CES TEST PLAN

CEgep Heritage College

System III / 420-E31

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# Introduction

The purpose of this document is to highlight different testing methods and some tests for that method to be used on the Heritage College Course Evaluation System. The document will be covering different types of Black Box testing, including usability tests, compatibility tests, system tests, security tests and finally exploratory tests. For each different type of testing, there will be 5-10 different tests included in test case matrixes.

# Black Box Test Cases

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test Plan for Teacher | | | | | | | |
| **Test Case** | | | **Sample Data** | | **Expected result** | **Test Passed** | |
|  | Happy Path | | 420-B51-HR ✓ Start: 11/08/17 End: 11/15/17 Rmd: 11/11/17 | | Success | True | |
|  | Border case for end date | | 420-B51-HR ✓ Start: 11/08/17 End: 12/30/17 Rmd: 12/08/17 | | Success | True | |
|  | Start date and remind date are the same | | 420-B51-HR ✓ Start: 11/08/17 End: 11/15/17 Rmd: 11/08/17 | | Success | True | |
| 1. … | End date and remind date are the same | | 420-B51-HR ✓ Start: 11/08/17 End: 11/15/17 Rmd: 11/15/17 | | Success | True | |
|  | Remind date missing | | 420-B51-HR ✓ Start: 11/08/17 End: 12/31/17 Rmd: | | Success | True | |
|  | All courses are selected | | 420-B51-HR ✓ 420-C10-HR ✓ 420-C10-HR ✓ 420-C30-HR ✓ Start: 11/08/17 End: 11/15/17 Rmd: 11/011/17 | | Success | True | |
|  | No course selected | | Start: 11/08/17 End: 11/15/17 Rmd: 11/15/17 | | At least one course is required | False | |
|  | Start date before current date | | 420-B51-HR ✓ Start: 11/07/17 End: 11/15/17 Rmd: 11/15/17 | | The start date must be today or after today | False | |
|  | End date after the end of the semester | | 420-B51-HR ✓ Start: 11/08/17 End: 12/31/17 Rmd: 11/31/17 | | The end date must be before the end of the semester (2017-Dec-30) | False | |
|  | Start date is after the end date | | 420-B51-HR ✓ End: 11/08/17 Start: 11/31/17 Rmd: 11/31/17 | | The start date must be before the end date | False | |
|  | Remind date is before the start date | | 420-B51-HR ✓ Start: 11/08/17 End: 12/31/17 Rmd: 11/07/17 | | Expected: The reminder date must be between the start and end date  Actual: Passed | True - BUG | |
|  | Remind date is after the end date | | 420-B51-HR ✓ Start: 11/08/17 End: 12/31/17 Rmd: 12/07/17 | | The reminder date must be between the start and end date | False | |
|  | No start date | | 420-B51-HR ✓ Start: End: 11/15/17 Rmd: 11/11/17 | | Start date is required | False | |
|  | No end date | | 420-B51-HR ✓ Start: 11/08/17 End: Rmd: 11/11/17 | | End date is required | False | |
|  | Start date and end date are the same day | | 420-B51-HR ✓ Start: 11/15/17 End: 11/15/17 Rmd: 11/15/17 | | The start date and end date cannot be the same | False | |
| Test Plan For Student | | | | | | | | |
| **Test Case** | | **Sample Data** | | **Expected result** | | | **Test Passed** | |
| 1. | Edit email happy path | [phdumaresq@gmail.com](mailto:phdumaresq@gmail.com) | | An email will be send to [phdumaresq@gmail.com](mailto:phdumaresq@gmail.com) asking me to validate that it’s my email and I want to use it to receive notifications for CES. | | | False | |
| 2. | Edit email invalid email address | phdumaresq | | An error will come up telling me to enter a valid email address | | | False | |
| 3. | Edit email will change to the new email address once you’ve entered a valid email | [phdumaresq@gmail.com](mailto:phdumaresq@gmail.com) | | The email will be changed to [phdumaresq@gmail.com](mailto:phdumaresq@gmail.com) after changing it. | | | False | |
| 4. | Testing viewing the evaluation form on mobile | Screen width < 768px | | The screen will respond at the breakpoint and become viewable on a mobile device | | | True | |
| 5. | Clicking around a radio button on the form | Clicking right underneath the radio button | | When you click around the radio button, that button will change to the one you’ve selected | | | False | |
| 6. | Entering more than 1000 characters into any comment box will prevent you from entering any more | 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 123456789 | | The text box will not allow you to enter any extra characters | | | True | |
| 7. | submitting a blank evaluation will not let you proceed | [blank form] | | The form will not submit and ask you to fill in the survey | | | False | |
| 8. | After submitting an evaluation you cannot submit it again | N/A | | The evaluation will remain available for the entire evaluation period, but once you’ve submitted it then the evaluation gets closed to you. | | | False | |

# Usability Test Cases

Usability tests are to ensure that the system works at an acceptable level. It focuses on the things the system is currently made to do and tests “can the system do it”, as opposed to “should the system do it”, or “is this how this is supposed to work”. For example, usability test cases will make sure that use controls work properly and that the user will have a decent experience using them, but it doesn’t cover things like if a field in a form is really supposed to be there, or if the flow of something doesn’t make sense.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case** | | **Expected result** | **Actual Result** | **Test Passed** |
| 1. | Click on a text box to set the date and bring up calendar, then click away from calendar | Calendar will close automatically when you click away from it. | Calendar remains open and calendars will stack | False |
| 2. | Click the Add Question button when making an evaluation | Popup will be visible and allow you to easily add a new question. | Popup extends past the screen instead of text-wrapping. | False |
| 3. | Click the Add Question button when making an evaluation | Popup will be visible and allow you to easily add a new question. | There’s two buttons for “Select from suggested questions”, one doesn’t work | False |
| 4. | Click the “Select All” button when selecting courses to evaluate, the click “Deselect All” | All the above checkboxes are checked and then subsequently unchecked | All the above checkboxes are checked and then subsequently unchecked | True |
| 5. | Only when two valid evaluations are selected will “Compare” button become clickable on the “Compare Evaluations” page | If you select two evaluations, the button becomes re-enabled | If you select two evaluations, the button becomes re-enabled | True |
| 6. | When moving questions in the “Add suggested qestions” popup, all selected questions will be moved to the desired side. | When selecting X questions from the “Suggested Questions” to the “Chosen Questions”, all questions that have been selected are moved over to the other side. The same works vice versa when moving from the “Chosen Questions” to the “Suggested Questions” | When selecting X questions from the “Suggested Questions” to the “Chosen Questions”, all questions that have been selected are moved over to the other side. The same works vice versa when moving from the “Chosen Questions” to the “Suggested Questions” | True |
| 7. | Placement of the errors on the schedule evaluation form | When you submit the form, any fields that have errors in them are clearly marked and are obvious to see. | When you make an error selecting a course when scheduling an evaluation (either the course already has an evaluation scheduled or you didn’t select a course), the error on the field is far off to the right at the last course in the list. It isn’t very noticeable at first glance. | Fail |
| 8. | All controls should be obvious as to what they do and shouldn’t have unexpected or uncertain functionality. | When viewing all questions that will appear in an evaluation all the controls in the table of questions should be obvious. | Near the bottom of the table there’s a bunch of questions that have checkmarks next to them. These questions have no obvious similarities between the suggesting what the buttons do and the column isn’t marked, so their functionality is vague. It’s only once you’ve submitted the form that you know they’re meant to include the question in the evaluation. | Fail |
| 9. | When you click the “About CES” button on any page it will not disrupt the page at all. | When closing the little dialog box on “View Usage” page for the admin, the page will remain the same after closing it. | When closing the little dialog box on “View Usage” page for the admin, the whole page gets reset. The tab view will be cleared, the current graph you’re viewing will disappear, etc. | Fail |
| 10. | Viewing statistics for a given course | If you can’t view the stats for a course, it won’t appear in the list | All courses will appear in the list, even if that class has no statistics associated with it. | Fail |

# Compatibility Test Cases

Compatibility test cases are crucial to making sure that the system is accessible as possible to everyone. It focuses on making sure that regardless of the environment that the system is accessed from, it will continue to work the way that it is expected to. The biggest test case for this is making sure that it works across a wide variety of different browsers for example. Does it work the same way on Chrome as it does on Firefox? The other major thing it looks for is whether the system is usable on a mobile device. If the system is not able to scale down to fit a mobile screen, then a very large percentage of users will have a very difficult time using the system.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case** | | **Expected result** | **Actual Result** | **Test Passed** |
| 1. | Using the website on mobile | The site is mobile responsive, looks good and is usable on mobile | The system is not at all mobile responsive. | Fail |
| 2. | Using the system on different browsers | The system works the same on all browsers with nothing broken on older browsers or version of that browser. | The system works the same on all browsers. IE is slow though… | True |
| 3. | Using the system on different OSs | The system should behave the same across the different operating systems. | The system doesn’t behave any differently | True |
| 4. | Using the system from external network | The system is accessible from outside the host network | The system is accessible from outside the host network | True |
| 5. | Using the system on different hardware architectures | The system should behave the same across different hardware | The system doesn’t behave any differently | True |

# System Test Cases

System level test cases are very high level and make sure that the whole system works as a whole. Can you work the flow between each different type of user in the system? Will changes made in one part of the system be properly reflected everywhere throughout? System test cases make sure that the system works according to the use cases for the system.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Scenario/Condition** | **Purpose** | **Expected result** |
| 1. | Sysadmin/Manage Questions: The System administrator can CRUD questions that are used throughout the college | The purpose of this test is to ensure that the System administrator is able to properly Create/Update/Delete questions to be used on the self-evaluations across the college. | When the system administrator selects “Add Question”, a popup will appear with a simple form to add a question.  When the system administrator selects to add a new mandatory question, the question will appear along with the other questions of that type when viewing the questions.  When the system administrator selects to add a new optional question, the question will appear along with the other questions of that type when viewing the questions.  When the system administrator selects to edit a question, they are given the option to change the type of question, and the question itself but not whether it’s mandatory.  When the system administrator selects to update the question, the old question will be replaced with whatever the user changed it to.  When the system administrator cancels an edit, any changes they made will be reverted.  When the system administrator selects to delete a question, that question will be deleted from the list of questions.  When the system administrator chooses to re-order the questions, the questions will be re-arranged and this change will be visible when viewing questions as a teacher. |
| 2. | Teacher/Schedule Evaluation: select course(s) to evaluate and choose the start/end/reminder date for the evaluation. | Make sure that all the validation for the “Schedule Evaluation” form works. | If you enter no courses, then the validation will fail and tell you to enter at least one course.  If you enter a course with an evaluation scheduled during that period then the course will have an error saying an evaluation is already scheduled.  If you enter an invalid start date, then the validation will fail and tell you to enter a valid start date  If you enter an invalid start date, then the validation will fail and tell you to enter a valid end date  If you enter an invalid reminder date, then the validation will fail and tell you to enter a valid reminder date |
| 3. | Teacher/Schedule Evaluation: select questions to appear in the evaluation and adding new questions to the evaluation. | Make sure that a teacher is able to re-order questions inside the evaluation, that they can choose which questions are included in the evaluation and that they can add a new question to the evaluation. | When a teacher clicks the up or down arrow on a question the positioning of that question will get changed and will appear in the new order.  When a teacher checks a question, that optional question will appear in the evaluation.  When the teacher selects to create a new question for the evaluation, the question will be successfully added to the end of the list of questions.  When the teacher selects to add a new question from a list of suggested questions, all selected questions will be added to the evaluation.  When the teacher selects to remove a question from the list of suggested questions, all selected questions will be removed from the list of questions. |
| 4. | Teacher/Schedule Evaluation: Writing a custom email to send out to the students to alert them that they have a new scheduled evaluation. | Make sure that the teacher is able to send out an email properly to all the students and themselves telling them when they have an evaluation open and reminding them when on the reminder date they have an evaluation to complete. | When a teacher changes the email body, that will be send in the email as the body and it will not just be the default.  When a teacher changes the email subject, that will be sent in the email as the subject and it will not just be sent as the default.  When the teacher clicks the checkbox they will be added to the distribution list for the email.  When the teacher selects to preview the email, the email will appear exactly as they entered in the subject and the message.  When they finish previewing the email and return to send/edit it more, the email will be the same as how they left it.  When they click send, all students will receive an email when the evaluation has been opened up to them.  On the reminder date, everyone on the distribution list will receive an email reminding them to completed the scheduled evaluation.  The teacher will receive the same emails as the students. |
| 5. | Teacher/View Evaluation: The scheduled evaluation appears in the list of scheduled evaluations | Make sure that the evaluation was properly scheduled and the evaluation can now be viewed and edited until the evaluation is scheduled to begin. | When a teacher selects a semester in the list of semesters they’ve taught, all their courses for that semester will appear.  When a teacher selects a course in the list of courses they taught that semester, all of their courses will appear in order of when they’re scheduled for.  When a teacher selects to edit an evaluation for a given course, if that evaluation is not finished, they will be able to modify the end and reminder date for that evaluation.  When a teacher selects to delete an evaluation for a course, that evaluation will be successfully deleted.  If an evaluation is currently in progress, a teacher won’t have the option to delete the evaluation.  When a teacher clicks “View Questions”, they will be brought to a new page with all of the questions they included in order that they included them in. |
| 6. | Teacher/Compare Evaluation: Test to make sure two different evaluations can be compared side by side and the system will generate PDFs comparing the two evaluations on the fly. | The purpose of this is to make sure that you can properly compare two different evaluations that have been completed and view the side by side statistics for each of the different questions in the evaluations. | When you have no evaluations selected, the “Compare” button is not clickable.  When you have the same course selected for both of the checkboxes, if you click the “Compare” button, it will throw an error saying you can’t compare two of the same evaluation.  When you click to compare two different evaluations, it will open up the comparison of the two evaluations in a PDF that the system will generate on the fly.  When you have multiple different evaluations that have been scheduled for a single course in a semester, all of those evaluations will appear in order of date when the proper semester is selected. |
| 7. | Student/View Evaluations: Make sure that a student is able to see all of the evaluations that have been scheduled for them and not yet completed | The purpose of this testing is to make sure that a student is able to fully use the ViewStudentEvaluation page and open up evaluations and change their email. | When a student chooses to change their notification email, if they enter an invalid email address, they will receive an error telling them to enter a valid email.  When a student enters a valid email address, they will receive an email to their inbox with a message telling them to confirm that that is their email address.  When the student goes to their inbox, they have an email with a link confirming that it is their new email address.  When a student confirms the email address, their notification email in that box will change.  When a student clicks to do an evaluation, they will be brought to that evaluation page. |
| 8. | Student/Evaluate course: Test that a student is able to complete and evaluation and their input is validated and the correct content appears. | The purpose of this test is to make sure that a student is able to see the evaluation as the teacher intended it to be – with the correct questions and in the right order, and the student is able to properly complete the evaluation. | When a student first opens up the EvaluateCourse page, they are able to see all the questions that the teacher selected to include in that evaluation.  When a student first opens up the Evaluate course page, all the questions that appear on the page appear in the order that the teacher intended for them to appear.  When a student clicks on a radio button, that option will be selected and the previously selected option unselected.  When a student enters information into comments or into the open-ended questions, they cannot enter more than 1000 characters as their answer.  When a student submits the evaluation, the evaluation will be sent back to the teacher anonymously. |
| 9. | Teacher/View Evaluations: Make sure that a teacher is able to properly see the statistics for an evaluation that has been completed or that has submissions to it. | The purpose of this test is to make sure that the answers are properly recorded and they can be analyzed by the system properly and outputted to a PDF file. | When a teacher selects the radio button for one of their courses with a completed evaluation, that evaluation appears with a checkbox next to it.  When the teacher selects that checkbox, they can click “View Summary Report” and it will generate a PDF document containing all of the data for the answers submitted to each question by all of the students.  When the teacher selects the checkbox, they can click “Browse individual responses” and scroll through all the responses for each student, however these responses are 100% anonymized.  When logged in as userte, you can view all of the evaluations for any teacher in the department for a given semester.  When logged in as userte, you can view the summary report or browse the individual responses for any evaluation that has been completed for any teacher in the department. |
| 10. | Sysadmin/View Usage: Test that the system administrator is able to properly view all the statistics for the usage of the CES system across the school. | The purpose of this test is to ensure that the System administrator has access to viewing the statistics for the usage of the CES system across all departments in the school to verify its usage. | When the System administrator selects a semester from the dropdown menu, they can see the percentage of courses evaluated that used the system.  When the System administrator selects a semester from the dropdown menu, they can see the total average response rate for the answers to the questions.  When the System administrator selects a semester from the dropdown menu, a graph with the usage trend will appear below under the college tab.  When they click the “Programs” tab, you can see a list of all of the different programs that had evaluations completed for that semester.  When you click on “View Trend” for any program under the “Programs” tab, you can see the Usage trend for that program in a graph below. |

# Security Test Cases

The purpose of security test cases is to ensure that the system is of the highest integrity possible. It deals with making sure that the system cannot easily be broken or that the system data cannot be corrupted. Security testing ensures that the privacy of each user is upheld and that users can only see what they’re authorized to see. It also deals in making sure that the system cannot be broken into by external attackers. If someone tries to hack the system, will the system have the proper measures in place to defend itself against the hacker?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case** | | **Expected result** | **Actual Result** | **Test Passed** |
| 1. | Authenticating the user | When the user enters the password incorrectly, the system will not allow them onto that account. | An incorrect password prevents the user from logging on. | True |
| 2. | Authorizing a student | The student is expected to be logged into a student account and not able to access a teacher account. | The student cannot access a teacher account | True |
| 3. | Student answers should be anonymous to provide student confidentiality. | The teacher cannot see the student’s individual answers. | The teacher cannot see who replied what to any questions. | True |
| 4. | Student cannot re-enter an evaluation after submitting it. | Once the student has clicked the submit button on an evaluation, they no longer have access to that evaluation. | Backspacing will return you to the view evaluations and won’t allow you to re-enter one that you’ve started. | True |
| 5. | The system protects against XSS attacks | If you enter a script tag into any given text box, that script tag should not be executed by the browser. | There was nowhere I could find where entering JavaScript the code would be evaluated once submitted. | True |
| 6. | The system protects against SQL injection attacks | If you attempt to enter a SQL query into any of the text boxes, that SQL query will not be executed by the database engine. | There was nowhere I could find where the SQL code entered was run on the database. I logged into CSTEST in SQL management studio and didn’t see any changes. | True |
| 7. | You can only navigate to pages you’re authorized to use. | If you change the URL to something specific to a different type of user, the system will not allow you access to that URL | The system redirects you to the URL you’re currently on. | True |
| 8. | You cannot access the account of a previously logged in user | If a user logs off the system, if you click back in the browser you won’t be able to use the account. | If you click backspace once, the system will do as it should and refresh on the login page, but if you click it multiple times it’ll step back into the previously used account. | Fail. |
| 9. | A teacher can only see their own evaluations. | A teacher can’t see evaluations for other teachers or made by other teachers. | Teachers only have access to their own evaluations. | True |
| 10. | You can only complete a single evaluation a single time. | If you complete an evaluation and return to your view evaluations page, you shouldn’t see the one you just completed. | You can redo an evaluation as many times as you want. | False. |

# Exploratory Test Cases

Exploratory tests are done by the users of the system playing with it and trying to discover unintended functionality in the system. Clicking around in different places or performing random sequences of button clicks can yield unusual results, so exploratory testing aims to uncover any bizarre situations where the system can break by clicking buttons in an odd order. It is informal testing, so you simply write down test cases as errors in the system appear.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case** | | **Expected result** | **Actual Result** | **Steps to Reproduce** |
| 1. | Closing the about CES dialog box | The dialog will smoothly close without interrupting anything. | The page will refresh when you close it. | At the bottom of any page, click the “About CES” Link button in the footer. Scroll to the bottom of it and click close. |
| 2. | Contacting the system administrator | When you click to contact the system admin it will bring you to email with Maurice Lafleur as recipient | The recipient of the email is Susan Turanyi | Navigate to the login page, click the System Administrator link on the left of the log in form. |
| 3. | Viewing a sample of the email to students when making an evaluation. | When you clear the subject and the body, you would expect the subject and the body to stay blank and not validate when submitting. | If you click to view a sample of the email, when you go back to creating the email, the subject and the body will be reset to the default. | Begin creating an evaluation up to the point of creating the email to send to student. Make the subject blank and change the body. Click to view a sample email. Click to return to the email. The subject and the body will be reset. |
| 4. | Switching semesters when looking at evaluated teachers in the view evaluations. | If a teacher has a table of evaluations in one semester but not the next, when changing semester, the table disappears. | The table stays when changing semesters and only disappears when you click a teacher NOT associated with the evaluation in the table. | Logged in as userte, navigate to the View Evaluations page. At the bottom, in the select a semester dropdown, select winter 2012. A table appears with an evaluation for Susan. Change the semester to Winter 2015. The table doesn’t disappear. |
| 5. | When updating a question in the evaluation, it will modify the question | The row in the database gets updated with the new string. | A new row is added to the database and the question is just associated to that new row. | Navigate to the manage questions page. Click to edit the question. Modify the question, then click to save your changes. Check the database, and an entirely new row has been created. |
| 6. | When logged in as a student, a verification email is sent to change your email | When you change emails, a verification email is supposed to be sent to the email address that you enter. | An email was never received when I tried changing my email. | Navigate to the home for students. Click edit for email. Change the email address. Save it. Check the inbox for the email you entered and the email will not be there. |
| 7. | When logged in as a student, you can change the email you want your notifications sent to. | If you change emails, it should be saved as whatever you’ve modified it to be. | The email reverts back to the original every time you save it | Navigate to the home for students. Click edit for email. Change the email address. Save it. It will revert back to the original. |
| 8. | Your personal notification email is validated | When changing your email on the student home page, if you enter an invalid email address the system won’t let you change it. | The email does not get validated and you can enter whatever you want. | Navigate to home for the student. Click edit for email. Change the email address to something invalid and save it. The email will just be reverted back to the original and will let you submit without validating it. |
| 9. | After logging out, you’re blocked from re-entering the account. | If you log out of an account and the click back, you’re going to be redirected to log in repeatedly. | If you click back twice, you’ll re-enter the logged in account but won’t be able to click anything. But you can still see the data. | Log into a teacher account. Click a couple random links, then log out. Click back once and it’ll redirect to the login page. Click it a second time and you’re back in the account. You aren’t logged into the account so you can’t do anything, but you can see all the data. |
| 10. | If you swap between a student and any other account rapidly multiple time, you can keep doing that. | When swapping between userte and 1111111 multiple times, you can keep doing that forever without any sort of consequences. | If you do it enough times, eventually the user 1111111 will get locked out of the account. It will say that you’re already logged in and won’t let you re-gain access to the account. You need to wait a certain period of time. | Log in as userte. Log out. Log in a 1111111. Log out. Repeat multiple times, and eventually user 1111111 will get locked out of the account and you won’t be able to re-enter it for a couple minutes. Userte/ad/ce don’t seem to lock up as many times as you do this. |

# Conclusion

In conclusion, there are many different types of tests that you can do black box testing on the Heritage College Course Evaluation System. This document only covered a small number of different types of testing that could be done against the system, and only covered a number of the possible different test cases that could’ve been performed. There’s very little upper bound to how much testing you can perform on a system.