific gradebook entry has been selected from the Learn UI the query is run a second time, now filtering on the current course and user and on the selected gradebook entry. The results from this query are formatted and displayed in the learn UI



What the student interface may look like

4.2 Staff process (BRD 2-Staff 'TO BE' Process Map)

In the student process the query will be run twice. The first time it will be filtered on the current course. These data are found from the current context in Learn. Once a specific gradebook entry (or ALL) has been selected from the Learn UI the query is run a second time, filtering on a single gradebook item if applicable.



What the staff interface may look like

The results of the second query will be formatted into a CSV file. Part of this formatting may (depending on the CSV format) be to programmatically ‘rotate’ the rubric rows found (containing the LOs). I.e. when the query find something like this (assuming that both the grade, score and the max possible score from the rubric should be exported in the CSV):

Rubric Grade	Rubric score	Rubric Max score	Rubric row name
A2	0.283305	33.33	LO1 - Research: Research and reason a critical understanding of the key theories, practices and methods that inform your project and employ an appropriate range of research applications and sources.
A3	0.25005	33.34	LO2 - Analysis: Creatively analyse and synthesise the results of your research.
A3	0.249975	33.33	LO3 - Communication: Demonstrate your ability to manage, structure, resolve and communicate your own innovative research project.

It may have to be programmatically converted to:

LO1 Grade	LO2 Grade	LO3 Grade	LO1 Score	LO2 Score	LO3 Score	LO1 Max	LO2 Max	LO3 Max
A2	A3	A3	0.283305	0.25005	0.249975	33.33	33.34	33.33

This may turn out to be the most challenging part of the build. Especially making it flexible enough to handle any number of rubric rows.

5 USER INTERFACE

5.1 Transactional Interface

All the mocked up screenshots below are created using font sizes and spacing close to Learn defaults. This should indicate how much can information can be displayed on a screen. As a worst case scenario a non-wide display is assumed.

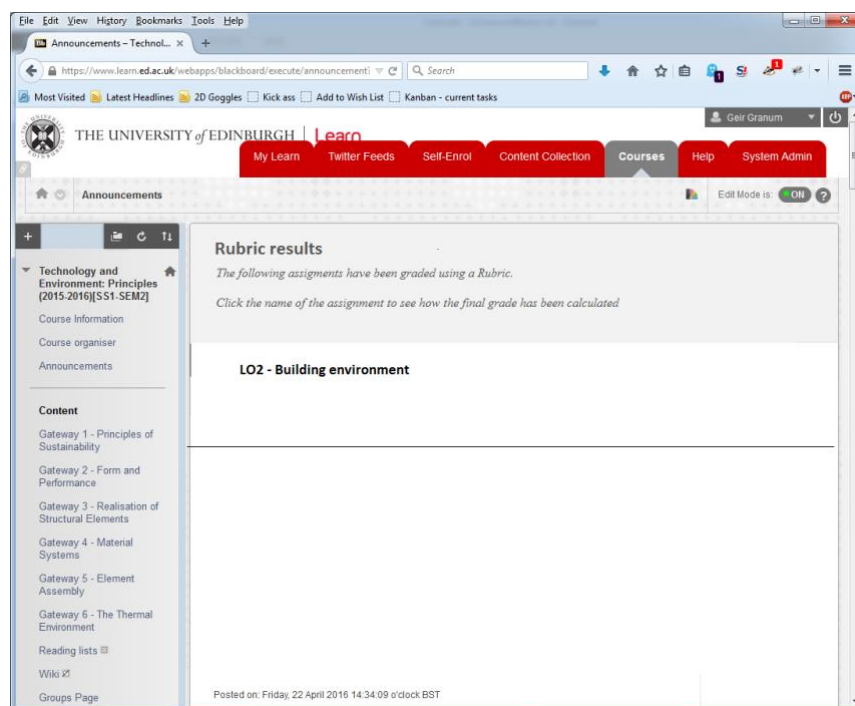
5.1.1 Student interaction

Students will be able to access their detailed rubric information in two clicks when they are in a course that is using the new building block.

1. Click the tool from the course menu in the upper left part of the screen.
2. Click the name of the assignment/gradebook column you want to see detailed rubric information on.

5.1.1.1 Result selection screen

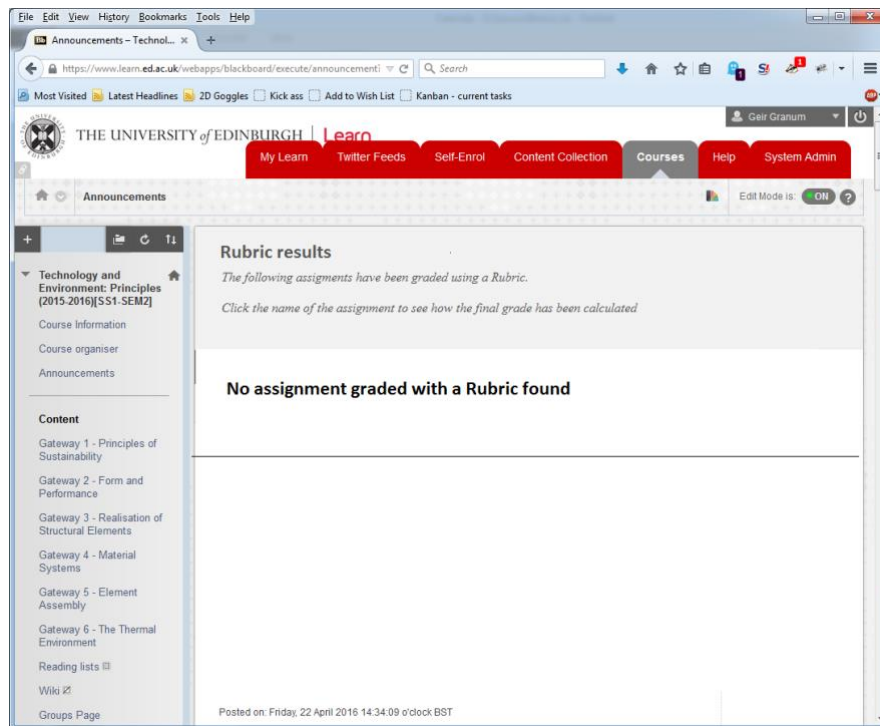
This is a mocked up screenshot of what the screen that allows students to select which assignment/gradebook column they want to see detailed rubric information from looks like. Only assignments/gradebook columns that have been made available to students and that are have been marked using a rubric will be available for selection.



The student selection screen

5.1.1.2 Nothing found screen

If the current course have no assignments/gradebook columns that are visible to students and have been marked using a rubric a message like in the mocked up screenshot below will be displayed:



The student 'nothing found' screen

5.1.1.3 Rubric display screen 3 rows or fewer

If there are 3 or fewer rubric rows to display then a horizontal layout appears to be feasible. The screen could be laid out like this:

<gradebook column>

Current Grade: <grade>

Grade comment:

Rubric Detail

<rubric row 1 title>	<rubric row 2 title>	<rubric row 3 title>
Grade: <grade 1> Score: <Score 1>	Grade: <grade 2> Score: <Score 2>	Grade: <grade 3> Score: <Score 3>
<div style="border: 1px dashed black; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px dashed black; height: 40px;"></div>	<div style="border: 1px dashed black; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px dashed black; height: 40px;"></div>	<div style="border: 1px dashed black; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px dashed black; height: 40px;"></div>
<p>Rubric Feedback</p> <div style="border: 1px dashed black; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px dashed black; height: 40px;"></div>	<p>Rubric Feedback</p> <div style="border: 1px dashed black; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px dashed black; height: 40px;"></div>	<p>Rubric Feedback</p> <div style="border: 1px dashed black; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px dashed black; height: 40px;"></div>
<p>Instructor feedback</p> <div style="border: 1px dashed black; height: 60px; margin-top: 10px;"></div>		

The following to mock up screenshots show what the horizontal layout would look like with real data.

The screenshot shows the University of Edinburgh Learn LMS interface. The top navigation bar includes links for My Learn, Twitter Feeds, Self-Enrol, Content Collection, Courses, Help, and System Admin. The main content area displays an announcement for 'LO2 - Building environment' with a current grade of D. The announcement includes a grade comment and a rubric detail table.

LO2 - Building environment

Current Grade: D

Grade comment:

- The design is limited to one plan. The properties of the project are briefly exposed via text.
- The section of the construction details is limited to three images without any explanation. They are extremely basic
- Basic reflexion about the improvement of the performance of the building. Good consideration about adapting a cavity wall. This acknowledgment will be helpful to your design strategies in the future.

Rubric Detail

Stage 1	Stage 2	Stage 3
Grade: D Score: 14.85	Grade: D Score: 15.3	Grade C: Score 18.15
A basic description of the structure. Fragmented knowledge about the structure is presented.	Basic presentation. Layout is not clear and information is difficult to follow.	Basic
Rubric feedback	Rubric feedback	Rubric feedback
(none)	(none)	(none)

Instructor Feedback

- The design is limited to one plan. The properties of the project are briefly exposed via text.
- The section of the construction details is limited to three images without any explanation. They are extremely poor.
- Basic reflexion about the improvement of the performance of the building. Good consideration about adapting a cavity wall. This acknowledgment will be helpful to your design strategies in the future.

Example 1: 3 columns or fewer – no rubric feedback

The screenshot shows the University of Edinburgh Learn interface. The main content area is titled 'Summative Assessment Dropbox'. It displays the 'Current Grade: A2' and a 'Grade comment: (none)'. Below this is a 'Rubric Detail' section with three columns for different learning objectives (LO1, LO2, LO3). Each column shows the objective description, the student's grade and score, and a detailed rubric feedback paragraph. The left sidebar contains navigation links for the course 'Technology and Environment: Principles (2015-2016)[SS1-SEM2]'.

LO1 - Investigation: Use appropriate theories, histories and practices to help you select texts, images and artefacts	LO2 - Reflection: Demonstrate an ability to analyse and apply knowledge to various forms of visual and material culture.	LO3 - Communication: Convey your ideas and arguments in coherent and appropriate formats.
Grade: A2 Score: 28.33	Grade: A3 Score: 25	Grade: A2 Score: 28.33
Rubric feedback LO1. Your research draws upon a number of very well chosen, critically articulate sources that help you to build a nuanced and thorough argument. It's clear that you have engaged in substantial independent research, which shows an excellent understanding of the research process and evaluation of the critical merit/relevance of sources. This is a very good, thorough range of material you've brought together.	Rubric feedback LO2. Your analysis is excellent throughout. It is mature, nuanced, deals with complex ideas and address arguments from multiple perspectives. There's a clear grasp of the core issues relating to the question of greatness and female artists. Your response is critically aware and develops considered, speculative arguments that are clearly substantiated with reference to your research.	Rubric feedback LO3. Your writing is articulate, confident and clear. You maintain a consistent academic tone and critical engagement with ideas throughout. Arguments are worked through carefully and with precision. Your referencing throughout is excellent too. This is a very good piece of writing.
Instructor Feedback (none)		

Example 2: 3 columns or fewer – no rubric description

5.1.1.4 Rubric display screen more than 3 rows

If there are more than 3 rows in the rubric then the data will not display in a horizontal lay-out without introducing scrolling.

If this is the case then a vertical layout of the detailed rubric information is needed.

<gradebook column>

Current Grade: <grade>

Grade comment:

<comment from gradebook>

Rubric Detail

<rubric row 1 title>

Grade: <grade 1> Score: <Score 1>

<rubric cell description 1>

Rubric Feedback

<rubric cell feedback 1>

...

<rubric row n title>

Grade: <graden> Score: <Scoren>

<rubric cell description n>

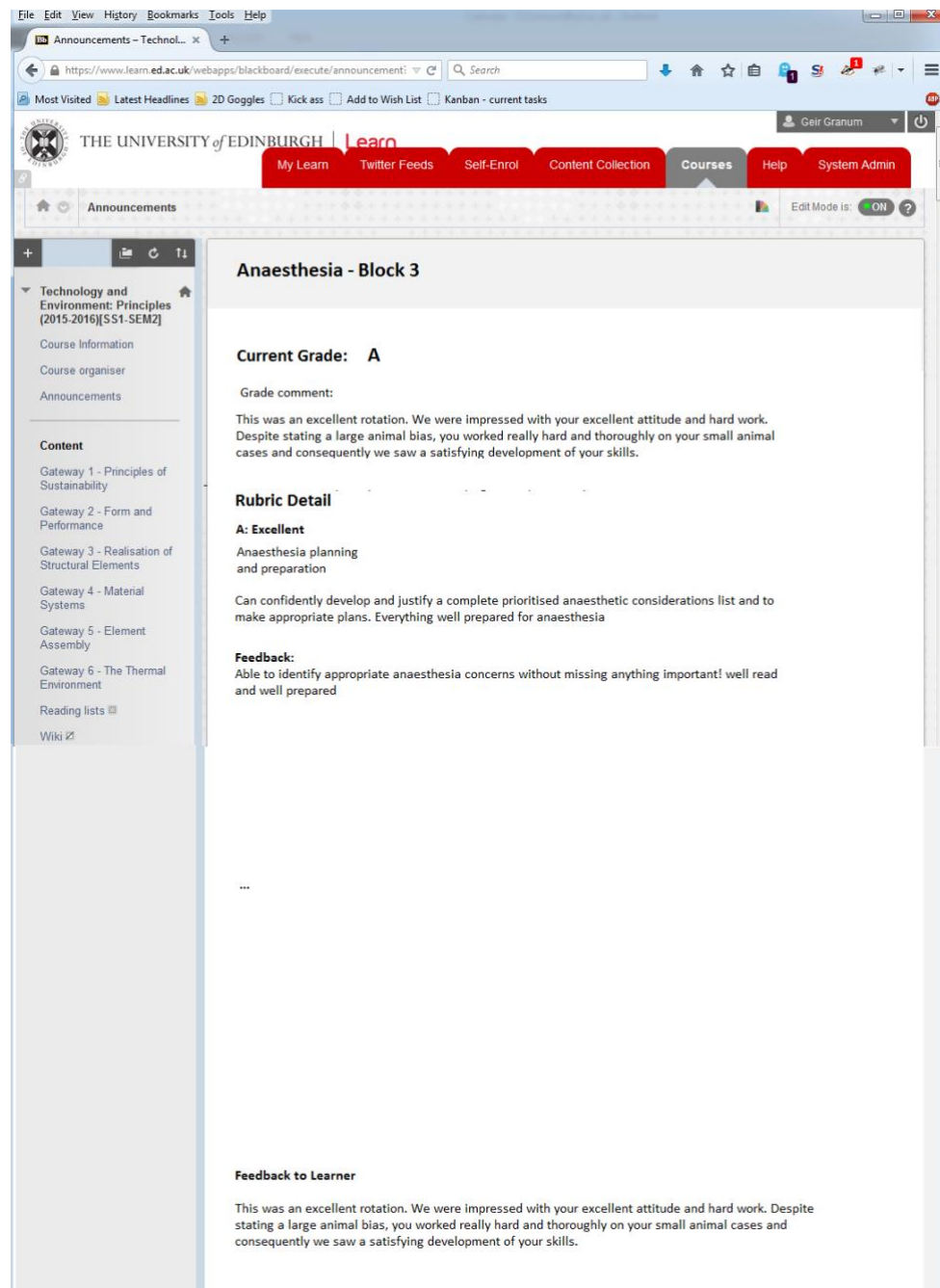
Rubric Feedback

<rubric cell feedback n>

Instructor feedback

<full rubric feedback>

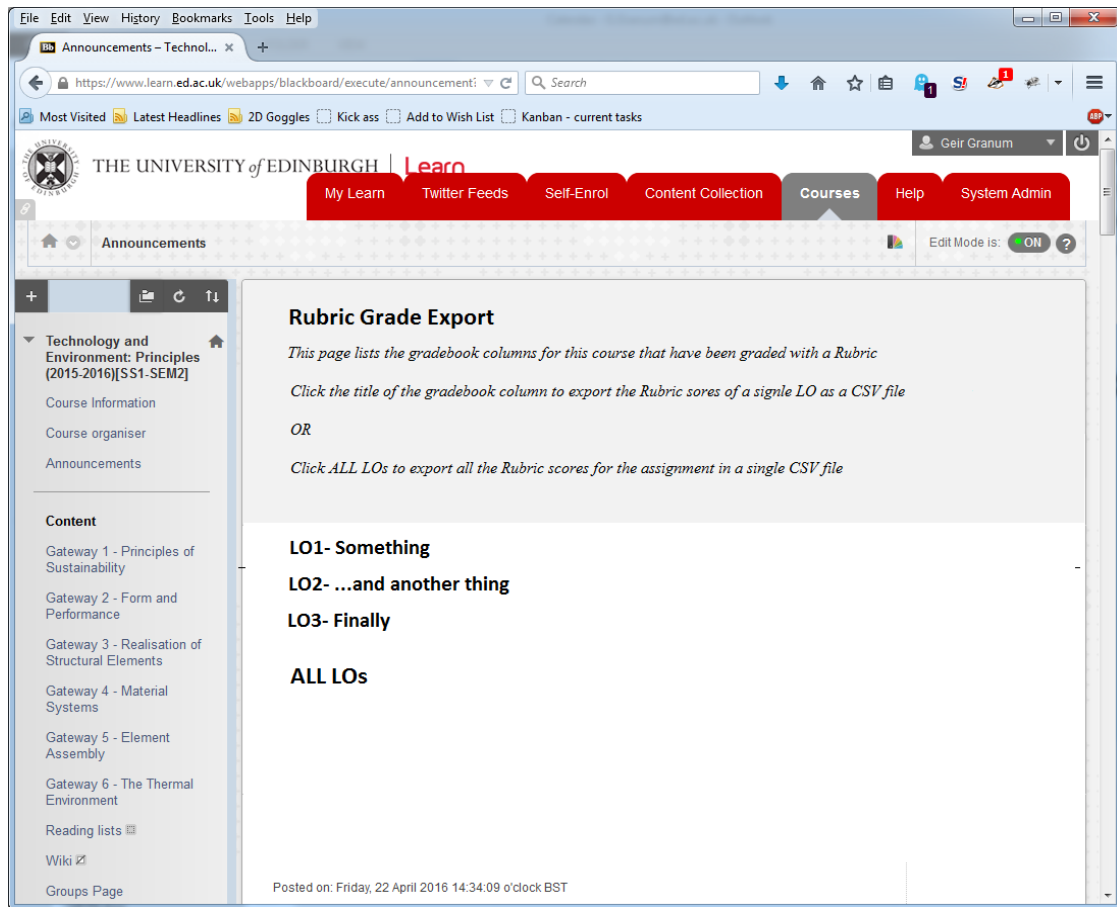
The following mock up screenshot shows what the vertical layout look like with real data.



Example: more than 3 columns

5.1.2 Staff interaction

The staff interaction part of the tool will be available from the ‘course tools’ area of the course ‘control panel’. Once the tool is selected a page will display with explanatory text at the top followed by a list of assignments/gradebook columns found in the course that have been marked using rubrics. Each entry in the list will be a link that creates and downloads a CSV file (with the columns in the same order as the Turnitin export) for that particular assignment/gradebook column. At the bottom of the screen there will be a separate link that will allow for the creation and download of a CSV file that will contain the information from ALL the single assignments/gradebook columns in one file.



Example: export CSV screen

(Need example CSV file here)

5.1.3 MyEd Interface

NA

5.2 Reporting Interface

NA

6 APPLICATION SECURITY

This section relates to application rather than physical security which is covered in the Technical Architecture Document (TAD).

6.1 Authentication

The B2B will use the authenticated identity from the Learn session.

6.2 Authorisation

The will use the assigned role from Learn to authorise what the user has access to

6.3 Business Objects

NA.

7 DATABASE DESIGN

Insert an Entity-Relationship Diagram of the system. If new tables have been added to an existing system then highlight these in your ER Diagram (full diagram of existing system not needed).

Full specifications should be provided for all new tables/views/columns in the system (ie name, datatype, mandatory, default values, constraints).

No new database is needed. The information can be extracted with SELECT queries from the BBLEARN schema

8 APPLICATION INTERFACES

Provide technical details of any inputs to the system from other applications and any outputs from the system to other applications. Full data specifications should be included. Identify possible impact on existing processes.

The system will use the following tables from the BBLEARN schema directly:

- BBLEARN.RUBRIC_CELL
- BBLEARN.RUBRIC_CELL_EVAL
- BBLEARN.RUBRIC_EVAL
- BBLEARN.RUBRIC_LINK
- BBLEARN.EVALUATION_ENTITY
- BBLEARN.ATTEMPT
- BBLEARN.GRADEBOOK_GRADE
- BBLEARN.COURSE_USERS
- BBLEARN.USERS
- BBLEARN.COURSE_MAIN
- BBLEARN.RUBRIC_ROW
- BBLEARN.RUBRIC_COLUMN
- BBLEARN.GRADEBOOK_MAIN
- BBLEARN.RUBRIC
- BBLEARN.GRADEBOOK_TRANSLATOR
- BBLEARN.GRADEBOOK_SYMBOL

The only grant that is needed is SELECT. An existing Read only users such as: DSGBROWER can be used.

9 DATA

9.1 *Data Migration*

NA

9.2 *Archiving Policy*

NA

10 IMPLEMENTATION

10.1 Generic DB query

This is the database query that extracts all the data that is needed to fulfil the requirements. Filtering on a rubrics visibility and/or availability may need to be added:

```
SELECT BBLEARN.COURSE_MAIN.COURSE_ID,
       BBLEARN.USERS.USER_ID,
       BBLEARN.GRADEBOOK_MAIN.TITLE,
       BBLEARN.GRADEBOOK_SYMBOL.SYMBOL AS calculated_grade,
       GRADEBOOK_GRADE.MANUAL_SCORE ,
       GRADEBOOK_GRADE.MANUAL_GRADE ,
       GRADEBOOK_GRADE.AVERAGE_SCORE,
       BBLEARN.ATTEMPT.SCORE,
       BBLEARN.ATTEMPT.GRADE,
       BBLEARN.RUBRIC_COLUMN.HEADER AS column_val,
       BBLEARN.RUBRIC_ROW.HEADER AS row_val,
       BBLEARN.RUBRIC_ROW.PERCENTAGE AS row_PERCENTAGE,
       BBLEARN.RUBRIC_CELL_EVAL.SELECTED_PERCENT,
       BBLEARN.RUBRIC_EVAL.COMMENTS AS rubric_eval_comm,
       BBLEARN.RUBRIC_CELL.DESCRPTION as rubric_desc,
       BBLEARN.ATTEMPT.ATTEMPT_DATE,
       BBLEARN.GRADEBOOK_GRADE.STATUS,
       BBLEARN.USERS.FIRSTNAME,
       BBLEARN.USERS.LASTNAME,
       BBLEARN.GRADEBOOK_GRADE.EXCLUDED_IND,
       BBLEARN.GRADEBOOK_GRADE.EXEMPT_IND,
       BBLEARN.RUBRIC_EVAL.MAX_VALUE,
       BBLEARN.RUBRIC_EVAL.TOTAL_VALUE,
       BBLEARN.ATTEMPT.INSTRUCTOR_COMMENTS,
       BBLEARN.RUBRIC.TITLE AS TITLE1,
       BBLEARN.RUBRIC.TYPE,
       BBLEARN.RUBRIC.STATUS AS STATUS1,
       BBLEARN.RUBRIC.PUBLIC_IND,
       BBLEARN.GRADEBOOK_SYMBOL.SYMBOL,
       BBLEARN.RUBRIC_CELL_EVAL.FEEDBACK
FROM BBLEARN.RUBRIC_CELL
INNER JOIN BBLEARN.RUBRIC_CELL_EVAL
ON BBLEARN.RUBRIC_CELL.PK1 = BBLEARN.RUBRIC_CELL_EVAL.RUBRIC_CELL_PK1
INNER JOIN BBLEARN.RUBRIC_EVAL
ON BBLEARN.RUBRIC_EVAL.PK1 = BBLEARN.RUBRIC_CELL_EVAL.RUBRIC_EVAL_PK1
INNER JOIN BBLEARN.RUBRIC_LINK
ON BBLEARN.RUBRIC_LINK.PK1 = BBLEARN.RUBRIC_EVAL.RUBRIC_LINK_PK1
INNER JOIN BBLEARN.EVALUATION_ENTITY
ON BBLEARN.EVALUATION_ENTITY.PK1 = BBLEARN.RUBRIC_LINK.EVAL_ENTITY_PK1
INNER JOIN BBLEARN.ATTEMPT
ON BBLEARN.ATTEMPT.PK1 = BBLEARN.EVALUATION_ENTITY.ATTEMPT_PK1
INNER JOIN BBLEARN.GRADEBOOK_GRADE
ON BBLEARN.GRADEBOOK_GRADE.PK1 = BBLEARN.ATTEMPT.GRADEBOOK_GRADE_PK1
INNER JOIN BBLEARN.COURSE_USERS
ON BBLEARN.COURSE_USERS.PK1 = BBLEARN.GRADEBOOK_GRADE.COURSE_USERS_PK1
INNER JOIN BBLEARN.USERS
ON BBLEARN.USERS.PK1 = BBLEARN.COURSE_USERS.USERS_PK1
INNER JOIN BBLEARN.COURSE_MAIN
ON BBLEARN.COURSE_MAIN.PK1 = BBLEARN.COURSE_USERS.CRSMAN_PK1
INNER JOIN BBLEARN.RUBRIC_ROW
ON BBLEARN.RUBRIC_ROW.PK1 = BBLEARN.RUBRIC_CELL.RUBRIC_ROW_PK1
INNER JOIN BBLEARN.RUBRIC_COLUMN
ON BBLEARN.RUBRIC_COLUMN.PK1 = BBLEARN.RUBRIC_CELL.RUBRIC_COLUMN_PK1
INNER JOIN BBLEARN.GRADEBOOK_MAIN
ON BBLEARN.GRADEBOOK_MAIN.PK1 = BBLEARN.GRADEBOOK_GRADE.GRADEBOOK_MAIN_PK1
INNER JOIN BBLEARN.RUBRIC
ON BBLEARN.RUBRIC_COLUMN.RUBRIC_PK1 = BBLEARN.RUBRIC.PK1
AND BBLEARN.RUBRIC.PK1 = BBLEARN.RUBRIC_ROW.RUBRIC_PK1
left outer JOIN BBLEARN.GRADEBOOK_TRANSLATOR
ON BBLEARN.GRADEBOOK_TRANSLATOR.PK1 = BBLEARN.GRADEBOOK_MAIN.GRADEBOOK_TRANSLATOR_PK1
```

```
INNER JOIN BBLEARN.GRADEBOOK_SYMBOL
ON BBLEARN.GRADEBOOK_TRANSLATOR.PK1 = BBLEARN.GRADEBOOK_SYMBOL.GRADEBOOK_TRANSLATOR_PK1
WHERE (BBLEARN.ATTEMPT.SCORE > BBLEARN.GRADEBOOK_SYMBOL.LOWER_BOUND)
AND (BBLEARN.ATTEMPT.SCORE <= BBLEARN.GRADEBOOK_SYMBOL.UPPER_BOUND)
AND GRADEBOOK_MAIN.VISIBLE_IND = 'Y'
/*filters – use one or more to limit to course, user and/or specific gradebook entry
And BBLEARN.COURSE_MAIN.COURSE_ID = "
And BBLEARN.USERS.USER_ID = "
And BBLEARN.GRADEBOOK_MAIN.PK1 = "
*/
```