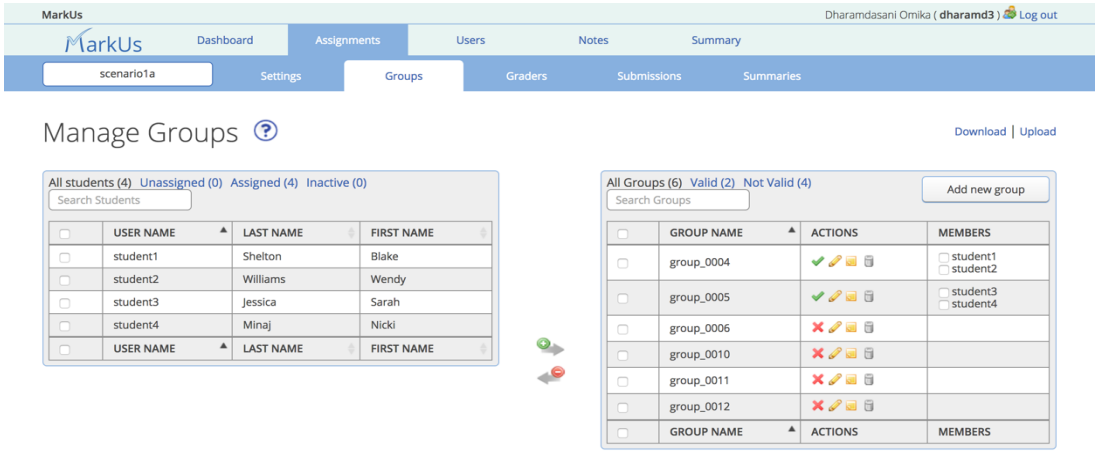
I. Additional Scenarios/tasks:

Instructor:

Scenario 1: Create student groups for assignments:

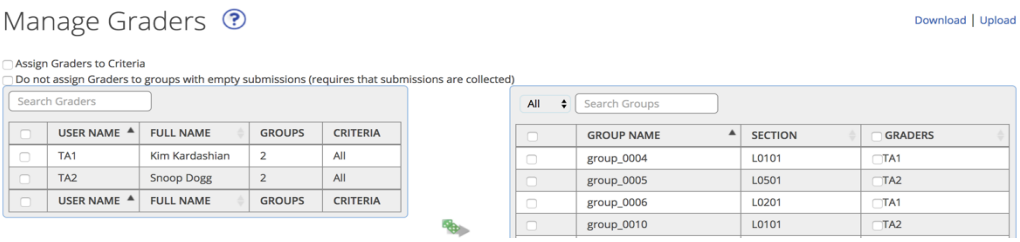
Students can work on assignments in three ways – individually, in groups of their choice and in randomly assigned groups. When automatic group generation is selected for an assignment, the instructor has to manually select students to form groups. Instructors often want students to form these groups within their own lecture sections, hence, it is helpful for them to know what the lecture section of each student is. However, MarkUs does not display the lecture section of each student anywhere on the Manage Groups screen.

Heuristics violated: H2 (Real World), H5 (Recognition)
Severity Rating: 3



The lecture section was displayed *after* the groups were created, which served no real use. Not only this, the lecture number itself is inaccurate. For instance, the two students in group_0004 are in L0101 and L0201 respectively, yet the lecture section next to their group is L0101.

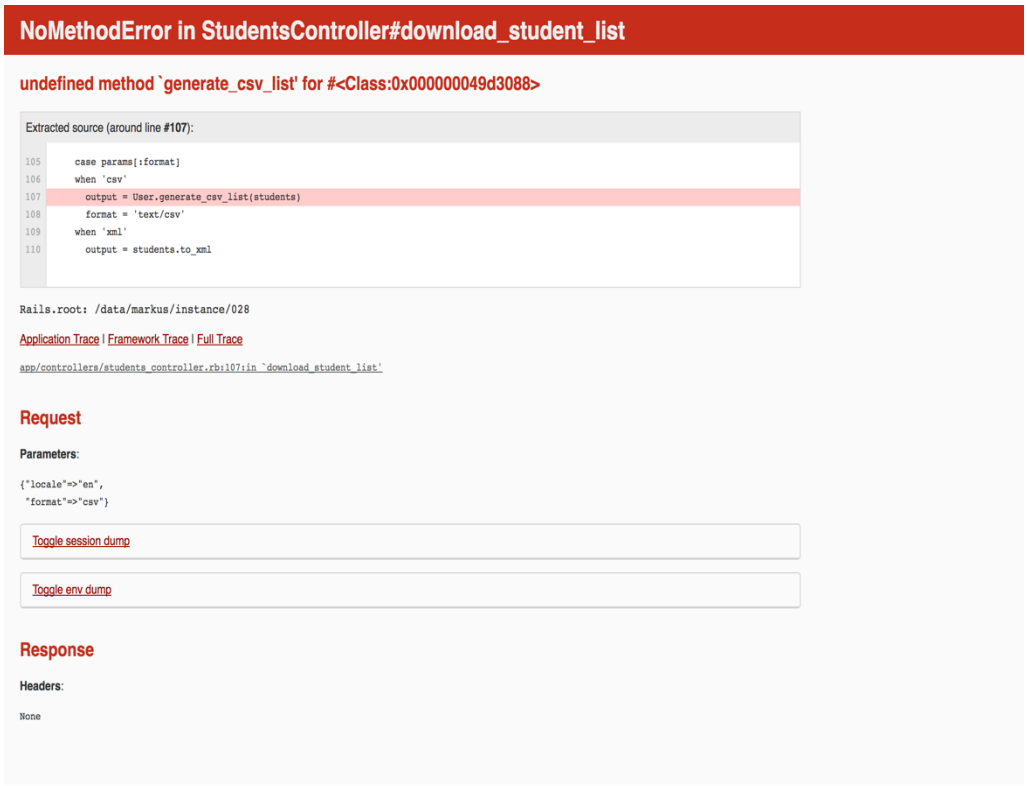
Heuristics violated: H2 (Real World), H4 (Consistency), H5 (Recognition)
Severity Rating: 2



Scenario 2: Upload a class list:

For an instructor teaching a large number of students, it can be difficult to manually add students to the database. An obvious solution to this problem is to upload a class list, so that students can automatically be added to the system. However, MarkUs did not allow instructors to perform this step and instead, displayed an error message that did not provide a clear solution to the problem.

Heuristics violated: H1 (Visibility of system status), H2 (Real World), H5 (Prevention), H9 (Recovery), H10 (Help)
Severity Rating: 3

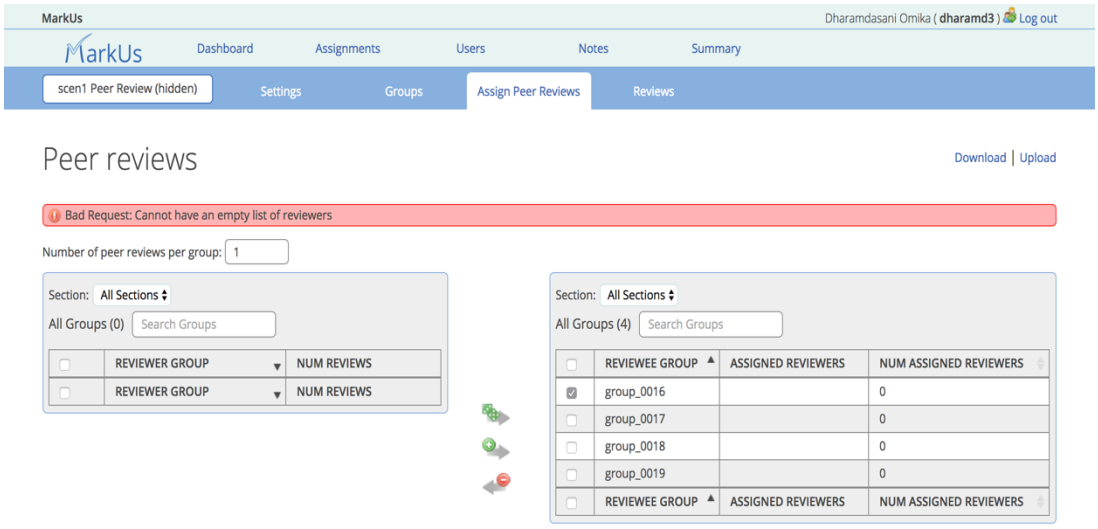


Scenario 3: Enable peer-review on assignments:

Peer-review is a useful tool for marking a large number of assignments in a timely manner. Instructors and teaching assistants may not have the time to mark hundreds of lengthy assignments, so splitting up the assignments among students and compensating them for it can be a good strategy to get the job done. Having established the importance of this scenario, it was important to ensure that MarkUs allowed the instructor to assign peer-reviews without any problems. However, this was not the case.
Two problems were encountered in this step.

After indicating the intention to peer-review an assignment I made, the first problem was encountered when I tried to assign reviewers to the submissions received. The reviewers were not being displayed on the screen, even after refreshing the page several times and logging in and out of MarkUs. This is, arguably, the most important step of the entire process, so this scenario could not be completed merely because reviewers could not be assigned.

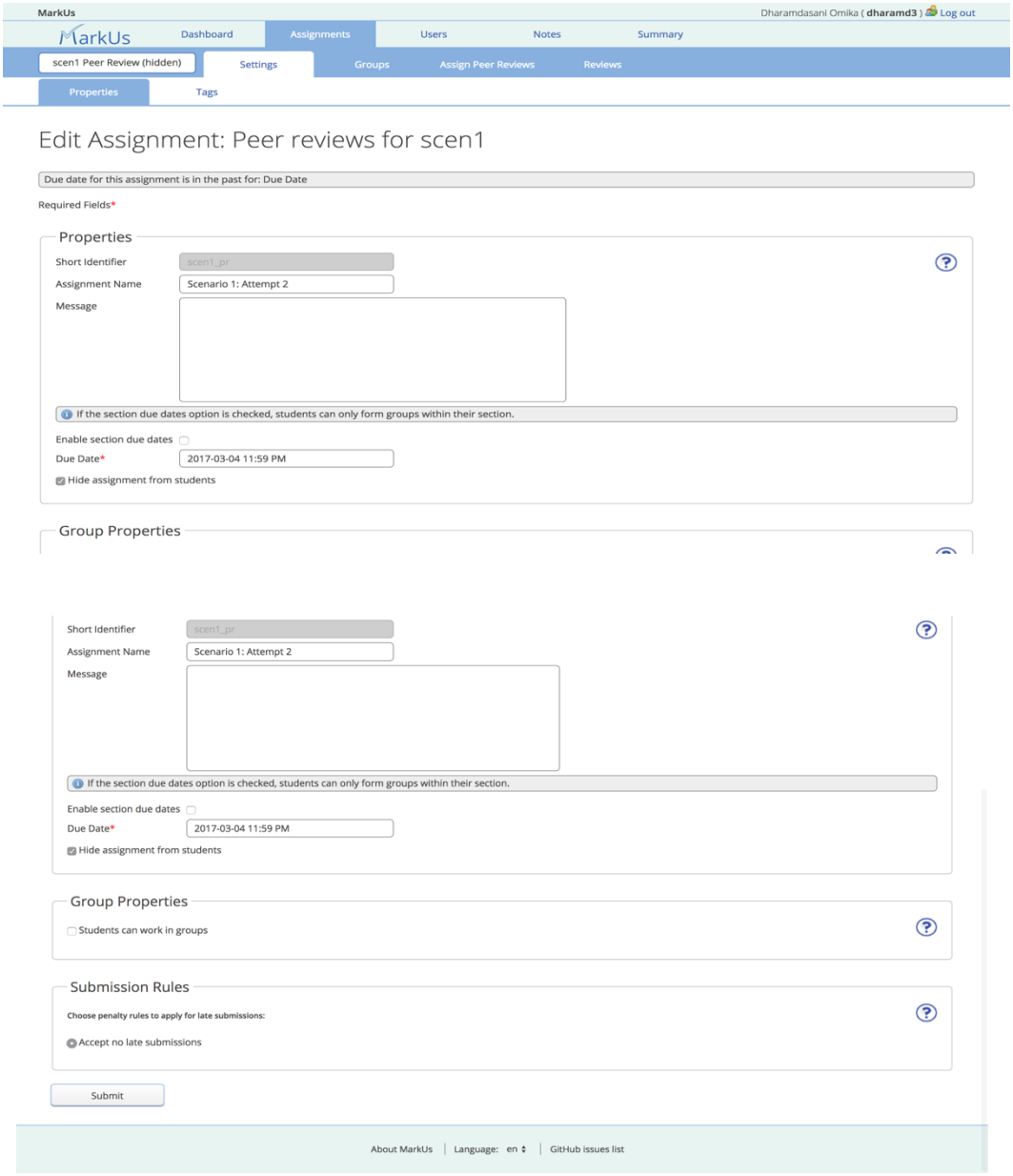
Heuristics violated: H1 (Status), H5 (Prevention), H7 (Flexibility), H9 (Recovery), H10 (Help)
Severity Rating: 4



The logical next step was to undo the peer review process, so that marking could continue normally and TA's could be assigned to the submissions. However, I discovered that once peer-review has been selected for an assignment, MarkUs does not offer the option to undo it. Therefore, this assignment could not be completed and a new one had to be created.

Heuristics violated: H3 (Control), H5 (Prevention), H7 (Flexibility), H9 (Recovery), H10 (Help)

Severity Rating: 4

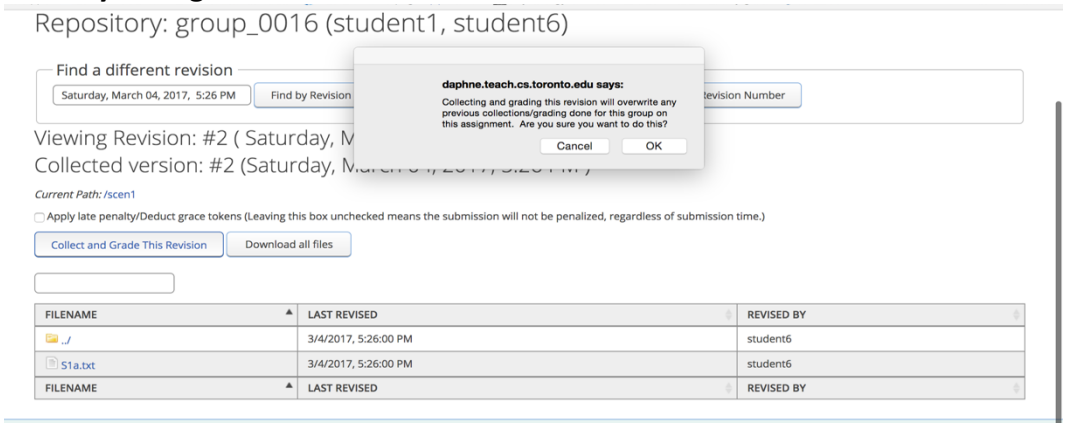


Scenario 4: Assign graders to criteria:

Sometimes, instructors want to assign graders to criteria instead of letting them mark entire assignments. This would require graders to combine their work and revisit each other's marked assignments. However, MarkUs does not allow this feature to be used efficiently because there is no clear way to save, revise or refer back to assignments that have already been marked. In order to do any of

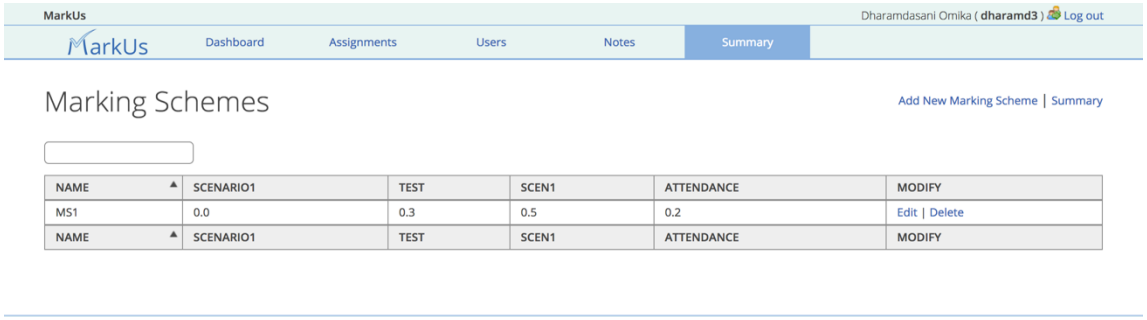
the aforementioned, the entire submission needs to be marked again. Therefore, this scenario cannot be successfully completed.

Heuristics violated: H3(Control), H6 (Recognition), H7 (Flexibility), H9 (Recovery)
Severity Rating: 3



Scenario 5: Add a marking scheme:

Most courses have a marking scheme where different assignments and tests have varying weightage. With that being said, it is helpful to have a way to assign a weight to each assignment, so that the final marks can be adjusted accordingly. Fortunately, MarkUs allows instructors to do this fairly easily. No usability problems were encountered in this step.

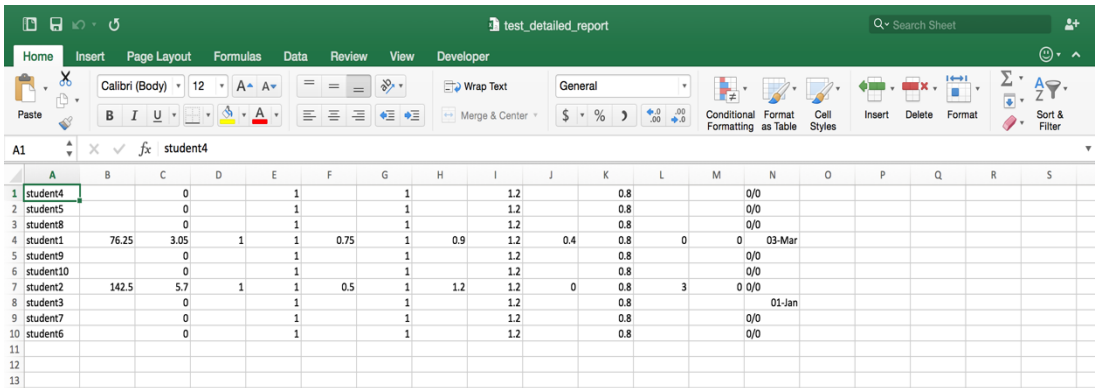


Scenario 6: Download a detailed CSV report of student marks:

The option of downloading a detailed CSV report of student marks is particularly useful for instructors, so that they can analyze weak areas in understanding and assess the average performance of the class. However, when a detailed CSV report of student marks is downloaded, the report looks very disorganized. It has

no headers to indicate what the marks in a particular column are for, which makes it completely unreadable and unfit for use.

Heuristics violated: H2 (Real World), H4 (Consistency), H6 (Recognition), H8 (Design), H10 (Help)
Severity Rating: 2

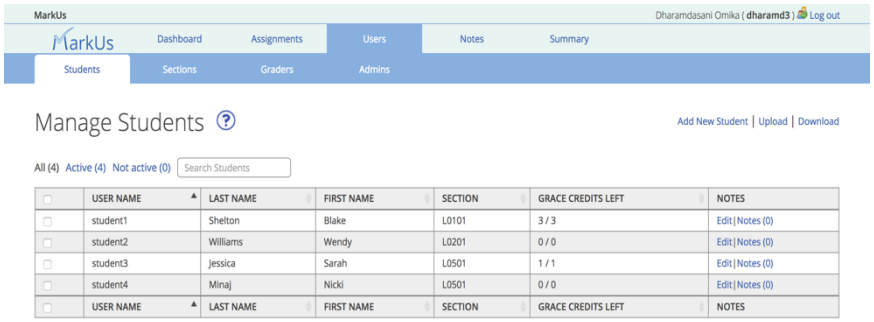


	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	student4		0		1		1		1.2		0.8			0/0					
2	student5		0		1		1		1.2		0.8			0/0					
3	student8		0		1		1		1.2		0.8			0/0					
4	student1	76.25	3.05	1	1	0.75	1	0.9	1.2	0.4	0.8	0	0	03-Mar					
5	student9		0		1		1		1.2		0.8			0/0					
6	student10		0		1		1		1.2		0.8			0/0					
7	student2	142.5	5.7	1	1	0.5	1	1.2	1.2	0	0.8	3	0	0/0					
8	student3		0		1		1		1.2		0.8			01-Jan					
9	student7		0		1		1		1.2		0.8			0/0					
10	student6		0		1		1		1.2		0.8			0/0					
11																			
12																			
13																			

Scenario 7: Add grace credits for every student:

Some instructors like to assign grace credits, or grace tokens to every student. These credits let students submit assignments after the due date has passed, depending on how many credits (hours) they have left. Assigning these grace credits to students was not easy to do, because the system only let me input the grace credits each student had remaining. There was no clear way to add the total grace credits that every student starts out with. In other words, the denominator for all the students is not the same e.g. student1 has 3/3 credits left while student2 has 0/3 credits left.

Heuristics violated: H10 (Help)
Severity Rating: 2



	USER NAME	LAST NAME	FIRST NAME	SECTION	GRACE CREDITS LEFT	NOTES
	student1	Shelton	Blake	L0101	3 / 3	Edit | Notes (0)
	student2	Williams	Wendy	L0201	0 / 0	Edit | Notes (0)
	student3	Jessica	Sarah	L0501	1 / 1	Edit | Notes (0)
	student4	Minaj	Nicki	L0501	0 / 0	Edit | Notes (0)
	USER NAME	LAST NAME	FIRST NAME	SECTION	GRACE CREDITS LEFT	NOTES

Teaching Assistant:

Scenario 1: Add bonus marks:

Sometimes, a TA might need to add bonus marks to a submission due to extra effort on the part of the student. This can be done fairly easily on MarkUs. No usability problems were identified in this step.

Scenario 2: Release/unrelease marks:

Every TA can release or unrelease the marks of all student submissions assigned to them. This can cause unnecessary problems between instructors and TAs, because some TAs may release marks before others. Due to the difficulty of coordinating the release times, only the instructor or a head TA should have the freedom to perform this task.

Heuristics violated: H5 (Prevention), H7 (Flexibility)
Severity Rating: 2

Scenario 3: Add a new note:

A TA might need to add a note to be reminded of important messages from the instructor, or something pertaining to a particular student. This can be done fairly easily on MarkUs and it does not give rise to any usability problems.

Student:

Scenario 1: Send a remark request:

Students may need to submit remark requests when they think there has been an error in marking. MarkUs lets students save these requests and edit them as needed before sending the final draft to the instructor. Minimal effort is required to do this and no usability problems are encountered in this step.

Scenario 2: Peer-review an assignment:

Since this step could not be completed by the instructor, it could not be tested in the student view either.

Heuristics violated: Unknown
Severity Rating: Unknown

Scenario 3: Group formation:

Task 1: Invite someone to join a group: It was easy to accomplish this task and no usability problems were identified.

Task 2: Decline an invitation to join a group: It was easy to accomplish this task and no usability problems were identified.

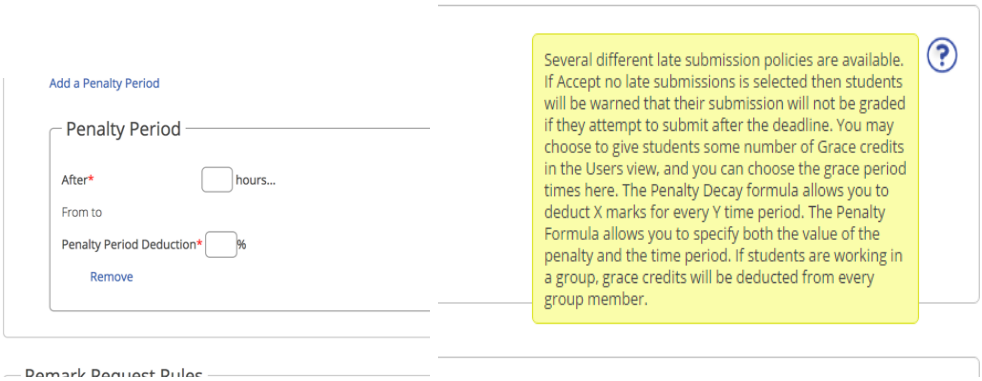
Task 3: Delete an already existing group: It was easy to accomplish this task and no usability problems were identified.

II. Evaluation notes:

Instructor:

1. Applying the lateness penalty formula was confusing due to the wording used. The “after” under the Penalty Period heading is ambiguous, particularly after the first eight-hour period has already been accounted for, i.e. after the 8 hours, are we expected to count from the due date or from the eight-hour mark? Not only this, it is also unclear whether the penalty period deduction should be cumulative or just for that particular period. Overall, the system could benefit from a less ambiguous choice of words, for instance “Up to ____ hours from the due date”. The help section on the side is not particularly useful, either. The text is very small, the explanation is not clear and different rules are not separated from each other, making it hard to find what the user is looking for.

   Heuristics violated: H4 (Consistency), H10 (Help)
   Severity Rating: 2



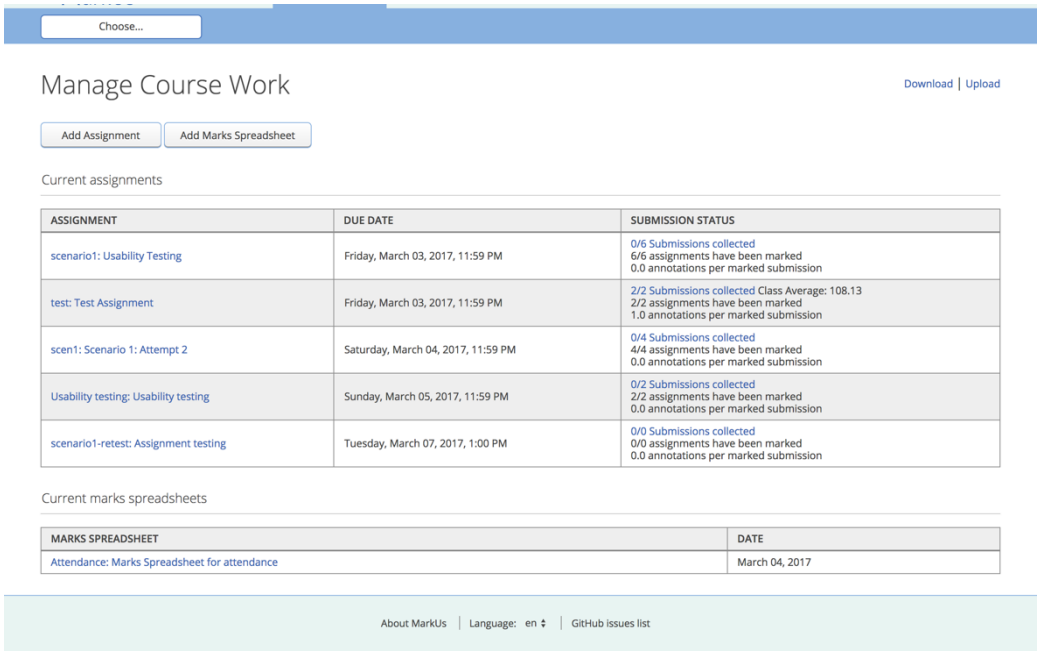
2. The instructor is not able to access the work of the markers. The only information that the instructor can see is whether the assignments have been marked and what mark has been awarded to each student. Annotations and the overall comment that the marker left cannot be viewed by the instructor. This is not ideal, because an instructor would want to keep track of how his teaching assistants are marking assignments, especially if there is a complaint against one of them.

   Heuristics violated: H2 (Real world)
   Severity Rating: 3

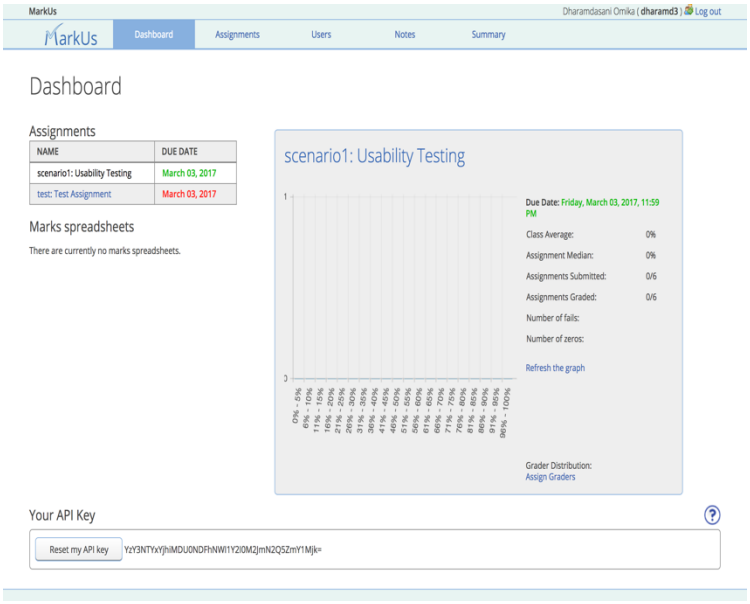
3. There is some inconsistency regarding assignment submission and collection. In the assignments section in (a), it can be seen that 0/6 assignments have been collected but 6/6 have been marked, which is extremely confusing. Another inconsistency that can be observed in (b) is that two assignments that are due at the exact same time are displayed differently on the dashboard. One of them is shown in red (overdue) while the other is not. This could be seen even after refreshing the page several times.

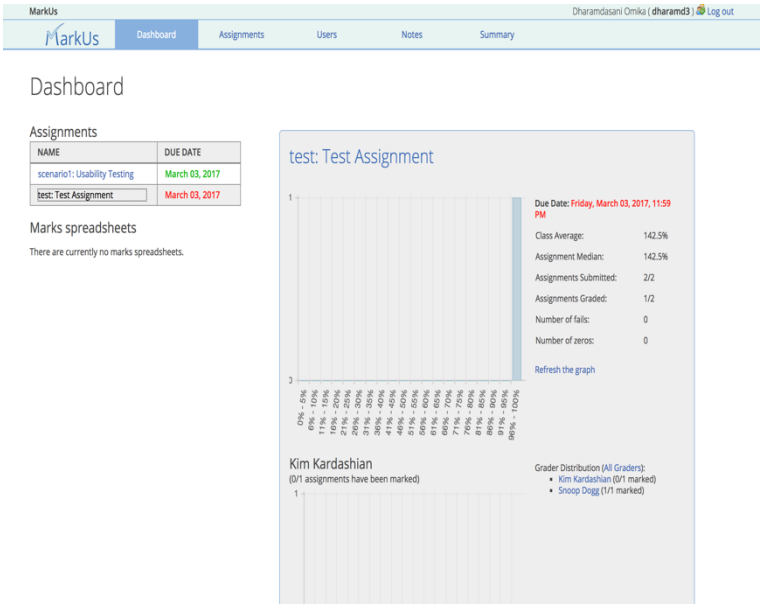
Heuristics violated: H2 (Real World), H4 (Consistency), H6 (Recognition)
Severity Rating: 2

(a)



(b)





4. It was extremely difficult to find a way to carry out a 5% grade adjustment. I was expecting a button that would let me make an adjustment to every student's marks. However, I realized after a long time that this had to be done individually for each student. This is a fairly cumbersome task, especially if the instructor has a very large group of students in the database.

Heuristics violated: H2(Real World), H4 (Consistency), H6 (Recognition), H10 (Help)
Severity Rating: 3

5. During the process of creating a marking scheme, a design problem was encountered. After one criterion is saved successfully, its details still remain on screen (pictured below) until the name of the next criterion is entered on the left. This is confusing because the details of the previous criterion are completely irrelevant to the new one. They should not be displayed on the screen together. It can also lead to the user accidentally changing the previously saved criterion in an attempt to create a new one.

Heuristics violated: H8 (Design)
Severity Rating: 1

Properties | Tags | Marking Scheme | Annotations | Test Framework

Marking Scheme: scen1

Add Criterion | Download YML | Upload YML

CRITERIA	TOTAL MARK (2.0)	VISIBILITY
Criterion name		
Criterion type: Rubric / Flexible / Checkbox		
Save changes		
Testing Procedure	1.0	
Recording of testing	1.0	

Criterion was successfully saved

Recording of testing

Delete

Criterion

Recording of testing

Weight

0.25

This criterion will be marked out of 1.0

Visibility

Make visible to teaching assistants
Make visible to peer reviewers

Save changes

Level 0

Very Poor

This criterion was not satisfied.

Level 1

Weak

This criterion was partially satisfied.

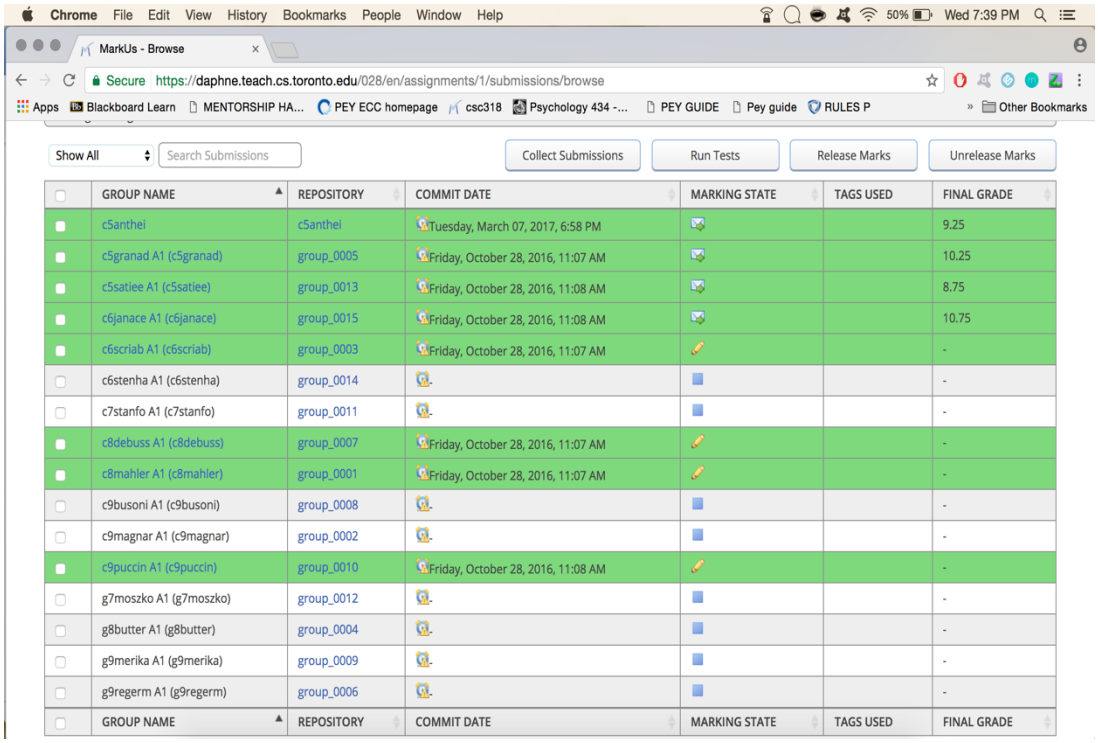
Level 2

Passable

Teaching Assistant:

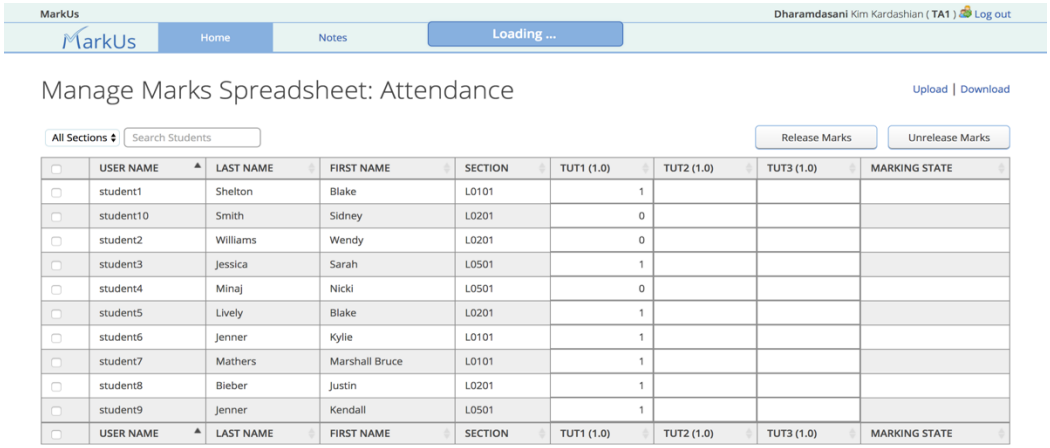
1. MarkUs uses icons to display the status of the submissions received/marking state, e.g. an envelope shows that the marks have been released, a clock shows that the submission is past the due date, a checkmark shows that the assignment has been marked and a pencil shows that marking is in progress. This poses an obvious problem – there is simply too much to remember. One has to constantly hover over the icon to see what it represents, which is quite frustrating and time-consuming. Instead of displaying icons, it would be better to present this information in one or two words, e.g. Completed, Late Submission, etc.

   Heuristics violated: H4 (Consistency), H6 (Recognition)
   Severity Rating: 2



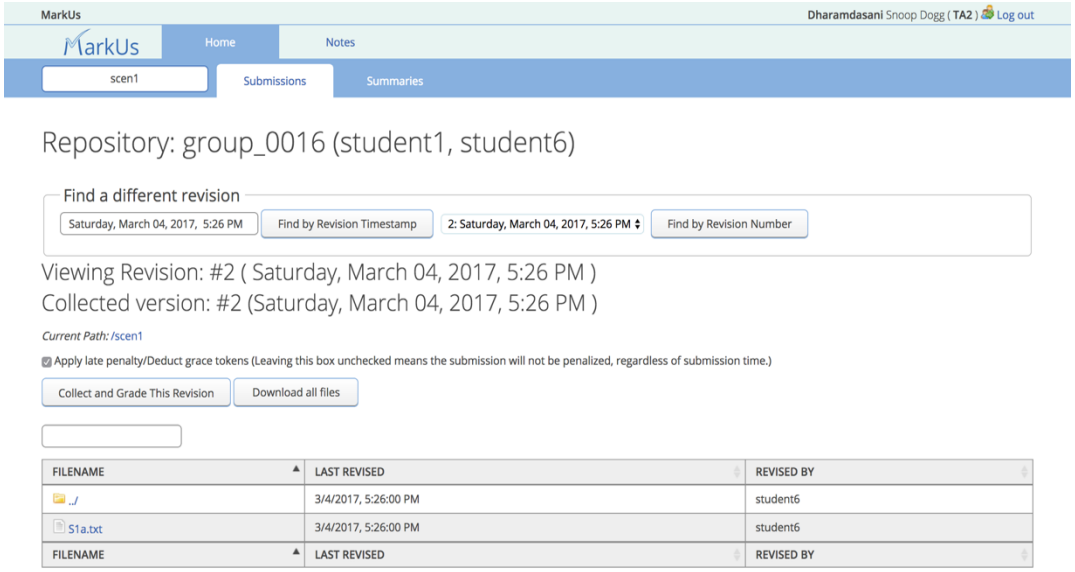
2. The process of releasing tutorial attendance marks for only ten students was not smooth. The screen became unresponsive and all I received was a “Loading…” message. Refreshing the page several times and trying to perform this task from the instructor’s account did not work as well.

Heuristics violated: H1 (Status), H3 (Control), H5 (Prevention), H9 (Recovery), H10 (Help)
Severity Rating: 4



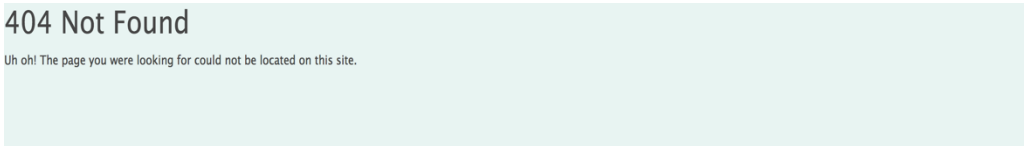
3. If a late submission rule has been specified, then graders are expected to check a box that would then apply the lateness penalty to the assignment. I believe that this is a redundant step, because if a rule has already been predetermined, then the system should calculate it automatically. It can also be problematic if a grader forgets to check this box for a student or two, because then their assignment would be graded as if they had submitted it on time, which is unfair to everyone else.

Heuristics violated: H3 (Control), H5 (Prevention), H8 (Design)
Severity Rating: 2



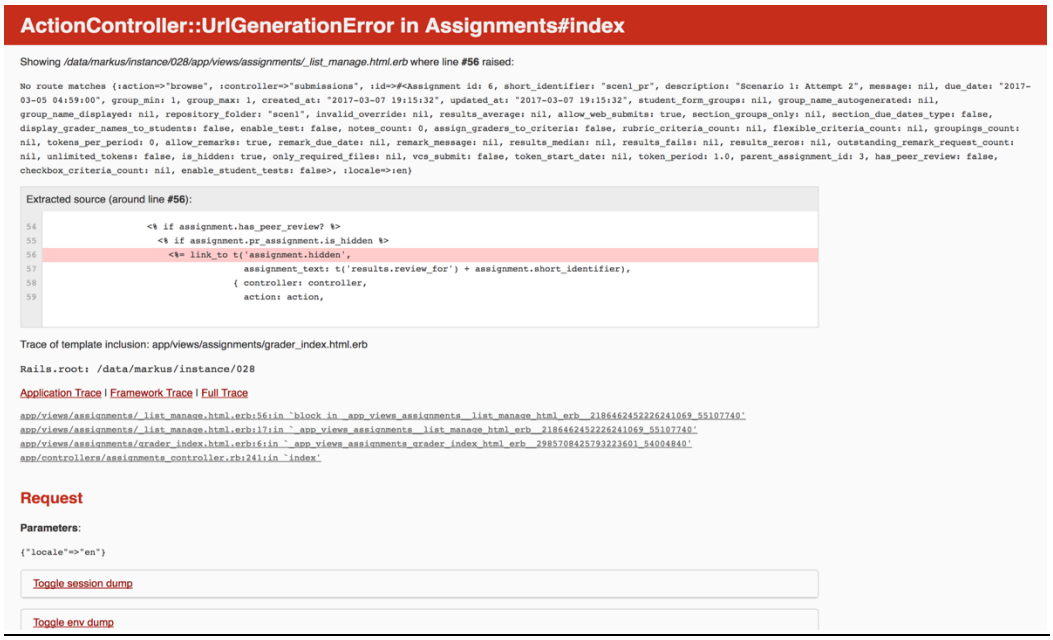
4. The TA summary page is unavailable. This is an implementation error that needs to be resolved, since TAs might need to see the summary statistics of all their students to assess their performance and report it to the instructor, if needed.

   Heuristics violated: H5 (Prevention), H9 (Recovery)
   Severity Rating: 3



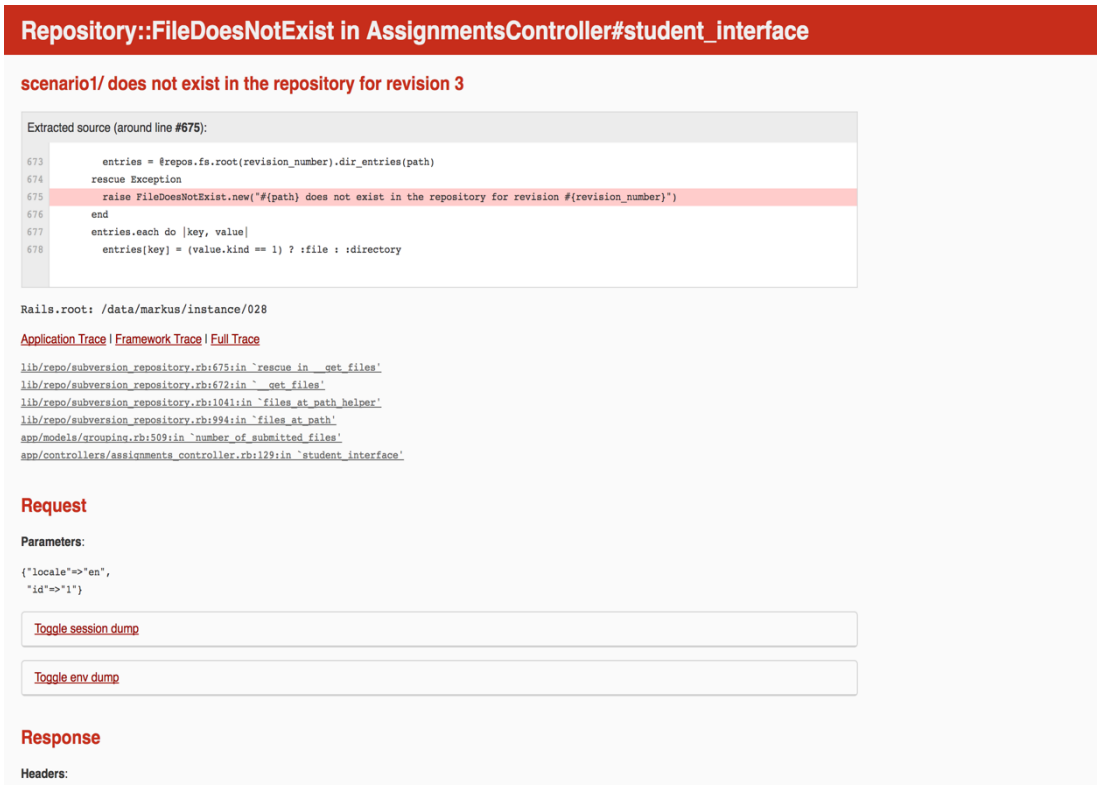
5. Towards the end of my evaluation, I could not log in as a TA. I tried to log in from multiple TA accounts to no avail. A problem seemed to have occurred, the cause of which was unknown. The error message was extremely unhelpful since it failed to describe the problem and did not offer a clear strategy to resolve it.

   Heuristics violated: H1 (Visibility of system status), H2 (Real World), H3 (Control), H5 (Prevention), H9 (Recovery), H10 (Help)
   Severity Rating: 4



Student:

1. An error message was displayed when students tried to submit a particular assignment. A lateness penalty had been specified for this assignment and submissions were made before the due date, yet the error message still prevailed. Since the error message is extremely unhelpful, neither a cause nor a solution to this problem could be identified. It should be noted that this problem only occurred for one particular assignment; submissions for other assignments were made without any problems.

   Heuristics violated: H1 (Visibility of system status), H2 (Real World), H3 (Control), H5 (Prevention), H9 (Recovery), H10 (Help)

   Severity Rating: 4