NEO LEARNING SYSTEMS

DESIGN DOCUMENT
PRINCIPAL APP

APRIL 2017

VERSION 1.5

CONFIDENTIAL

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2   OVERVIEW

Development of the Principal App will be broken down across the various screens shown in the demo app. Development of the individual screen within the Principal app should happen in the following order: Subjects, Calendar, Administration, and Historical Trend. There are other screens in the demo (Teachers, Courses, and Students), however they will be developed at some later date (to be determined in the future).

2.1   PROJECT OBJECTIVES

The project must meet the following general objectives (specific objectives and project deliverables will be covered in other sections of this document).

- Recreate the features and functions of the NLS demo for the user roles of Student, Teacher, Principal, Board, Ministry, and Admin and as detailed in this document or other related documents.

- Recreate the visual styling of the NLS demo.

- Create the appropriate level of application security for all user roles.

3   SUBJECTS TAB

Please note: this screen has been substantially changed from how the demo currently works.

The Subjects tab (Figure 1 below) is used by the principal role to view student assessment results from the perspective of different subjects across the entire school. All the data on this screen (and the related drill-down screens) is read-only; the user cannot change, modify or delete any student data from the Subjects tab.
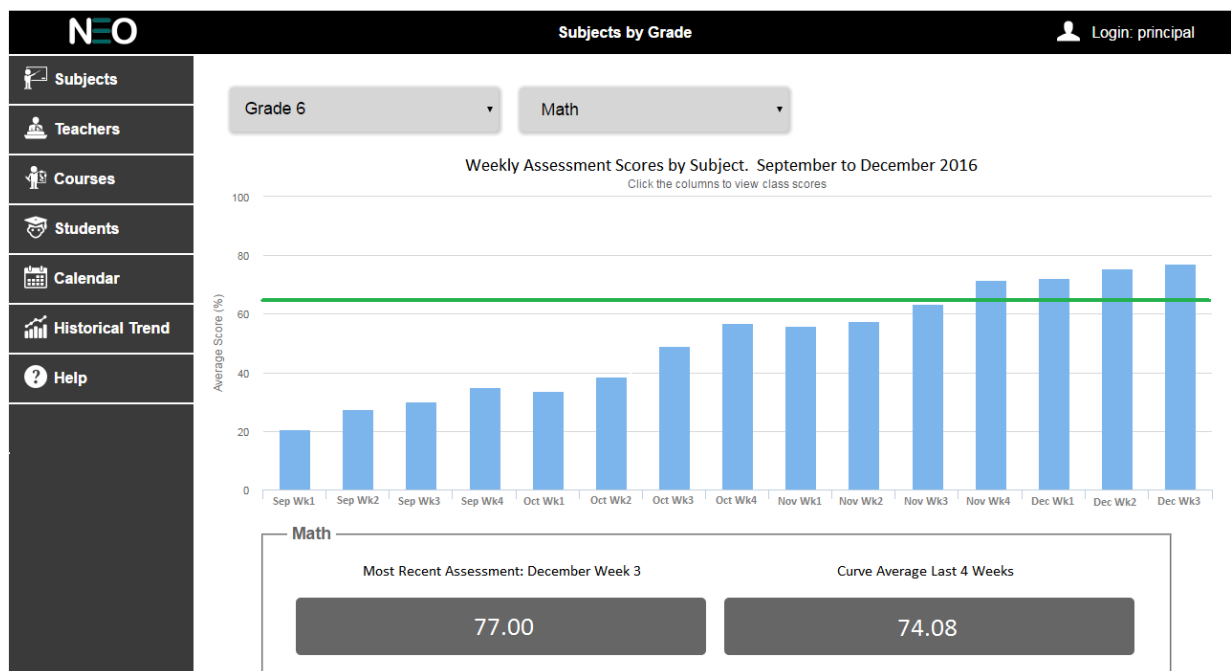
UI Elements on this screen include: the main bar graph that stretches to fill the available screen width (the standard height should be hard coded), filtered drop list for grade and course, and a field set for subject related calculations.

3.1.1   FILTER SELECTION

The Grade drop list should be a filtered list of grades that are being taught at the school (database location) for the user currently logged in.

The Course drop list should also be populated by a database query using the selected grade above and the currently logged in User location as filters.

The order of the filters is reversed from those in the Teacher App; the Grade drop list is first in the filter order followed by the Course filter. ***Please note: this screen has been changed from how the Teacher App currently works.***

Grade 6 ▾	Math ▾

Figure 2: Course and Grade Filters

By default, the Grade and Course should be set to the first available options for the logged in user. This way, some default data can be displayed to the user when they first log in or select this tab. This should be common for all tabs related to data analysis.

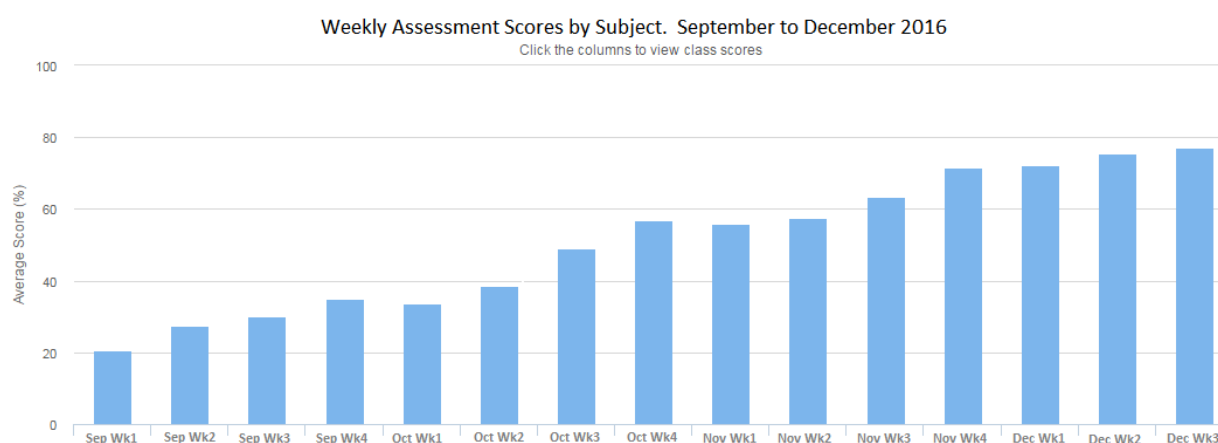### 3.1.2   ASSESSMENT SCORES BY SUBJECT GRAPH

Figure 3: Assessment Scores by Subject Graph

All of the graphs developed for the Principal app should make use of High Charts.

The graph on this screen is interactive in that it includes tooltips that appear as the pointer rolls over a datapoint or bar. Also, the graph is drillable so that clicking on a column on the graph will take the user to another screen with a deeper analysis of the data (again, see following sections for more detail on interactivity). The user can also select, using the drop list, among the various courses and grades in their school, and the chart will filter the displayed data accordingly.

The y-axis will reflect percentages from 0 to 100 in increments of 10, and have the title "Average Score (%)". The x-axis will reflect the weeks of the calculated average score for the selected course and grade. For example, September may have 4 or 5 weeks depending on the year (Sep Wk1 to Sep Wk4 in figure 3 above), and each week will aggregate all of the assessments and display the average score for the selected course and grade (only valid classes are included in the average).

To correctly calculate and display the Weeks, it may be necessary to create an additional database table that contains the Week information (like start and end date). This will require further discussion.

The title on the main graph should be "Assessment Scores by Subject", and should be followed by the month of the first assessment, the month of the last assessment, and the year of the last assessment.

Clicking on a column on the graph will take the user to the "Class Detail" screen; all columns will lead to the same graph. The Class Details screen will automatically filter the data based on the user's prior selection of Course and Grade. See the "Class Details" section for more information.

Only assessments that have been targeted at an entire class should be included in this data set; assessments targeted at groups or individual students should be excluded by default.

3.1.3 SUBJECT FIELD SET

Please note: this screen has been changed from how the demo currently works. The subject field set should have two elements:

- The score of the most recent assessment. The demo uses the word "Sim" or "Simulation", these should be replaced with the word "Assessment".

- A Curve Average score. This is the calculated average of the last 4 assessments for the selected course and grade.

Math

Most Recent Sim: Dec 18	Curve Average Prior 4 Sims
69.99	69.99

Figure 4: Subject Field Set

The title of the subject field set will change with the filter selection. For example, when Math is selected from the course filter drop list, that will be dynamically reflected in the fiels set title.

3.1.4 BOARD AVERAGE

The green bar that runs across the main graph represents the board average for the current week (pictured below).

Please note: This is different than how the demo currently works.
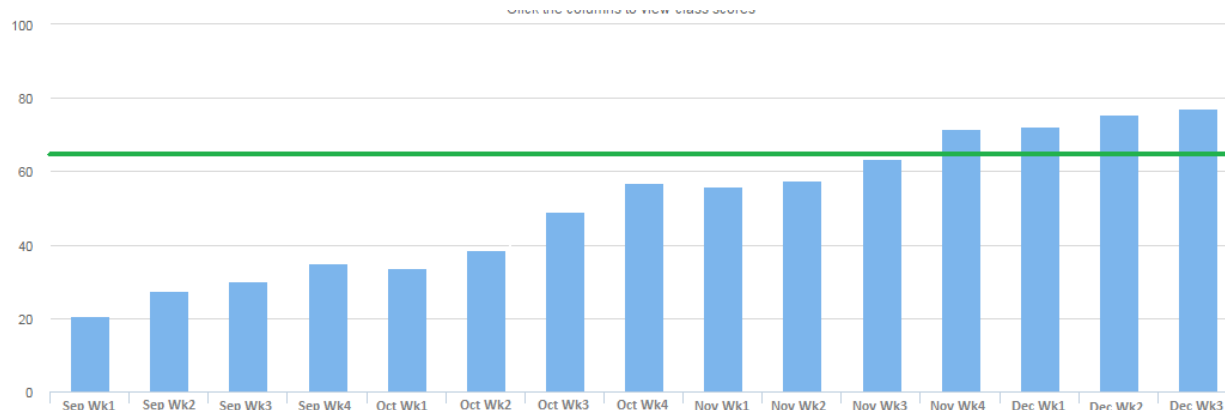
Figure 5: Board Average Line (green)

It is calculated by querying the database for all test results for each location (only those results that have been targeted at a class), finding the average score for every location, and then averaging all of these location averages. For the chart below from left to right to see an example of this calculation.

Board Locations (assume just 3 for this example)	Step 1: Query the database for all class test results (no groups or individual students)	Step 2: Calculate the average for each location	Step 3: Calculate the average across all locations
Location 1	55, 67, 89, 77, 90	75.6%	**75.56%**
Location 2	67, 78, 81	75.33%	
Location 3	72, 75, 68, 88	75.75%	

3.1.5 LOG OUT

The log out button will need to be moved so that it functions more like other current, web based apps. The button on the left-side menu bar should be removed. Users will now log out by clicking on their user icon on the top right corner of the screen.

Clicking on the icon should reveal a small pop up window with two options: log out, or change password (see figure 6 below).
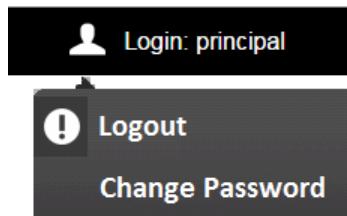
Figure 6: Logout pop up dialog

Selecting the change password option will open a small dialog window (figure 7 below is an example of something similar, however it is missing the old password field) that asks the user to enter the following:

- Their existing password

- Their new password

- Confirm their new password

After this, they should click on the Okay button. Clicking the Okay button should first check that both new passwords are exactly the same, and if true and the old password is correct, then commit the new password to the database. If the new passwords do not match, or the old password is incorrect, an appropriate error should appear and give the user a chance to re-enter their new password.
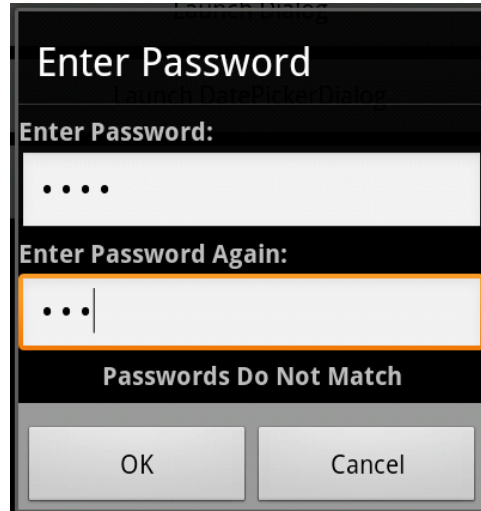
Figure 7: Password Change Dialog Example

Please use the following icons for logout and change password respectively (pictured below). The icons will be supplied upon request.
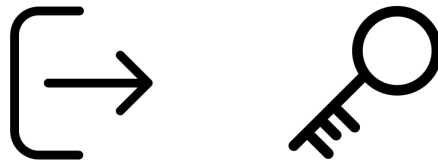
Figure 8: Logout & Change Password Icons

3.2 CLASS DETAILS

The Class Details screen (Figure 8 below) is used by the principal role to view student assessment results from the perspective of different subjects and classes across the entire school. All the data on this screen is read-only; the user cannot change, modify or delete any student data from this screen.

The Grade and Course UI elements at the top of the screen cannot be changed; they have been set by the user selections from the previous screen (Subjects). The other UI elements on this screen include the main graph ("Assessment Scores by Class"), and a button to return the users to the previous screen.
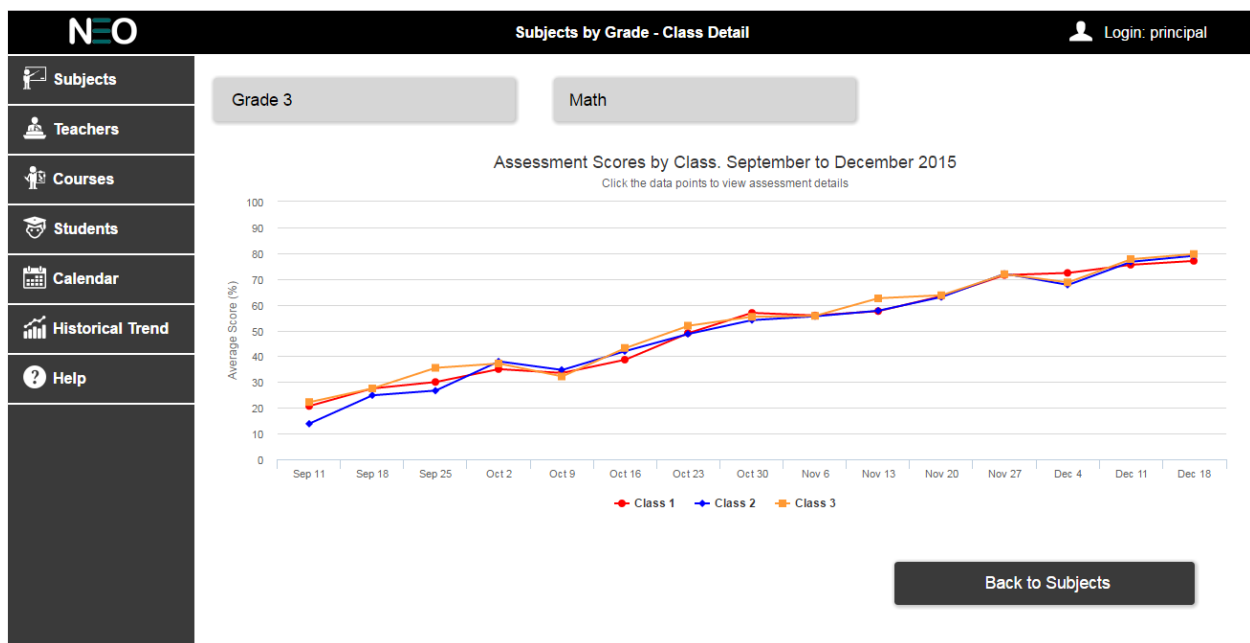
Figure 9: Class Details Screen

3.2.1 ASSESSMENT SCORES BY CLASS GRAPH

The Assesment Scores by Class graph (figure 9 below) shows class assessment results over time by the selected Course and Grade. It is very similar to the "Average Assessment Scores" graph from Classes tab in the Teacher app. However, it displays the data using a line graph, with one line for each class.
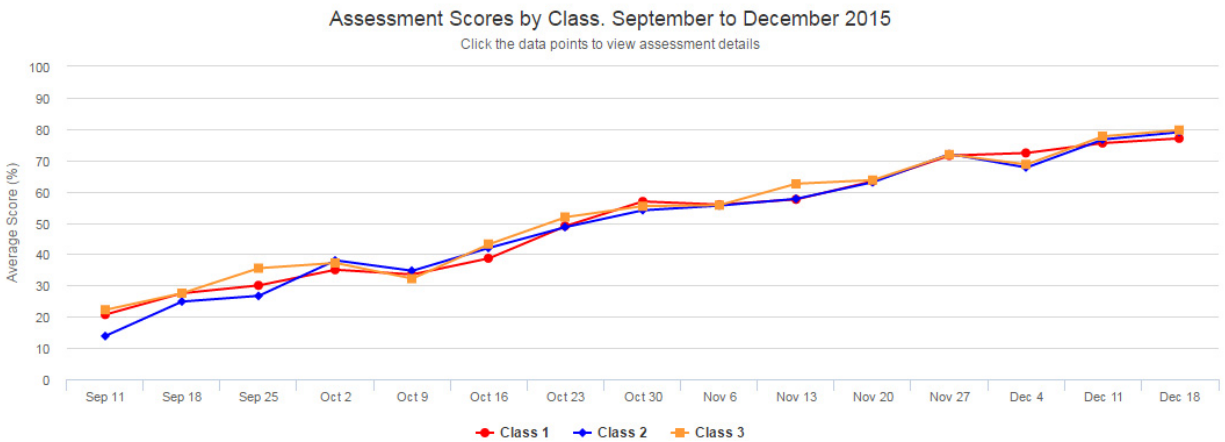
Figure 10: Assessment Scores by Class Graph

The y-axis will reflect percentages from 0 to 100 in increments of 10, and have the title "Average Score (%)". The x-axis will reflect the dates of the class assessments. Only assessments that have been targeted at an entire class should be included in this data set; assessments targeted at groups or individual students should be excluded by default.

The graph legend should be below the graph and detail the Class name for each line.

Tool tips should be displayed when rolling over a data point. The tool tip will include the Class name, the date of the assessment, and the assessment score for that class.

In the demo, this graph is drillable; this functionality will not be implemented now (we will do that at some future date). ***Please note: this is different than how the demo currently works.***

There is also a single button on this screen. Its sole function is to return the user to the previous screen (Subjects). This button should be labeled "Back to Subjects".

4 CALENDAR

The Calendar tab, pictured in Figure 10 below, is used by the principal role to review all scheduled assessments. The calendar should show all scheduled assessments for all valid classes at the user's location. No assessments can be deleted or changed (everything is read-only).
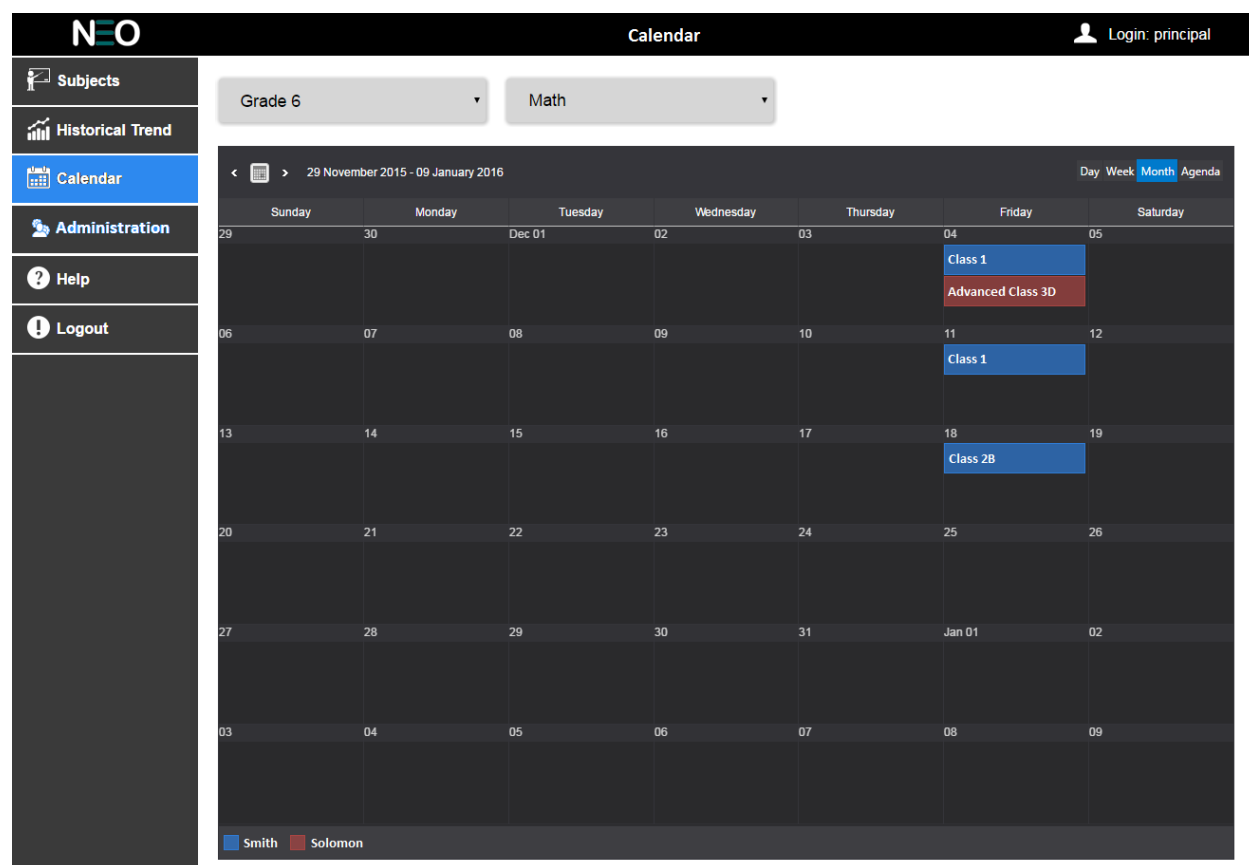
Figure 11: Calendar Tab

Unlike the Teacher app, the Principal calendar should have two filters at the top of the screen: Grade and Course. These filters will allow the principal to restrict which assessments are displayed on the calendar. For example (as picture above), selecting Grade 6 and Math will show only the assessments for valid grade 6 math classes. *Please note: this is different than how the demo currently works.*

Both the Grade and Course filters should have the option to select "All"; this will allow the principal to view all grades and all courses on the calendar at the same time.

The calendar legend should colour differentiate between teachers, and show only the teachers first and last name. The assessment block on the calendar should only display the name of the class and should be colour coded to match the teacher (as shown in the calendar legend).

The code for this calendar is supplied by jQWidgets, the same that was used for the Teacher app. This particular widget is called the jqxScheduler and documentation for it can be found using this link: http://www.jqwidgets.com/jquery-widgets-documentation/.

When opened from the left menu bar, the calendar should automatically focus on the current date in the month type view.

Double clicking on the scheduled assessment blocks will do nothing (no pop up window, unlike in the Teacher app)*.*

5 ADMINISTRATION TAB

The Administration screen will allow the user to create and/or modify Students, Teachers and Classes. The user will also be able to modify the student enrollment of specific classes for their location as well. The Administration screen is broken down into three tabs: Users, Classes and Enrollment.

The Users tab is where students and teachers are added/modified. The Classes tab is where new classes are added/modified. And the Enrollment tab is where class lists are built by adding students to classes. The logical order of operations is to first create students and teachers, second to create classes, and third is to assign students to classes.
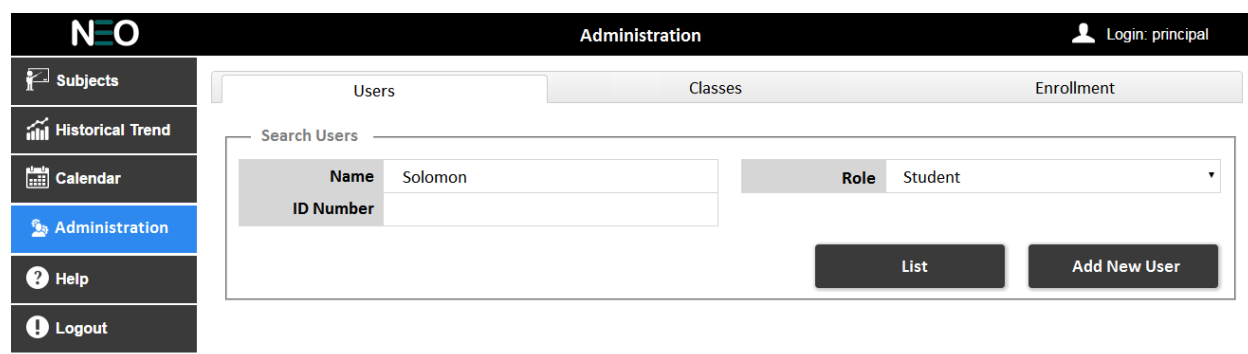
A bulk upload process of importing pre-formatted files will follow in future, but is currently out of scope for this round of development.

The active tab should be coloured white, while the inactive tabs should be greyed out (see images below).

5.1 ADDING AND MODIFYING USERS

The initial view of the Users tab is pictured below. The user will initially have the choice of searching for existing users, or adding a new user to the database.

5.1.1 MODIFYING EXISTING USERS

<div align="center">

Figure 12: Initial View of the User Tab

</div>

The Search Users field set, pictured above, will have three filters: Name, ID Number and Role. The Name field should be used for either first or last name. The ID Number field could be either the student OEN number or the teacher ID Number. The role should default to "Student". However, this field should be a drop list where the user can select any one of the following: Student, Teacher, or Principal.

The List button will query the database using selected values from the above filters. In additional to the selectable filters above, the query should also include the logged in user's default location as an additional search term.

The result of the database query should be displayed as picture below; the "Select User to Edit" field set should appear. Also, the names returned by the query should be displayed using a Z pattern; with the names displayed going back and forth between the left and right columns (as pictured below).

Every resulting name should have a check box to the left for selection purposes. While not displayed above, every name should be followed by its related ID Number; if the addition of the ID Number causes a spacing issue, then this field set should be changed to a single column display where the check box, the first name, last name and ID number occupy a single row the width of the entire field set.

Only one check box should be allowed to be selected at any given time. Attempting to select more than one name will automatically deselect any prior checked box.

Clicking the Edit button will execute a database query and reveal another field set (User Detail field set) that contains all the details for the selected user (pictured below).

The database query should return values for: first and last name, ID number, role, all contact and address information, and the users location (the school field). The Location field should **not** be a drop list (**which is different than pictured below**), rather it should default to the name of the logged in user's current location (this is a **read-only** field).

There are two buttons within this field set: Save and Cancel. The Cancel button will not save any changes the user has made, and clicking on it will step the user back to the prior field set (hiding the user detail field set in the process). Clicking on the Save button will save the user's changes to the database and return them back to the prior field set (hiding the user detail field set in the process).

Figure 14: Selected User Details to Modify

5.1.2 ADDING NEW USERS

If the user chooses to add a new student, teacher or principal, then clicking on the "Add New User" button will reveal another field set. The Add New User field set (pictured below) allows the principal to enter detailed information about a new user; first and last name, ID number, role, all contact and address information, and the users location (the school field). The Location field should default to the principal's location (**it should NOT be a drop list as pictured below**); this should be a **read-only field**.

There are two buttons within this field set: Cancel and Save. The Cancel button will ignore and changes and not create a new user. Clicking on it should return the principal to the prior field set (hiding the Add New User field set in the process).

Clicking on the Save button, should first query the database to ensure that the ID Number does **NOT** already exist. Assuming the ID Number is unique, the system will create the new user and save the entered details to the database. A brief success message should be displayed, and then the principal is returned to the prior field set (hiding the Add New User field set in the process).
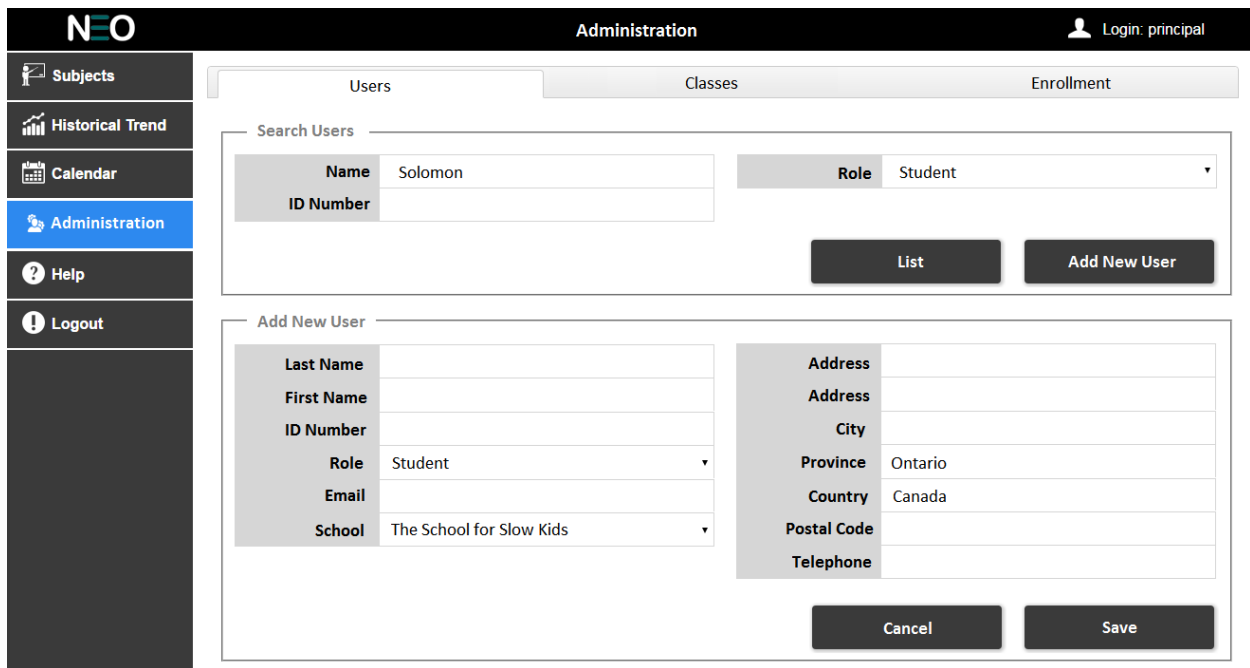
Figure 15: Add New User Field Set Shown Here

5.1.3 DATABASE TABLES TO USE

When saving user related data back to the database, the User table should be the target.

5.2 ADDING AND MODIFYING CLASSES

The initial view of the Classes tab is pictured below. The user will initially have the choice of searching for existing classes, or adding a new class to the database.
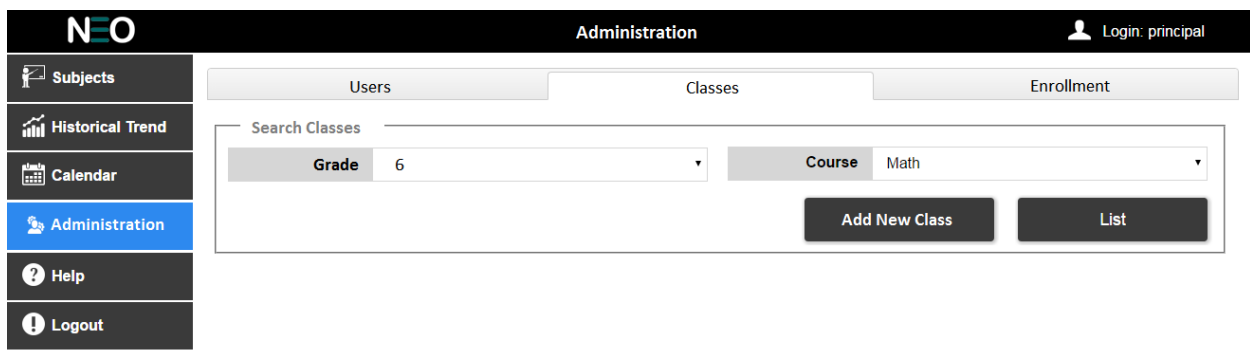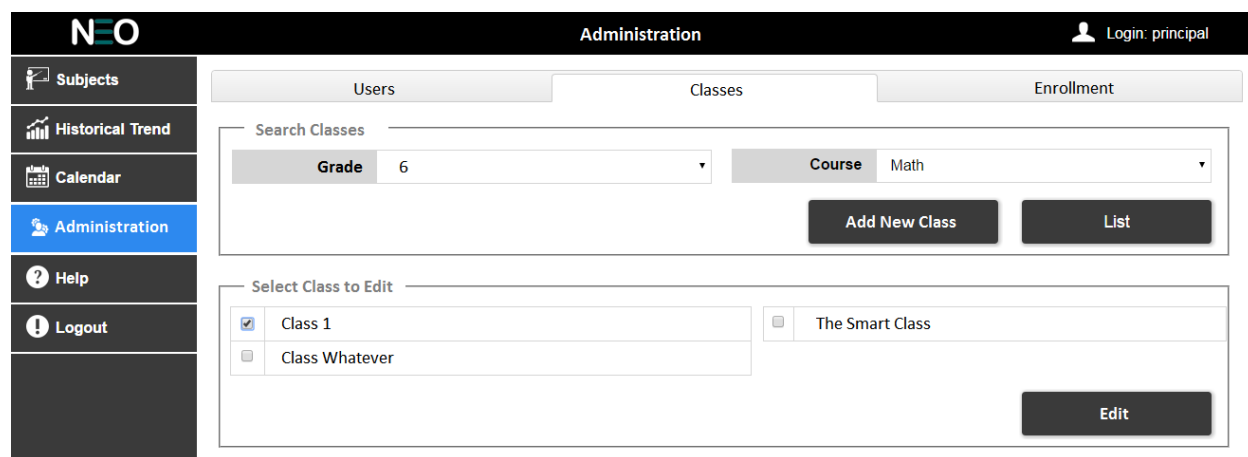
5.2.1 MODIFYING EXISTING CLASSES

Figure 16: Initial View of the Classes Tab

The Search Classes field set, picture above in Figure 16, will have two filters: Grade and Course. Both of these fields should be drop lists. However the Course filter should only display a list of valid options that are based on the Grade filter.

The List button will query the database using selected values from the above filters. In additional to the selectable filters above, the query should also include the logged in user's default location as an additional search term.

The result of the database query should be displayed as pictured below in Figure 17; the "Select Class to Edit" field set should appear. Also, the class names returned by the query should be displayed using a Z pattern; with the names displayed going back and forth between the left and right columns (as pictured below).

Figure 17: Select Class to Edit Field Set

Every resulting class name should have a check box to the left for selection purposes. Only one check box should be allowed to be selected at any given time. Attempting to select more than one class will automatically deselect any prior checked box.

Clicking the Edit button will execute a database query and reveal another field set (Class Detail field set shown in Figure 18 below) that contains all the details for the selected class.

The database query should return values for: class name, grade, course, start and end date.

There are two buttons within this field set: Save and Cancel. The Cancel button will not save any changes the user has made, and clicking on it will step the user back to the prior field set (hiding the class detail field set in the process). Clicking on the Save button will save the user's changes to the database and return them back to the prior field set (hiding the class detail field set in the process).
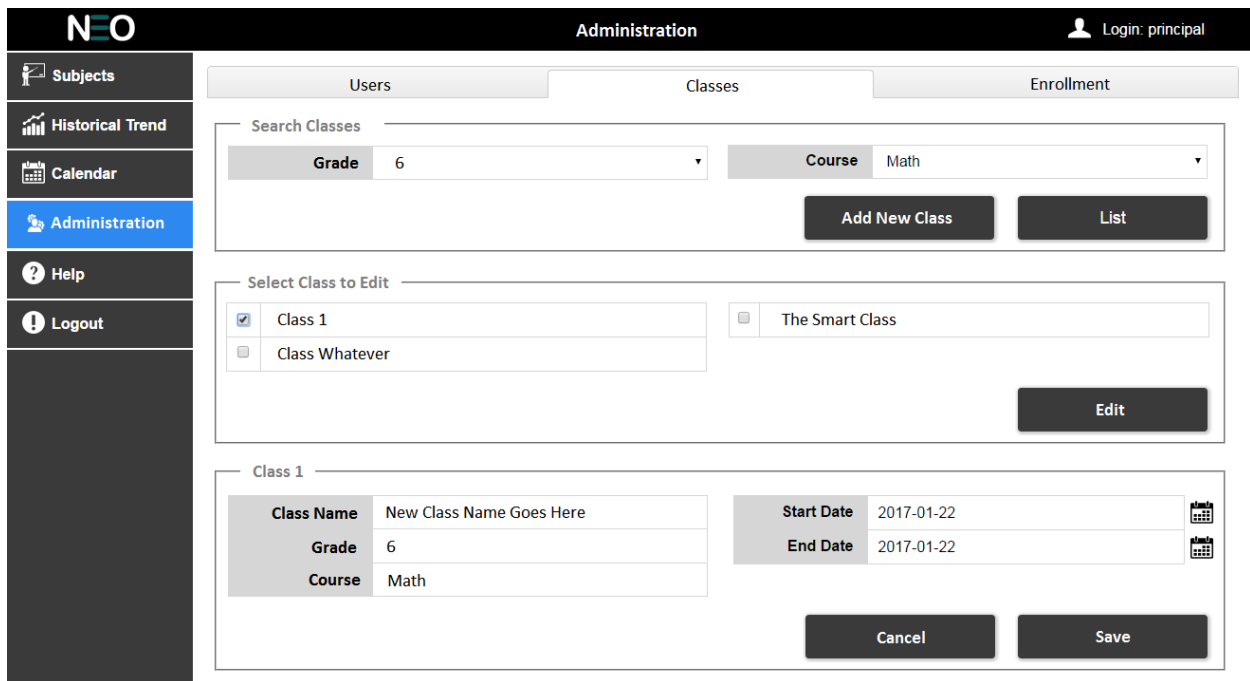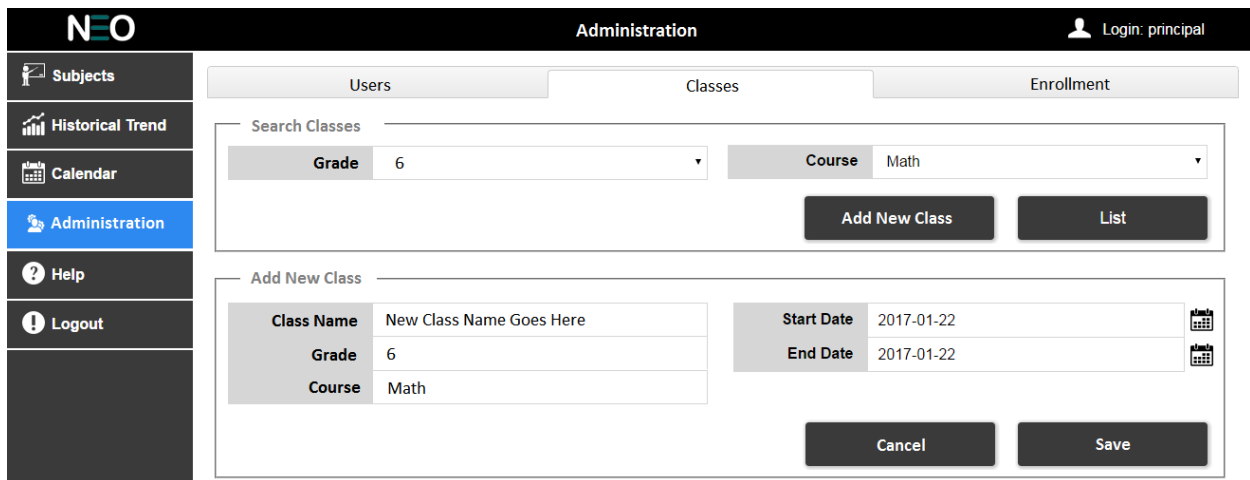
Figure 18: Class Detail Field Set

5.2.2 ADDING NEW CLASSES

If the user chooses to add a new class, then clicking on the "Add New Class" button will reveal another field set. The Add New Class field set (picture below in Figure 19) allows the principal to enter detailed information about a new class; class name, grade, course, and the start and end dates. The Location ID field should default to the principal's location (and is **NOT** shown within the field set).

There are two buttons within this field set: Cancel and Save. The Cancel button will ignore and changes and not create a new class. Clicking on it should return the principal to the prior field set (hiding the Add New Class field set in the process).

Clicking on the Save button, should first query the database to ensure that the class name does NOT already exist within the start and end dates specified. Assuming the class is unique, the system will create the new class and save the entered details to the database. A brief success message should be displayed, and then the principal is returned to the prior field set (hiding the Add New Class field set in the process).
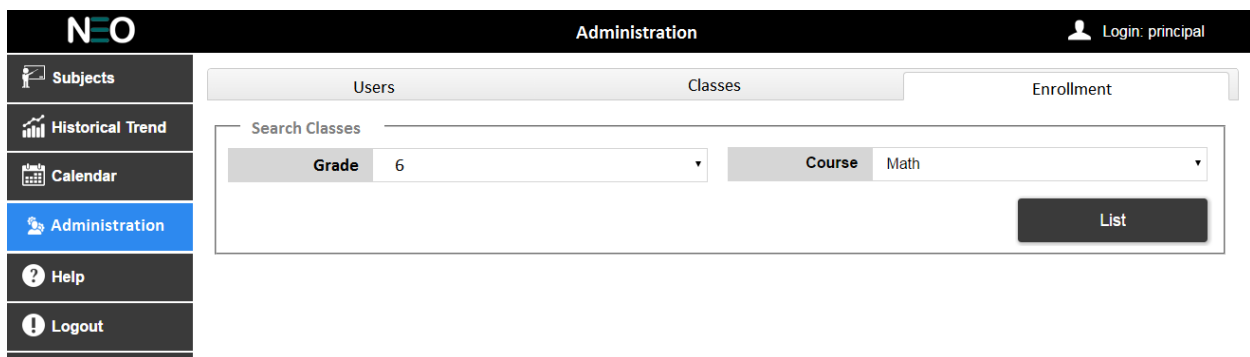
Figure 19: Add New Class Field Set

5.2.3   DATABASE TABLES TO USE

When saving class related data back to the database, the Class table should be the target.

5.3   ADDING AND MODIFYING CLASS ENROLLMENT

The initial view of the Enrollment tab is pictured below. The user will initially need to search for existing classes by selecting the grade and course.
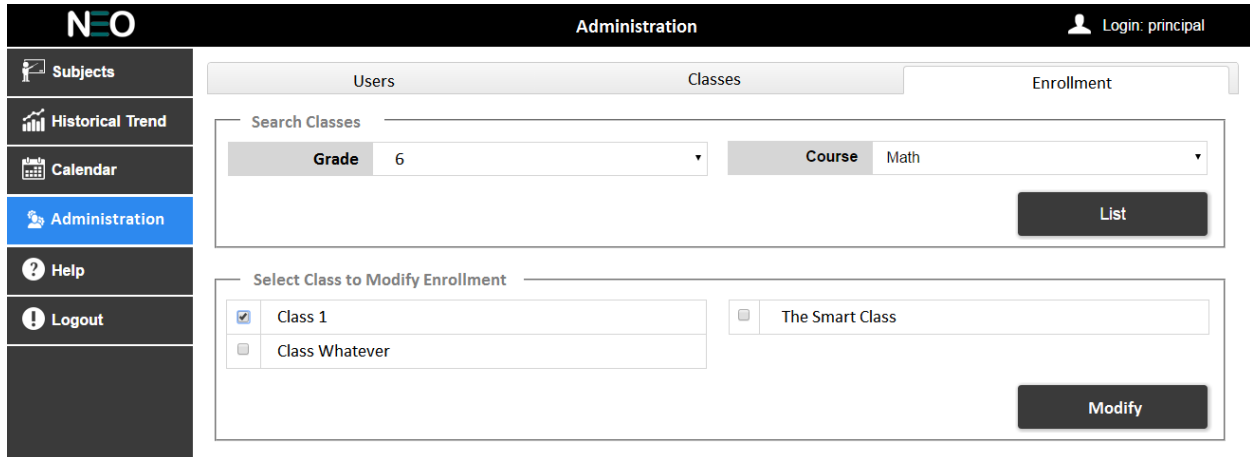

Figure 20: Search for Classes field set

The Search Classes field set, pictured above in Figure 20, will have two filters: Grade and Course. Both of these fields should be drop lists. However the Course filter should only display a list of valid options that are based on the Grade filter.

The List button will query the database using selected values from the above filters. In additional to the selectable filters above, the query should also include the logged in user's default location as an additional search term.

The result of the database query should be displayed as pictured below in Figure 21; the "Select Class to Modify Enrollment" field set should appear. Also, the class names returned by the query should be displayed using a Z pattern; with the names displayed going back and forth between the left and right columns (as pictured below).

Every resulting class name should have a check box to the left for selection purposes. Only one check box should be allowed to be selected at any given time. Attempting to select more than one class will automatically deselect any prior checked box.

Clicking the "Modify" button will execute a database query and reveal another two field sets (Enrollment Detail field sets shown in Figure 22 below) that contain all the details for the selected class. The field set on the left should have the name of the selected class (and should change as the class selection above changes). The field set on the right should be named "Search Students". Beneath these two field sets will be two buttons: Cancel and Save.
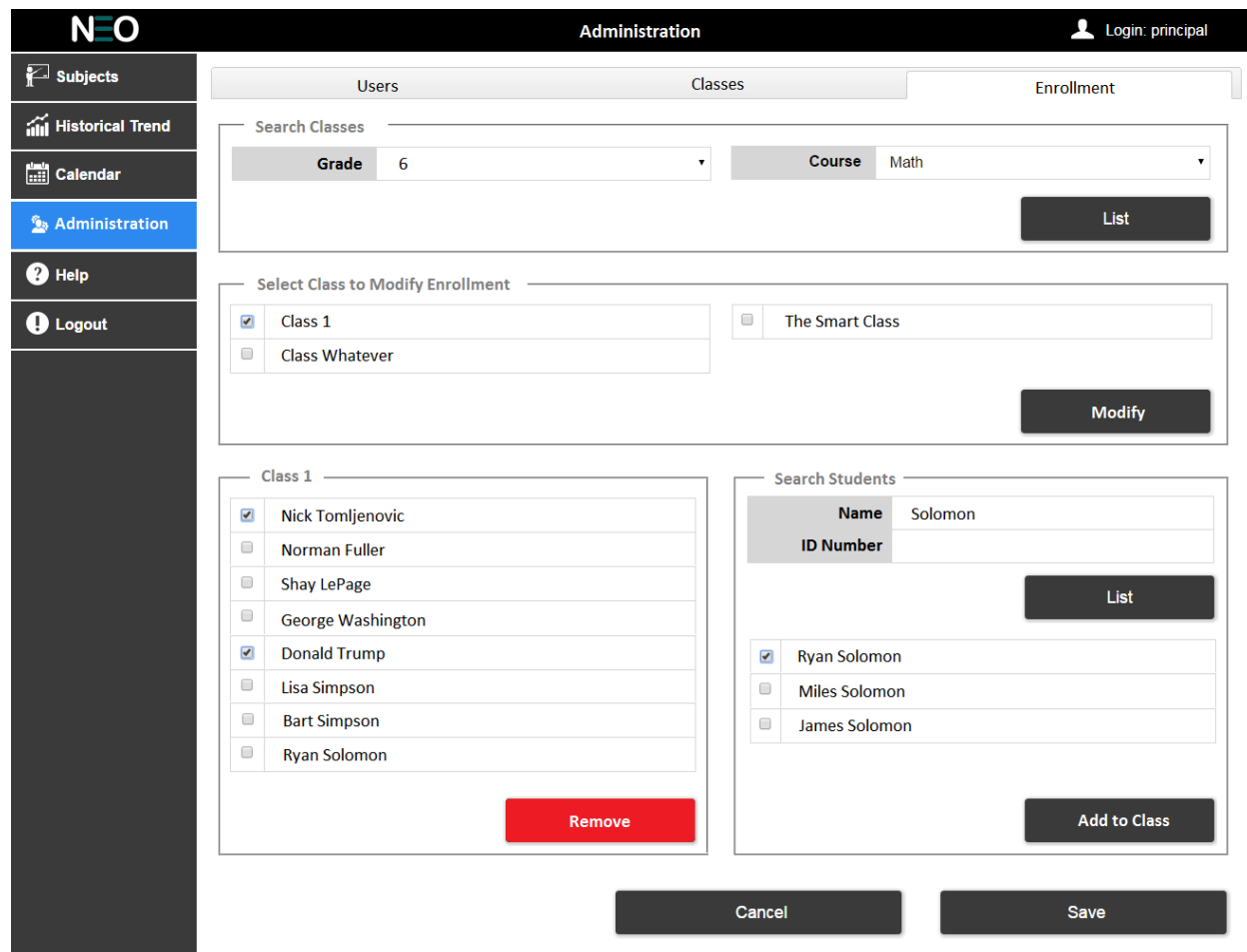
The database query (executed from the "Modify" button above) should return values for: class name and a list of all the student names in the selected class (as pictured below in Figure 22). Every student name should have a selection checkbox to the left. Multiple selections are valid in this case.

There is one button within the left side field set: Remove. The Remove button will delete the selected students from the class enrollment list.

This right side field set will have text input boxes where the teacher can type in either the student's name (first or last), or an OEN number. Clicking on the "List" button will query then display a list of names that fit the search criteria. Each name will be preceded by a checkbox for selection purposes. There should probably a limit to the number of names returned by this query. For example, searching for the name Smith might return thousands of possible names. So any result greater than a list of 10 names should only display a warning message: Too many names, please narrow your search. (Or some message to that effect)

The teacher should be able to select multiple names for the list. Clicking on the "Add to Class" button will add the selected name(s) to the list in the left side field set.

The Cancel button (at the bottom of the screen) will not save any changes the user has made, and clicking on it will step the user back to the prior field set (hiding the enrollment details field sets in the process). Clicking on the Save button will save the user's changes to the database and return them back to the prior field set (hiding the enrollment details field sets in the process). The user should see a brief message indicating that they have successfully saved their changes.

Figure 22: Enrollment Detail Field Sets

5.3.1 DATABASE TABLES TO USE

When saving enrollment related data back to the database, the ClassUser table should be the target.

6   HISTORICAL TREND TAB

Please note: this screen has been substantially changed from how the demo currently works.

The Historical Trend tab (pictured below) is used by the principal role to view location results over a period of years. All the data on this screen is read-only; the user cannot change, modify or delete any historical data from this tab.
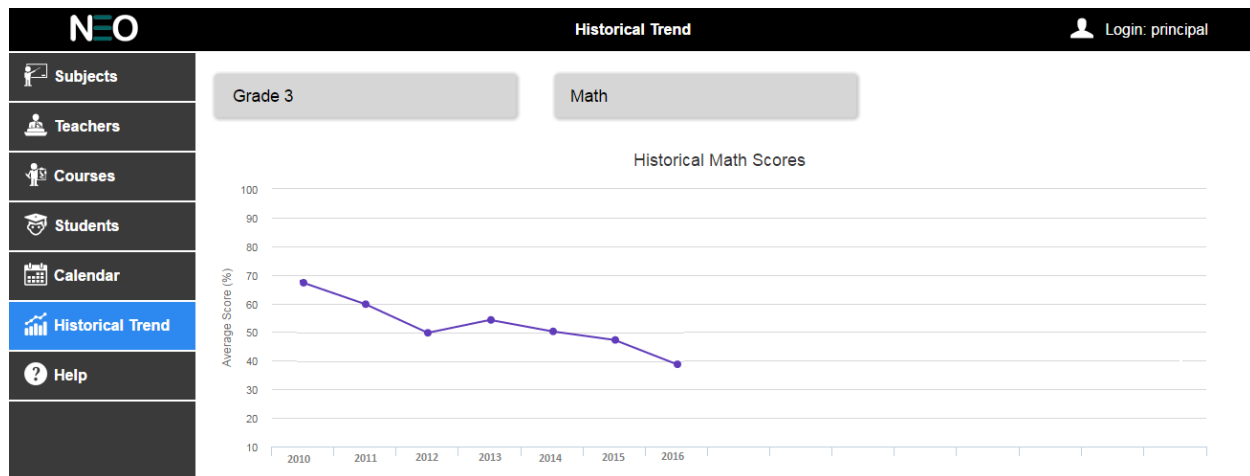

Figure 23: Historical Trend Tab

To fetch and display the data in this chart correctly, a year end process that calculates and stores these scores may need to be created; along with a new database table to hold these annual values. Scores would need to be calculated and stored for every Course, Grade and Location.

6.1.1   FILTER SELECTION

The Grade drop list should be a filtered list of grades that are being taught at the school (database location) for the user currently logged in.

The Course drop list should also be populated by a database query using the selected grade above and the currently logged in User location as filters.

The order of the filters is reversed from those in the Teacher App; the Grade drop list is first in the filter order followed by the Course filter. ***Please note: this screen has been changed from how the Teacher App currently works.***

Grade 6 ▼	Math ▼

Figure 24: Grade and Course Filters

By default, the Grade and Course should be set to the first available options for the logged in user. This way, some default data can be displayed to the user when they first log in or select this tab. This should be common for all tabs related to data analysis.

7   COLOUR PALETTE

Use the following chart as a guide to the colour of UI elements. Individual curriculum strand colour should follow the colours listed in the chart below and in the order displayed below.

HEX	R	G	B	Sample
603CBA	96	60	186	
00A300	0	163	0	
FFC40D	255	196	13	
1E7145	30	113	69	
9F00A7	159	0	167	
E3A21A	227	162	26	
2D89EF	45	137	239	

UI colours:

HEX	R	G	B	Sample
E9E9E9	233	233	233	
CCCCCC	204	204	204	
D6D6D6	214	214	214	

3A3A3A	58	58	58	
666666	102	102	102	
F9F9F9	249	249	249	
000000	0	0	0	
80AAFF	128	170	255	
B3DBFF	179	219	255	
0055FF	0	85	255	
E60000	230	0	0	