Acceptance testing

* System generates set of 2 equations with two variables (2 x 3 matrix)
* Student can access the question page
* Home controller is called upon to generate question page when student clicks the question link
* Student can create matrix with provided prompt box
* Student can fill in generated matrix
* Student can submit question for grading
* When question is submitted answers will be extracted by the home controller
* System will grade question
* Grade checker component will take the answers passed in parameters from the home controller
* System will return results of question
* Results will be passed from the grade checker as correct or incorrect strings, the home controller will take these returned results and generate it on the question page
* Student can access student home
* Student can enter url and the home page will be populated by the home controller

Integration testing

* When home url is entered student home will be displayed
* Will be populated by the home controller
* When student clicks a HW link the home controller will be accessed to generate system of equations
* The aspx file for the question page via the code behind and frontal aspx sections will populate the system of equations in a div
* When student submits answer home controller will get called to grade the question
* The aspx file for the question page will take the answers submitted by the student and send the answers to the grading component class which will dynamically check the student's answers with the solution for the given problem matrix

Unit testing

* Matrix generation
* Generate a 2 by 3 matrix
* Generated text box(es) in which the student can enter the coefficients
* Ensure that there are no free variables in the matrix
* Generate a solution for a 2 x 3 matrix
* The matrix generation will use a specific algorithm to create the solution and put these solutions in a list that functions as the key
* Generate a 2 x 3 matrix based on the solution
* The matrix generation component will create the matrix, coefficients and all in a div
* User Interface
* Student can enter the home url to access home page
* When home url is entered the page will populate from the home controller
* Student can click a link to access question page
* The home controller will generate the system of equations to solve
* User can create a matrix to input coefficients into it
* The home controller will create a div that allows the user to input their matrix
* User can submit the problem for grading
* The home controller will take the matrix entered in the text in the div and take the solutions, passing them to the grade checking component
* Grade Checker
* Takes solutions from controller that was extracted or converted from the submitted question
* The solutions will be passed to the grade checker through two parameters, one representing the user's solutions in an int array and one representing the actual solutions in a list
* Checks against a key with actual solution
* The solutions will be passed to the grade checker through two parameters, one representing the user's solutions in an int array and one representing the actual solutions in a list, they will then be compared to each other in a loop with if and else logic
* Returns correct if all solutions are correct, incorrect otherwise
* The correct or incorrect confirmation will be returned as a string to the code behind page for the Question aspx file